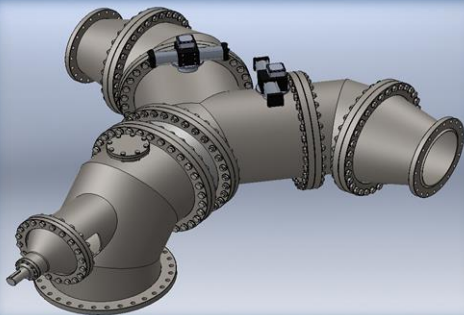


The Marine Thruster & Propulsion Specialists

Key Features:

- High reliability, Rugged Design
- Unique Sealing Technology
- Dynamically Balanced – No Vibration
- Fully Azimuthing or Port–Neutral–Stbd
- Ten (10) Models from 75 upto 1500Kw
- Emergency Steering
- Direct Diesel, Electric or Hydraulic drives
- Full Monitoring Systems
- Dynamic Positioning Interfaces



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Azimuthing Pumpjet Thruster Systems

PT. Marine Propulsion Solutions, is recognized as one of the world's leading Electric Podded Thruster and Propulsion Systems Manufacturer. It introduces its unique Azimuthing Pumpjet Thruster Systems for all types of Marine vessels.



Owner/Operator benefits

The PumpJet System is mounted with no vulnerable parts protruding past the ship's hull. They will provide full thrust for both shallow and heavy draft vessels, are simple and therefore reliable with extended life.

- Emergency steering when there is no steerageway, or rudder damage.
- During those periods of Emergency produced by groundings or collisions... high winds or severe currents, the Azimuthing PumpJet Thruster System can still be used as a complement to the rudder or in severe cases provide backup propulsion.
- Increased propulsion system redundancy and power availability
- Reduced noise & vibration levels

Shipyard & Construction benefits

- Flexible machinery arrangement
- Modularized design
- Simpler vessel machinery installation
- Simpler hull form and structure



Design

MPS Systems PumpJet Thruster Systems are based on over 45 years' experience and "**Know How**". They are engineered products of European and American design based on the latest marine propulsion technologies, ANSYS Finite Element Analysis and the most modern manufacturing technologies available.

Integrated Propulsion Packages

- Azimuthing Propulsion Drives
- Electric Motor Variable Speed Drives
- Direct Diesel Drives (Tier 2 & 3)
- Hydraulic Drives
- Integrated Bridge Controls with full system monitoring.
- Fully Classed Systems (ABS, B.V., Lloyds and other available)

Silent.... Dynamically Balanced.... and free of Vibration...



Marine Propulsion Solutions – Propulsion Group Azimuthing Pumpjet Thruster Systems

PT. Marine Propulsion Solutions introduces a series of Propulsion and Maneuvering PumpJet Systems designed to provide any type vessel maximum Maneuverability with Silent operation and Reliability. They are available in several configurations for different applications and vessel requirements, producing upto 50,000 pounds (22,725 kgf)



- **Conforming** ... To New Environmental Rules and Regulations requiring redundancy and **"Zero Oil Spillage"**.
- **Providing** ... **High** Thrust efficiency of 15-18 pounds (8 kgf) per horsepower.
- **Utilizing** ... A Nozzle Elastic Suspension System... greatly reducing oscillations, noise and therefore ensuring...

... Vibration-Free Operation...

PumpJet Thruster Systems have been installed on numerous ships of all types including Dredgers, Heavy Lift Vessels, Military Patrol Vessels (OPV's), Tugs and Super Yachts. The ability to Manoeuvra in heavy seas, currents or at slow speeds is important.

The Standard Series of Azimuthing PumpJet Systems, offered in three unique configurations and offering Maneuverability, Propulsion and Stand-by Propulsion for precise positioning, steering and **EMERGENCY VESSEL CONTROL**.

Azimuthing PumpJet Thruster Systems are the instrument For precise Maneuvering and Control providing

- Emergency Steering when there is no steerageway, or rudder damage.
- During those periods of Emergency produced by groundings or collisions... high winds or severe currents, the Azimuthing PumpJet Thruster System can still be used as a complement to the rudder or in severe cases provide The Azimuthing PumpJet System is mounted with no vulnerable parts protruding past the ship's hull. They will provide full thrust for both shallow and heavy draft vessels, are simple and therefore reliable with extended life.

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Advance Naval Technology for Patrol Vessels...

- Effective Loitering
- Automatic Tracking and Dynamic Positioning Systems

