

## Submersible Pumps & Motors

Performance-critical pump and motor solutions for the harshest offshore environments

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We design, manufacture and service submersible pumps and motors for performance-critical applications across the globe. 50 years offshore experience 250 units installed worldwide

13.8 kV high voltage design 3,000 kW

submerged motor qualification 6 MW design capability

40,000 hrs

between maintenance

25 years design lifetime 24/7/365

customer service

## Save Critical Topside Footprint with a Submersible Pump and Motor

Hayward Tyler's electrical submersible pumps and motors are installed inside the caisson to minimize the topside footprint. Our pumps and motors are used in the most demanding offshore applications, offering high reliability while saving both critical space and money.

By utilizing an environmentally-friendly, fluid-filled motor close coupled to a multi-stage high-efficiency pump, we offer a more reliable solution to offshore pumping applications.

### TYPICALLY USED ON

- → FPSO
- → FLNG
- → Offshore Windfarms
- → Fixed Platforms
- → Tension Leg Platforms

### COMMON APPLICATIONS

- → Seawater lift
- → Firewater lift
- → Caisson drain pumps
- → Hull-ballast & de-ballast pump
- → Water injection
- → Cooling water pumps
- → Booster pumps
- → Jockey pumps
- → Process pumps
- → Marine thrusters
- → Marine secondary propulsion
- → Mud rise pump
- → Petrochemical fluids
- → Cavern pumps

Inverted configuration for FPSO

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Submersible Pump & Motor

## Submersible Pump Technology

Our Submersible Pumps and Motors offer the following key benefits:

- → Less space compared to Vertical Turbine Pumps (VTP)
- $\rightarrow$  Designed for high efficiency
- → Lower total cost of ownership
- → Environmentally-friendly, water/glycol-filled motor
- → Easy alignment
- → Low maintenance
- → No flooding risk
- → Low noise
- → Condition monitoring available

Air release valve

## Explosion-proof junction box available

Header tank available Provides condition monitoring of motor fluid

### Non-return valve

Can be located at deck level or at the last pump bowl discharge

Pump discharge elbow

Column centralizers

**Discharge columns** 

Efficient multi-stage pump Hydraulic designs optimized for high efficiency

Suction strainer Keeps particulate from entering the pump

Fluid bearing for high reliabilty No external lubrication required

> Hypochlorite dosing ring available



### Pump suction

Submerged electrical motor Standard or Inverted configuration

### Fluid flow

Pumped fluid is drawn in and around the outside of the motor, providing motor cooling before reaching the pump suction

Standard and Inverted configuration available

bearing offer highest

load per area

# Submersible Motor Design as a Core Competency

At Hayward Tyler, we have been designing fluid-filled motors for over 100 years and offer both standard and highly-engineered **Robust internal** solutions to suit your applications. mechanical seal Our motors are designed to offer high reliability and low maintenance. Single skin design offers weight savings. Double skin can be used for improved motor cooling. Short circuit prevention plates and cable protection ring provides a higher reliability motor **Dynamically** balanced rotor **High capacity** fluid-filled bearings Rewindable stator **KEY FEATURES** → Water/Glycol fill as standard Thrust bearing acts as → Oil-filled available auxialliary impeller for improved motor cooling → Non-welded stator shell allows for stator removal for maintenance → Commonality of parts **Tilting pad thrust** 

→ Standard parts, resulting in quick turn-around for spares

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LONGER SERVICE INTERVALS



## **Technical Data**

### PUMP SIZE

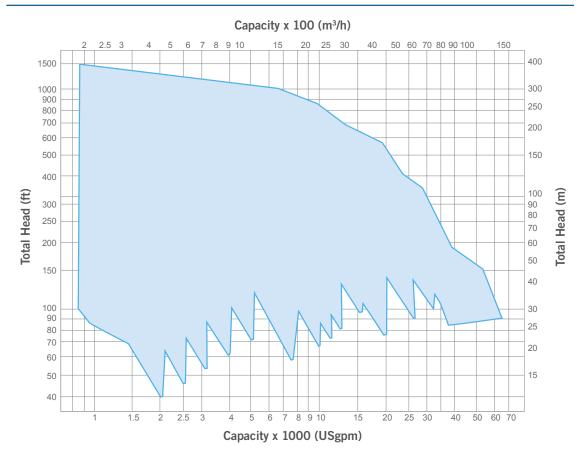
Flow	up to 13,000 m <sup>3</sup> /hr (60,000 USgpm)
Head	up to 400 m (1500 ft)

### MOTOR SIZE

Power	3,000 kW (4,000 HP)
Poles	2/4/6/8 pole
Frequency	50/60 Hz
Voltage	380-13,800V

### PERFORMANCE CURVES

#### **STANDARDS** ANSI / HI / EN / Design ASTM / DIN / Standards ISO / CE / API 610 Hydraulic ANSI / HI / ISO / Standards API 610 / NFPA 20 Electrical NEMA / IEC / IEEE Standards DNV GL / ABS / CSA / Certifications ATEX / BV Quality ISO 9001 / NORSOK



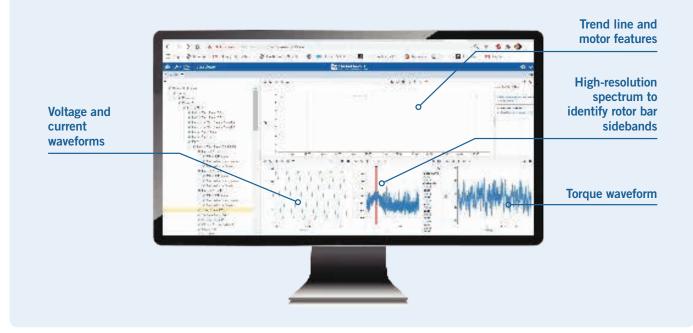


Hayward Tyler's Datahawk uses Motor Current Signature Analysis (MCSA) to monitor the health of your submersible motor. The system can diagnose the following common problems:

- · Rotor bar damage
- Misalignment
- Eccentricity
- Mechanical looseness
- Bearing problems

### **KEY FEATURES**

- → Logs and trends motor key parameters
- → Processes raw data and interprets for you
- → Full integration with your existing system (DCS / Plant Historian / OSI Pl / etc.)
- $\rightarrow$  Data can be stored locally or in the cloud



For further information on Hayward Tyler's performance-critical motors for submersible applications, please contact us or visit www.haywardtyler.com



Engineered solutions for the global energy sector

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