

ABOUT THRUSTMASTER OF TEXAS, INC.



Thrustmaster of Texas, Inc. is based in Houston, Texas USA with offices in Rotterdam, Dubai, Singapore, Brazil, and India. As the world's leading manufacturer of marine thrusters Thrustmaster has maintained its reputation over the years by strictly adhering to its mission statement of both quality and customer service.

Thrustmaster is ISO 9001 certified by the ABS. Thrustmaster field service engineers and technicians provide worldwide support 24 hours a day. Thrustmaster maintains a large inventory of all essential spare parts in Houston, Texas, backed up by a computer controlled inventory system, ensuring same-day shipping of breakdown spares to any destination in the world.

Agent Locations: Argentina - Australia - Brazil - Canada - Colombia - Egypt - England - Greece - India - Korea - Mexico - New Zealand - Pakistan - Peru - South Africa - Taiwan - Turkey - Venezuela

OTHER THRUSTMASTER PRODUCTS

Contact your Thrustmaster agent for help in choosing the correct thruster for you



Hydraulic Outboard Thrusters range from 26 to 1,500 kW and can be built in a variety of ways to suit your particular application. Sought after by construction and military managers needing a robust propulsion unit that is flexible and fast to install.



Underwater Demountable Azimuth L-Drive Thrusters for semi-submersible and large vessels available up to 8MW for Dynamic Positioning. These L-Drive thrusters feature a 7-degree downward angle to reduce interaction with the hull and increase thrust efficiency.



Bottom Mount and Drop-In Azimuth Z-drive and L-drive configured thrusters range from 55 kW to 8 MW. Z and L drives use electric or diesel prime movers and are perfect for tractor tugs and work vessels needing maximum power in all directions.



Standard Tunnel Thrusters range from 16in (406) to 84in (2134) diameter and 35hp (26kW) to 2000hp (1,500kW) and can be built for aluminum or steel hulls. Electric motors and complete VFD assemblies can be provided and classed accordingly.

Hydraulic Tunnel Thrusters up to 2000hp (1490kW) offer wider flexibility to the industry. Hydraulic thrusters as a whole allow the prime mover to be located anywhere on the vessel. The prime mover can be a diesel or electric motor driven.



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Designers and Manufacturers of
**Advanced Marine
Propulsion Systems**



Retractable Azimuth and Combi - Thrusters



L-Drive or Hydraulic Azimuth Thrusters that retract into the hull for high speed transit or as transverse thrusters and then extend for dynamic positioning or slow speed maneuvering

RETRACTABLE AZIMUTH THRUSTERS

SPECIFICATIONS

This brochure is designed for **HYDRAULIC OR MECHANICAL GEAR DRIVEN RETRACTABLE AZIMUTH THRUSTERS** and refers to Electric Motor Driven and Hydraulic Podded Drives with Electric or Diesel HPU's. We also include Combi-Drives that are a combination of thru-hull and retractable thrusters which retract as a tunnel drive and extend as an azimuth drive. For applications requiring other types of thrusters and propulsion please see the appropriate brochure(s) or contact your regional sales representative.

Thrustmaster of Texas, Inc. designs and manufactures the most diverse variety of thrusters in the marine industry to also include;

- ❖ Hydraulic and Mechanical Gear Driven Transverse Tunnel Thrusters
- ❖ Hydraulic Outboard Propulsion
- ❖ Z and L Drive Hydraulic Azimuth Propulsion and Thrusters
- ❖ Z and L Drive Mechanical Gear Driven Azimuth Propulsion and Thrusters
- ❖ Patented Portable Dynamic Positioning System

All Thrustmaster Thrusters Offer Unparalleled Precision Control When You Need It Most

The Retractable Azimuth Thruster can be used for docking and undocking, slow speed maneuvering, and emergency steering. The Thrustmaster Retractable Thruster powers through 360 degrees (without stopping) and offers deep submergence in rough seas to provide the best control for dynamic positioning and tight maneuvering. This is especially crucial in open seas where waves toss the bow out of the water and cause cavitation of conventional transverse tunnel thrusters.

Thrustmaster Retractable Azimuth Thrusters can be configured as a Retractable Only Azimuth Thruster, or, as a Retractable Combination Azimuth and Tunnel Thruster.

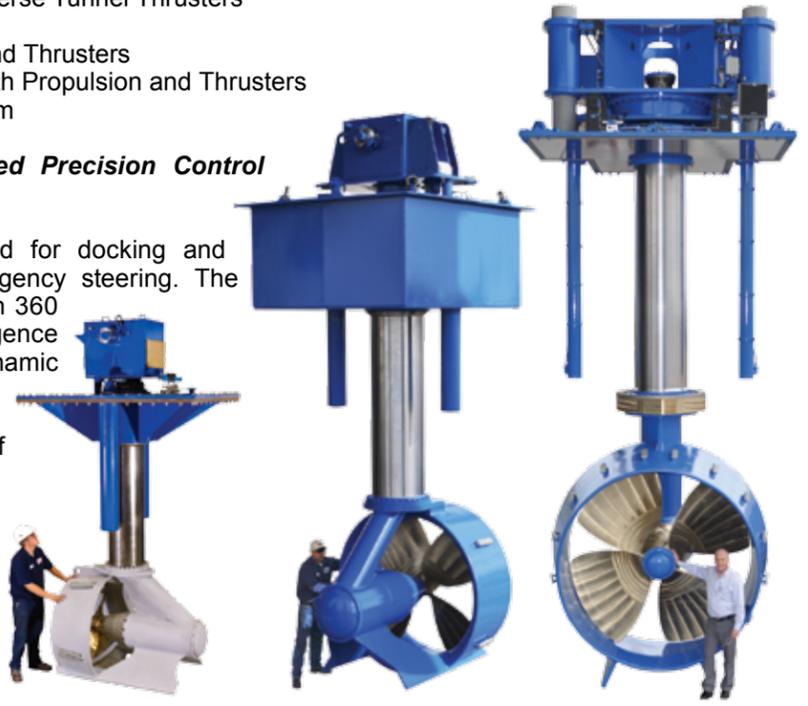
Thrustmaster maintains a staff of highly qualified Design Engineers to assist you with your selection and answer any questions. Thrustmaster Service Engineers provide worldwide service and support for installation, start-up and sea trials.

Visit our web site, or consult with one of our many offices or agents around the world to determine the best solution for your application.

The Cheetah and Cougar of the Seacor's Crewzer Class high speed catamaran crew boats use twin 200hp Thrustmaster Retractable hydraulic thrusters when traveling at high speed to offshore sites. Arriving on station they extend the thrusters and set up for critical dynamic positioning during crew changes and loading/unloading of cargo.



Retractable Thrusters



HYDRAULIC RETRACTABLE AZIMUTH - NO NOZZLE

Model	Prop		HP/RPM		Weight
	Dia. IN	BHP	PROP RPM	LBS	
TH-75-R	30	75	630	5455	
TH-100-R	36	100	500	8790	
TH-200-R	44	200	430	8945	
TH-250-R	48	250	400	9620	
TH-300-R	44	300	512	9880	
TH-400-R	56	400	372	13880	
TH-500-R	62	500	332	17100	
TH-600-R	56	600	417	17310	
TH-750-R	66	750	335	28325	
TH-850-R	66	850	370	29040	
TH-1000-R	68	1000	370	29540	

HYDRAULIC RETRACTABLE AZIMUTH THRUSTERS - NOZZLE

Model	Prop		HP/RPM		Weight
	Dia. IN	BHP	PROP RPM	LBS	
TH-100-RN	24	100	937	5690	
TH-150-RN	28	150	820	9060	
TH-200-RN	32	200	600	9400	
TH-250-RN	35	250	600	9970	
TH-300-RN	39	300	540	9970	
TH-400-RN	43	400	495	14520	
TH-500-RN	49	500	420	18140	
TH-600-RN	51	600	416	18790	
TH-750-RN	55	750	416	30500	
TH-850-RN	59	850	370	31300	
TH-1000-RN	63	1000	370	31700	
TH-1500-RN	***	***	***	***	
TH-1800-RN	***	***	***	***	
TH-2000-RN	83	2000	279	61000	

NOTES:
 1. CONTACT YOUR REGIONAL AGENT OR INFO@THRUSTMASTERTEXAS.COM FOR MORE INFORMATION ON LARGER MODELS OR SIZES BETWEEN THOSE SHOWN.
 2. ***Indicates that information was being evaluated at time of printing and not available.

MECHANICAL RETRACTABLE AZIMUTH THRUSTERS W/NOZZLE

Model	Prop Data		Electric Motor Information					Reduction	Dry Weight
	Dia. IN	PROP RPM	BHP INPUT	INPUT RPM	POLE	CUR-RENT	Looking at Front of Input Shaft		
TH-300-MLR	30	0-765	300	0-1800	4	AC	CW	2.360	12250
TH-400-MLR	39	0-590	400	0-1800	4	AC	CW	3.050	15250
TH-500-MLR	39	0-530	500	0-1200	***	***	CW	2.263	33500
TH-750-MLR	57	0-400	800	0-1200	***	DC or AC	CW	3.000	28120
TH-1000-MLR	57	0-400	1000	0-1000		DC	CW	2.600	28120
TH-1500-MLR	78	0-290	1500	0-900	8	AC	***	***	***
TH-2000-MLR	80	0-275	2000	0-900	8	AC	***	***	***
TH-2500-MLR	93	0-235	2500	0-720	10	AC	***	***	***
TH-3000-MLR	105	0-220	3000	0-720	10	AC	***	***	***
TH-4000-MLR	118	0-194	4000	0-720	10	AC	***	***	***
TH-5000-MLR	132	0-177	5000	0-720	10	AC	***	***	***

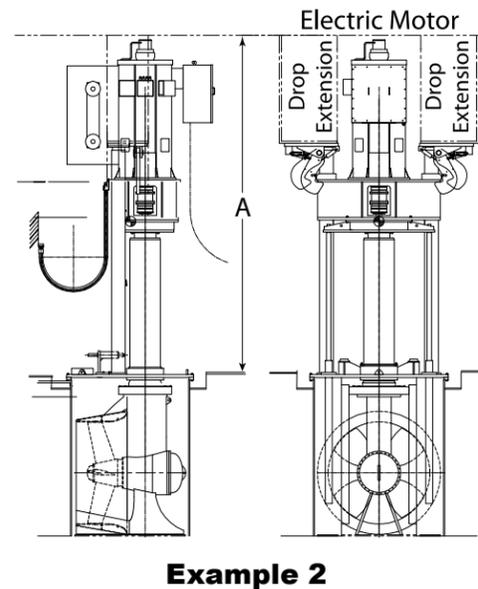
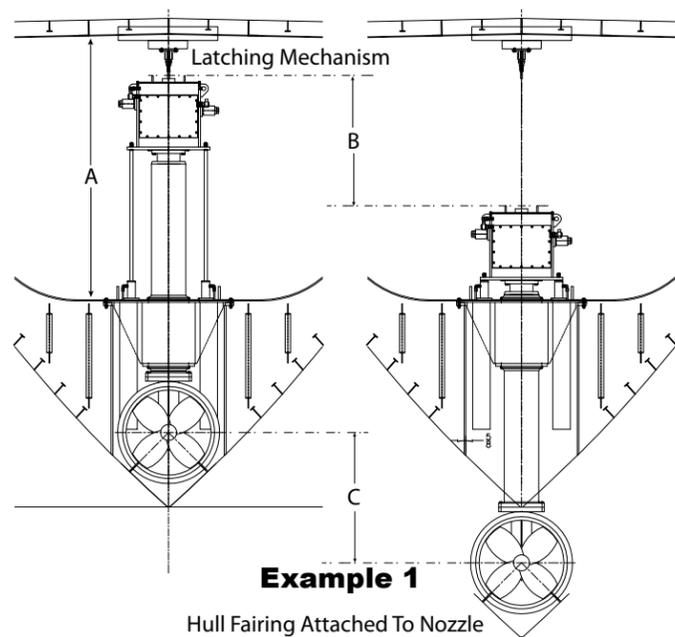
MECHANICAL RETRACTABLE AZIMUTH THRUSTERS L-DRIVE - COMBI-THRUSTER

Model	Prop Data		Electric Motor Information					Reduction	Dry Weight
	Dia. IN	PROP RPM	BHP INPUT	INPUT RPM	POLE	CUR-RENT	Looking at Front of Input Shaft		
TH-500-MLRT	44	530	500	0-1200	6	AC	CW	2.263	33250
TH-750-MLRT	57	400	670	0-1200-0	6	AC	CW/CCW	3.000	28120

MECHANICAL RETRACTABLE AZIMUTH THRUSTERS W/NOZZLE

Model	Prop Data		Electric Motor Information					Reduction	Dry Weight
	Dia. IN	PROP RPM	BHP INPUT	INPUT RPM	POLE	CUR-RENT	Looking at Front of Input Shaft		
TH-500-MLRT	44	530	500	0-1200	6	AC	CW	2.263	33250
TH-750-MLRT	57	400	670	0-1200-0	6	AC	CW/CCW	3.000	28120

DESIGN TIPS



Understanding Your Retractable Thruster

Thrustmaster Retractable Azimuth thrusters require a vertical clearance above the thruster. Example 1 (front view of a hydraulic thruster) and Example 2 (side and front view of an electric L-drive) shows that "A" will be given as the total clear space requirement between the mounting platen and the overhead. In each case the hydraulic head or electric motor will travel up and down with the thruster with hoses or cables following. Also note that the thruster travel distance "C" needed to stow the thruster nozzle is equal to the distance of "B" travel inside the hull. These dimensional requirements and additional features will be addressed by our highly qualified engineering staff to insure form, fit, and function of your Thrustmaster Retractable Azimuth Thruster.



Extended for Use

Your Investment Is Secure

Considering increases in efficiency, awesome DP capabilities, safer handling, and emergency get-home power the Thrustmaster Retractable Thruster is the choice of brilliant minds.

Having our engineering and manufacturing facilities in the same Houston, Texas factory complex also helps resolve hidden issues that can plague other thruster manufacturers. Lead times, parts availability, and planning & scheduling all result in shorter lead times and better quality.

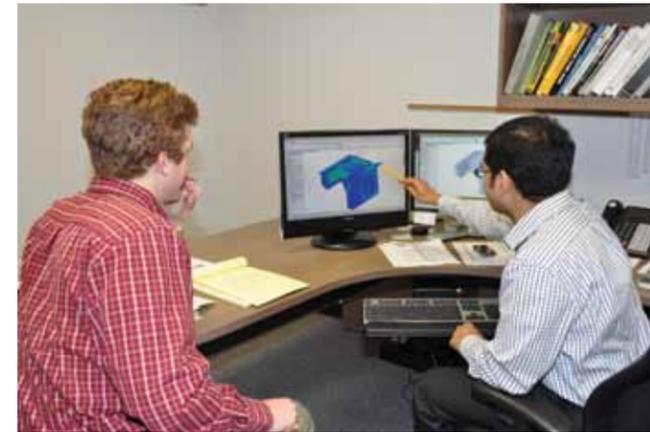
Thrustmaster's extensive line of thrusters makes selection and fitting to just about any style vessel your best choice, **bar none!**



Stowed and Locked

Note: Thrustmaster of Texas, Inc. Engineers work to design the best solution for each customer. Brochures, documents, or representatives may have made statements about the merchandise described with the Customer. Such statements DO NOT constitute warranties, shall not be relied upon by the Customer, and are not part of the contract of sale. The entire warranty is embodied in the writing of the contract and that writing will constitute the final expression of the parties' agreement as a complete and exclusive statement of the terms of that agreement.

THRUSTMASTER MEANS QUALITY



Dedicated Engineers and Production Staff

Thrustmaster is dedicated to the total engineering and manufacturing process of building thrusters and **ONLY** thrusters. The new 200,000 sq/ft factory and office was built to deliver thrusters to our customers. The first floor of the office supports operations and running the factory while the second floor houses the departments of training, finance, project managers, and top engineers, many with PhD's, who delve into the intricate and complicated sciences related to long term reliability and efficiency of your thruster design.

Thrustmaster engineers continue to invent new thruster concepts and improve existing designs using state-of-the-art design and analysis tools such as SolidWorks®, AutoCAD®, ANSYS®, STARCCM+ and Magma.

Fixed Pitch vs. Controllable Pitch Propellers



Any captain or pilot worth their salt will easily learn the nature of their retractable thruster system and how to make it respond as they wish. The most important factors are the amount of thrust, response time, and reliability.

Controllable Pitch Propellers (CPP) have their place but one tenant of Thrustmaster is that a Fixed Pitch Propeller (FPP) will easily out perform the CPP in cost and service life. Long term use proves them efficient and cost effective due to the absence of seals, push-rods, and bearings. The root of the blades on the FPP are much less susceptible to cracking and breakage, reducing the potential for downtime and drydocking fees.

The ability to quickly change directions with a robust four blade, high thrust Nickel-Aluminum-Bronze propeller and to respond to speed controls are simply good design work. Fixed pitch propellers used in Thrustmaster thrusters have been proven over and over again in the harshest of environments.

At Thrustmaster we are thrusters.

ISO 9001:2001 Quality

Thrustmaster thrusters are built under strict quality standards and classed in accordance with the customers requirements. By the time it leaves our factory a thruster will have gone through numerous quality inspections.

Quality at Thrustmaster begins with selection and control of our suppliers and the basic elements from which our products are made. Materials are processed in strict accordance with our rigorous specifications.

Each step of our manufacturing process is controlled by our quality control procedures and requirements, all in line with our ISO 9001 Quality Management System. Part specifications are verified and monitored with the highest quality of instruments and latest technology, which provides us with exceptional control and confidence in the durability and performance of our products.

The Zeiss CMM (right) is of the newest addition to Thrustmasters many insurances of a quality product.



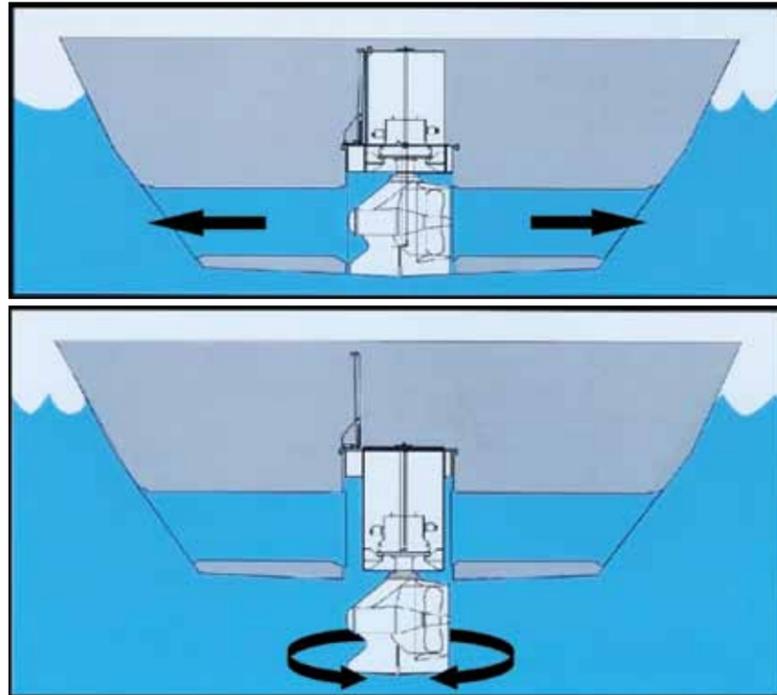
MAKE THE BEST OF YOUR THRUSTER

RETRACTABLE AZIMUTH THRUSTERS

Thrustmaster Retractable Combi -Thrusters

Thrustmaster offers more thruster selections than any other thruster manufacturer. A Thrustmaster Retractable Combi-Thruster can double as a transverse tunnel thruster in the raised position, or as a dynamic positioning thruster in the lowered position. The Combi-Thruster nozzle uses a 37A type nozzle and Kaplan propeller to enhance thrust in both directions when used as a transverse tunnel thruster while still optimizing thrust in the forward direction when used in the extended mode.

A Thrustmaster Combi-Thruster can be hydraulic or electric L-Drive and offers various engineered mounting and profile configurations tailored to fit your architectural needs.



Engineered HPU (Hydraulic Power Unit) Configurations

No two vessels are alike. The HPU provides power for steering, retraction, and powering the podded hydraulic motor. While the hydraulic pump, reservoirs, and valves to supply function and motive power are relatively defined, your vessel might be challenged with space, location, mission needs, or other areas. Some vessels with extra electrical power to spare are better suited for electric HPU's while another vessel might be better suited for a diesel engine. Either way, Thrustmaster's engineers and production staff can supply what you need to make the best use of your resources.



Custom Electric HPU Skid



Electric HPU Skid



Diesel HPU Skid



For Dynamic Positioning

Versabar 10000 Heavy Lift System uses 8ea - 1000hp Thrustmaster Retractable Thrusters, 4 in each barge, to dynamically position over projects such as setting new or removing dead platforms.

The Thrustmaster Hydraulic Retractable Thruster system allowed HPU's to be mounted on deck where space permitted *rather than* requiring that essential equipment be moved or relocated to accommodate the thrusters.

The thrusters are retracted while in transit to the site. Upon arriving the thrusters are lowered and used to DP over the site while the tow boats maneuver the dumb barge. Adjustments to reposition the heavy lift vessel can also be made with the thrusters.

For Military Applications

U.S. Navy's Littoral Command Ship trimarans deploy in hazardous waters to any where in the world as needed. The narrow, streamlined fast hulls were a perfect fit for 850hp Thrustmaster Hydraulic Retractable Azimuth Thrusters. In retracted mode the hulls maintain their sleek design allowing for maximum speed. Arriving on station the thrusters are on stand-by for tight quarter maneuvering or "get-home" power in an emergency.



For Other Government Services

Thrustmaster has over a quarter century of experience in supplying navies and government projects around the world with a wide variety of thrusters. From active duty military to dam and reservoir construction and maintenance, vessel operators find the exceptional maneuverability and functions of a 360 degree steering retractable thruster making their lives much easier and their work safer and more productive.

For Offshore Supply, Dive Support, and Salvage Vessels

Two ABS class 1000hp Thrustmaster Hydraulic Retractable Thrusters, one fore and one aft, deliver more power for DP-2 service than some ships of similar size have for main propulsion. Whether used for dive support or supplying a rig the retractable thrusters can spin the ship 180 degrees on its center axis or walk it sideways. Better still, Thrustmaster Retractable Thrusters can hold position for days without fatigue. After deploying a ROV the thrusters can also be used to track the asset and then hold position with pin-point accuracy as recovery or intricate work is carried out.

Tracking ROV's and Divers

Staying on track of divers and keeping tethers and life lines out of main propulsion rudders and screws can be a daunting task..., not to mention near impossible. Thrustmaster Retractable Thrusters feed back systems coupled to a reputable dynamic positioning system can provide maximum thrust any direction at up to three full revolutions per minute without having to return to a home position.

Add a 7-degree down angle and the degrading effect of interaction with a flat bottom hull is significantly reduced resulting in more efficient thrust.

