

# Hayward Tyler Improves Deepwater Floating Platform Reliability

## Hayward Tyler Retrofitted Seawater Lift Pump Submersible Motors for Improved Reliability

Hayward Tyler was called upon to help support one of the largest and most complex deep water semi-submersible platforms in the Gulf of Mexico. The platform was experiencing issues with their existing submersible motors due to an overheating issue.

Hayward Tyler engineers reviewed the original (non-HT) installation and proposed a replacement submersible motor to fit in the same footprint. The HT motor provided improved cooling performance which reduced Non-Productive Time (NPT). Additional instrumentation was supplied including RTD's and PT100's to allow the internal motor and winding temperatures to be closely monitored. Additionally, the use of a header tank instead of a diaphragm allowed the motor to be monitored for excessive leakage that would be detrimental to the motor performance.

An environmentally friendly water/glycol mix is used for cooling inside the motor.

Hayward Tyler supplied a highly experienced field service supervisor, during the COVID-19 global lock down, to oversee installation and commissioning of the motors. This included post commissioning follow-up on evaluating the performance of the motors to ensure the root cause of the original motor failures was fully eliminated.



### Project Summary

#### SITE / LOCATION:

Gulf of Mexico

Deep Water Semi-Submersible Platform

#### SOLUTION:

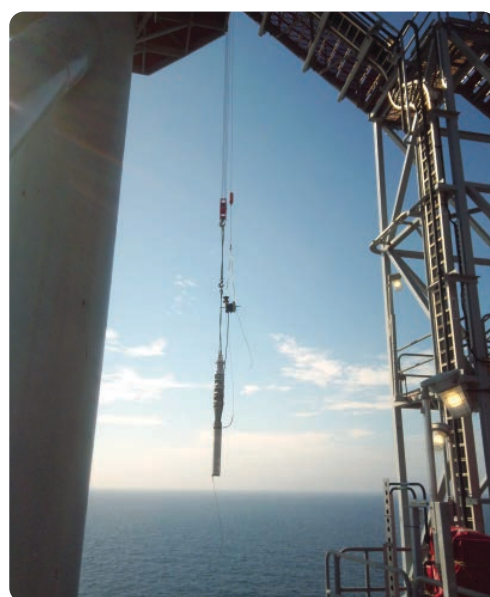
- Design, manufacture and install 2 submersible motors into the existing footprint
- Improve cooling across the motor to reduce NPT
- Supply additional instrumentation for motor condition monitoring
- Use environmental friendly water/glycol to cool the motor
- Supply on-site supervision to ensure seamless installation

#### MOTOR DESIGN DETAILS:

- Qty 2-Water/Glycol filled Submersible motors
- Rated Power: 1475hp (1.1MW)
- Power Supply: 4160V / 60Hz / 3ph
- Starting Method: Direct Online (DOL)
- Max ambient water temperature: 86°F (30°C)
- Speed: 880rpm
- Materials: Super Duplex
- Max Pump Thrust: 45,500lbs

## Project Data Sheet

Project	Replacement submersible motor with improved cooling
Product	Submersible Motors with header tank and shipping cradle
Quantity	Two (2)
<b>Mechanical Standards</b>	
Pump Specification	API 610
Machinery	Machinery Directive 2006/42/EC
Material Specifications	BS EN 10088, 10028, BS 970
Chemical and Mechanical Certification	EN 10204 Type 3.1
Rotor Balancing	API 610 / ISO1940
Non Destructive Testing	SNT-TC-1AA, ASME Code Section V
Internal Fasteners	ISO 3506
<b>Testing Standards</b>	
Testing in accordance with:	IEC 60024-2
	MG-1-2006
	API 610
<b>Motor Details</b>	
Design Standard	BS EN 60034
Motor Rating	1100kW (1475hp)
Nominal Speed	880
Power Supply	4160V / 3ph / 60Hz
Motor Full Load Current	238A
Full Load Efficiency	90.4%
Materials of Construction	Wetted – S.Duplex SS
Circulation Method	Thrust bearing as auxiliary impeller
Approx. Weight	7,650kg
Direction of Rotation	CCW on end drive
Starting Method	Direct Online (DOL)
Power Cable Lengths	55m
Pump Flange Connection	27.2"
<b>Hydraulic Conditions</b>	
Max. Ambient Water Temperature	30°C (86°F)
Duty Flow	3390.3m³/hr
Minimum Flow	1703.4m³/hr
Rated Pump Thrust	29,689lbs
Max. Pump Thrust	45,516lbs
Min. Pump Thrust	19,215lbs



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Engineered solutions for the global energy sector

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NPT NS