



# PORTABLE DYNAMIC POSITIONING SYSTEM

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Instantly convert any barge or vessel into a Dynamically Positioned work vessel.



# LET US INTRODUCE OURSELVES

For over 30 years, Thrustmaster of Texas has been designing, manufacturing and supporting marine propulsion systems for a global network of customers and continues to be the largest manufacturer of marine thrusters in the U.S.

Thrustmaster's propulsion units are manufactured in Houston, TX with a variety of configurations including self-contained and portable deck-mounted propulsion units, thru-hull azimuthing thrusters, Z-drives, water jets, retractable thrusters and tunnel thrusters in power ranges from 35 to 10,740 hp ( 22 kW to 8 MW ).

Special expertise has been developed in designing and manufacturing equipment for maneuvering, navigating and dynamic positioning of slow-speed marine craft and barges.

Thrustmaster's patented Portable Dynamic Positioning System is a unique modular system of azimuth thrusters, power modules and controls allowing quick dockside conversion of any work barge or ship to a dynamically positioned vessel. Ideal for upgrading derrick barges, pipelay vessels, cable lay barges, accommodation vessels, FPSO's, heavy lift vessels, and more. As offshore operations move to deeper waters, you can upgrade your anchor moored vessels to DP-1, DP-2 or even DP-3.





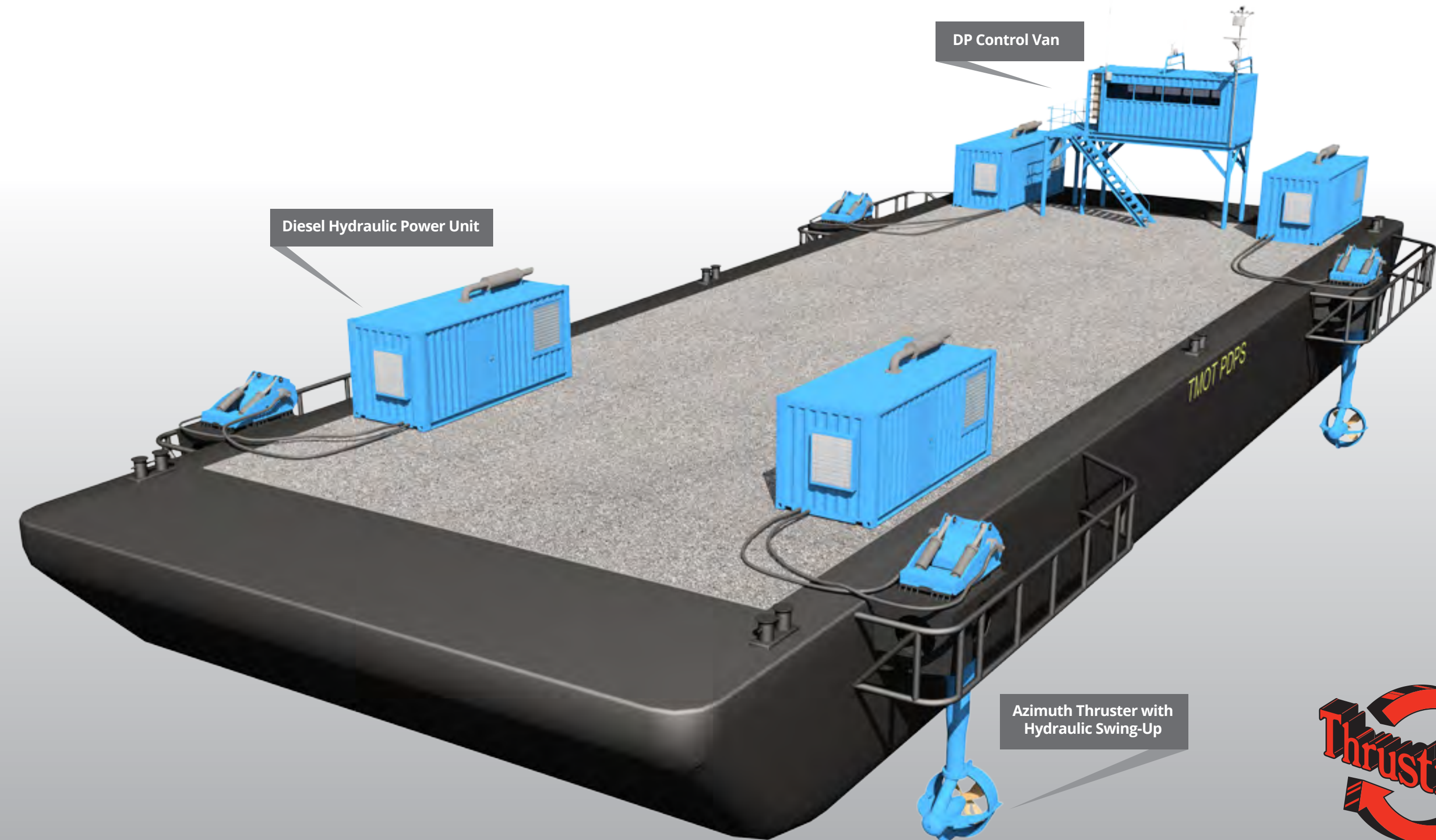
# PORTABLE DYNAMIC POSITIONING SYSTEM

The Portable Dynamic Positioning System consists of modular deck mounted azimuthing thrusters with separate hydraulic power units and a DP control van interfaced and ready to go.

The whole deck mounted system can be quickly installed dockside without dry docking and without extensive modifications to the vessel so your vessel of opportunity can be ready to go in minimal conversion time.

A wide variety of options are available with power ranges from 225 kW to 2,250 kW (300 hp to 3,000 hp), DP Systems, Controls, and deck mounted Hydraulic Power Units (HPU).

Thrustmaster's Portable DP Systems are available for ships and barges from 30 to 180 meters (100 to 600 ft) in length and can be provided per DPS-0 to DPS-3 requirements of any classification society.





# applications



PDPS installed on the Crossmar 21 - a 260 ft (80 m) offshore construction barge. Its DPS-3 system uses four 1000 HP (750 kW) thrusters.



PDPS installed on the 270 x 85 x 17 ft (82 x 25 x 5 m) reel pipelay barge owned by Nippon Salvage. The system allows subsea pipelay installation many times faster than can be done with an anchor moored barge. Uses four 500 HP (380 kW) azimuth thrusters.



PDPS Installed on Versabar VB 10,000 - a barge-mounted dual truss system with the ability to perform single-piece topside floatovers and retrievals of up to 10,000 tons. Its DPS-2 class uses eight 1000 HP (750 kW) retractable azimuth thrusters.







PDPS installed on the Helix Producer I, a 530 x 95 ft (160 x 30 m) DP-2 FPO operating in the Gulf of Mexico equipped with a disconnectable transfer system. The vessel services smaller oil fields in deepwater over the life of the facility and can also be used as an early production test vessel.



The Titan II is a 465 ft (142 m) long catamaran with an 850 ton pedestal crane for construction support & accommodation working in the Gulf of Mexico. It uses a PDPS with 8 thrusters that have been operating around the clock without interruption for more than 12 years. The vessel continued to hold heading and position even during a complete vessel blackout.



The Wind pioneer is a 180 x 90 ft (56 x 28 m) offshore construction jack up vessel for offshore wind turbine installation and maintenance. The PDPS uses four azimuth thrusters at 1000 HP (750 kW) each.







PDPS installed on the Crossmar 21 - a 260 ft (80 m) offshore construction barge. Its DPS-3 system uses four 1000 HP (750 kW) thrusters.



PDPS installed on the BGL-1 - a 400 ft (122 m) pipelay and derrick barge owned and operated by Petrobras. It was upgraded in 2006 with a PDPS comprising six 2000 HP (1500 kW) thrusters.



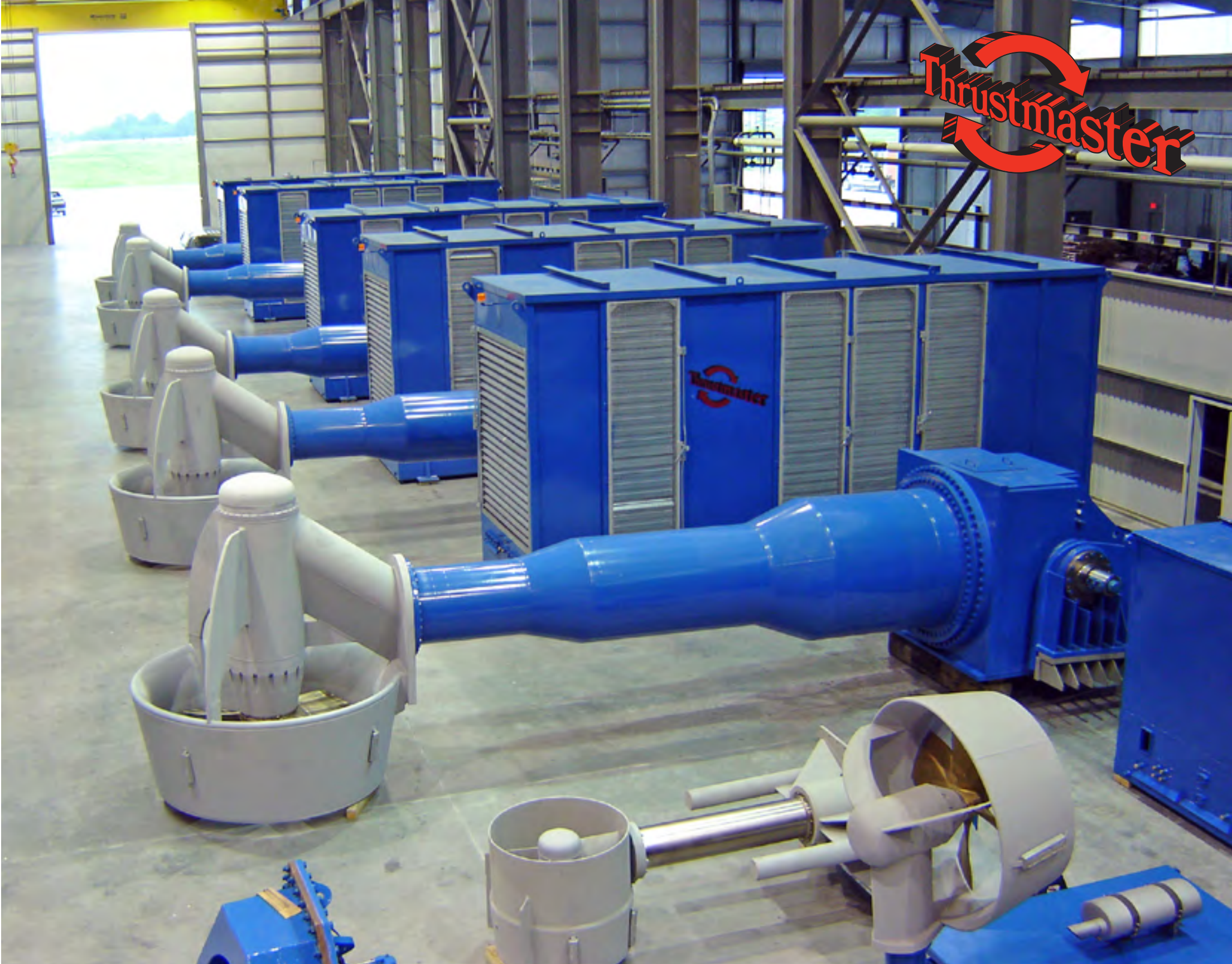
PDPS installed on the Dockwise Mighty Servant 3, a 460 by 130 ft (140 by 40 m) semi-submersible heavy lift vessel, during testing of offshore vehicle transfer technology with the U.S. Navy. Its DP-2 class uses five 2000 HP (1500 kW) azimuth thrusters.







<b>FEATURE</b>	Complete system with DP computers, sensors, thrusters, prime movers and support systems all fully integrated.	No design studies, no system engineering, no shipyard, single source system responsibility. Saves time, money, and eliminates mismatches/compatibility issues between component suppliers. No finger pointing. Everything arrives in one shipment.	<b>BENEFIT</b>
<b>FEATURE</b>	Flexible DP system configuration. Easy upgrades to DP-0 through DP-3 with options for cable or pipelay software, follow ROV and electronic navigation chart display.	Allows easy matching to project mission requirements with many options for future upgrades. Class certification available as required by contract or insurance carriers.	<b>BENEFIT</b>
<b>FEATURE</b>	Modular design, with thruster & HPU modules available up to 2,250 kW (3,000 hp).	Allows easy configuration to suit any size vessel or barge, with freedom to place modules wherever space is available.	<b>BENEFIT</b>
<b>FEATURE</b>	Deck-mounted or porch mounted azimuthing thrusters with tiltable stems and power units.	No vessel conversion needed to create new engine rooms for generator sets and thruster rooms for thru-hull thrusters. Saves lots of engineering design time and money. Eliminates the need for lengthy and expensive vessel conversion in dry-dock.	<b>BENEFIT</b>
<b>FEATURE</b>	Thrusters and power units are bolted to the deck.	Allows quick and easy installation and removal dockside, without dry-docking. Equipment does not become part of the vessel and can be used as a temporary enhancement of a leased or chartered vessel of opportunity.	<b>BENEFIT</b>
<b>FEATURE</b>	Power units are totally self-contained with radiator-cooled engines and hydraulics, built-in fuel day tank, critical muffler, battery powered start and control system with charging alternator and local control panel.	No vessel utilities required. Each power unit is completely independent, fully unitized, and ready for start-up as delivered. Vessel DP conversion or mobilization can be accomplished within days.	<b>BENEFIT</b>
<b>FEATURE</b>	Thrusters are fully azimuthing and the hydraulic drive provides fully proportional propeller speed control with full torque available at any speed setting.	Perfect thrust vectoring with fast and accurate response to control commands; ensures highly accurate vessel positioning capability.	<b>BENEFIT</b>
<b>FEATURE</b>	Thrusters use podded design concept. Propeller shaft is directly driven by hydraulic motor in the foot (or pod) of the thruster. The stem contains hydraulic hoses only.	High propulsion efficiency, no gear losses. Reliable due to its simplicity & limited number of moving parts. Allows the use of long stems, as the stem does not contain drive shafts, bearings or gears. Lateral & torsional critical speeds are far above operating speeds. Runs smooth, no vibration.	<b>BENEFIT</b>
<b>FEATURE</b>	Thrusters have hydraulic kick-up feature to tilt thrusters completely out of the water to deck level.	Allows easy access to all parts of the thruster, including propeller to clear fouling. Dry-docking for thruster repair is never required. Allows vessel access to shallow ports. Allows vessel transit with thrusters stowed out of the water.	<b>BENEFIT</b>
<b>FEATURE</b>	Each thruster has its own dedicated power unit and controls as an independent, stand-alone package.	True redundancy, no common points of failure. Very easy FMEA. No need for a power management system.	<b>BENEFIT</b>
<b>FEATURE</b>	Packaged DP control van with completely integrated DP system with UPS, MRU, gyro, wind sensor, DGPS and options for laser, microwave, radius, taut wire system, HPR, navigation and communication equipment.	Portable bridge, fully outfitted and wired, already class approved and ready for use.	<b>BENEFIT</b>





# OUTBOARD HYDRAULIC THRUSTER UNIT TECHNICAL SPECIFICATIONS

Model	Power		Bollard Pull		Max Stem Length		Propeller Diameter		Thruster Weight		Hydraulic Power Unit Length x Width x Height		HPU Weight	
	HHP	kW	lbf	kN	ft.	m	in.	mm	lbs	kg	in.	mm	lbs	kg
OD300N	300	225	8100	40	18	5.5	40	990	6200	2800	136 x 67 x 117	3454 x 1701 x 2971	11300	5125
OD500N	500	375	13400	60	22	7	50	1250	15000	6900	240 x 96 x 108	6096 x 2438 x 2743	20700	9389
OD750N	750	560	19000	80	30	9	55	1400	28000	12000	255 x 96 x 101	6477 x 2438 x 2565	31650	12655
OD1000N	1000	750	25000	100	30	9	65	1600	40000	18000	238 x 96 x 171	6045 x 2438 x 4343	40300	14356
OD1500N	1500	1120	36000	160	35	11	75	1800	56000	25000	240 x 98 x 139	6096 x 2489 x 3530	72100	32704
OD2000N	2000	1500	45000	200	35	11	80	2160	100000	45000	324 x 114 x 166	8229 x 2895 x 2946	88500	40142
OD3000N	3000	2250	70000	312	50	15	105	2670	160000	72000	324 x 114 x 166	8229 x 2895 x 2946	97800	44361

# HYDRAULIC POWER UNIT & ACCESSORIES

A containerized diesel-hydraulic power unit is provided for each thruster and is suitable for remote mounting at any convenient deck space on the vessel.

Each diesel-hydraulic power unit consists of a radiator-cooled marine diesel prime mover, hydrostatic main hydraulic pumps operating in a closed-loop hydraulic system, hydraulic and engine cooling equipment, hydraulic reservoir, filters, hoses and piping, engine exhaust system and all other related parts and equipment.



# DP CONTROL VAN

The control van contains all of the DP controls and thruster controls.

It is provided with captain's chair, air conditioning, and heating, large marine windows all around, marine doors, and an easily accessible connector box for all external cables to thrusters HPU's and sensor equipment.







**Thrustmaster of Texas, Inc.**

6900 Thrustmaster Drive  
Houston, TX 77041 USA

Phone: +1 713 937 6295

info@thrustmastertexas.com  
www.thrustmaster.net

**Thrustmaster Europe**

Broeikweg 31a  
2871 RM Schoonhoven  
The Netherlands

Phone: +31 182 381044

**Thrustmaster do Brasil Ltda.**

Av. Nilo Peçanha, 50 – Sala 2911  
20020-906 Centro  
Rio de Janeiro, RJ Brasil

Phone: +55 21 3045 9730

**Thrustmaster Middle East FZE**

Building Y - Office No.32  
Sharjah Airport Int'l. Free Zone  
Sharjah, United Arab Emirates

Phone: +971 6 5574104

**Thrustmaster Asia Pacific Pte Ltd.**

18 Boon Lay way, #05-147  
Tradehub 21, Singapore 609966

Phone: +65 64651218

