Base Load Power Hub (BLPH)

TDS - Seawater Lift Pump P-50001 A.B

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Rev.	Date	Description	Prepared	Reviewed	Approved

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)
02	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	TDS - Seawater Lift Pump P-50001 A.B	Sh. 4 of 10 Date : 21/06/2024 Rev. 02

NOTE: ○ INDICATES INFORMATION TO BE COMPLETED BY PURCHASER ☐ BY MANUFACTURER

GENERAL

NO. MOTORS DRIVEN	2 (TWO)	OTHER DRIVER TYPE					
PUMP ITEM NO'S		PUMP ITEM NO'S					
MOTOR ITEM NO'S		DRIVER ITEM NO'S		GEAR ITEM NO'S			
MOTOR PROVIDED BY	PUMP VENDOR	DRIVER PROVIDED BY	PUMP VENDOR	GEAR PROVIDED BY	PUMP VENDOR		
MOTOR MOUNTED BY	PUMP VENDOR	DRIVER MOUNTED BY	PUMP VENDOR	GEAR MOUNTED BY	PUMP VENDOR		
MOTOR DATA SHEET NO.		DRIVER DATA SHEET NO.		GEAR DATA SHEET NO.			

○ OPERATING CONDITIONS

- ● CAPACITY @ PT (m³/h):
  - @ MAXIMUM VISCOSITY _____ @ MIN. VISCOSITY **4.5**
- ● DISCHARGE PRESSURE (kPa)(BARG):
  - MAXIMUM **5.9 (note 3)** MINIMUM _____
- ● SUCTION PRESSURE (kPa)(BARG):
  - MAXIMUM _____ MINIMUM **Flooded (note 1)**
- ● DIFFERENTIAL PRESSURE (kPa)(BARG)
  - MAXIMUM _____ MINIMUM **(note 3)**
- ● NPSH AVAILABLE (m) **>7 @ level +0,00 (note 1)**
- ○ HYDRAULIC kW

○ LIQUID

- ● TYPE OR NAME OF LIQUID **SEA WATER**
- ● PUMPING TEMPERATURE (°C):
  - NORMAL _____ MAX **20.2** MIN **1.3** 1
- ● SPECIFIC GRAVITY **1.03** MAXIMUM **1.02** MINIMUM 1
- ○ SPECIFIC HEAT _____ Cp (kJ/kg °C)
- ● VISCOSITY (Cp) **0.9** MINIMUM _____ MAXIMUM
- ● CORROSIVE/EROSIVE AGENTS **SAND/SALT PARTICLES** 1
- ○ CHLORIDE CONCENTRATION (PPM)
- ○ H_2S CONCENTRATION (PPM)

LIQUID ○ TOXIC ○ FLAMMABLE ○ OTHER

☐ PERFORMANCE

- ☐ RATED CAPACITY (m³/h)
- ☐ NPSH REQUIRED (m) VTA
- ☐ RATED SPEED (RPM) VTA
- ☐ DISPLACEMENT (m³/h) VTA
- ☐ VOLUMETRIC EFFICIENCY (%)
- ☐ MECHANICAL EFFICIENCY (%)
- ☐ kW @ MAXIMUM VISCOSITY
- ☐ kW @ RELIEF VALVE SETTING
- ☐ MAXIMUM ALLOWABLE SPEED (RPM)
- ☐ MINIMUM ALLOWABLE SPEED (RPM)

☐ CONSTRUCTION

	SIZE	ANSI RATING	FACING	POSITION
CONNECTIONS				
SUCTION				**BOTTOM**
DISCHARGE		**300#**	**RF**	**SIDE**
GLAND FLUSH				
DRAINS				
VENTS				
JACKET				

PUMP TYPE:

☐ INTRN'L GEAR ☐ TWIN-SCREW ☐ VANE
☐ EXTRN'L GEAR ☐ 3-SCREW ■ PROGRESSING CAVITY

GEAR TYPE

☐ SPUR ☐ HELICAL
☐ OTHER **VTA**

○ SITE AND UTILITY DATA

LOCATION ○ INDOOR ● OUTDOOR
○ HEATED ● UNHEATED ○ UNDER ROOF
○ ELECTRICAL AREA CLASS SAFE GROUP _____ DIV _____
○ WINTERIZATION REQD ○ TROPICALIZATION REQD

SITE DATA

○ RANGE OF AMBIENT TEMPS:MIN/MAX _____ / _____ °C

UNUSUAL CONDITIONS

○ DUST ○ FUMES ● SALT ATMOSPHERE
○ OTHER
○ UTILITY CONDITIONS

ELECTRICITY	DRIVERS	HEATING	CONTROL	SHUTDOWN
VOLTAGE	**400**			
HERTZ	**5**			
PHASE	**50**			

COOLING WATER	INLET	RETURN	DESIGN	MAX Δ
TEMP °C		MAX		
PRESS. (BARG) (kPa)		MIN		
SOURCE				

INSTRUMENT AIR MAX MIN
PRESSURE (kPa)(BARG)

APPLICABLE SPECIFICATIONS:

API 676 POSITIVE DISPLACEMENT PUMPS - ROTARY

○ GOVERNING SPECIFICATION (IF DIFFERENT) **(5)**

REMARKS:

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CONSTRUCTION (CONTINUED)

CASING
- ☐ MAXIMUM ALLOWABLE PRESSURE: ____ (BARG) ____ °C
- ■ HYDROSTATIC TEST PRESSURE: 1.5xMAWP (BARG)
- ☐ STEAM JACKET PRESSURE: ____ (BARG) ____ °C
- ROTOR MOUNT ☐ BTWN. BEARINGS ■ OVERHUNG
- TIMING GEARS ☐ YES ☐ NO
- BEARING TYPE: ■ RADIAL sleeve (2) ☐ THRUST ball
- LUBRICATION TYPE: ○ CONSTANT LEVEL OILERS
- ☐ PUMPED FLUID ☐ RING OIL ☐ OIL MIST
- ☐ EXTERNAL ☐ OIL FLOOD ☐ GREASE
- ■ LUBRICANT TYPE VTA
- ● MECHANICAL SEALS
- ☐ MANUFACTURER AND MODEL VTA
- ☐ MANUFACTURER CODE VTA
- ● API 610 SEAL FLUSH PLAN VTA
- ☐ API 610 SEAL CODE VTA
- ○ PACKING: ○ LANTERN RING
- ☐ MFR. AND TYPE ____ ☐ NO. OF RINGS ____

DRIVE MECHANISM
- ○ DIRECT-COUPLED ○ V-BELT ■ GEAR
- ☐ COUPLING MANUFACTURER

DRIVERS
- ● MOTOR:
- ☐ MANUFACTURER VTA
- ☐ TYPE VTA
- ☐ FRAME NO. VTA
- ● CONSTANT SPEED
- ○ VARIABLE SPEED
- ☐ kW ____ RPM ____
- ● VOLTS 400 PHASE 3
- ○ HERTZ 50 SERVICE FACTOR ____
- ○ ENCLOSURE
- ○
- ○ STEAM TURBINE
- ○ OTHER (SEE SEPARATE DATA SHEETS)

OTHER PURCHASER REQUIREMENTS
- NAMEPLATE UNITS ○ U.S. CUSTOMARY ● SI
- ● RELIEF VALVES BY PUMP MFRG ● INTERNAL ● EXTRNL.
- PIPING FOR SEAL FLUSH FURNISHED BY:
- ● PUMP VENDOR ○ OTHERS
- PIPING FOR COOLING/HEATING FURNISHED BY:
- ○ PUMP VENDOR ○ OTHERS
- ● PROVIDE TECHNICAL DATA MANUAL

MATERIALS (1)

		Rev
■ CASING	D-2	
■ STATOR	VTA	
■ END PLATES	D-2	1
■ ROTOR (S)	D-2	
☐ VANES		
■ SHAFT	D2 HD	
■ SLEEVE (S)	D-2	
■ GLAND (S)	D-2	
■ BEARING HOUSING	VTA	
■ TIMING GEARS	VTA	
○ SPECIAL MATERIAL TESTS		
○ LOW AMBIENT TEMP. MATERIALS TESTS		

QA INSPECTION AND TEST
- ● COMPLIANCE WITH INSPECTORS CHECK LIST
- ● CERTIFICATION OF MATERIALS
- ● FINAL ASSEMBLY CLEARANCES
- ○ SURFACE AND SUBSURFACE EXAMINATIONS
  - ○ RADIOGRAPHY
  - ○ ULTRASONIC
  - ○ MAGNETIC PARTICLE
  - ○ LIQUID PENETRANT
- ○ CLEANLINESS PRIOR TO FINAL ASSEMBLY
- ○ HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES
- ○ FURNISH PROCEDURES FOR OPTIONAL TESTS

TESTS	REQ'D	WIT	OBS	Rev
HYDROSTATIC	○	●	○	1
MEHANICAL RUN	○	●	○	1
PERFORMANCE	○	●	○	1
NPSH	○	○	○	1

PREPARATION FOR SHIPMENT
- ● DOMESTIC ○ EXPORT ○ EXPORT BOXING REQ'D
- ○ OUTDOOR STORAGE MORE THAN 6 MONTHS

WEIGHTS (kg)
- ☐ PUMP ____ ☐ BASE ____ ☐ GEAR ____ ☐ DRIVER ____

BASEPLATE
- ● BY PUMP MANUFACTURER ○ SUITABLE FOR EPOXY GROUT
- ○ EXTENDED FOR
- ● SUBSOLE PLATES BY PUMP MANUFACTURER
- ○ DRAIN-RIM ○ DRAIN-PAN

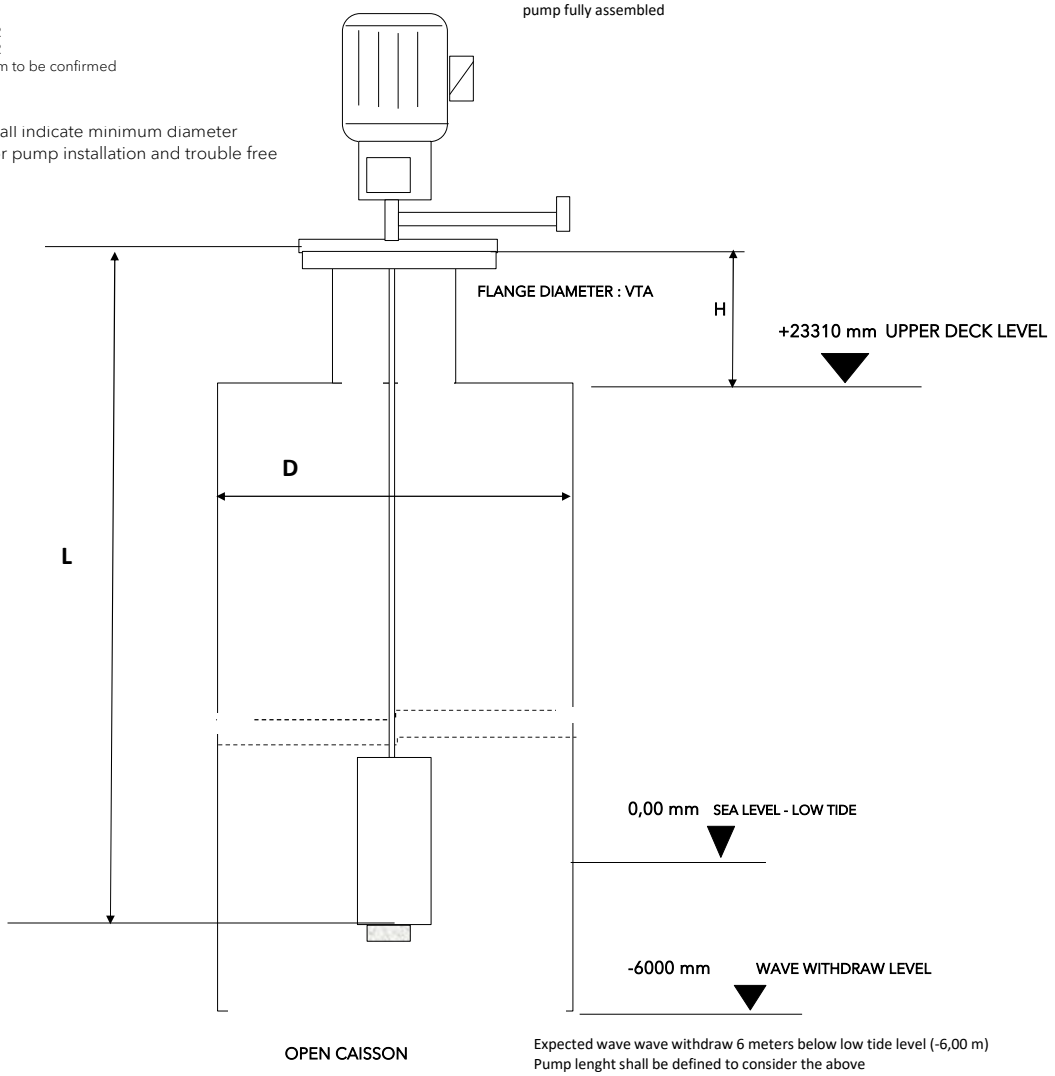
REMARKS
(1) D-2 Is mandatory for parts in contact with pumped liquid (Sea Water)
(2) Shaft sleeves hardned in correspondence of plain bearings — Rev 1

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L BY VENDOR
D BY VENDOR
H 500÷800 mm to be confirmed

NOTE:
Vendor shall indicate minimum diameter suitable for pump installation and trouble free operation

Vendor to declare the mounting/dismountig clearance considering the pump fully assembled



OPEN CAISSON

Expected wave wave withdraw 6 meters below low tide level (-6,00 m)
Pump lenght shall be defined to consider the above

Rev
1
1
1
1
1
1
2
2

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Applicable to : Proposal | Purchase | As Built — PAGE ____ OF ____ REQ'N NO. NA — Rev

DESIGN, MANUFACTURE & TESTING SHALL CONFORM TO SPECIFICATION : 123A90-DDL-EL-SP-20084 - Technical Specification for LV Motors
FOR CROSSWIND UNIT
SITE BLPH - Hollandse Kust Noord (HKN)
SERVICE SEA WATER LIFT DRIVEN EQUIPMENT TYPE PUMP DRIVEN EQUIP. ITEM NO.: P-50001 A.B QUANTITY: 2 — 2
MANUFACTURER MODEL: SERIAL NO. FRAME NO:
NOTE: INFORMATION TO BE COMPLETED BY: PURCHASER MANUFACTURER PURCHASER OR MANUFACTURER

OPERATING CONDITIONS (a) — 1

Site Data:
Altitude: Less than Other (m)
Ambient Temperature: Min/Max / (°C)
Electrical Characteristics:
Volts 400 Phase 3 Hertz 50
Starting Voltage: Full Reduced %
Volt Dip +10/-20' % Loaded Unloaded

Installation: Indoor Outdoor YES
Operating Mode Continuous Standby Intermittent YES Alter.
Electrical Area Classification Unclassified YES
Class Group Division
Unusual Conditions Dust Fumes
Gasses/Vapours
Ignition Temp (°C) Temperature Code

PERFORMANCE

Nameplate Power (kW) (rpm)

Load	Current (AMPS)	Efficiency	Power Factor
Full			
75%			
50%			
Locked Rotor			

No Load Current: (A)
Starts per Hour: Hot Cold
Full Load Torque: (N-m)
L. R. Torque: %FLT
Breakdown Torque: %FLT
Acceleration Time: (sec)

CONSTRUCTION FEATURES

Enclosure TEFC WP1 WP2
Explosion Proof Other
Insulation Class B F Other
Non-Hygroscopic Tropicalized
Temperature Rise: (°C) Above (°C)
By: @ S.F.
NEMA Torque Design A B C D
Locked rotor kVA Code
Mounting
Horizontal Foot Mounted Flange Mounted
Vertical Shaft Up Shaft Down With Canopy
Coupling
Supplied By Mounted By
Suitable for Belt Drive
Bearing type Ball Roller Sleeve
Bearing Lubrication **Grease** **Ring Oil** **Oil Mist**
Grease Fitting **Plugged** **Alemite** **Other**
Bearing Shielding Single Double Sealed for Life
Motor Rotation (facing end opposite shaft extension)
CW CCW Bidirectional
Fan Reversible Unidirectional
Non-Sparking Aluminium Non-Metallic
Main Terminal Box Location F-1 F-2

Space Heater (b) (kW)
Volts 230 Phase 1P+N+PE Hertz 50
Max. Sheath Temperature (°C)
Winding Temperature Detectors
No. per Phase Type: RTD
Bearing temperature Detectors
Location Type:
Separate JB for Space Heaters, Winding/Bearing Detectors
Adjustable Frequency Drive
Speed range: From (rpm) to: (rpm)
Materials of Construction
Frame
Junction Box
Copper Bar Rotor
Stainless Steel Filters
Differential Pressure Switch for Inlet Filters
Vertical Jackscrews
Ground Connection
Drilled and tapped Hole in Conduit Box
Ground Lug Size (mm)
Motor Thrust Load None (N)
Thrust Direction Toward Away
Motor Thrust Rating
Nameplate Material 316 SS Other

TESTING & MISCELLANEOUS

Testing Required Witness
Routine Test
Complete Test
Noise Test
Certified Results

Weight Net (kg) Shipping (kg)
Painting Mfr. Std. Other IEEE 841
Noise Design
Max sound Pressure Level @ (m) dBA
Expected Sound Pressure Level @ (m) dBA

Remarks:
(a) Refer to pump DS
(b) Vendor to installspace heater if necessary according to enviromental conditions (Ref. IOGP S-703 par. 11.3.6.1)

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NOTES	Rev.
1) For NPSHA vendor to consider 1bara at minimum seawater level (+ 0,00 mm)	
2) Pump lenght to be calculated by vendor according to a reliable margin (VTA) between NPSHA vs NPSHR and minimum submergence	
Vendor to advise the suction nozzle depth, according to the above sentence	
3) Discharge pressure / head is referre to pump battery limit (i.e. dicharge nozzle)	
4) Suction strainer to be provided by vendor.	
Vendor to specify the mesh size.	
Mesh size shall be minimized without jeopardizing suction condition.	
5) Full compliance to API Std 676 is not strictly mandatory. Vendor to submit a list of deviation supported by reference list	
6) Vendor to declare mounting/dismantling clearance considering full assembled pump, or the longest piece in case is possible to install	1
the pump by assembly sectors of the pump, one by one	1

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NOISE DATA SHEET

Rev

The following data shall be provided by the equipment VENDOR:

Identified points	Sound pressure level dB(lin) in octave or 1/3 octave band (Hz)								Global level
Location	63	125	250	500	1000	2000	4000	8000	dBA
1									85
2									
3									
4									
5									
6									
7									
8									
9									
Mean									

Notes

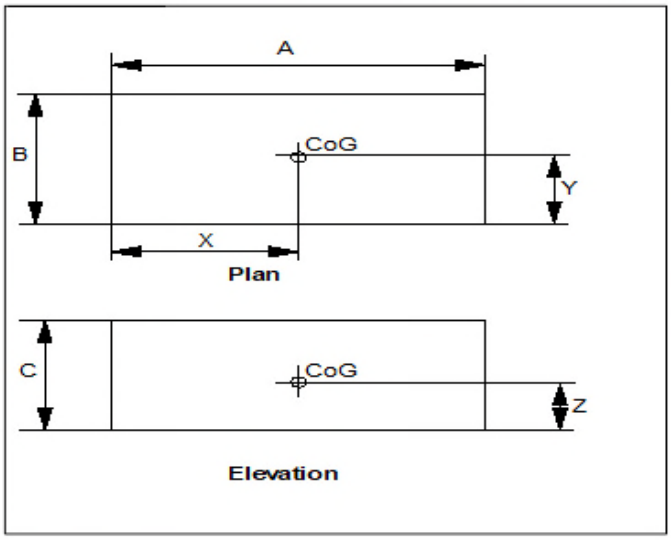
VENDOR shall fill the above table with the calculated sound pressure levels.
Pressure levels shall be indicated at identified points distributed all along a perimeter located 1m away from the edge of the pump and at 1.6 m above the top of the main beams of the motor
These points shall be regularly spaced on the perimeter.
There shall be a sufficient number of points to obtain a meaningful calculation result.
The above table shall indicate noise levels without any enclosure (partial or total) on the package.
All efforts shall be deployed to limit the average sound pressure level around the crane, motor room at 85 dB(A) at one meter.

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WEIGHT DATA (kg)

		Areas for input by Supplier
Dry Weight	(I)	kg
Content	(II)	kg
Operating Weight	(I+II)	kg
Auxiliaries' weight, included in I (specify under Notes)		kg
Test weight, i.e. filled with water		kg
Transport weight		kg

CENTRE OF GRAVITY (CoG) DATA FOR INSTALLED DRY CONDITION



Overall dimensions	
A =	mm
B =	mm
C =	mm

CoG location (mm)	
X =	mm
Y =	mm
Z =	mm

NOTES

WEIGHT AND CoG STATUS (TICK OFF AS APPROPRIATE)

☐ Estimated ☐ Calculated

☐ Catalogue data ☐ Weighed

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