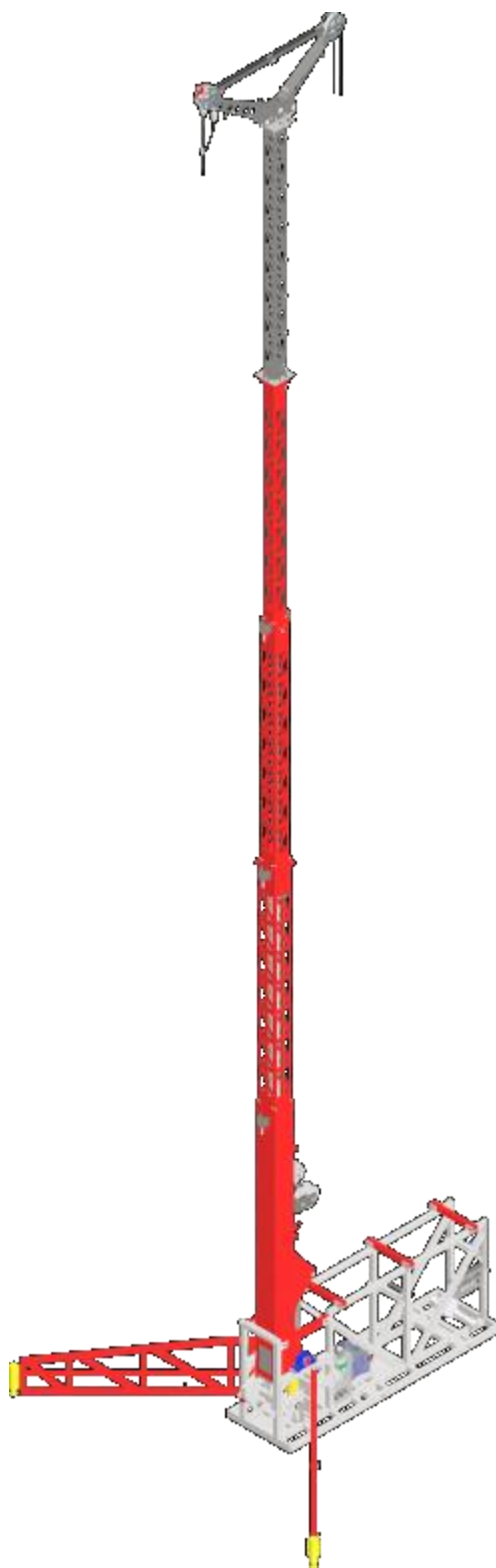


Product Technical Specification

Product Name -3020000561-R2



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1. MAST TECHNICAL SPECIFICATION

Unit is designed with an ultimate flexibility for performing wireline operations, compact design, robust, standalone operation & transportable weight. The mast lifting hook point is 70 Ft height from ground and is capable of 90 Ft total height extension thanks to additional 20 Ft jib. Mast is equipped with two winches and is extended telescopically with 4 section booms.

Unit has four lifting points for crane handling, integral forklift pockets are provided for easy ground handling.

Mast design is in compliance to DNVGL-ST-0378 for the wind load calculations and load testing criteria.

1.1. REFERENCE STANDARDS

1. DNVGL – ST-0378
2. AWS D1.2
3. AWS D1.1
4. DNV 2.7-1
5. IEC 60079-0
6. ISO 4413
7. ISO 4414

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1.2. DIMENSIONS AND WEIGHT

Mast Skid

Overall dimensions in Taxi Position.

L x W x H - Ft (M) : 23 (7) x 8 (2.4) x 10 (3)

Maximum Gross Weight: 11,020 Lbs. (5,000 Kgs.)

Transportation skid

L x W x H (m) : 5.53 x 1.2 x 0.73

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Weight (Tare) – Kg. : 446

Weight (MGW) – Kg. : 1,200

1.3. GENERAL

Mast unit base skid structure is constructed from high grade anodized aluminum tubing frames suitable for marine application and it has been specially designed for slickline / e-line PCE stack assembly support applications. The mast is provided with below mentioned sheaves for running wireline. Mast is designed to operate within 60 mph wind speed and the design complies DNVGL – ST - E378

- 5/16" wire rope sheave (22")

Mast is fitted with;

- One main hydraulic winch rated for 12,000 lbs.
- One Manrider hydraulic winch rated for 3,306 lbs.
- All winches come with internal brake and fast re-spooling system.
- Easy deployment of sheave head
- One transpotaton skid is provided to carry the jibs and other tools.
- Mast can be rigged-up within 20 to 25 minutes by two trained and certified operators
- External rig power supply socket
- Additional 20 Ft jib to operate the mast at 90 Ft height.
- Load moment indicator with A2B block

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1.4. SAFETY FEATURES

- Remote operator control console
- Two outriggers – Manually positioning towards well side and hydraulic jacks for ground support.
- Hazardous area rated A2B
- Zone-2 rated chopper lights provided on top of the boom
- Positive pneumatic boom locking system enables to transfer loads only to the pins instead of loading on hydraulic cylinder.

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- Counter balance valves on hydraulic cylinders and winches.
- Bottom boom locking pin
- Mast is suitable to Rig-up and Rig down during the wind speed within 30 mph.

1.5. OPERATION

Mast is hydraulically lifted upright position (90°) and extended the booms with a double acting single stage hydraulic cylinder and rope pulley mechanism. The hydraulic cylinders are equipped with dual counter balance valve for safety. The boom lifting and extension is performed by means of direction control valves designated for each cylinder.

V-Shape sheave head is equipped on top of the mast with independant pulleys for main winch and man rider winch. The sheave head is bolted connection and is suitable for 70 Ft height and 90 ft height with jib. During the rig-up time the sheave head will be folded out and turn to vertical position and lock with pin. The sheave head is foldable type and is kept folded toward the boom side in horizontal position during taxi position.

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During the booms extended vertically upward a positive locking system is applied automatically in designated slots by means of pneumatic cylinders. The positive lock is working in fail safe mode as the locking is by spring action and release of the lock only with air supply.

Main winch wire rope is 16 mm with the single sheave hook block at the lifting end. The winch is operated by means of directional control valve on the control console. A manrider winch with 10 mm wire rope with single shur lock hook on the lifting end. The man rider winch is operated from control console by means of direction control valve designated for the same.

1.6. OPERATOR CONSOLE

The operator console is built with stainless steel machine engraved English letters colour coded and is equipped with:

- Hydraulic system pressure gauge 0 - 3,500 PSI.
- Mast boom lifting control valve.
- Mast boom extension control valve.

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- Main winch direction control valve.
- Manrider winch direction control valve.
- Control valves for Outtrigger jacking.
- Hydraulic pressure control valve.
- Load Moment Indicator (LMI display panel)

1.7. HYDRAULIC SYSTEM

- Mast hydraulics is operated from the SOP Slickline / E-line unit's hydraulic power pack.
- Flat face hydraulic quick connects for connecting hydraulic source.
- Hydraulic flow req: 65 lpm (17 gpm) minimum.
- Max hydraulic pressure required: 2,800 psi.
- Hydraulic communication hoses 20ft long with quick connections.
- All hoses will be SAE 100R certified made.

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1.8. SAFE WORKING LOADS

For Cargo hydraulic winches:

Safe working load is 5,443 kg (12,000 Lbs)

For Man rider hydraulic winch:

Safe working load is 1,500 kg (3,306 Lbs)

Mast Column Load SWL: 9,010 kg (20,000 lbs)

1.9. TRANSPORT SKID

Transportation skid is provided to carry the 20 Ft jib and is capable to carry other light tools as well. The transport skid is made in high grade Aluminium box sections and is provided with 4 lifting pad eyes and fort lift pockets.

1.10. SURFACE FINSH & COATING

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All steel materials are blast cleaned to Sa 2 ½ according to ISO 8501-1 and Aluminium is blast cleaned with non-mettallic material. 3 coat paint, including inorganic zinc/ethyl/silicate based primer for steel and marine grade paint to customer supplied colour code. For Aluminium material the the primer shall be vinyl or epoxy based.

1.11. INSPECTION / CERTIFICATION

Unit will be certified by third party with the following scope of work.

- Non destructive test on primary joint welds
- Lifting load test
- Column load test
- Certificate of conformance will be issued along with unit supply.

1.12. SIGNS & DECALS

Where ever applicable signs & decals required will be placed.

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- Unit daily checklist.
- Starting procedure.
- Danger signs near rotating devices.
- All hydraulic hoses & electrical cables will be tagged with the unique identification nos.
- 3rd party test plate (If applicable).
- SWL of the unit labelled on side and top of the unit.
- Placards as required during shipping etc.

1.13. DOCUMENTATION

Operations & Maintenance Manual provided in hard copy and soft copy (in CD format) for complete set unit in (English).

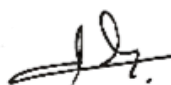
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2. RESPONSIBILITIES

Table 1: Responsibilities

Activity	Prepared by:	Verified by:	Approved by:
Revision, Control	Project Leader	Engineering Manager	Customer
Date: REV 02	NAME: Ajith Narayanan DATE: 25 th May 2022 SIGNATURE 	NAME: Dominique Aubry DATE: 28 th May 2022 SIGNATURE 	NAME: DATE: SIGNATURE

Revision Level	Description
00	First release
01	Revised with new model and the image added in cover page
02	Added the technical specification in the revision-1 form

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