# Sea Water Lift Hose Reel Systems

**Presentation for:**

REELPOWER
MARINE & ENERGY

# Reel Power Marine & Energy and Reel Power Industrial – Both with excellent, newly built facilities laid out for Lean Manufacturing and ISO Certified!

## Raw Water Systems built in Houston plant




### Marine & Energy: Houston Plant

- 101,000 sq. ft. facility; 86,000 sq. ft. of production space and 14,000 sq. ft. of office and engineering space
- Includes overhead cranes (10 Ton) and Jib Cranes
- Modern CNC machines (8) and water Jet machine
- Designed and laid out to support Lean manufacturing
- ASME Code Shop




### Industrial: Oklahoma City Plant

- 99,000 sq. ft. facility; Over 87,000 sq.ft. of production space and 12,000 sq. ft. of office and engineering space
- Includes overhead Cranes (10 Ton) and Jib Cranes
- Modern CNC machines (12)
- Designed and built to support LEAN manufacturing

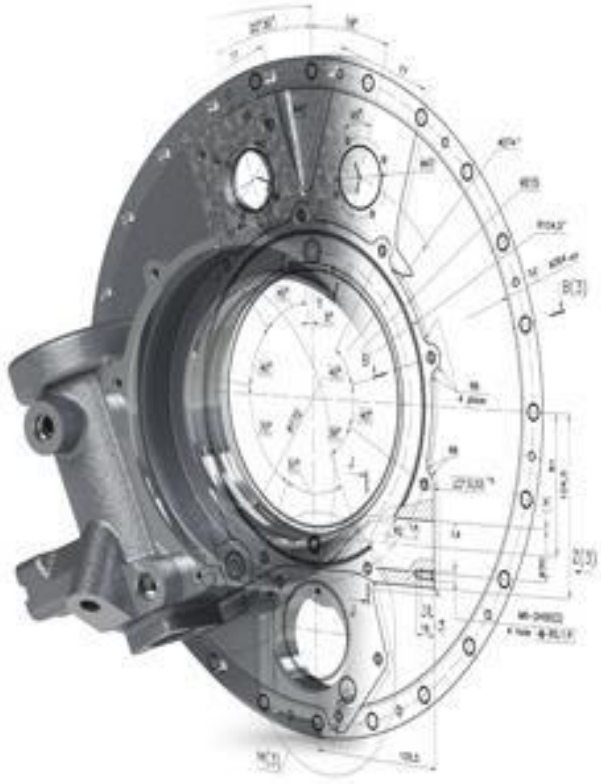
REELPOWER
MARINE & ENERGY

**ISO 9001:2015**

# Our Strengths

We are committed to improving your profitability by providing “World Class” equipment, engineering and processing solutions for our customers!

- USA Manufacturer – combined 100 years in business, manufacturing
- Size – approximately 140 employees
- Certified Welding Procedures; ASME Code shop (Hou)
- Technical Experience – 28 degreed engineers (PE, MSME, BSME, BSEE)
- Autocad, Solid Works, ANSYS Software, FEA
- UL 508A Certified, CSA, CE – available, ISO-9001-2015 Certified
- We design and build standard and custom reeling, coiling equipment and processing solutions
- Offer complete field service and consulting
- Dedicated, fully staffed Quality Team



REELPOWER
MARINE & ENERGY

**APPLICATIONS FOR HOSE REEL TYPE RAW WATER SYSTEMS -** Any offshore vessel/structure that is raised from ocean surface and needs seawater supplied to the vessel.



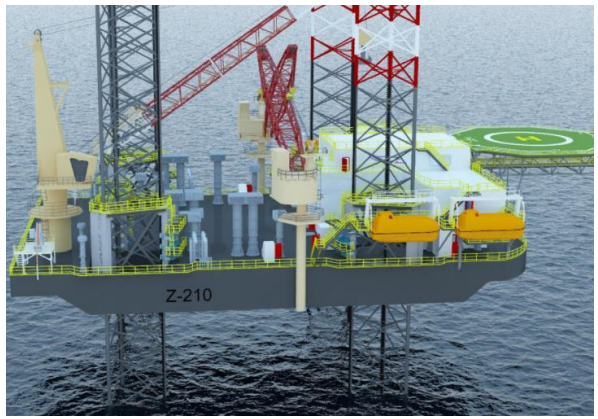




Wind Turbine Installation Vessels



Jack-up Drilling Rig




Lift Vessels



Accommodations

REELPOWER
MARINE & ENERGY

# **Partial List of Raw Water Projects** – Over 170 RW Reels provided – Since 2005

| PARTIAL LIST OF RAW WATER PROJECTS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client | Project Ref. | Qty | Project | Reg. | Status | Client | Project Ref. | Qty | Project | Reg. | Status |
| Diamond Offshore | Ocean Specter | 2 | TUAF-RW | ABS | Completed | Ensco (Continued) | E86 | 2 | TUAF-RW | ABS | Completed |
| | Ocean Spur | 2 | TUAF-RW | ABS | Completed | | E87 | 2 | TUAF-RW | ABS | Completed |
| | Ocean Columbia | 2 | TUAF-RW | ABS | Completed | | E89 | 2 | TUAF-RW | ABS | Completed |
| | Ocean Nugget | 2 | TUAF-RW | ABS | Completed | | E93 | 2 | TUAF-RW | ABS | Completed |
| | Ocean Sovereign | 2 | TUAF-RW | ABS | Completed | | E-94 | 2 | TUAF-RW | ABS | Completed |
| | Ocean Titan | 2 | TUAF-RW | ABS | Completed | | E96 | 2 | TUAF-RW | ABS | Completed |
| Nabors | Hull 660 | 2 | TUAF-RW | ABS | Completed | | E-98 | 2 | TUAF-RW | ABS | Completed |
| Keppel Fels | B-318 | 2 | TUAF-RW | | Completed | | E99 | 2 | TUAF-RW | ABS | Completed |
| Lamprell | NDC 1&2 | 3 | TUAF-RW | ABS | Completed | | E-106 | 2 | TUAF-RW | ABS | Completed |
| | NDC-3&4 | 3 | TUAF-RW | ABS | Completed | SHI-Korea/ SeaJacks | H-2095 WTIV | 4 | RWR - Complete System | ABS | Completed |
| | NDC-5&6 | 3 | TUAF-RW | ABS | Completed | Eversendai Off | Aryan - Lift | 2 | TUAF-RWR | DNV | Completed |
| | NDC-7,8 & 9 | 3 | TUAF-RW | ABS | Completed | O N G C, India | | 9 | TUAF-RWR (3 Rigs) | ABS | Completed |
| | Gulf-3 | 3 | TUAF-RW | ABS | Completed | | | 3 | TUAF-RWR | ABS | Building |
| | Jindal Star | 3 | TUAF-RW | ABS | Completed | Petrofor Ltd | Nuada | 2 | RWR | ABS | Completed |
| | E140/E-141 | 6 | TUAF-RW | ABS | Completed | CSSC, China | Zentech Z-210 | 2 | RWR | ABS | Completed |
| | EDC 1&2 | 6 | TUAF-RW | ABS | Completed | ARO Drilling | Aramco JV rigs | 3 | RWR | ABS | Completed |
| | ARO - Rig 1 | 3 | RWR-Complete Syste | ABS | Completed | | Rig-22 | 2 | RWR+platform | ABS | Completed |
| | ARO -Rig 1 | 3 | RWR-Complete Syste | ABS | Completed | | Rig-36 | 2 | RWR+platform | ABS | Completed |
| Rowan | R-74 | 2 | TUAF-RW | ABS | Completed | | Rig-37 | 2 | RWR+platform | ABS | Completed |
| | R-75 | 2 | TUAF-RW | ABS | Completed | | Rig-55 | 3 | RWR | ABS | Completed |
| | R-75 | 2 | TUAF-PL | ABS | Completed | | Rig-56 | 3 | RWR | ABS | Completed |
| | R-44 | 1 | TUAF-60-05 DLS | | Completed | | Rig-57 | 3 | RWR | ABS | Completed |
| | R-78 | 2 | TUAF-PL | ABS | Completed | | Rig-50 | 1 | RWR | ABS | Completed |
| Ensco | E-56 | 2 | TUAF-RW | ABS | Completed | | Rig-80 | 4 | RWR | ABS | Completed |
| | E-75 | 2 | TUAF-RW | ABS | Completed | | Rig-83 | 4 | RWR | ABS | Completed |
| | E68 | 2 | TUAF-RW | ABS | Completed | JMU-Japan/Penta Ocean | S2200 WTIV/ Lift | 2 | RWR - Complete System | NK | Completed |
| | E76 | 2 | TUAF-RW | ABS | Completed | JMU-Japan/ Fukada | S2250 WTIV/ Lift | 2 | RWR - Complete System | NK | Completed |
| | E81 | 2 | TUAF-RW | ABS | Completed | JMU-Japan/Shimizu | S2280 WTIV/ Lift | 3 | RWR - Complete System | NK | Completed |
| | E82 | 2 | TUAF-RW | ABS | Completed | PaxOcean/Penta Ocean | G8050 WTIV | 3 | RWR - Complete System | NK | Completed |
| Gulf Drilling | Gulf-2 | 2 | TUAF-RW | ABS | Completed | KeppelAMFels/Dominion | WTIV | 4 | RWR - Complete System | ABS | Completed |
| Japan Drilling Co. | Sagadril-1 | 2 | TUAF-RW | ABS | Completed | Lamprell/ARO Drilling | Rig1 NewBuild | 3 | RWR-Complete System | ABS | Completed |
| Ensco | E83 | 2 | TUAF-RW | ABS | Completed | | Rig2 NewBuild | 3 | RWR-Complete System | ABS | Completed |
| | E84 | 2 | TUAF-RW | ABS | Completed | New Fortress | LNG Jack-up | 3 | TUAF-RW | ABS | Completed |
| Enterprise Drilling | | 1 | TUAF-RW | None | Completed | | | | | | |
| | | | | | | | TOTAL REELS & SYSTEMS | | 172 | | |

# Why Choose a Raw Water Hose Reel System Compared to Leg Mounted Pump?

**Greater Flexibility for Pump Access**

- Raise the pump out of water any time when not pumping reduces barnacle/sea growth
- Does not require the use of crane to pull manifold piping **(dangerous operation)**
- Quickly retrieve the pump for maintenance any time

**Easier & Faster Rig Moves (more important with frequent rig moves)**

- Fire water pumping available when jacking up & down (with optional slip ring)
- No heavy manifold blinds and jumper hoses to lift & make-up – No need to line up to flanges when jacking
- One man pump deployment and retrieval

**Often installing hose reels less costly than replacing corroded out manifold piping**

- Less man hours to install a hose reel
- No ABS inspection of legs after welding in new piping

REELPOWER
MARINE & ENERGY

**Lower Operating Costs**

- Less Ocean Life grows in Hoses
- Easier and less costly to replace a hose than manifold piping

**Additional Benefits**

- Higher flow rates due to less ocean life growth (assume same size)
- Often able to operate in shallower water (pumps not above the spud – **more marketable rig/vessel**

**Pump Left Idle in Water**



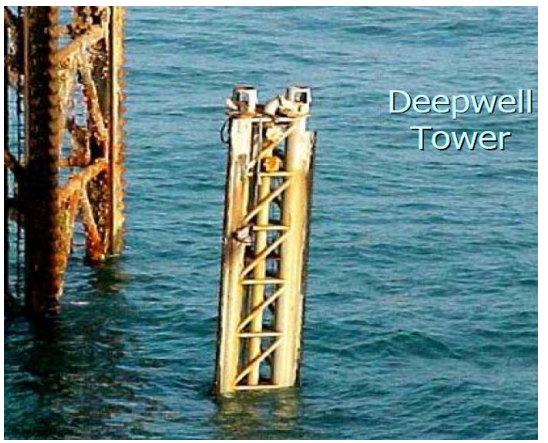
# Why Choose a Raw Water Reel System Compared to Deepwell (Raw Water) Towers?

In addition to Benefits compared to Leg Mounted systems, RAW WATER REEL SYSTEMS are:

- Much Lower Weight (approx. 120,000 to 140,000 lbs weight savings tower vs reels)
- Much Lower Center of Gravity
- Much Less Maintenance Costs (Barnacle growth)
- Safer Operation (See picture below of dropped tower)
- Lower initial capital costs



**Photos: Courtesy of Ensco/Valaris**




It has been shared of incidents when jacking rig down, the tower mistakenly isn't raised, which lowers tower into seabed with possibility of getting tower stuck.

REELPOWER
MARINE & ENERGY

# WTIV & Lift Boat Installations







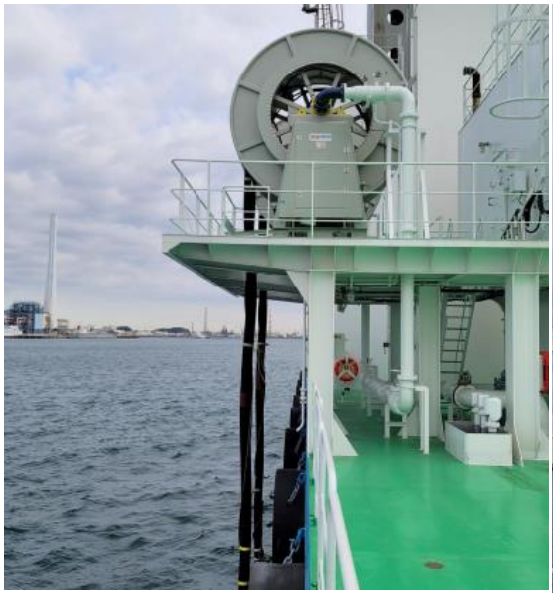






REELPOWER
MARINE & ENERGY

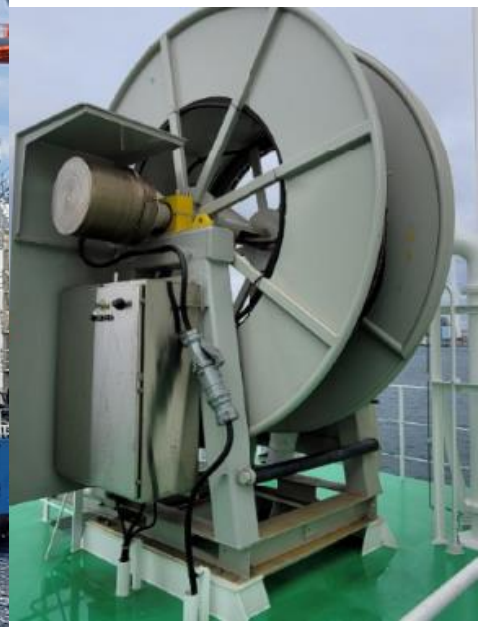
# Recent Hose Reel Pumping System Installations -

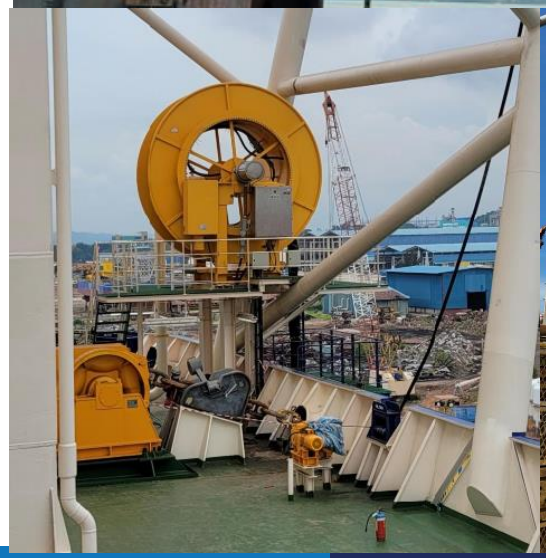












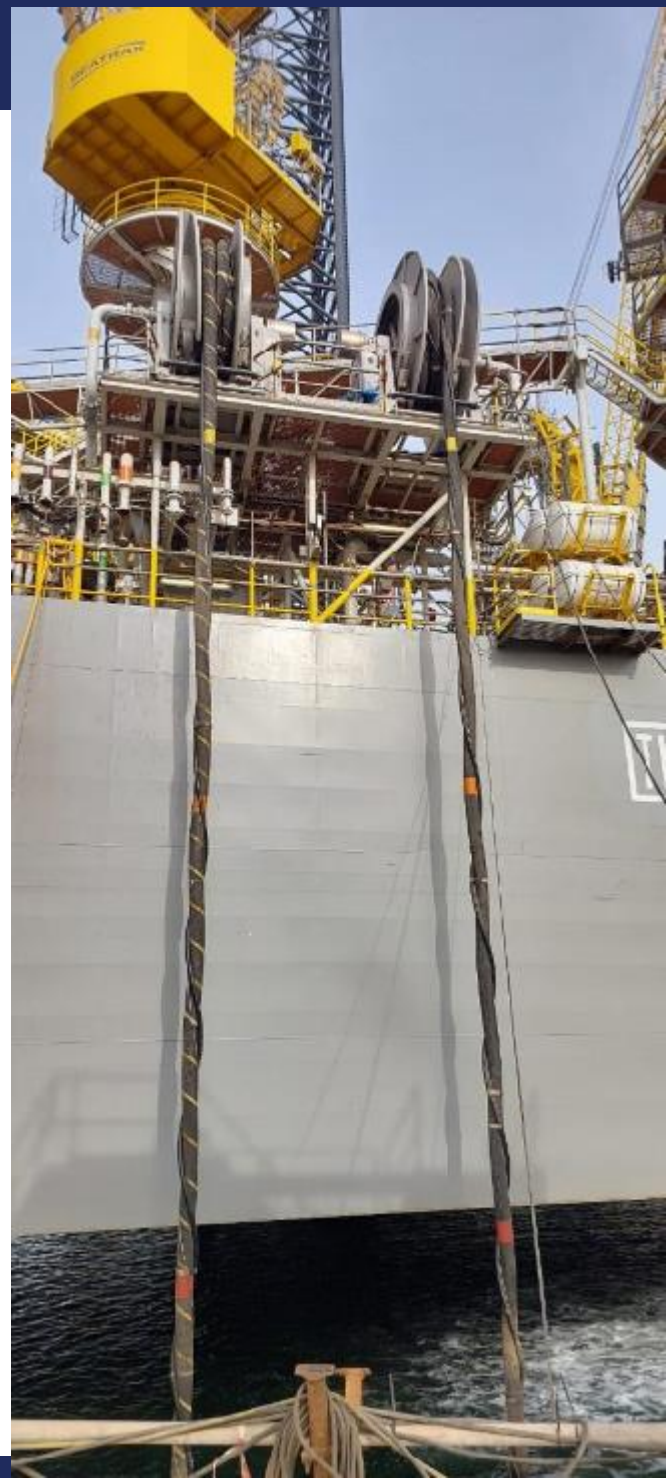


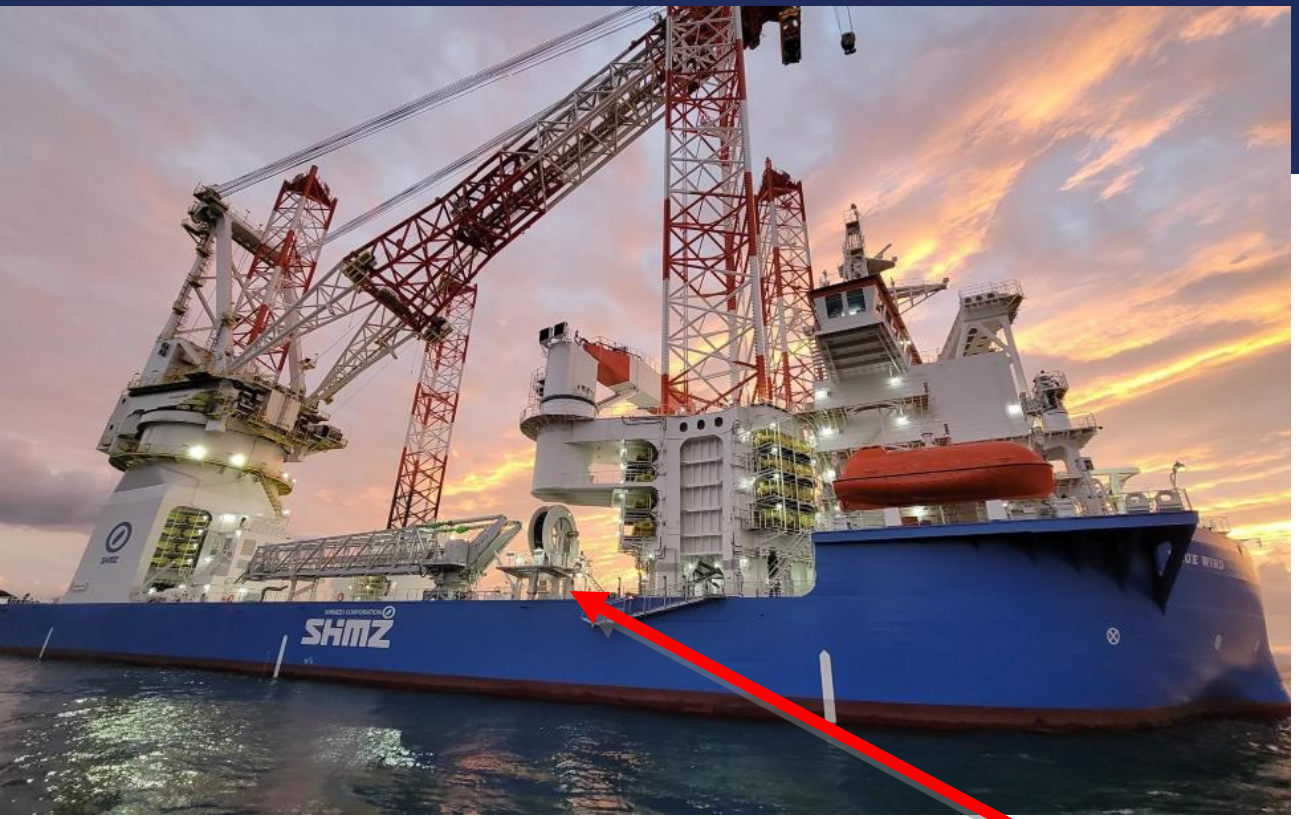
# Middle East Jack-up Rig - Pneumatic Reel with Pump & Pump Guard





REELPOWER
MARINE & ENERGY














**WTIV-Japan – (1) Reel Starboard (2) reels Port – Hose Reels on Platforms w/ VFD Pump Control & Pump Guard Installed**

REELPOWER
MARINE & ENERGY

# DOMINION ENERGY WTIV UNDER CONSTRUCTION – Reels on Bow



REELPOWER
MARINE & ENERGY

# Raw Water/Deep Well & Pre-Load - Installations















Thru Leg Well

REELPOWER
MARINE & ENERGY

# Reel Drive Options: Electric Powered Reels – VFD Reel Control





Operator Reel Control

- No Compressed Air Required
- Variable frequency drive with fail safe motor brake
- Nema 4X/IP56 control enclosures & components
- Stainless Steel control panel, hardware and manufactured chain
- Mechanical Locking Pin
- Forklift Pockets and Certified Lift Eyes
- Generally preferred for non-Explosion proof applications
- Slip ring allows pumping while jacking up & down
- 90 Deg or Single Plane Rotary Union



Local Pump Control

REELPOWER
MARINE & ENERGY

# Reel Drive Options: Pneumatic Powered



- Intrinsically safe air drive system with fail safe controls
- Radial Piston Air Motor
- Stainless Steel control panel, hardware and manufactured chain
- Emergency down control
- Mechanical Locking Pin
- Fail Safe Band Brake
- Forklift Pockets and Certified List Eyes
- 200-300 SCFM Required – 80-120psi

- ANSI Flange – XXH Seawater Piping
- 90 Deg or Single Plane Rotary Union
- Optional Slip Ring



REELPOWER
MARINE & ENERGY

# Raw Water Product improvements – Lowers cost with same drive and control components

- Same brand and PN drive components, valve, controls, etc.
- Reduced weight
- Structural:
  - Current: 2 x 3” structural tube
  - New: 2 x 4” structural tube
  - New: I-beam uprights
- Same frame for both Pneumatic or Electric driven
- Same frame for LH or RH (Only hose flange and reel redirect plate changes) – May result in faster delivery if frames/reels stocked
- 30 less parts

## Lean Design Reel



**Current**



**New**

REELPOWER MARINE & ENERGY

# Standard RW Hose Integration – Power Cable helically wrapped around entire length of hose



HDPE Cable Protection – 2 guys x 5-6 hrs



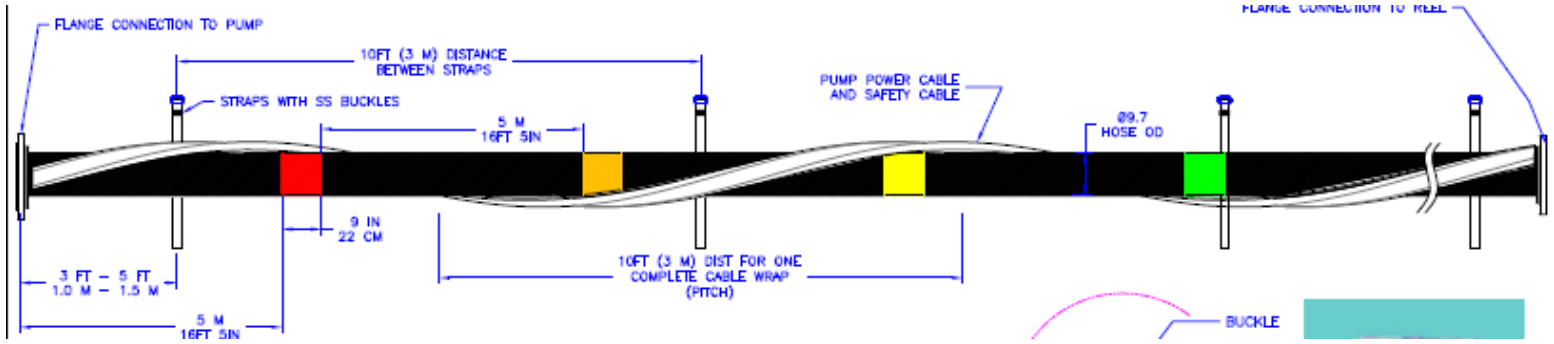
Manually Rolling Hose over power cable – 8 guys x 4 hrs



Nylon straps holds cable in position



Assembly Wound on Reel



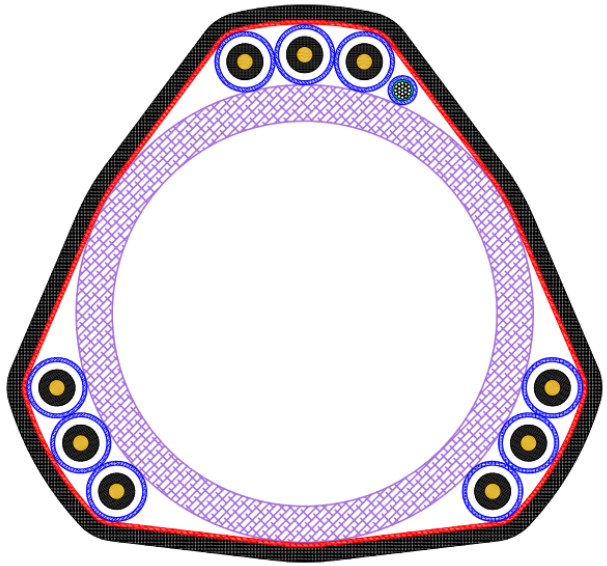

REELPOWER MARINE & ENERGY

# NEW Integrated Hose Solution Benefits – Significantly improved power cable and hose protection.

- Unique and elegant solution; smooth, uniform, and symmetric outer layer
- Improved mechanical and UV protection of power cables and hose
  - Power and safety cables in braided reinforced rubber 3000 psi rated hydraulic hoses
  - Rubber outer jacket with braided fabric reinforcement around overall assembly
- Spare power cables installed
- Less labor ($)-
  - Easier, Safer hose replacement on-board
  - Does not require helically wrapping pump power and safety cable around hose and banding
- Single conductor wires as opposed to multi-conductor cable (less power cable costs) – Each conductor 200 amps
- Power and safety cable tubes helically wrapped around hose; does not increase minimum bend radius vs. standard hose

## Estimated User Benefits

- **Double the hose and power cable life**
- **Near double the tensile strength and half the stretch**
- **Cut on-board installation of new hose by 75%**



**Patent Pending**

REELPOWER
MARINE & ENERGY

# Prototype Hose to be field tested by customer (on jack-up rig)





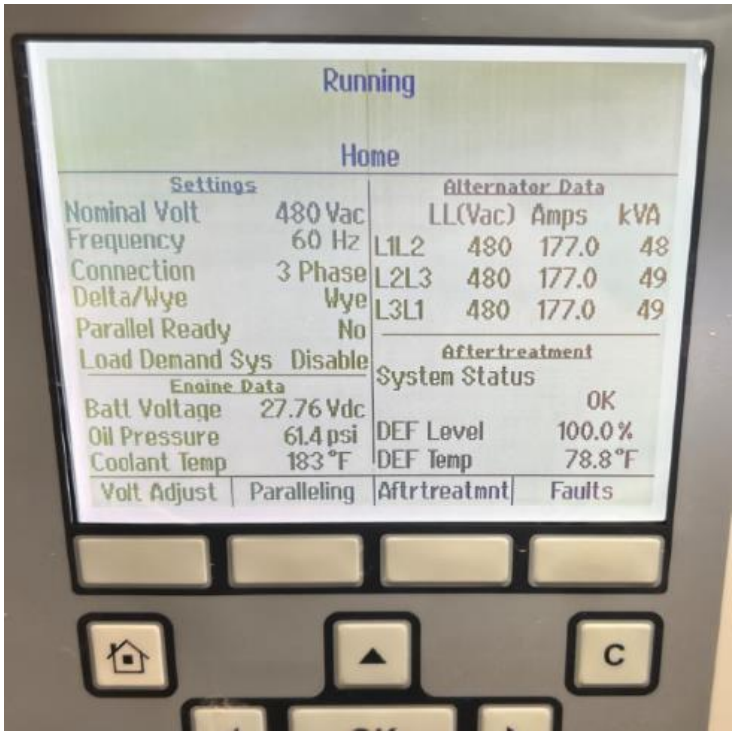





REELPOWER
MARINE & ENERGY

# Prototype Hose Internal Testing – Hose to be field tested by ME customer on Jack-up rig








Ran 177 amps thru hose conductors for 4 hours-

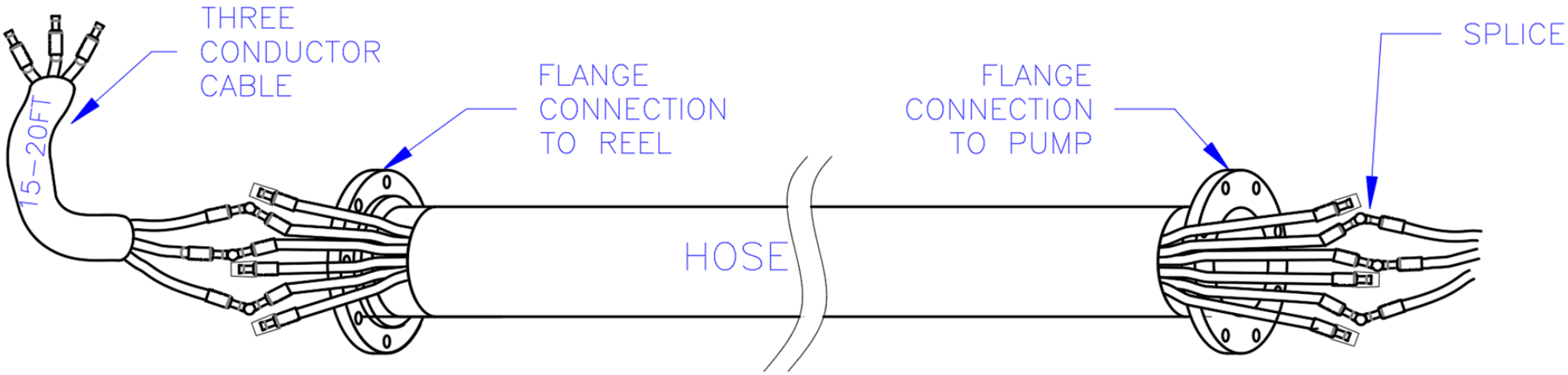
Result – From 1.5 to 4 hours 1 deg F temperature rise
(Final Temp – 125 °F (52 °C))
(Ambient Temp 82 °F (28 °C))

Cable Rating: 221 °F (105 °C)
Hose Rating: 194 °F (90 °C)




REELPOWER
MARINE & ENERGY

# Cable Termination Plan




## Reel End

- **Loose cables will be bundled together with heat shrink cover**
- **Redundant conductors will have heat shrink caps**
- **Leads out of hose 6-10 ft long; spliced inside reel drum to 3 conductor cable**
- **Plug attached to end of 3 conductor cable**

## Pump End

- **Loose cables will be bundled together with heat shrink cover**
- **Redundant conductors will have heat shrink caps**
- **Leads out of hose 3-6 ft long**
- **Field splice kit provided (tape type) to attached to motor leads**
- **Optional: Subsea Connectors**
  - **Female subsea Subsea Connectors spriced to hose leads**
  - **Male subsea connector with field splice kit for motor lead**

REELPOWER
MARINE & ENERGY

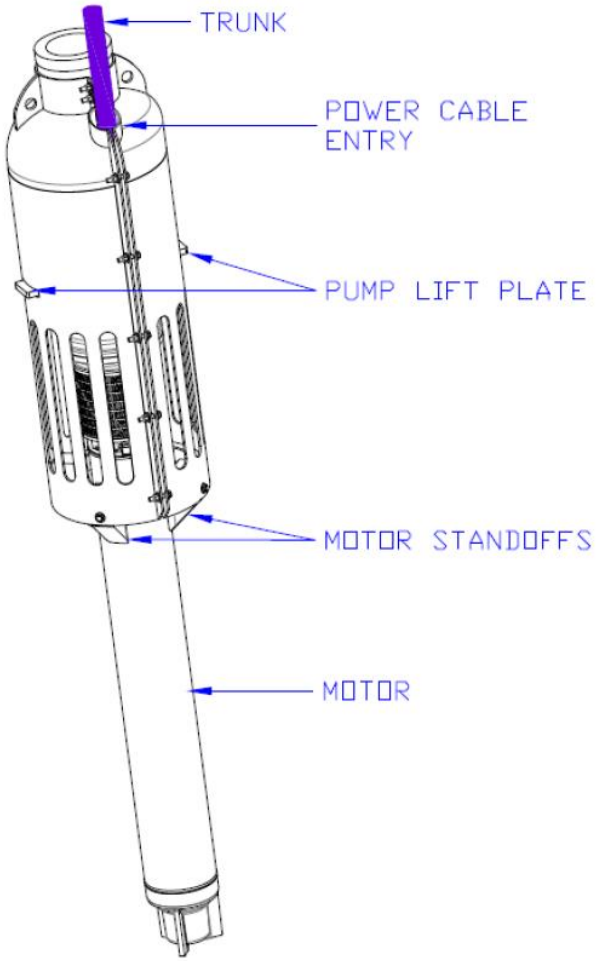
# Guard to protect pump, power cable and subsea connectors – Lift eyes for guard and pump – (Full length available for pumps that require Shroud)





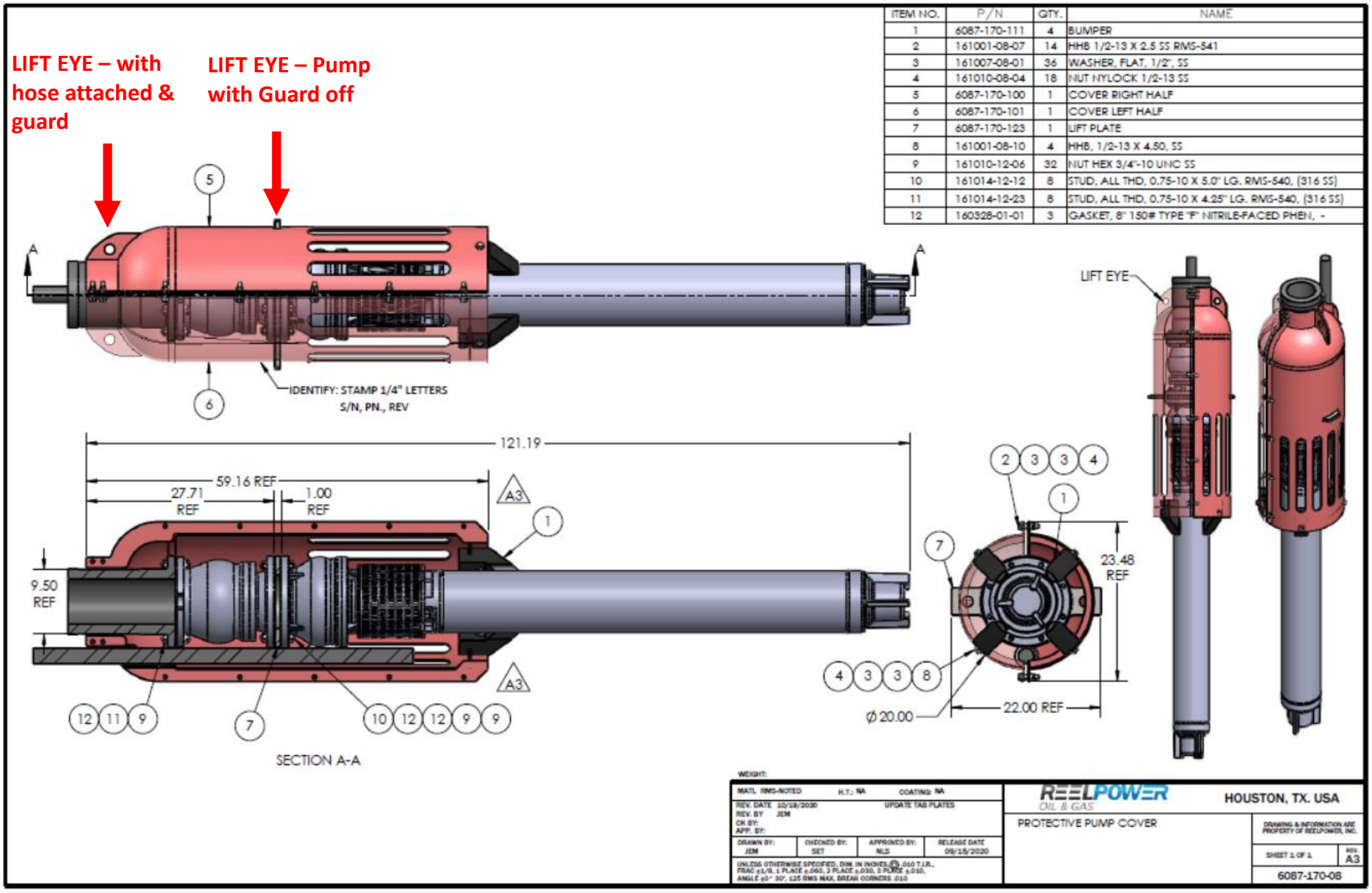







REELPOWER
MARINE & ENERGY

# PUMP & CABLE LEAD GUARD




| ITEM NO. | P/N | QTY. | NAME |
|---|---|---|---|
| 1 | 6087-170-111 | 4 | BUMPER |
| 2 | 161001-08-07 | 14 | HHB 1/2-13 X 2.5 SS RMS-541 |
| 3 | 161007-08-01 | 36 | WASHER, FLAT, 1/2", SS |
| 4 | 161010-08-04 | 18 | NUT NYLOCK 1/2-13 SS |
| 5 | 6087-170-100 | 1 | COVER RIGHT HALF |
| 6 | 6087-170-101 | 1 | COVER LEFT HALF |
| 7 | 6087-170-123 | 1 | LIFT PLATE |
| 8 | 161001-08-10 | 4 | HHB, 1/2-13 X 4.50, SS |
| 9 | 161010-12-06 | 32 | NUT HEX 3/4"-10 UNC SS |
| 10 | 161014-12-12 | 8 | STUD, ALL THD, 0.75-10 X 5.0" LG. RMS-540, (316 SS) |
| 11 | 161014-12-23 | 8 | STUD, ALL THD, 0.75-10 X 4.25" LG. RMS-540, (316 SS) |
| 12 | 160328-01-01 | 3 | GASKET, 8" 150# TYPE "F" NITRILE-FACED PHEN. - |

REELPOWER MARINE & ENERGY

# Submersible Pumps – Typical brand is Wilo





- 150 -1,000 m3/hr x 35 – 120 m TDH
- 1 m minimum submergence (typical)
- Materials: Zinc Free Bronze pump w/Nickel Aluminum Impellor & Super Duplex SS Shaft
- No shroud required
- Subsea connectors provided
- Wafer check with weep holes
- DNV, ABS & NK certifications available

REELPOWER
MARINE & ENERGY

# Benefits of Variable Frequency Drives in Raw Water List applications



**350HP Variable Frequency Drive**

1) Varying the flow and head pressures matches the water supply with the demand
   a. Reduced wear and tear on the pump lowers maintenance costs
   b. Lower energy consumption reduces operational costs
2) Flow control based on tank levels, reduces overflowing of water
3) Reduced Total Harmonic Distortion – less than 5% THD
4) Lower up front costs by possibly eliminating downstream valves to control flow at varying air gaps
5) Reduced NPSHr when jacked down and in shallower waters
6) VFD bypass allows continued operation in cases where drive is not operational
7) Extremely robust VFD

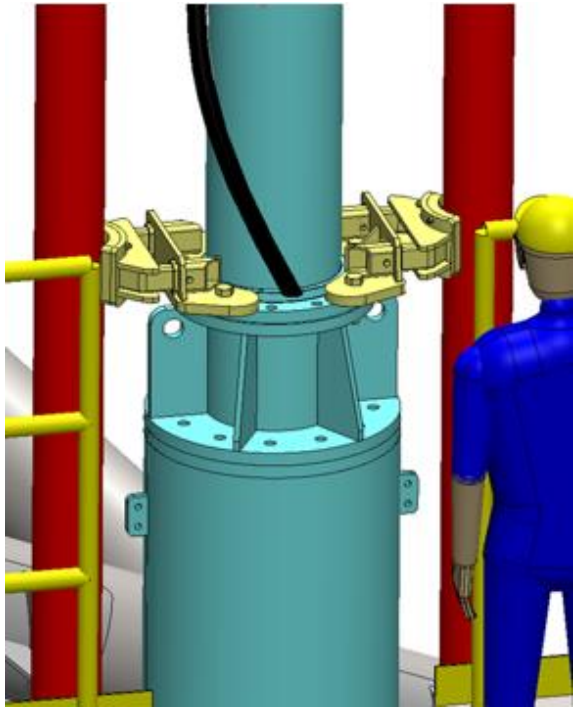


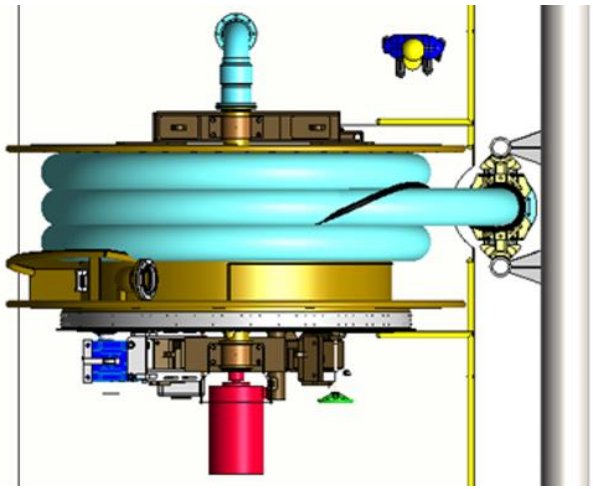


**Single Speed Soft Start Control Available**

REELPOWER
MARINE & ENERGY

# **Drift Stabilization Discussion** – North Sea and Japanese customers operate the pump without stabilization countermeasures without reported drift issues





**Stabilized by Jetting Piping**

- Guides at top, bottom and below water line
- Guides are easily removeable
- Reel can lift and lower pump at any time, even during jacking
- Jetting pipes are existing structure

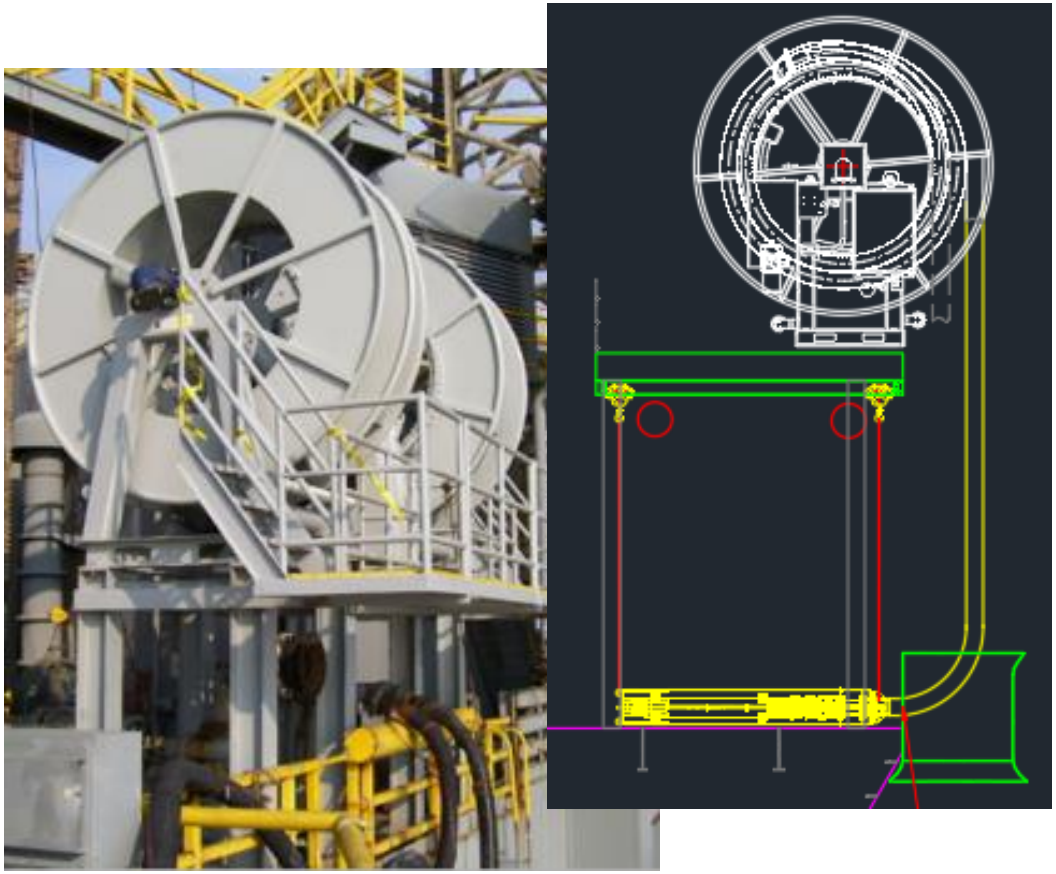
**Clump Weight**

- Winch(es) to raise and lower clump weight
- Clump weight lowered to seabed
- Eyelets mounted to pump
- Eyelets mounted to hose just below the water line
- Eyelets are easily removable
- Pump runs up and down the taunt wire rope
- Reel can lift and lower pump at any time, even during jacking



REELPOWER
MARINE & ENERGY

# Recommended Mounting Arrangement



Reel Platform with pump stowage below



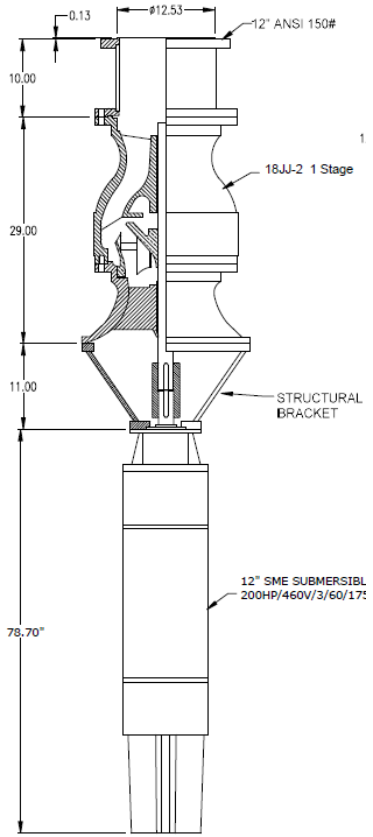

Or Platform with Operator Access to pump below

REELPOWER
MARINE & ENERGY

# Preload Hose Reel Pumping System – up to 7200 GPM

| Rig Make | Project/ Customer | Preload Tank Capcity | Preload Tank Capcity | Typical Pump Flow Rate | QTY | Total Flow Rate | Preload Time | Preload Flow Rate | Preload Time | Preload Typical & (1) Preload | Preload Time | Time Saved |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Barrels | Gallons | GPM | | GPM | HRS | GPM | HRS | GPM | HRS | HRS |
| LeTournea 116 | Lamprell | 52,854 | 2,219,868 | 1,800 | 3 | 5,400 | **7** | 7,000 | **5** | 12,400 | **3** | **4** |
| Zentech R-550D | | 82,290 | 3,456,180 | 1,800 | 3 | 5,400 | **11** | 7,000 | **8** | 12,400 | **5** | **6** |
| Super Gorilla XL | ARO R50 | 133,469 | 5,605,698 | 1,800 | 3 | 5,400 | **17** | 7,000 | **13** | 12,400 | **8** | **10** |



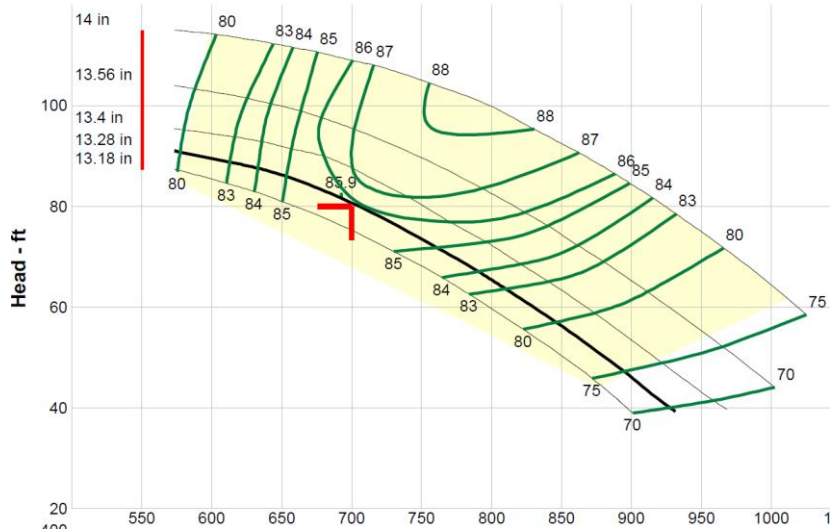



Hose Length – 60-75 ft

Hose Diameter – 12 in

Pump Capacity – 6,500 to 10,000 GPM x 75 ft TDH

Pump Power – 200 HP (7000GPM)




REELPOWER
MARINE & ENERGY

## Statement of Confidentiality

The contents of this digital storage media and any attachments which accompany it are confidential and are intended solely for addressee. The information may also be legally privileged.

Access to protected records or information in electronic format, hard copy, or other form of dissemination, is limited directly to the customer for whom the record or information is relevant.

The information contained in this digital storage media is proprietary and strictly confidential. It is intended to be reviewed only by the party receiving it from Reel Power Marine & Energy, Inc. and should not be made available, in any format, to any other person or entity that would not be construed as a present or potential Reel Power Marine & Energy, Inc. customer without written consent from Reel Power Marine & Energy, Inc.

No content of this digital storage media may be used in presentations, advertising, display, or training, without the expressed written consent of Reel Power Marine & Energy, Inc. No individuals are permitted to realize any personal gain as a result of disclosing or using the confidential information contained in this digital storage media. This obligation of nondisclosure and the responsibility not to benefit from confidential information obtained from this digital storage media continues indefinitely even after any relationship with Reel Power International, Inc dba Tulsa Power ceases.

This digital storage media has been prepared to provide summary and compilation of results of performed testing and validation. The information contained within this digital storage media was obtained and recorded through sound validation practices and equipment and executed by competent personnel in employ of Reel Power International, Inc dba Tulsa Power.

This digital storage media is created in trust, for the sole purpose of delivery to the intended recipient. If you have received this digital storage media in error, any use, reproduction, display, or dissemination of this digital storage media is strictly prohibited. If you are not the intended recipient, please **immediately notify** the sender by e-mail or phone (contact information included below) and **destroy** the digital storage media and any attachments which accompany it.

REELPOWER
MARINE & ENERGY

# APPENDIX 1

# RW Options

REELPOWER
MARINE & ENERGY

# Raw Water System Maintenance

**Reel - Periodic lubrication – very little maintenance (Lifetime: 20-25 years)**

Duty Cycle **(Rig)** – 7-10 revolutions every 30-60 days (120 -240 Rev/Year)

Duty Cycle **(WTIV)** – 7-10 revolutions every 1-3 days ( 1,300 -3,700 Rev/Year)

**Hose** – 3-7 year life – Expected

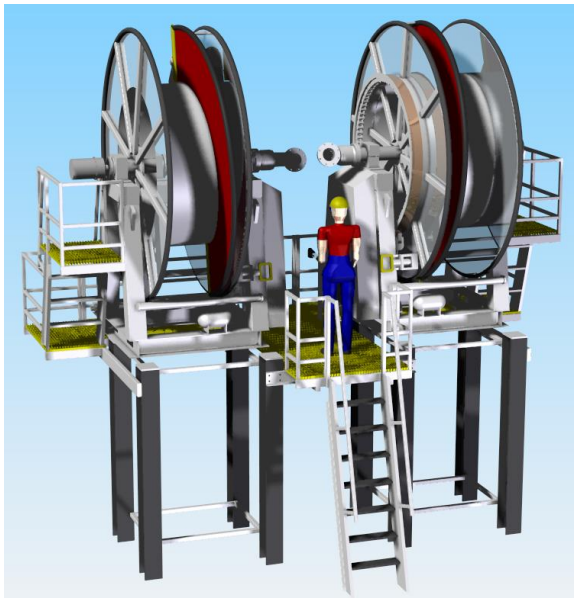
**Pump Power Cable** - We would generally expect power cable to last longer than hose; seems that the power cable securing scheme will have greatest effect on life.

**Submersible Pumps** – If pumps are currently fixed and not removed from water when not pumping, then the reel type system would offer much less maintenance. Care must be taken to not transfer debris from ocean bottom.

**Note:** The above life expectations are not a guarantee and only an opinion based on Reel Power's experience and customer feedback.

REELPOWER
MARINE & ENERGY

# STANDARD REEL PLATFORMS



**DOUBLE REEL PLATFORM**

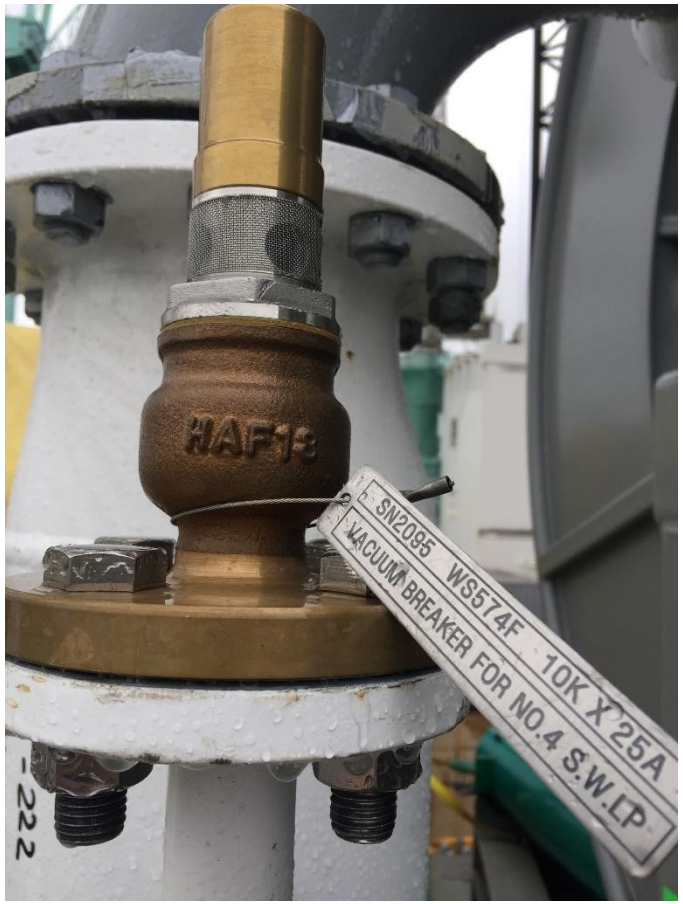


**SINGLE REEL PLATFORM**

- Available Deck Space Beneath
- Access to pump/motor below
- Remove-able Panel for pump removal
- Code designed handrails and kick plates
- Access to controls, slip ring, & rotary union

REELPOWER
MARINE & ENERGY

Vacuum Breaker




Piping Exit of Reel



REELPOWER
MARINE & ENERGY

# APPENDIX 2

# Company Products

REELPOWER
MARINE & ENERGY

# Reel Power offers World's Most Compact Loading Station for offshore vessels/platforms (Patented)







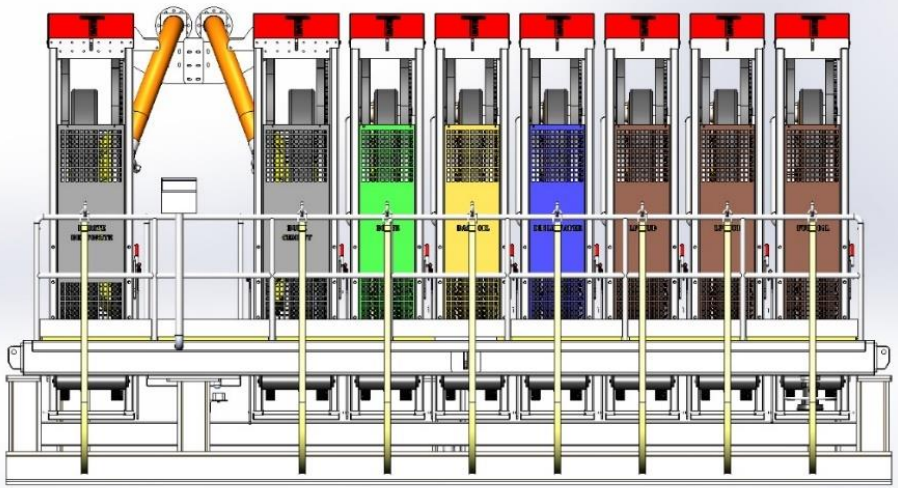
- **37% Smaller Footprint** and 20% Lighter Weight than Competition
- 3 Times or Greater Hose Life
- Safest Means for Storing & Deploying Hose – Cleaner Deck Space
- Decreased Chance of Spills
- 51% Floaters built 2014 to present include Loading Stations reels

REELPOWER MARINE & ENERGY

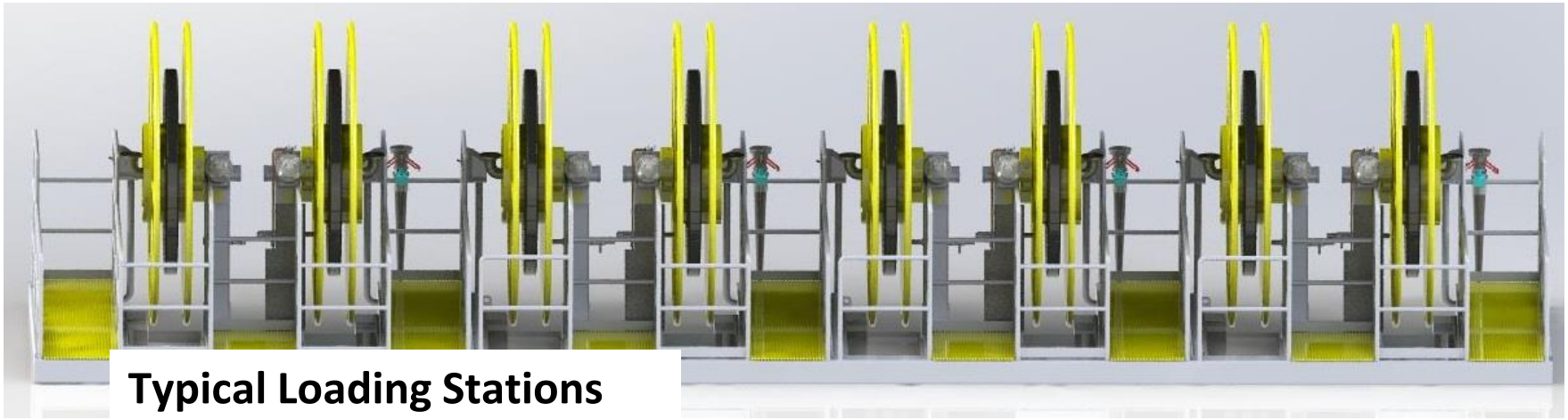
REELPOWER INDUSTRIAL

# WORLD'S MOST COMPACT LOADING STATIONS

**Patented**



| # Reel Positions | | Competitor 8 REEL | TP 8 REEL | Savings |
|---|---|---|---|---|
| **Deck Length** | m | 12 | 7.6 | **36.7%** |
| | ft | 39.37 | 25.2 | |
| **Weight** | kg | 20,000 | 16,300 | **18.5%** |
| | lbs | 44,092 | 36,000 | |



**Typical Loading Stations**

REELPOWER
MARINE & ENERGY

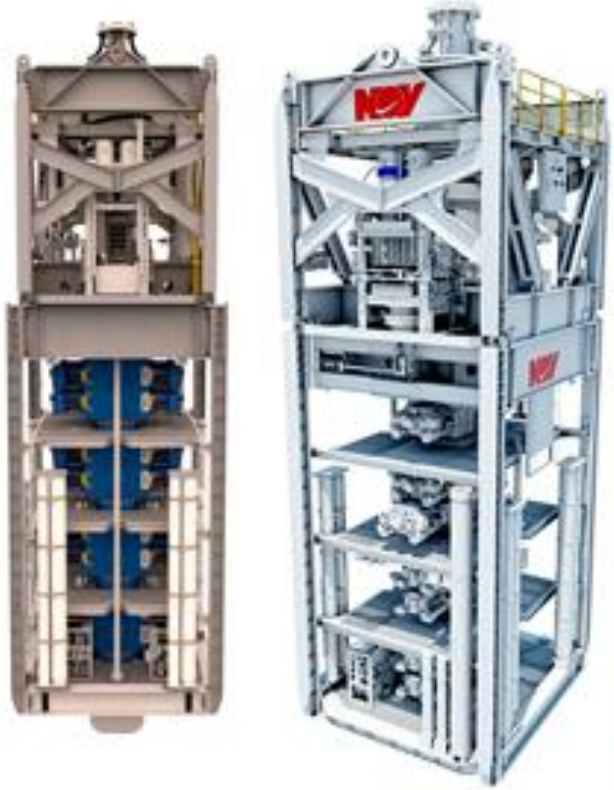
# Radoil products primarily focuses on innovative, patented deep water drilling blow out preventer solutions





BOP Control Reels

7 Patented Features





Depth Compensated Accumulators – Patented

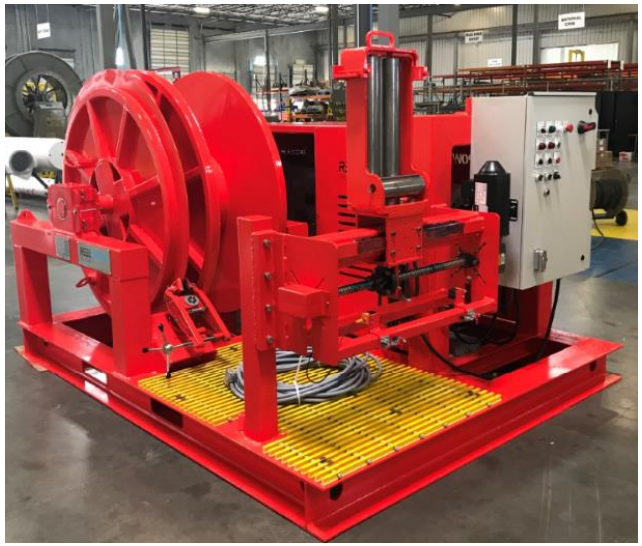
REELPOWER
MARINE & ENERGY

# Specialty Winches – Towing, Oceanographic, Research Winches

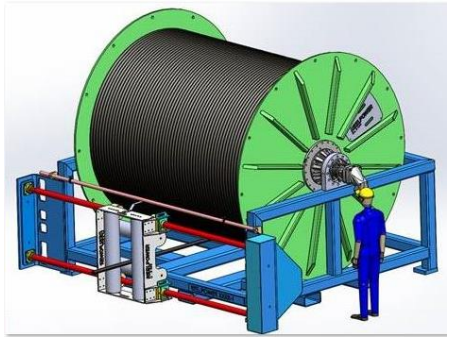




**Oceanographic Winch**



**Downhole Deployment Winch**



**Specialty Winches**

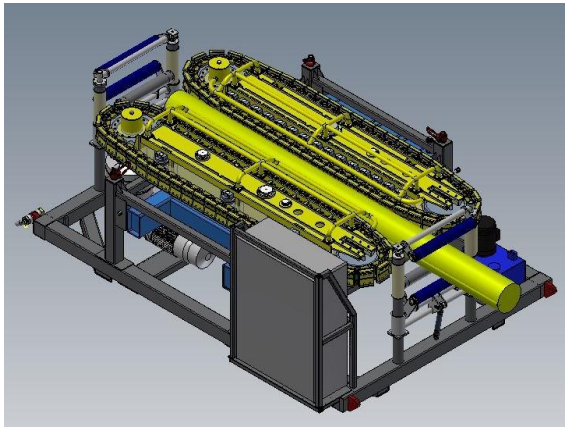
**Reel Power Marine & Energy has hundreds of years of specialty winch and winding expertise**

REELPOWER
MARINE & ENERGY

# Tensioner/Haul-offs for Deployment of Offshore Cables, Umbilical, Powerline & Flowline







**3 to 40 T Tensioner with Electric or Hydraulic Drive;**
**Horizontal & Vertical Track Configuration available**

REELPOWER
MARINE & ENERGY

# Linear Engine & Traction Winches – For Offshore Cable & Umbilical deployment









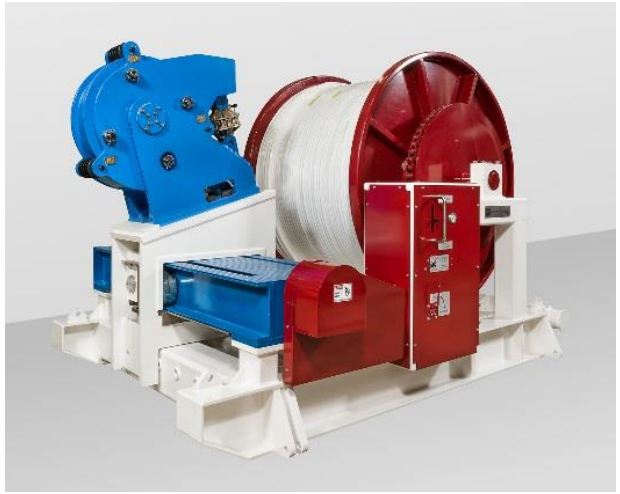
- Linear Engines are especially useful for passing bodies (cables with Lumps)
- Mounted within shipping container for easier mobilization

- Traction Winches for cable and braided line deployment
- Up to 30,000 lbs of tension

REELPOWER
MARINE & ENERGY

# Tulsa Power Drill Line Spoolers Offshore & Land

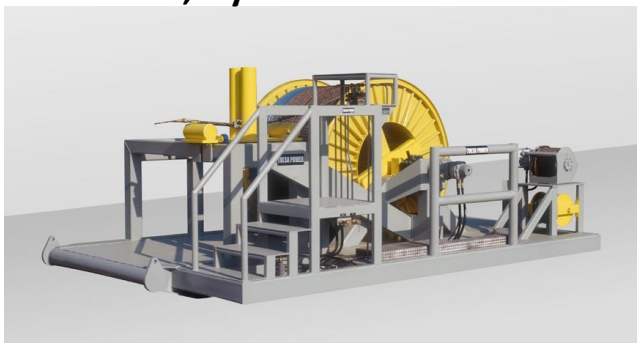


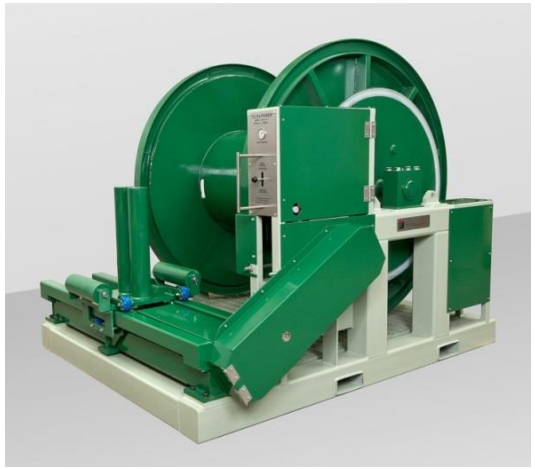






- ¾” thru 2” Drill Line
- 5,000 thru 10,000 ft
- Air, Hydraulic & Electric

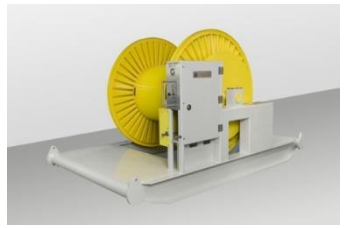








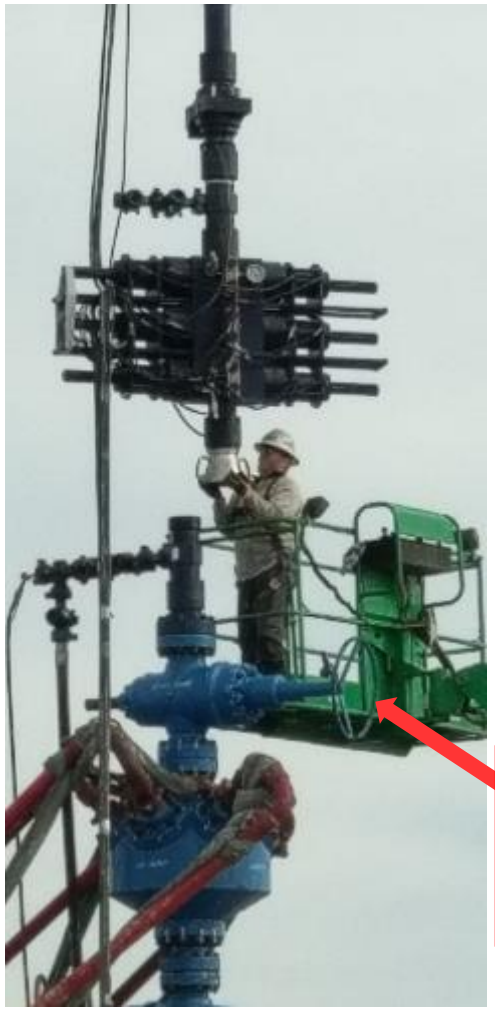




REELPOWER
MARINE & ENERGY

# RPME Loc-Torus II Frac Connector - Improved Safety - Need to Remove the Man from the Operation

**Original** Lubricator Connection Method



**Remotely Connected by Company Man – Outside of Red Zone**

**Manually Connected by Man in Manlift**

**Upgraded** Lubricator Connection Method



## Hazards Related to manually connecting wireline lubricator

- Dropped objects
- Working from heights
- Restricted mobility
- Hand placement
- Large overhead loads
- Manlift hydraulic failure
- Crane communication
- Dropped wireline tools
- High wind on manlift
- Collision with equipment
- Driving over hoses
- Transferring fluids

## Need to remove the man from the operation

REELPOWER MARINE & ENERGY

# Thank you!

Any questions?

We appreciate the opportunity to share our capabilities.

Our next steps would be to understand your specific needs, identify synergies, then design a solution to meet you application needs!

REELPOWER
MARINE & ENERGY