

PT. Marine Propulsion Solutions



Tunnel Thruster Systems

Marine Thruster & Propulsion Systems



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Transverse Tunnel Thruster Systems

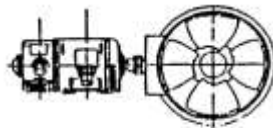
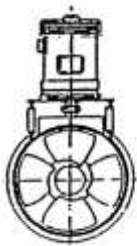
The versatility of *MPS-Marine Thruster Systems* allows installation in a hull with the drive shaft horizontal or vertical. Installation may be varied, therefore, to suit the needs of any specific vessel design providing possible space savings and convenient maintenance access.

Applications



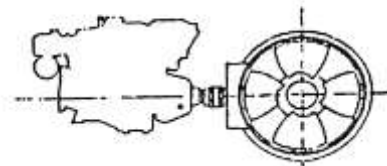
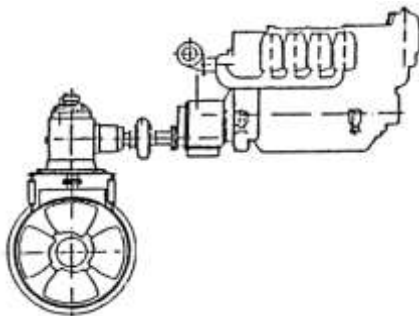
Drives: Electrical ... Diesel ... and Hydraulic

Various alternatives for installation arrangements



Electric Motor Vertical & Horizontal

Hydraulic Motor



Right Angle Gear Drives

Direct Diesel Drives

MPS Tunnel Thruster Series			Model 16BTM		Model 20BTM		Model 24BTM	
• Electric Frequency	Hz		50	60	50	60	50	60
• Power Rating	Kw		45	50	68	75	90	100
• Max Power Rating	Kw		50	55	75	82	100	110
• input speed (max)	rpm		1500	1800	1500	1800	1500	1800
• Maximum Thrust	Kgf		760	835	1140	1250	1525	1675
• Propeller dia	mm		410		510		610	
• Tunnel outer dia	mm		440		540		640	
• Tunnel wall thk	mm		12		12		12	
• Tunnel length std	mm		750		750		1000	

MPS Tunnel Thruster Series			Model 28BTM		Model 200BTM		Model 275BTM	
• Electric Frequency	Hz		50	60	50	60	50	60
• Power Rating	Kw		112	125	180	200	250	275
• Max Power Rating	Kw		125	137	200	220	275	300
• Input speed (max)	rpm		1500	1800	1500	1800	1500	1800
• Maximum Thrust	Kgf		1900	2085	3050	3350	4189	4570
• Propeller diameter	mm		710		860		1060	
• Tunnel outer dia	mm		740		890		1110	
• Tunnel wall thk	mm		12		12		15	
• Tunnel length std	mm		1000		1000		1000	

MPS Tunnel Thruster Series			Model 350BTM		Model 500BTM		Model 600BTM	
• Electric Frequency	Hz		50	60	50	60	50	60
• Power Rating	Kw		315	350	450	500	540	600
• Max Power Rating	Kw		350	385	500	550	600	650
• Input speed (max)	rpm		1500	1800	1500	1800	1500	1800
• Maximum Thrust	kgf		5330	5860	7615	8375	9140	9900
• Propeller dia	mm		1220		1375		1575	
• Tunnel outer dia	mm		1280		1435		1635	
• Tunnel wall thk	mm		15		15		15	
• Tunnel length std	mm		1000		1000		1000	

MPS Tunnel Thruster Series			Model 800BTM		Model 1000BTM		Model 1200BTM	
• Electric Frequency	Hz		50	60	50	60	50	60
• Power Rating	Kw		720	800	900	1000	1080	1200
• Max Power Rating	Kw		800	850	1000	1100	1200	1320
• Input speed (max)	rpm		1000	1200	1000	1200	1000	1200
• Maximum Thrust	kgf		12185	12945	15230	16750	18275	20110
• Propeller dia	mm		1775		1990		2200	
• Tunnel outer dia	mm		1810		2080		2290	
• Tunnel wall thk	mm		18		20		20	
• Tunnel length std	mm		1500		1500		1500	

* Consult Marine Propulsion Solutions - technical staff to determine applicable power for each specific use.

* All specifications subject to change without notice. Specifications is for guidance purposes only – request a certified drawing for construction

Tunnel/Bow Thruster

MPS Propulsion is a manufacture of Tunnel/Bow Thrusters for commercial vessels. Initially used in the bows of ferries and tugs, these versatile control devices soon became popular in offshore oil servicing boats and larger ocean-going craft. They permit unassisted maneuvering alongside of oilrigs, vessels, loading platforms and docks - and provide precise control at slow speeds through locks, narrow channels and bridges. Today, MPS Tunnel/Bow Thrusters are found in applications all over the world where precision vessel control is needed.

In The Hull

The Tunnel Thruster is installed athwartship in a tunnel low down in the bow. Sometimes a second unit is installed in the stern. For dynamic positioning and station keeping, as many as five Tunnel Thrusters have been used in a single application. With 180° thrust --90° to either port or starboard -- the Tunnel Thruster gives added maneuverability and control for docking and slow-speed operations. Because the Tunnel Thruster is relatively small in its athwartship dimension, it can be installed in a ship with fine entrance lines and can be located in the optimum position for maximum turning moment. Complete overhaul, maintenance and removal of the mechanism are often accomplished without dry-docking.

Direct Engine Bow Thruster Drive



Tunnel/Bow Thruster Adaptability

MPS Propulsion manufactures the Tunnel/Bow Thruster with an input flange in either the vertical or the horizontal position. Customer-supplied power may be in the form of a diesel engine, gas turbine, electric motor or hydraulic motor. Models cover a wide variety of HP and RPM ranges, with diameters from 36" to 120". Azimuth and through-the-hull thrusters are also available.

The Tunnel/Bow Thruster Package

The MPS Propulsion Tunnel/Bow Thruster consists of a cylindrical weldment, supporting near its center a right angle gear pod with an input shaft, coupling, and propeller shaft, and a Kaplan type propeller with blades working in close proximity to a corrosion and abrasion resistant wear ring.

Forged steel shafts are mounted on tapered and straight roller bearings. Drive gears are case hardened, spiral bevels designed for shock resistance, long life and quietness. Complete drive mechanism lubrication is through a flooded system, the entire Tunnel/Bow Thruster gearbox is running in submerged oil.

The gearbox, connected to a gravity tank 10 feet above the load water line, is equipped with sight gauges to show the thrusters oil level and give visual proof of tightness of seals, which keep water out of the mechanism.

High Efficiency

Marine Propulsion Solutions Pte Ltd fixed pitch, four blade Kaplan-type propeller, together with our efficient mechanical gear system, means low parasitic power losses from input to output - and the highest thrust in relation to tunnel diameter.

Bow/Stern Thrusters Designed and Built to Maintain High Thrust Over a Long Life

- Forged steel gears and propeller shafts
- Gear sets are lapped & matched
- Abrasion & corrosion resistant tunnels
- Tapered roller bearings
- Precisely engineered shim sets
- Special seals
- Four-blade Manganese Bronze propeller
- Extra heavy duty construction
- Three-point pod support
- Extra thick "chill rings" control distortion
- Bronze components where required
- Vertical or horizontal input shaft positions

Underwater Gear Box

The underwater gear box (Pod) is of a "Torpedo" shape, designed to keep the hydrodynamic resistance to a minimum level and to make sure the optimum hydrodynamics aspects are met.

The right angled gears are of the high tensile strength, carbonized and case hardened spiral bevel gear designs, which are lapped in pairs for silent operation.

The propeller mounts to a 1:12 taper on an ample sized propeller shaft and pushed in position with an end-plate, fitted with axial bolts in the propeller shaft. For the larger units, the propeller is mounted without a key using a SKF assembly on a conical shaft (hydraulically mounted).

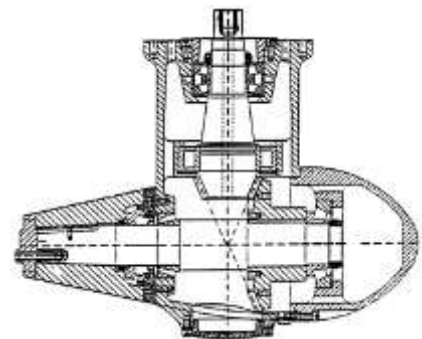
The end-plate protects vulnerable threads and provides also for the ability to pull the propeller off the shaft by turning the plate over.



Bearings

Most bearings used in the MPS Thruster Systems are tapered roller bearings, sized for a long life time. Mechanical losses are kept to a minimum.

The design life time for the bearings is over 20,000 hours, under full continuous load.



Thruster "Pod" Assembly

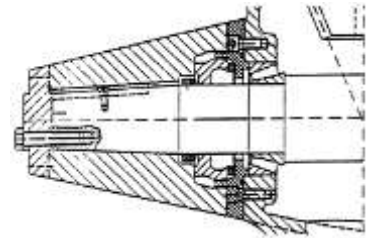
Sealing Systems



High quality nitrile rubber O-rings are applied between all static surfaces. Oil sealing opposing air are by means of lip seals.

Special attention has been given to the most important seal in the transverse thruster: The propeller shaft sealing system.

MPS Thruster Systems uses an axial "Deep-Sea Seal" Pressed by the propeller hub to a ni-resist seat. This sealing system is very reliable and resistant against penetration of dirt/debris (such as sand, mud, plastics, fishing lines etc.) The application of this seal offers supreme protection against oil leakage, giving the best environmental protection as well as a safeguard for the valuable internal power transmission parts inside the thruster drive.



Lubrication:

The lubrication of the Transverse Thrusters are of the oil bath type, the optimum solution in providing supreme lubrication to all rotating parts such as gearwheels and bearings, as well as the seals.

In order to achieve a positive pressure inside the thruster drive, the lubricant is pressurized by a header tank.

The header tank is complete with a self-closing type oil level sight glass and a filler/breather cap offering a single oil-filling point for the complete system.

Ship Shape

**Stay on course with
MPS Propulsion Thruster Systems**

**Reliable products for an unpredictable
Environment...**

All MPS Propulsion Thruster Systems products and services come with an extensive warranty and come fully guaranteed with the possibility of certification by all the major classification bureaus like American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanische Lloyd, Lloyds of London, etc., for unrestricted sea-service.

Full support ... throughout your project and many years after that.

Service and Consultancy... as you can rely on the AAA Road service for help when you find yourself stranded with your car, you can also rely on MPS Propulsion -Marine Thruster Systems to support you in case any of our equipment breakdown. A team of highly skilled technicians and service engineers will provide all the back-up you require. Service and maintenance programs are available for anybody that doesn't want to be bothered with the technical sides of leisure cruising.

Over 45 years of experience is behind us and we learn every day, that's why
You will never find better **Experts in Technology.**



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