# SUPERSOAR SPECIALIST IN MARINE PROPULSION



RELIABLE PROVIDER OF MARINE PROPULSION

PROPELLER / SHAFTING SYSTEM / RUDDER SYSTEM / THRUSTER



### WHO WE ARE

Zhenjiang Supersoar Marine propulsion Co.,ltd is located in High-tech industrial park, Jinkou district, Zhenjiang City, Jiangsu province, China. It is a subsidiary of Zhenjiang Supersoar international trading Co.,Ltd. We have a share holding professional marine propeller manufactory with the first class equipment and material testing system. The factory area is above 20000 square meters. We can produce the bronze propeller with diameter less than 6 meters, with the weight of single propeller less than 16 tons, and the stainless steel propeller with diameter less than 3 meters, with the weight of single propeller less than 1.2 tons. Our products have been approved by the class society of CCS, ABS, BV, GL, KR, RINA etc. and ISO 9001 quality management system and passed the military product testing. After many years development, our company also co-operated with other high quality products factories, especially propulsion system, shafting system, rudder system, thrusters.

# SUPERSOAR MARINE PROPULSION

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CPP / ENERGY SAVING DEVICE

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CONTRA-ROTATING PROPELLER TUNNEL THRUSTER

DECK MOUNTED AZIMUTH THRUSTER

FIXED PITCH PROPELLER TUNNEL THRUSTER

WELL MOUNTED AZIMUTH THRUSTER

TECHNICAL SUPPORT FROM

**CMES-TECH THRUSTLEADER** 





## PROPELLER AND ACCESSORIES

BRONZE PROPELLER /
STAINLESS STEEL PROPELLER/
CPP / ENERGY DEVICE

## PROPELLER AND ACCESSORIES

#### FIXED PITCH PROPELLER

#### Bronze propeller

#### Custom design is capable



A high-quality bronze propeller is through the molding, melting, casting, machining and polishing of the professional production process, and through a series of high standards of testing processes such as dimension inspection, material testing, flaw detection testing, balance testing, etc., each of our propellers can withstand the inpsection of classification societies, and have won unamimous praise from customers.

#### Specification ability of bronze propeller

Range of dia.(m)	Range of weight (ton)	No. of Blade	DAR	Materieal	Class	Class soiciety
0.6-6	less than16	3/4/5/6/7	≤1.5	Cu3/Cu4	S/1/2	CCS,ABS,BV,RINA,DNV, RMRS, KR, BKI, IRS

#### Material of bronze propeller

		Chemical Composition %								Physical properties		
Grade	Cu	Al	Mn	Zn	Fe	Ni	Sn	Pb	Yield strength σ0.2 N/mm2	Tensile strength ob N/mm2	Elongation δ%	
Cu3	77-82	7.0-11.0	0.5-4.0	≤1.0	2.0-6.0	3.0-6.0	≤0.1	≤0.03	≥245	≥590	≥16	
Cu4	70-80	6.5-9.0	8.0-20.0	≤6.0	2.0-5.0	1.5-3.0	≤1.0	≤0.05	≥275	≥630	≥18	

#### Product display



Diameter:0.68m DAR:1.4 No. of blade:5 Material:Cu3 Weight:197kgs



Diameter:0.64m DAR:0.81 No. of blade:6 Material:Cu3 Weight:42kgs



Diameter:5.3m DAR:0.55 No. of blade:4 Material:Cu3 Weight:11ton



Diameter:6.2m DAR:0.75 No. of blade:5 Material:Cu3 Weight:18ton



Diameter:2.8m DAR:0.85 No. of blade:4 Material:Cu3 Weight:2.8ton

#### FIXED PITCH PROPELLER

Stainless steel propeller

Custom design is capable



Stainless steel propellers are widely used in inland ships, with the advantages of high strength and strong corrosion resistance. Due to the relatively high hardness of stainless steel material, and stainless steel in the casting process needs heat treatment, resulting in the production of stainless steel propeller is difficult, our company after years of practice and research and development, has a very professional stainless steel propeller production system, can complete the production of stainless steel propeller in batches, in the leading level in China. The products are well recognized by international customers.

#### Capacity of stainless steel propeller

Range of dia.(m)	Range of weight (ton)	No. of Blade	DAR	Materieal	Class	Class soiciety
0.6-3	less than 1.2	3/4/5	≤1.1	CF3	1/2	CCS,BV,RMRS

#### Material of stainless steel propeller

			Chem	ical Compo	Physical properties					
Grade	С	Si	Mn	P	S	Ni	Cr	Yield strength σ0.2 N/mm2	Tensile strength ob N/mm2	Elongation δ%
CF3	≤0.03	≤1.0	≤2.0	≤0.045	≤0.03	9.0-12.0	18.0-20.0	≥205	≥520	≥40

#### Product display





Diameter: 1.55m DAR: 0.80 No. of blade: 5 Material: CF3 weight: 450kgs



Diameter:1625mm DAR:0.85 No. of blade: 4 Material:CF3 weight:510kgs



Diameter:2032mm DAR:0.8 No. of blade: 4 Material:CF3 weight:800kgs



Diameter:0.9m DAR:0.53 No. of blade: 4 Material:CF3 weight:100kgs

## PROPELLER AND ACCESSORIES

#### CONTROLLABLE PITCH PROPELLER

Contollable pitch propeller

Custom design is capable



The controllable pitch propellers are made of Bronze, which is the most commonly used material in the marine propeller fabrication due to its good physical properties and excellent corrosion resistance.

The propeller characterizes a high efficiency while low fuel consumption by adjusting the propeller pitch.

The propeller hub and blades are mainly produced with a 5-axis CNC machine to ensure all dimensions be accurate.

#### Material of CPP

		Chemical Composition %							Physical properties		
Grade	Cu	Al	Mn	Zn	Fe	Ni	Sn	Pb	Yield strength σ0.2 N/mm2	Tensile strength ob N/mm2	Elongation δ%
Cu3	77-82	7.0-11.0	0.5-4.0	≤1.0	2.0-6.0	3.0-6.0	≤0.1	≤0.03	≥245	≥590	≥16
Cu4	70-80	6.5-9.0	8.0-20.0	≤6.0	2.0-5.0	1.5-3.0	≤1.0	≤0.05	≥275	≥630	≥18

#### Product display











We can also provide the complete CPP system.

#### ENERGY SAVING DEVICE

Vortex Absorbed Fin

Custom design is capable



#### Technical Support comes from CMES-TECH

#### Hydrodynamic Mechanism

Rectify the strong downstream from propeller blade trailing edge and breakup the hub vortex;

Produce force:

Reduce propeller shaft torque by 2%~3% and increase thrust by over 1%~2%

Vortex Absorbed Fin is attached with small fins on the boss cap. Vortex Absorbed Fin mainly recovers the energy loss of propeller hub vortex in propeller downstream. The geometry shape of Vortex Absorbed Fin is very simple, and Vortex Absorbed Fin can be installed behind the propeller easily as original boss cap, which rotates together with the propeller. Vortex Absorbed Fin can save fuel consumption by 2%-5% as operating at the same speed.

#### Pre-Shrouded Vanes

Custom design is capable



#### Technical Support comes from CMES-TECH

#### Hydrodynamic Mechanism

Produce additional thrust by duct;

Produce pre-swirled inflow to propeller by pre-swirl vanes and reduce rotational lossin resulting propeller slipstream,

Improve propeller efficiency by equalizing inflow to the propeller and increasing theflow velocity towards the inner radius of the propeller;

Suppress the flow separation near the stern of the vessel, and recover the pressureon the surface of the stern.

Pre-Shrouded Vanes consists of a wake improving duct combined with several pre-swirl vanes positioned ahead of propeller. Pre-Shrouded Vanes can correct the flow into the propeller which essentially reduces the rotational losses in the propeller slipstream and increase the flow velocity towards the inner radius of the propeller. The expected power reduction of Pre-Shrouded Vanes is in therange of 3% to 8%.





## SHAFTING SYSTEM

TAIL SHAFT / STERN TUBE
RUBBER BEARING / HYPOLYMER
BEARING / INTERMEDIATE SHAFT
COUPLING / SEALING APPARATUS
INTERMEDIATE BEARING
STUFFING BOX / SHAFT BRACKET

### SHAFTING SYSTEM

#### SHAFTING SYSTEM

Propeller stern Shaft



The stern shaft materials covering various grades of: low carbon steel, alloy steel, stainless steel, ductile iron, aluminum alloy, copper alloy, titanium alloy.

The main processes are: free forging, die forging, rolling ring, high pressure casting, centrifugal casting, normalizing, quenching and tempering, solution treatment, aging treatment, carbonitriding, turning, milling, drilling, grinding, high frequency quenching, galvanizing, chrome plating, anodizing, powder spraying and other processes.

We can produce propeller shafts with: A max length of 16000mm, max diameter 500mm and max single piece weight 16 Tons. At the same time, we are good at terminal machining of complex products, dimension accuracy: Min 0.01mm, roughness: Min Ra0.6.

Intermediate shaft



The intermediate shaft, covering various grades of: low carbon steel, alloy steel, stainless steel, ductile iron, aluminum alloy, copper alloy, titanium alloy. The main processes are: free forging, die forging, rolling ring, high pressure casting, centrifugal casting, normalizing, quenching and tempering, solution treatment, aging treatment, carbonitriding, turning, milling, drilling, grinding, high frequency quenching, galvanizing, chrome plating, anodizing, powder spraying and other processes.

#### SHAFTING SYSTEM

#### Coupling



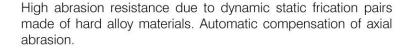
The shaft coupling is the component which joins the propeller shaft to the gearbox output flange. Some are bolted directly to the gearbox but many installers use a flexible couple, such as R&D flexible couplings, which would then bolt to the gearbox. Our range includes couplings for most popular transmission types, bored for imperial or metric shafts. Besides the standard coupling, the Solid Half Coupling, Clamp on or Split Half Coupling, Bobbin Coupling and Coupling Adapters are also available.

Material: carbon steel, stainless steel

Processing methods: forged and lathe machining

Dimensions: designed according to the shaft and gearbox.

#### Sealing apparatus



Anti-corrosion, strong environmental adaptability, long life span

Applied for high-speed ship shaft seals.

Type: oil lubracation / water lubracation



Shaft Diameter:Φ50~Φ1150mm

Rotating Speed 0- 1500rpm(depend on the shaft diameter)

Oil pressure:1-2bar Water Pressure:1bar Model Selection Principle

Selecting according to the installation of stern shaft sealing apparatus

diameter of shaft(or collar diameter) and interface size requirements

Setting aside enough maintenance operation space.

Customized design can be done(shaft diameter, connecting interface, etc)

#### Application:

It can be applied to all kinds of vessels, of which the working medium is oil or water



## SHAFTING SYSTEM

#### SHAFTING SYSTEM

Rubber bearing



Bronze rubber bearing, bronze rubber bush for water lubricant for marine industry. Naval brass rubber bush adapts equally well to strut and stern tube mounts. And are often used effectively as rudder-stock and pintle bushings. Bearing diameters are precision fitted to the designated shaft size with the correct clearance for efficient water lubrication.

External brass shells are machined and polished to provide easy fitting. Specially formulated oil and chemical resistant nitrile rubber is securely bonded to the shell. Unit with thin shells are available for the struts of small craft. Sleeve bearings are usually installed by light press-fitting and locked in place with once pointed set screws.

#### Hypolymer bearing



The high polymer is widely used in the bearing for ships' stern tube and rudder. It can be used for all kinds of vessels around the world. It is the main material for the bearings.

The High Polymer Bearing material is a co-polymer high polymer material, with all generalities of sliding bearings, suitable for open and closed lubrication system can meet the needs of a variety of environment.

The high polymer bearing is with high abrasion resistance, multi-purpose and stability. It brings remarkable economic benefits to ship owners and shipyards and brings great social benefits for marine bearing materials domestication.

#### SHAFTING SYSTEM

Stern tube



The stern tube is generally composed of FWD and AFT bearing housings and a stern tube. The bearing housing is used to install bearings and shaft seals, and the stern tube is used for connection and protection. Its structural type is divided into two types: integral type and connected type according to whether the bearing shell and stern tube are made into a whole.

The AFT bearing housing of the stern tube is usually pressed or glued into the tail post (or herringbone) shaft on the ship. There is also an improved stern tube that directly presses the bearing into the stern post (or shaft bracket) shaft. In the hub of the shaft bracket, the AFT bearing housing is omitted, which can also be said to be the tail post of the rear bearing housing (shaft bracket) and the hub is combined into one to form a whole.

Nozzle



Nozzles or ducted propellers can be significantly more efficient than un-ducted propellers at low speeds, producing greater thrust in a smaller package. Nozzles may be fixed, with directional control coming from a rudder set in the water flow, or pivoting, where their flow controls the vessel's steering.

Nozzles are necessary when a maximum thrust is required at low hull speed. The tug is a good example as well as a fishing trawler whilst fishing at low speed: they need nozzles. Nozzles can be in a fixed position with a rudder placed on their aft part. Or nozzles can be directed: in this case they work as Rudders.

## SHAFTING SYSTEM

#### SHAFTING SYSTEM

#### Intermediate bearing



The intermediate bearing is used to bear the load of the intermediate shafting of the ship. When the shaft system is running, the oil thrower fixed on the shaft brings the lubricating oil in the oil pool into the gap between the shaft and the bearing bush through the oil filling bucket, and forms a lubricating oil film between the shaft and the bearing bush through the operation of the shaft system, so that the friction only occurs Inside the fluid, it ensures the safe operation of the shafting system.

Since the bearing bush adopts a spherical self-positioning structure, the bearing bush can be flexibly self-adjusted in the bearing seat, so the spherical intermediate bearing has a self-aligning function, which eliminates bearing contact caused by shaft vibration, slight deformation, and low centering accuracy. The situation of unbalanced force on the surface. The heat generated by the friction of the bearing is taken away by the cooling water flowing in the cooling water chamber (cooling coil)

#### Stuffing box



A stuffing box is an assembly which is used to house a gland seal. It is used to prevent leakage of fluid, such as water or steam, between sliding or turning parts of machine elements

#### Type A, B and C

- 1. Type A is suggested for vessels of which bulkhead space is large.
- 2. When the bulkhead space is small or there is a design requirement, the type C and B are optional.
- 3. The sizes of this table are for reference only. Products can be manufactured according to customer's requirements.

#### SHAFTING SYSTEM

Shaft bracket

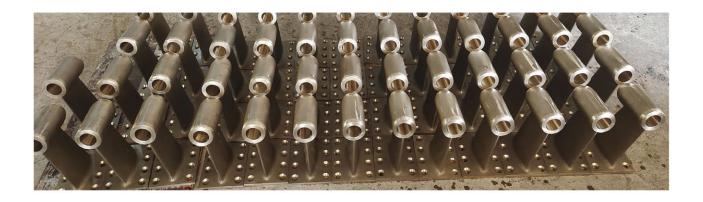




Shaft brackets (A or P bracket/Strut) are typically manufactured from high-grade nickel, aluminum bronze or manganese bronze materials. Cast in our own foundry with the latest technology casting processes.

The casting process is controlled to IACS requirements including material analysis and NDT testing when needed. According to the requirements from customers, the casted pieces could be machined on 5 Axis Machining Centers or polished manually. Machining in one loading allows Supersoar Marine to achieve the highest standard of accuracy for alignment of palm mounting to shaft bore. All finished brackets are controlled with highest standard.

Alternatively, all brackets can be fabricated in aluminum, stainless steels, or mild steel as a complete item or component parts.







# RUDDER

RUDDER STOCK / RUDDER BLADE RUDDER PINTLE / RUDDER CARRIER RUDDER TRUNK / RUDDER SEALING DEVICE

## RUDDER SYSTEM

#### RUDDER SYSTEM

Rudder Blade



The balanced rudder blade is usually a rudder of which the axis is between the front and back of the rudder blade .It acts as a balance when steering.

- 1. The pressure center of the rudder blade is close to the rudder axis, and the rudder torque required is small.
- 2. The rudder blade can reduce the required power of the rudder.
- 3. According to the client's request and drawings, we can customize the product.
- 1. Product name: rudder blade for marine boat
- 2. Raw material:35# ,45#, 40Cr, 42CrMo, etc
- 3. Supply range:OD.200-1000 mm,Weight≤15T
- 4. Standard: ISO, GB, ASTM, DIN, JIS
- 5. Process: EAF + LF + VD + Forged + Heat Treatment (optional)
- 6. Heat treatment: Normalized / Annealed / Quenched / tempered
- 7. Delivery condition: Hot forged +Rough machined (black surface after Q/T)+ Turned (optional)
- 8. Inspection Equipment; Metallurgical analysis, Tensile strength tester, Hardness tester, Altimeter, Scale Micrometer, pressure tester, etc.
- 9. Certificates: CCS, BV, ABS, GL, DNV, RINA, LR,etc

#### **Rudder Pintle**



The Marine Rudder Pintle is designed and manufactured for the rudder system of kinds of ships, It suitable for different size rudder stock, from 50mm to 600mm. There are upper rudder pintle and lower rudder pintle.

The diameter and length of the rudder pintle will be decided by the design of the whole rudder system.

#### RUDDER SYSTEM

Rudder Stock



The rudder stock is a part of the rudder system. It is a very important part of the steering system because it makes sure the vessel change the direction. Our rudder stocks are made of stainless steel, forged steel and alloy steel.

#### Features:

1.material:stainless steel, forged steel, alloy steel

2.certificates:ABS,BV,DNV,GL,LR, RINA,KR,CCS

3.test:100% ultrasonic flaw detection test

4.delivery time: according to the quantity and size

The Rudder Stock is a part of the rudder system. A rudder system includes the rudder blade, rudder stock, rudder pintle, carriers ,bearings and other accessories. The rudder stock is a very important part of the steering system. It makes sure the vessel change direction.

#### Rudder Pintle Sealing device



This rudder pintle sealing apparatus is compact in structure and easy to be maintained. It is suitable when the axial size is small.

It is suitable for the sealing between the rudder stock and hull. We offer two types of this product. One type is with a shaft diameter of 100-300mm and the other type 65-100mm. It is approved by CCS, ABS, BV, GL, etc. We can provide the certification if needed.

## RUDDER SYSTEM

#### RUDDER SYSTEM

Roller Upper Rudder Carrier



Type A

It is suitable for small and medium vessels with upper and lower rudder constructions.

Type A Light Roller Upper Rudder Carrier Dia.40-Dia.150, is used for rudders with small loads and pintles of small flexibility.



Type B

Type B Heavy Roller Upper Rudder Carrier, Dia. 120- Dia.340, Automatic self-aligning ability and suitable for hinged rudder with heavy loads under bad situation.



Type C

Type C Watertight Roller Upper Rudder Carrier, Dia.120mm- Dia. 400, has the advantages of type B and Sealing Features.

#### RUDDER SYSTEM

Gliding Watertight Lower Rudder Bearing



The gliding watertight lower rudder bearing is mainly applicable to marine transport ships, engineering ships and inland river transport ships with a rudder stock of 50-500mm. It is used together with CB\*789 upper rudder bearing and has a good sand prevention effect.

#### Advantages

- 1. Simple structure, easy to install.
- 2. Durable material, long service life.
- 3. Depending on the customer's needs, the product can be customized.

Plane Frictional Watertight Upper Rudder Carrier



The plane frictional watertight upper rudder carrier is mainly used to bear the weight of the rudder stock and the rudder blade. And it causes radial load by hydrodynamic forces acting on the rudder. In addition, it can guarantee the maneuverability of the ship. This series of products have been widely used in all kinds of large and medium-sized ships.

#### Advantages

- 1. Fast rotate speed and simple structure.
- 2. Endurable material and long life-Span.
- 3. Products can be designed according to customer drawings and requirements.





WELL-MOUNTED THRUSTER

CONTRA-ROTATING AZIMUTH THRUSTER

RETRACTABLE AZIMUTH THRUSTER

DECK-MOUNTED AZIMUTH THRUSTER

CONTRA-ROTATING PROPELLER TUNNEL THRUSTER

FIXED PITCH PROPELLER TUNNEL THRUSTER

CONTROLLABLE PROPELLER TUNNEL THRUSTER

#### THRUSTER

Well-Mounted Azimuth Thruste

Custom deisign is capable



Model	Max. Power (KW)	Prop.Dia. (mm)
TLAT100WM	60	400-600
TLAT250WM	184	500-800
TLAT350WM	258	700-1150
TALT600WM	441	1000-1400
TLAT850WM	625	1200-1500
TALT1000WM	736	1150-1600
TLAT1200WM	883	1250-1750
TALT1400WM	1030	1350-1850
TLAT1600WM	1177	1500-1950
TLAT1800WM	1324	1600-2100
TLAT2000WM	1470	1750-2300
TLAT2400WM	1765	1950-2500
TLAT2700WM	1986	2000-2600
TLAT3000WM	2207	2100-2700
TLAT3500WM	2574	2200-2800
TLAT4000WM	2942	2500-3200
TLAT5000WM	3680	2650-3900

Drive type: Diesel engine driven, E-motor driven, H-motor driven and so on

Installation type: L-type and Z-type



Contra-rotating Azimuth Thruster

Custom deisign is capable



Model	Max. Power (KW)	Prop.Dia. (mm)
TLAT100WM-CR	60	400-600
TLAT250WM-CR	184	500-800
TLAT350WM-CR	258	700-1150
TALT600WM-CR	441	1000-1400
TLAT850WM-CR	625	1200-1500
TALT1000WM-CR	736	1150-1600
TLAT1200WM-CR	883	1250-1750
TALT1400WM-CR	1030	1350-1850
TLAT1600WM-CR	1177	1500-1950

Drive type: Diesel engine driven, E-motor driven, H-motor driven and so on

Installation type: L-type and Z-type



#### THRUSTER

Retractable Azimuth Thruster

Custom deisign is capable



Model	Max. Power	Prop.Dia.	
Model	(KW)	(mm)	
TLAT100RT	60	400-600	
TLAT250RT	184	500-800	
TLAT350RT	258	700-1150	
TALT600RT	441	1000-1400	
TLAT850RT	625	1200-1500	
TALT1000RT	736	1150-1600	
TLAT1200RT	883	1250-1750	
TALT1400RT	1030	1350-1850	
TLAT1600RT	1177	1500-1950	
TLAT1800RT	1324	1600-2100	
TLAT2000RT	1470	1750-2300	

Model	Max. Power (KW)	Prop.Dia. (mm)		
TLAT100RT-CR	60	400-600		
TLAT250RT-CR	184	500-800		
TLAT350RT-CR	258	700-1150		
TALT600RT-CR	441	1000-1400		
TLAT850RT-CR	625	1200-1500		
TALT1000RT-CR	736	1150-1600		
TLAT1200RT-CR	883	1250-1750		
TALT1400RT-CR	1030	1350-1850		
TLAT1600RT-CR	1177	1500-1950		

The drive type can be selected according to the user's requirement, such as diesel engine drive, E-motor drive, H-motor drive and so on

Select L-type or Z-type installation method according to the cabin space

Deck-Mounted AzimuthThruster

Custom deisign is capable



Drive type: Diesel engine driven E-motor driven H-motor driven

Installation type: L-type Z-type

Model	Max. Power (KW)	Prop.Dia. (mm)
TLAT100DM-CR	60	400-600
TLAT250DM-CR	184	500-800
TLAT350DM-CR	258	700-1150
TALT600DM-CR	441	1000-1400
TLAT850DM-CR	625	1200-1500
TALT1000DM-CR	736	1150-1600
TLAT1200DM-CR	883	1250-1750
TALT1400DM-CR	1030	1350-1850
TLAT1600DM-CR	1177	1500-1950

Model	Max. Power (KW)	Prop.Dia. (mm)
TLAT100DM	60	400-600
TLAT250DM	184	500-800
TLAT350DM	258	700-1150
TALT600DM	441	1000-1400
TLAT850DM	625	1200-1500
TALT1000DM	736	1150-1600
TLAT1200DM	883	1250-1750
TALT1400DM	1030	1350-1850
TLAT1600DM	1177	1500-1950
TLAT1800DM	1324	1600-2100
TLAT2000DM	1470	1750-2300
TLAT2700DM	1985	2100-2600



#### THRUSTER

Contra-rotating propeller tunnel Thruster

Custom deisign is capable



Drive type: Diesel engine driven, E-motor driven, H-motor driven and so on

Installation type: L-type and Z-type

Product advantage
The same power, the maximum thrust
The same thrust, the minimum propeller diameter

Model	Max. Power (KW)	Prop.Dia. (mm)	Tunnel inner dia.(mm)	Tunnel inner thickness(mm)	Tunnel length(mm)	Max.thrust (KN)
TLCT25	18.5	225	250	8	450	2.8
TLCT37	37	370	400	10	600	6
TLCT50	90	500	520	12	900	14
TLCT60	132	600	625	12	1000	21
TLCT70	185	700	725	15	1250	29.6
TLCT80	280	800	825	15	1250	44.5
TLCT100	375	1000	1030	20	1400	60
TLCT120	560	1200	1230	20	1700	88
TLCT150	750	1500	1535	25	2000	120
TLCT165	950	1650	1685	25	2100	150
TLCT185	1300	1850	1885	25	2400	206
TLCT200	1560	2000	2040	30	2600	248

Fixed-pitch propeller tunnel Thruster

#### Custom deisign is capable



Model	Max. Power (KW)	Prop. Dia. (mm)	Tunnel inner dia.(mm)	Tunnel inner thickness (mm)	Tunnel length (mm)	Max. thrust (KN)
TLTT80	200	800	825	15	920	30
TLTT90	280	900	930	15	920	42
TLTT110	375	1100	1130	15	1400	60
TLTT135	560	1350	1378	16	2000	84
TLTT150	680	1500	1535	15	2000	102
TLTT165	750	1650	1685	25	2000	112
TLTT185	950	1850	1890	25	2000	152
TLTT200	1300	2000	2040	25	2100	195
TLTT225	1560	2250	2290	25	2400	235
TLTT250	1750	2500	2550	30	2800	262
TLTT265	2050	2650	2700	30	2800	306
TLTT280	2450	2800	2845	30	2850	368
TLTT300	2800	3000	3060	40	3100	420
TLTT330	3150	3300	3360	40	3400	472

Drive type: Diesel engine driven E-motor driven H-motor driven Installation type: L-type Z-type

Controllable pitch propeller tunnel Thruster

Custom deisign is capable



Model	Max. Power (KW)	Prop. Dia. (mm)	Tunnel inner dia.(mm)	Tunnel inner thickness (mm)	Tunnel length (mm)	Max. thrust (KN)
TLTT110-CP	375	1100	1130	20	1400	46
TLTT135-CP	560	1300	1335	20	1500	66
TLTT150-CP	680	1500	1535	25	1650	84
TLTT165-CP	750	1650	1685	25	1750	106
TLTT185-CP	950	1850	1890	25	2000	132
TLTT200-CP	1300	2000	2040	30	2250	165
TLTT225-CP	1560	2250	2290	25	2400	235
TLTT250-CP	1750	2500	2550	30	2800	262
TLTT265-CP	2050	2650	2700	30	2800	306
TLTT280-CP	2450	2800	2845	30	2850	368
TLTT300-CP	2800	3000	3060	40	3100	420
TLTT330-CP	3150	3300	3360	40	3400	472

Drive type: Diesel engine driven E-motor driven H-motor driven Installation type: L-type Z-type

# HIGH QUALITY HIGH EFFICIENCY INTEGRITY



#### ZHENJIANG SUPERSOAR MARINE PROPULSION CO.LTD

Factory Add: Building 1-1, Industrial Park, Jinkou District, Zhenjiang City, Jiangsu, China, 212006

Tel:+86-511-84521659 Fax:+86-511-84521859 WWW.SUPERSOARMARINE.COM