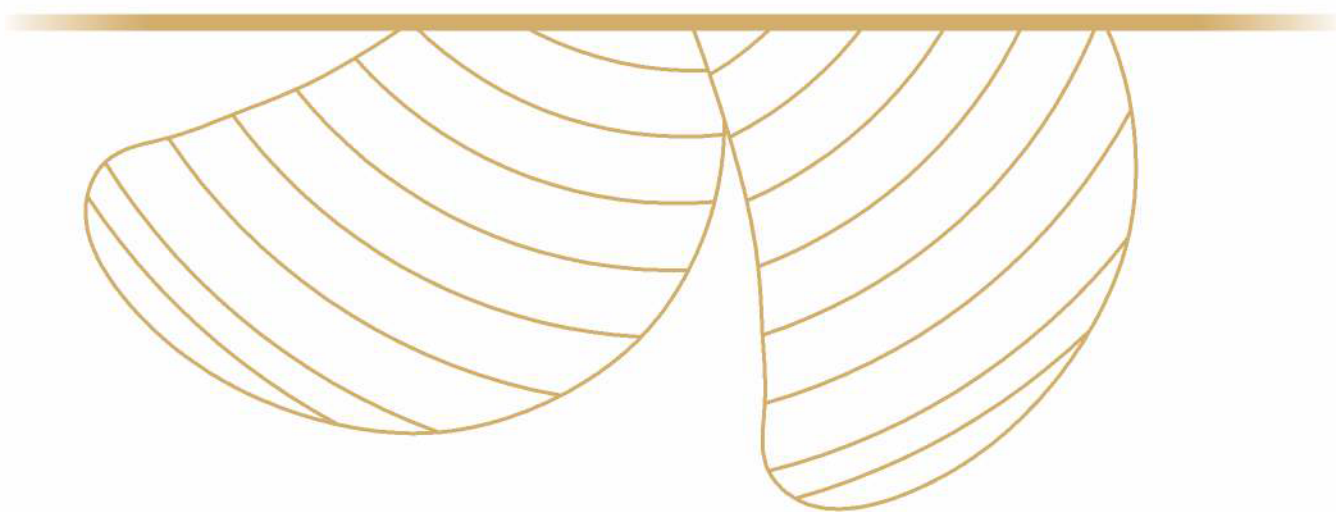




SGP PROPULSION



Design | Build | Deliver

Company Overview

SGP Propulsion is currently a leader in the manufacturing, design and supply of world-class marine propulsion system. We're maintaining steadily our leadership in this field since our inception in the year of 1976. Our more over 40 years of successful tenure working for marine industry with utmost commitment is a significant proof in this context. We produce, design and reconstruct propulsion systems using expertise and up gradation of the latest technologies. We constantly exceeding the expectations of our customers through coming up with the best output according to the customer needs and interests besides strictly adhering well to the industry standards too. Our success and acquired leadership in the field definitely belongs to our team of expertise, advanced machinery, innovative & latest software technologies and the experienced workforce. We're truly motivated through the encouragement of our customer base and it is the hallmark of our customer driven culture too.



Vision:

Our vision is maintain steadily our acquired leadership in the field through enhancing and expanding our production facility, introducing the new generation of marine propulsions & through providing the better than best to our customers all across the world.

Mission:

Our mission is always to ensure utmost satisfaction to customers and to keep up their confidence intact over us through fulfilling well their better interest within our products and services. We're determined to provide the wide range of world-class marine propellers, ship spares, and many more with utmost customization, precision based designing added with manufacturing, flawless quality, strict adherence of standards and constant customer support in a way everything would be at its best for our customers.



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Stern Gear Assembly: For High Performance Yachts & Commercial Vessel

SGP is capable to supply all types of Stern Gear Systems related to shafting arrangements those are designed as per customer instructions and specifications. Here, a special care and attention is always paid by our team about its hull design, type of vessel and desired engine performance keeping in mind the vessel type like wood, steel, fiber or aluminium. The range of material used for stern tube manufacturing is as non-ferrous brass tube, GRP tube and carbon steel tube. These tubes are also made available to supply in wide range of sizes to suit well to the customer needs.

Custom Built Stern tube Assemblies;

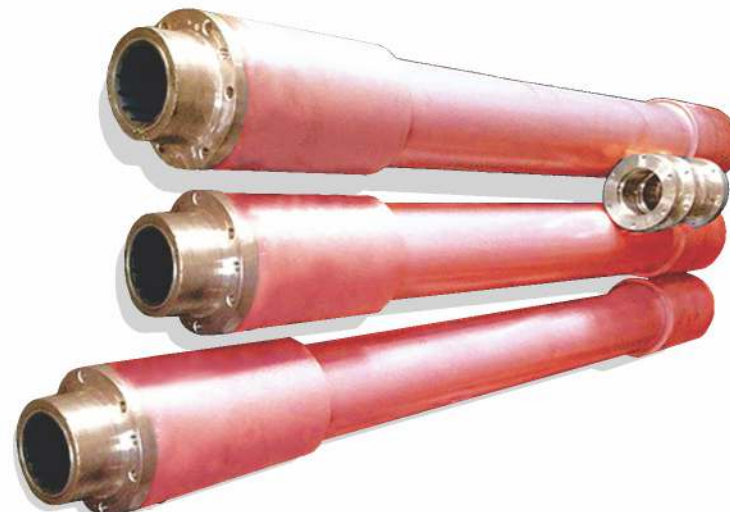
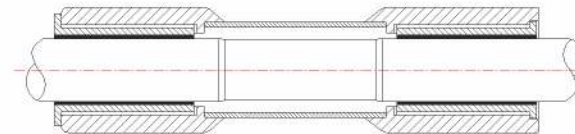
Oil Lubricated Stern tubes with White metal lined bearings:

Oil lubricated stern tubes are specially designed for steel vessel which are welded directly to hull.



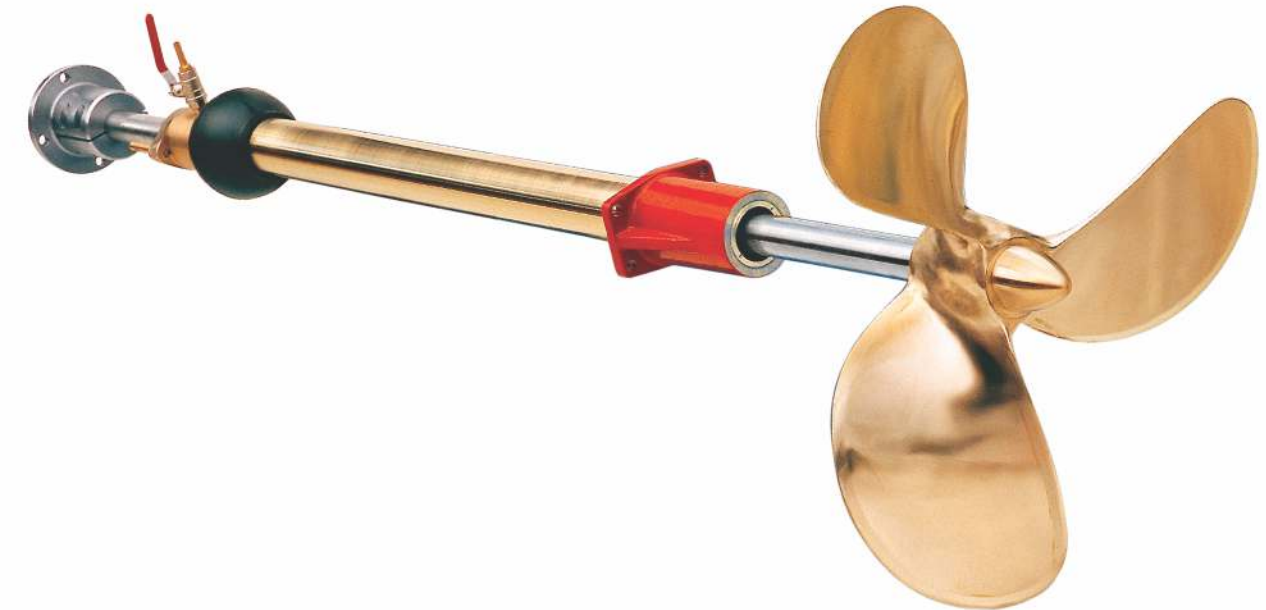
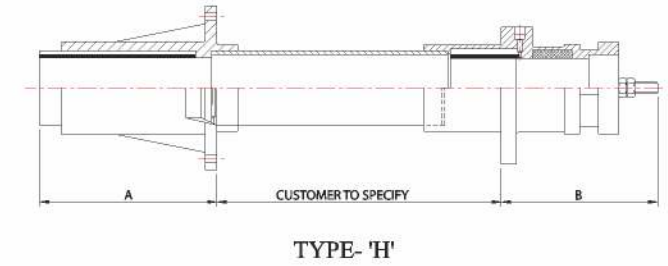
Water Lubricated bearing steel stern tube

Water lubricated stern tube are directly welded in to hull & material used is stainless steel 304 or 316 grade & it requires very low maintenance.



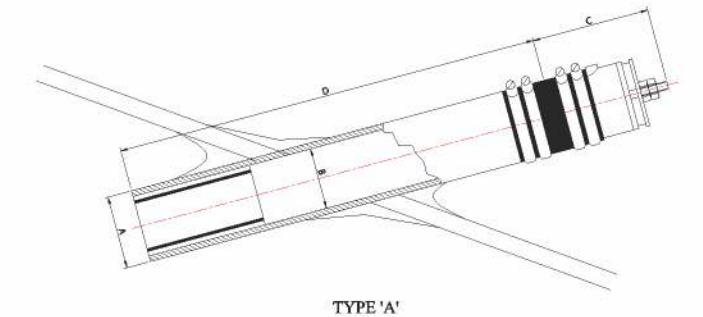
Bronze Water Lubricated Stern tube

These types of stern tube are mainly used for fishing boats & yachts. Depending on the application, a water inlet, usually connected to the engine cooling system can be set up on the tube close to the seal. This mounting is used when the engine / gearbox are mounted on soft pads, and there is no need for intermediate bearing between the rear bearing and coupling.



GRP Stern Tube Assembly:

These types of stern tubes are usually used in High speed yachts, High speed ferry boats & passenger vessel where an intermediate bearing is may required or not required. It includes a GRP tube, flexible gland and water lubricated bearing bush. Further we provide New Zealand make Kiwi Shaft Seal along with GRP Tube which is the ultimate solution for vessel & crew safety.

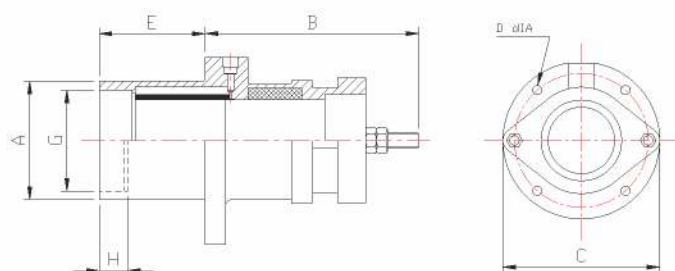


Henleys Driveline GRP Stern Gear Assembly
with Kiwi Shaft Seal

Cutless Bearings:

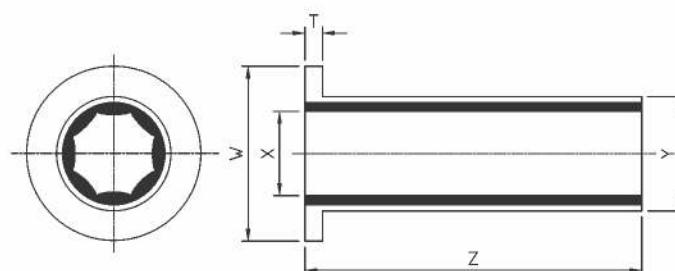
Water Lubricated Marine Bearings :

Water Lubricated bearings are designed to ensure high resistance to abrasion & providing effective noise & vibration damping. Further it provides optimum lubrication & better performance & life. These bearings are mainly manufactured with the combination of naval brass or non metallic phenolic resin & tough nitrile rubber.



Flanged Bearings:

Flanges Bushes are manufactured in naval brass & high quality nitrile rubber. These are mainly used in Steel stern tube & 'A' bracket housing.



Thordon Bearing:

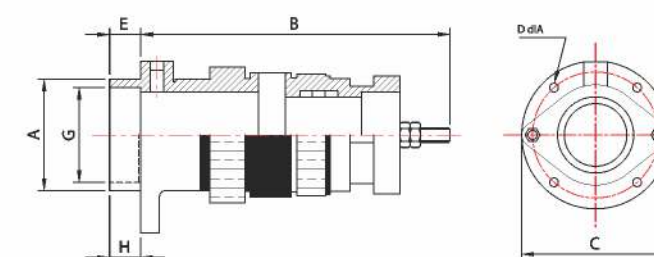
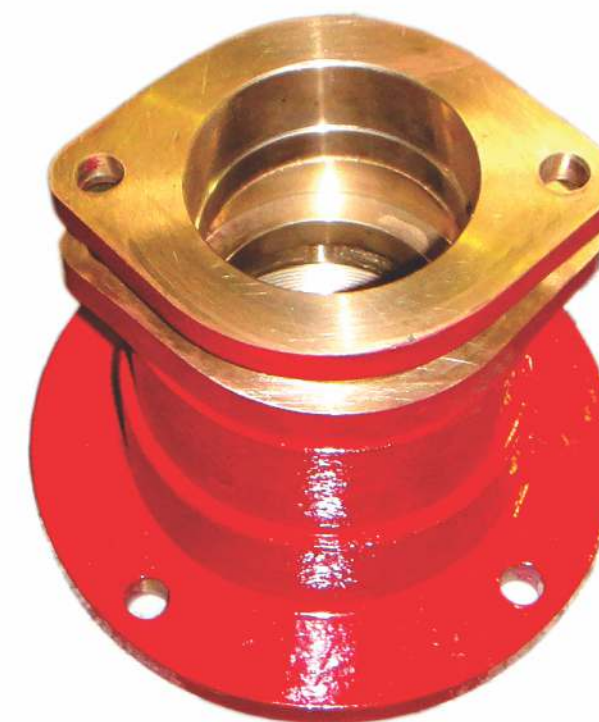
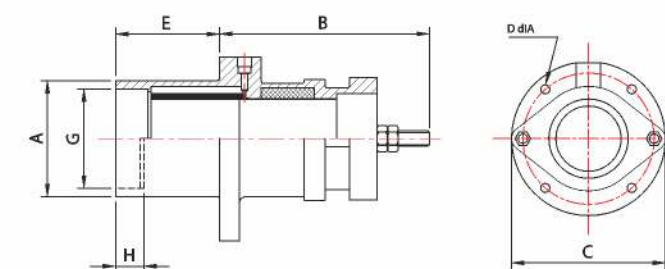
This type of bearings is better alternative for conventional Bronze bearings. These are auto lubricant, Provide very low friction, long life & lightweight for easy handling.



Shaft Glands :

Water Lubricated Gland:

The water lubricated gland is required where an intermediate bearing is required on the inboard end of the stern tube. The gland is mainly casted from Gun Metal.

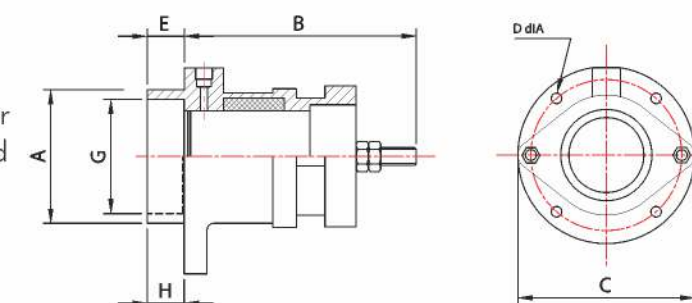


Inboard Flexible Gland:

This type of is used where the engine is not flexibly mounted. The flexible gland assembly is manufactured in Gun metal & Lg2.

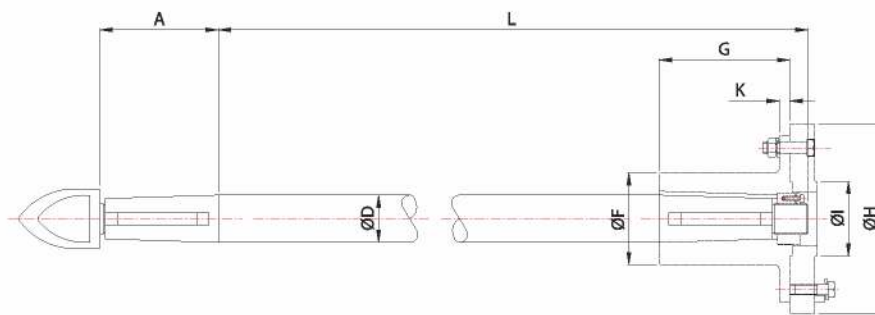
Grease Lubricated Gland:

The grease lubricated gland is a main support bearing for shaft and is used where a bearing is required on the inboard end of the stern tube.



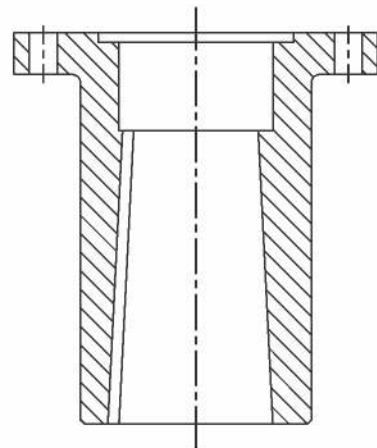
Tail Shaft Assembly:

SGP provides Shafts in a wide range of Alloys which depends upon strength & corrosion required. SGP also provides High strength Duplex Stainless Steel Shafts. Shafts are precision straitened & CNC machined on our lathe having shaft length up to 6 meters. Our entire shaft Assemblies are supplied completely with keys, nuts, Couplings & cone nuts.



Couplings:

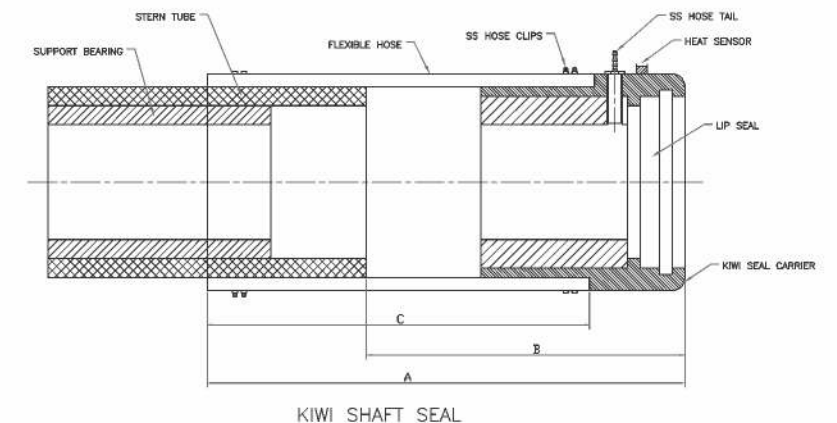
The shaft couplings are manufactured in forged steel. The couplings are supplied & machined to match the gearbox output flange.



Tail Shaft Assembly Complete with Coupling, Keys & Nut

KIWI SHAFT SEAL FOR SGP: New Zealand Designed, Manufactured & Tested

The fully monitored stainless steel shaft seal offers maximum protection for your vessel keeping your crew safe & dry. The design consist of a single piece of stainless steel housing with a single lip seal configuration which results in no maintenance, completely rebuild able & safe seal. This Thordon material has Lloyds, Bureau Veritas, ABS and NKK approvals. The Kiwi Shaft Seal comes with dash Mounted warning system that activates before seal is compromised due to lack of coolant. The KIWI shaft seal is breakthrough alternative to stuffing Box and mechanical type glands.



Shaft Size	Stern Tube OD	Total Length	Min Length	Hose Length
		(A)	(B)	(C)
1"	1 1/2"-1 3/4"	135	105	100
1 1/4"	1 3/4"-2"	160	130	125
1 1/2"	2 1/2"	160	130	125
1 3/4"	2 7/8"	185	155	150
1 3/4" 'OS'	3"	185	155	150
2"	3"	185	155	150
2 1/4"	3 5/8"	185	155	150
2 1/4" 'OS'	4"	185	155	150
2 1/2"	4"	185	155	150
2 3/4"	4 1/2"	210	180	175
3"	4 1/2"	210	180	175
3 1/4"	5 1/4"	220	190	180
3 1/4" 'OS'	6"	145	215	180
3 1/2"	5 1/4"	220	190	180
3 1/2" 'OS'	6"	145	215	180
4"	5 1/2"	275	245	210
4" 'OS'	6"	275	245	210
4 1/4"	6"	275	245	210
4 1/2"	6"	275	245	210
4 3/4"	8"	280	250	230
4 3/4" 'OS'	8 5/8"	280	250	230
5"	8"	280	250	230
5" 'OS'	8 5/8"	280	250	230
5 1/2"	8"	280	250	230
5 1/2" 'OS'	8 5/8"	280	250	230
6"	8"	280	250	230
6" 'OS'	8 5/8"	280	250	230



Propellers: For High Performance Yachts & Commercial Vessels

SGP made its greatest foothold through its expertise in designing the customized propellers as well as commercial propellers for the high performance yachts and super yachts. Today, SGP has grown to a capacity to produce propellers up to a weight of 6 tons and up to the diameter of 5 meters in bronze alloy. This entire credit goes to the SGP's expertise and latest propeller designing software from Hydro-Comp. Importantly, these high capacity propellers are made totally free from cavitations, noise, and vibration and in turn the ship will achieve desired speed quite flawless.

The overall designs of these propellers are carried out in-house keeping in mind the purpose and adequate knowledge in turn to deliver the highly valuable output to all our customers from our main office.

Super Cupped Propellers: This is the curve in the trailing edge of the propeller blade that extends from the hub to the tip. This technique is used to enhance the performance of propeller in terms of speed & fuel economy for High Performance Ferry Boats.



Dia 32"x pitch 22"x 4 Blade, DAR 0.65%,
to obtain speed up to 25 Knots



Dia 39"x Pitch 46"x 4 Blade, DAR 0.90%
to obtain speed of 30 knots



Dia 35"x pitch 39"x 4 Blade, DAR 0.100%,
to obtain speed up to 35 Knots



Dia 39"x Pitch 42"x 4 Blade, DAR 0.65%
to obtain speed of 26 knots

S Class Propeller For High performance Yachts and Cupped Propellers::

We design S Class & Cupped propellers for specific vessel & engine combination to meet optimum performance. These propellers are completely CNC machined to obtain finish tolerance to ISO Class I or S possible with high standard accuracy. The section and blade area ratio will be optimized to reach the lowest noise and vibration levels.



Dia 38"x Pitch 36"x 5 Blade,
DAR 0.75% to obtain speed of 30 knots



CNC Machining Center for
S Class Propeller Machining

Commercial Propellers:

Custom Build Propellers: Custom designed propellers provide significant benefits for vessels with maximum speed over 25 knots. It provides more efficiency, low vibration/noise and cavitations erosion.



Optimum Performance, Noise Reduction & Fuel economy
For Bulk carriers, coasters, inland water barges, trawlers, fast ferries, offshore supply vessel, tug, yachts & Naval vessels.



High Skew Propeller Dia 34" x Pitch 30" x 4 Blade DAR 0.60%



Propeller Dia 38" x Pitch 34" x 4 Blade DAR 0.55%

Propeller Grinding up to Dia 4.2 MTR for Oil Tanker



Kaplan Propeller: The Kaplan propeller is designed for hard working Trawlers, Dragger and Tugs. Kaplan is available in NiBrAl, Manganese Bronze or Stainless Steel alloys. Kaplan Propeller is designed to be used with a nozzle in order to give shrimpers & workboats more thrust by considerably increasing the efficiency of propellers carrying heavy loads at low speed. Typically Kaplan Propellers with Nozzles derive 25-30% greater thrust for Trawlers and Dragger, while harbor tugs can easily deliver 30-40% more thrust versus open or free propellers.



Dia 900mm X Pitch 636mm x 4 Blades for workboats



Dia 2 Meter Kaplan Propeller for workboat & tug Boat

High Skew Kaplan Propeller: This type of propeller provides silent & vibration free performance. Better distribution of blade stresses result in lower engine power demand. Normally these are designed for cruises & very expensive yachts.



Dia 2.2 Meter Kaplan High Skew Nozzle Propeller for Tug Boat



CPP Blades: We design & manufacture CPP blades for most of the commercial vessels like ferries, tankers, supply vessels, dredgers & super yachts. We design CPP blades as per customize requirements. The blades can be manufactured in alloys nickel aluminium (CU3, Cu4), Bronze and manganese Bronze (CU1).



Hub Bore Dimensions Propeller Hub Taper 1/16

Standard Taper	Dia	Small End (A)	Hub Length (B)	Moninal Width (C)	Keyway (D) Depth (D)
3/4"	0.608	0.410	2-1/4"	3/6"	3-32"
7/8"	0.710	0.712	2-5/8"	1/4"	1/8"
1"	0.811	0.813	3"	1/4"	1/8"
1-1/8"	0.913	0.915	3-3/8"	1/4"	1/8"
1-1/4"	1.015	1.017	3-3/4"	5/16"	5/32"
1-3/8"	1.116	1.118	4-1/8"	5/16"	5/32"
1-1/2"	1.218	1.220	4-1/2"	3/8"	3/16"
1-3/4"	1.421	1.423	5-1/4"	7/16"	7/32"
2"	1.624	1.626	6"	1/2"	1/4"
2-1/4"	1.827	1.829	6-3/4"	9/16"	9/16"
2-1/2"	2.030	2.032	7-1/2"	5/8"	5/16"
2-3/4"	2.233	2.235	8-1/4"	5/8"	5/16"
3"	2.437	2.439	9"	3/4"	5/16"
3-1/4"	2.640	2.642	9-3/4"	3/4"	5/16"
3-1/2"	2.843	2.845	10-1/2"	7/8"	5/16"
3-3/4"	3.046	3.048	11-1/4"	7/8"	5/16"
4"	3.249	3.251	12"	1"	1"
4-1/2"	3.796	3.798	11-1/4"	1-1/8"	3/8"
5"	4.218	4.220	12-1/2"	1-1/4"	7/16"
5-1/2"	4.640	4.642	13-3/4"	1-1/4"	7/16"
6"	4.749	4.751	15"	1-3/8"	1/2"
6-1/2"	5.145	5.147	16-1/4"	1-3/8"	1/2"
7"	5.541	5.543	17-1/2"	1-1/2"	9/16"
7-1/2"	5.973	5.939	18-3/4"	1-1/2"	9/16"
8"	6.332	6.334	20"	1-3/4"	6"

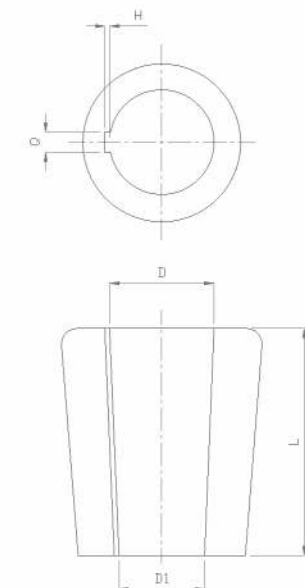
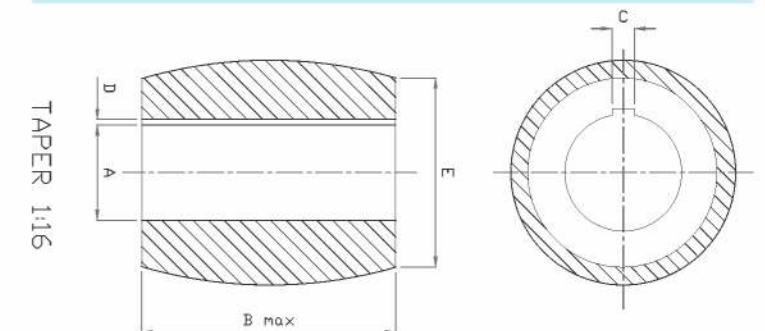
Propeller Hub taper 1/10

Shaft Dia	Big Dia. D	Small D1	Length L	Keyway
20	20	15	6	3
25	25	19	6	3
30	30	22	8	4
35	35	26	10	4
40	40	30	12	4
50	50	34	14	5.5
45	45	38	14	5.5
55	55	42	16	5.5
60	60	46	18	5.5
65	65	50	18	5.5
70	70	54	20	5.5
75	74.5	57.5	20	6
80	79.5	61.5	22	6
85	84.5	65.5	22	7
90	89.5	69.5	25	7
95	94.5	73.5	25	7
100	99	77	28	7
110	109	85	32	7.5
120	119	93	36	8.5
130	129	101	36	9.5
140	139	109	36	9.5
150	149	117	36	9.5
160	159	125	40	10.5

SAE Standard Tapers

Notes:

1. Shaft & bores to 6" & diameter have taper of 3/4" ft. on the diameter 1/16" /inch 1 degree 47'23" angle with centerline.
2. Shaft & bores 6" and larger have taper of 1" ft. on diameter.
3. For intermediate size, refer to SAE handbook or contact us.
4. Propeller Hub length generally is less than maximum "B".
5. Oversea specification on request.



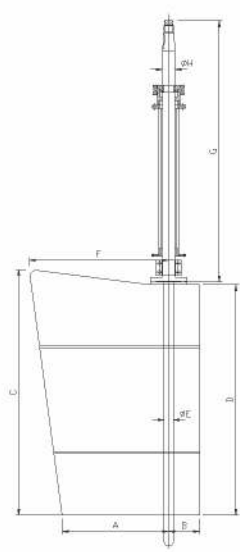
TAPER 1:10

Rudder Assembly: For High Performance Yachts & Commercial Boats

SGP is reputed and reliable manufacturer of large number of rudders to suit well for individual hull from low speed displacement boats to high speed boats. Our specialty is to provide the best combination rudder for the best optimized results like performance and output.

Custom Rudders:

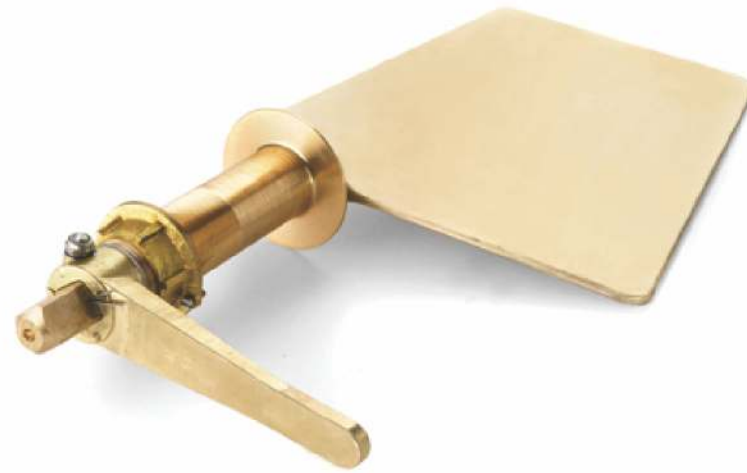
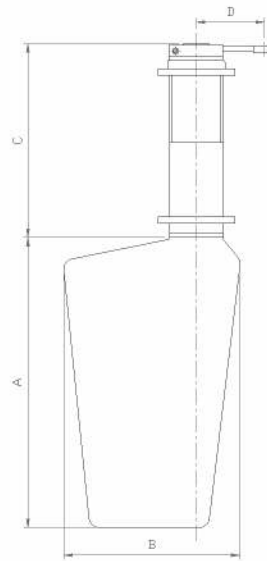
This are customized designs as per the requirements of vessels such as trawlers, fast patrol boats, tugs size more than 25meters, barges & workboats. These are fabricated in stainless steel or mild steel.



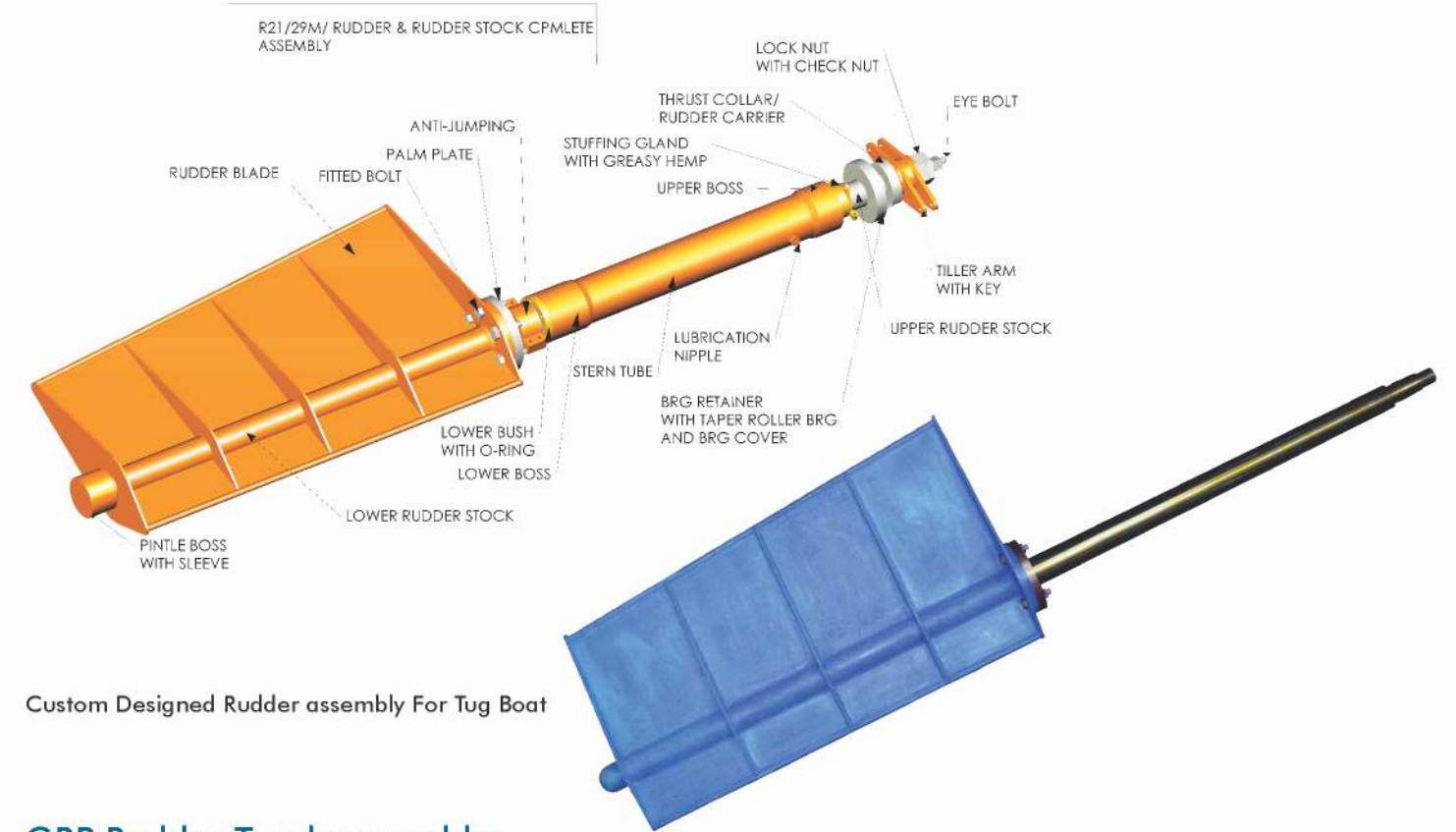
Henleys Driveline
Rudder Assembly with
Kiwi Shaft Seal

Bronze Rudder Trunk Assembly:

These rudders are generally casted in one piece either in nickel Aluminum bronze or Manganese Bronze.



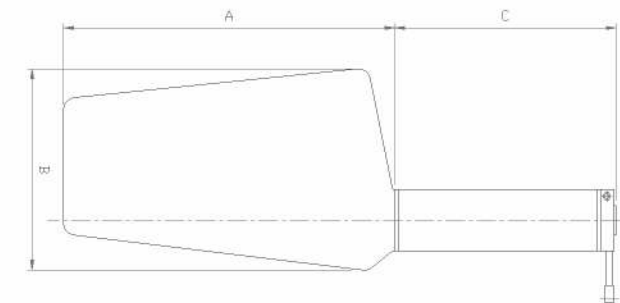
Fabricated Forged Steel Rudder for Twin Screw Tug Boat vessel



Custom Designed Rudder assembly For Tug Boat

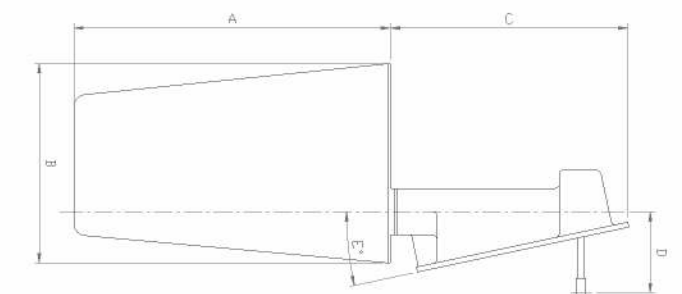
GRP Rudder Trunk assembly:

The GRP rudder trunk assembly is designed for hull installation. Its tube is manufactured by from high quality marine grade GRP tube.



Transom Rudder Assembly

These rudder assemblies are precision machined from one piece casting either in nickel aluminum bronze or Manganese bronze. Rudder housings are fitted with seal to prevent the ingress of water.



SGP Nozzles: For Commercial Vessels

SGP Nozzles increases the thrust of the propeller. While comparing to open propellers, the nozzle propeller offers up to 25% more thrust.

Vessel Types:

- Tugs & Pusher Tugs
- Fishing Vessels
- Research Vessels
- Supply Vessels
- Dredger and Cable laying vessels
- Inland water vessels
- Vessels with Full AFT

Benefits

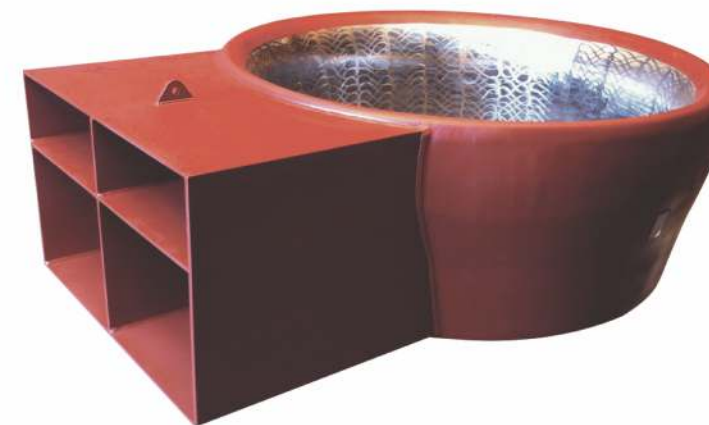
- Increase Thrust
- More pulling power
- Saving of fuel
- More speed from the same power input
- Decreases vibration level
- Propeller stay safe in ice



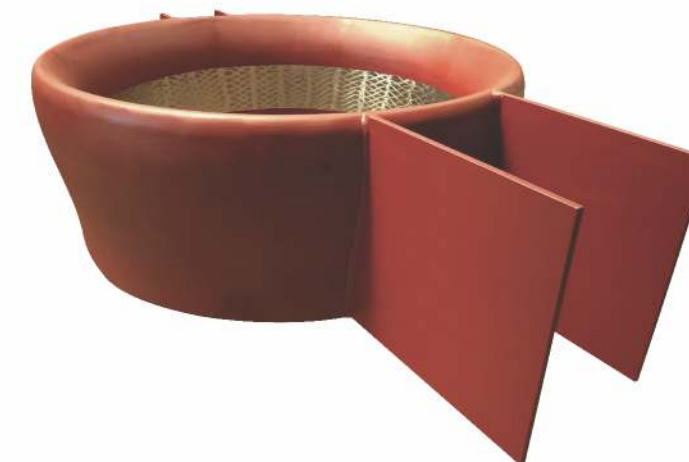
Range: From 700mm Dia to 3000mm Dia



ID: 2230mm | Length: 900mm | Material: MS ABS Grade A | Full SS316 Ring Inside

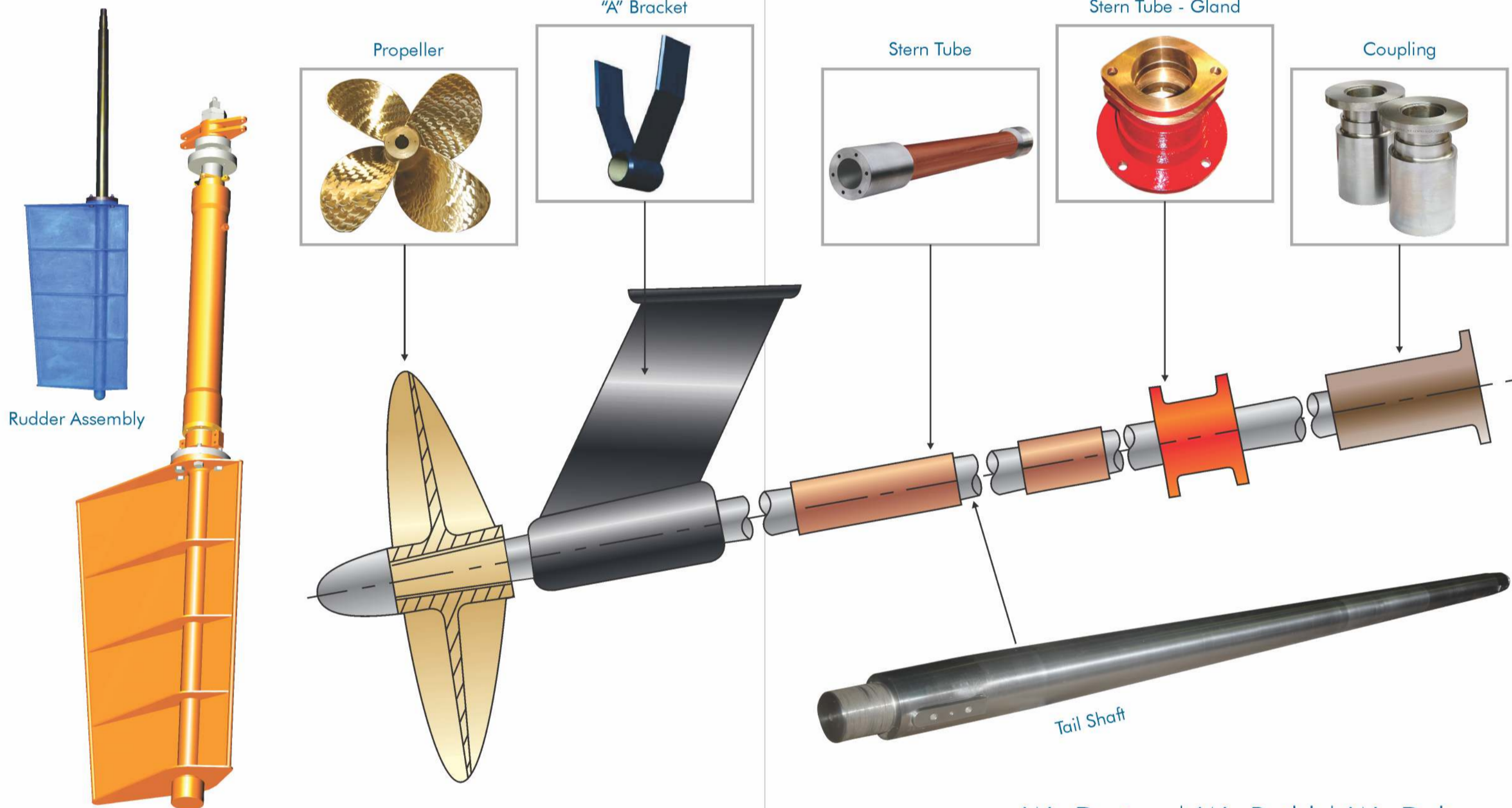


ID: 2000mm | Length: 850mm
Material: MS ABS Grade A | Full SS316 Ring Inside



Materials: Mild steel- ABS grade 'A' and
full SS316L Ring inside





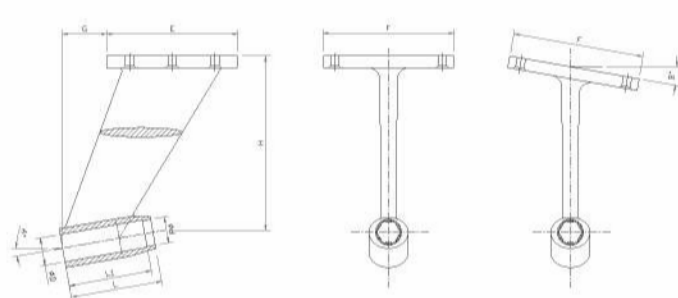
We Design | We Build | We Deliver

P & A Brackets:

We offer a wide range of Platform type & Glass Type "p" brackets to cover the requirement of power craft & cruisers.

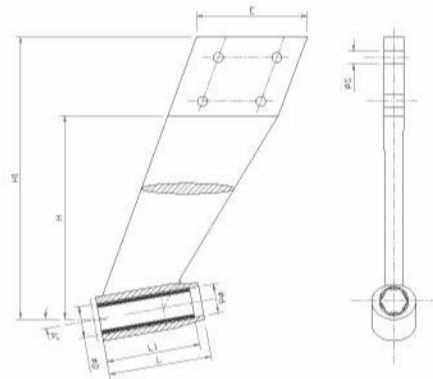
Platform Type 'P' Brackets

We Custom design Platform type 'P' Brackets usually made of aluminum bronze or stainless steel to meet the hull shape of single & twin screw power craft, cruiser & sailing Boat. The 'P' Brackets are designed for the smoother water flow on the propeller.



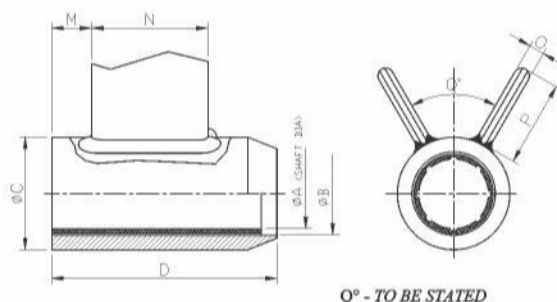
Glass Type 'P' Bracket

Designed for sailing boats and powerboats, this type of brackets has the advantage of being adjustable in height and angle at the installation. They are made in Aluminum bronze and used for fiber yachts to meet the requirement of hull shape & to enhance the water flow.



Steel Struts

Steel Struts also called as Shaft brackets or 'A' brackets are manufactured as single cast in special material such as steel, stainless steel, mild steel, Aluminum or Aluminum bronze. The shape of the bracket is custom designed to meet the hull shape & to guarantee the lowest drag.



Facility:

With 40 years of experience, SGP enables manufacturing and delivery of complete range of Propellers & Stern Gears in short span of time limits and with high quality & reliability. Our production facility built up on area of approximately 3000 sq meters. It includes our own Advance foundry Shop, Machining Department, Complete CNC Shop & Stock Keeping section which enables us to deliver bulk orders within committed span of time.

Design & Pattern making

Our expertise & technical team always design the product with the view of meeting high performance requirements. Our own Pattern making shop enables us to review our design for the optimum performance. This has led us to achieve accuracy & have reduced production lead time.

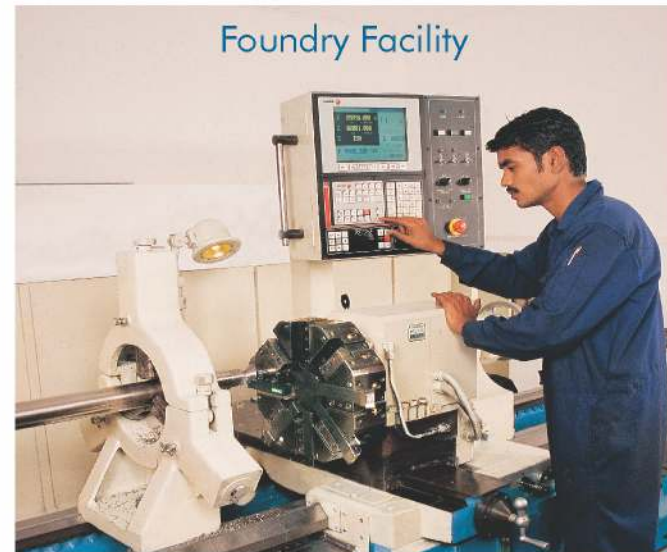
Molding & Casting

We offer Propellers & other Propulsion components with mixture of alloys which includes Manganese bronze, Nickel Aluminum bronze, and Aluminum & Gun Metal. Our foundry is equipped with electrical furnaces with melting capacity of 5 tons for smoother & accurate castings. Utmost care is taken while molding so as to make sure that there is no porosity of inclusions in the propellers. Prior to pouring all liquid metal chemical analysis is carried out by Spectrometer to meet the desired specification of metal.



Machining & fabrication

our fully equipped machine shop carry out all operations activity for machining of products, with over 12 machines including CNC lathes, CNC VTL, Keys eater, Milling, CNC horizontal boring & auxiliary machines ensures the necessary capacity for machining of all our products.



CNC lathe for Shaft
up to 5 Meter



VTL for Propeller Machining
Up to Dia 3000 Meter



VMC Propeller Machining Center



VTL CNC for Propeller Boring

Grinding & polishing

a dedicated & skilled manpower with latest technology grinding facility to meet the tolerances of propellers as per ISO Class S, I & II as per the application. We have Vertical Machining center for our Specialize S Class Propellers grinding. Our Spectrometer, Balancing machines provide an added edge of advantage in terms of accuracy & quality.



Quality & Inspection

We have In-house facility to carry out inspection of all our products which includes Spectrometer, Tensile testing M/C, Hardness Testing M/C, Impact Testing M/C, Pitchometer & SCHENK Dynamic Balancing M/C, and Static Balancing. Equipments are periodically calibrated as per ISO standard.

The quality and the controls within the production process have always been understood & maintained at SGP through continuous research & development program for the Design & production processes to ensure that highest quality & accuracy by adapting necessary work method from International Certification Bodies and ISO 9001:2008 for the Quality Management System.



Spectrometer for
Material Testing



Dynamic Balancing
up to Dia 1.5 Meter



Inspection of
Propeller Pitch

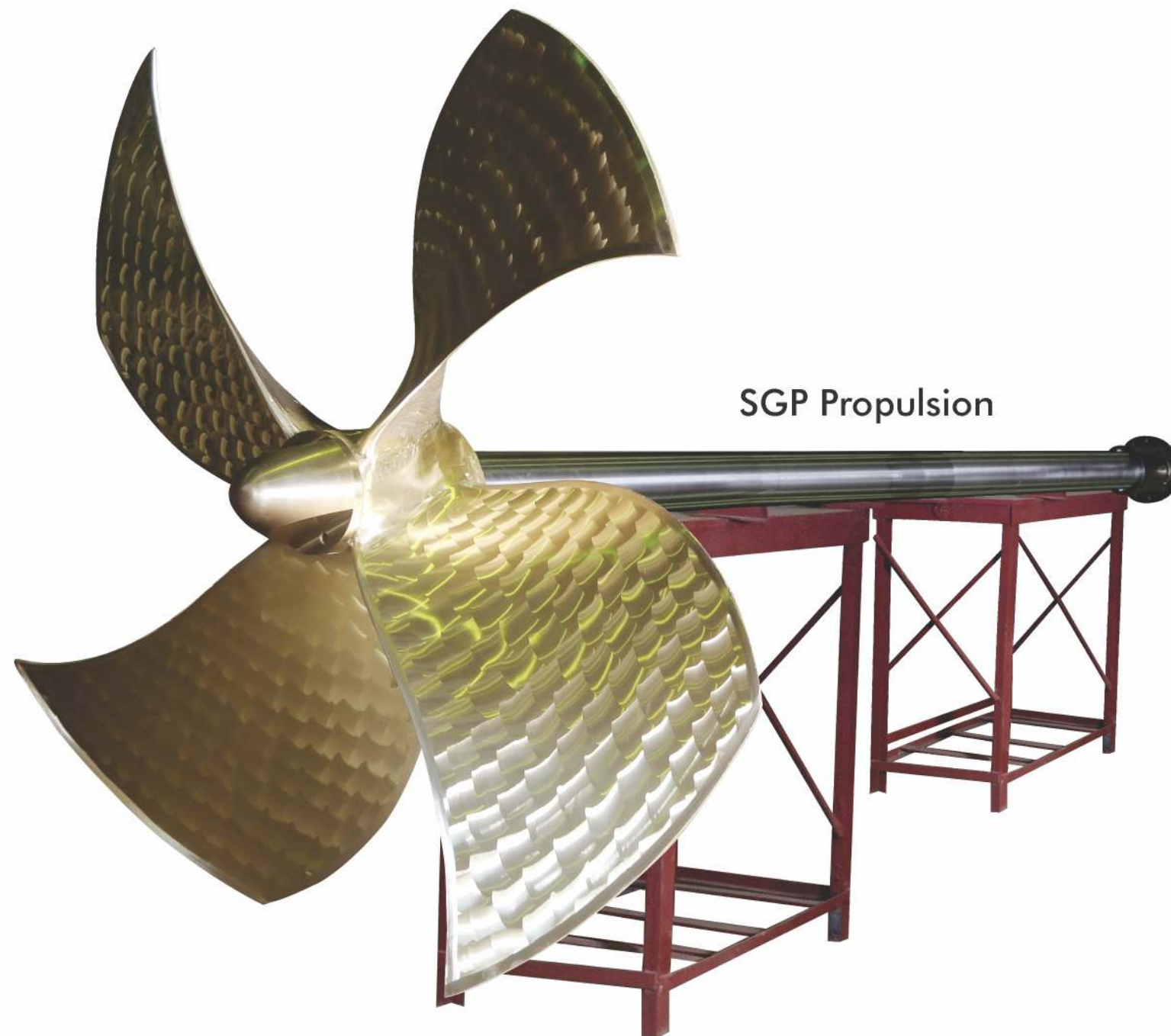
Quality Assurance

SGP is dedicated to maintain the quality of product even before manufacturing. From the Raw material Stage till conversation into finished product we have a team of Quality Assurance which continuously check & maintain the quality of product in every stage & process. Well maintain records & inspection analysis report provides confidence that quality will be fulfilled.



Contract Manufacturing:

Although we are specialize in customized designs & products, we have a wide range of standard Stern gear, Rudder, Nozzles & Shafts which are the part of our continuous production batch & kept in stock for the orders which are irrelevant to market position. It enables us to tackle market risk & deliver bulk orders within very less cycle time. Our contract manufacturing add milestone to our business.



SGP Propulsion



Finish Propeller & Castings Stock



Rudder Trunk Tube Arrangements
For stock Purpose



Stern Tube Arrangements
For stock Purpose



Rudder Trunk Stock



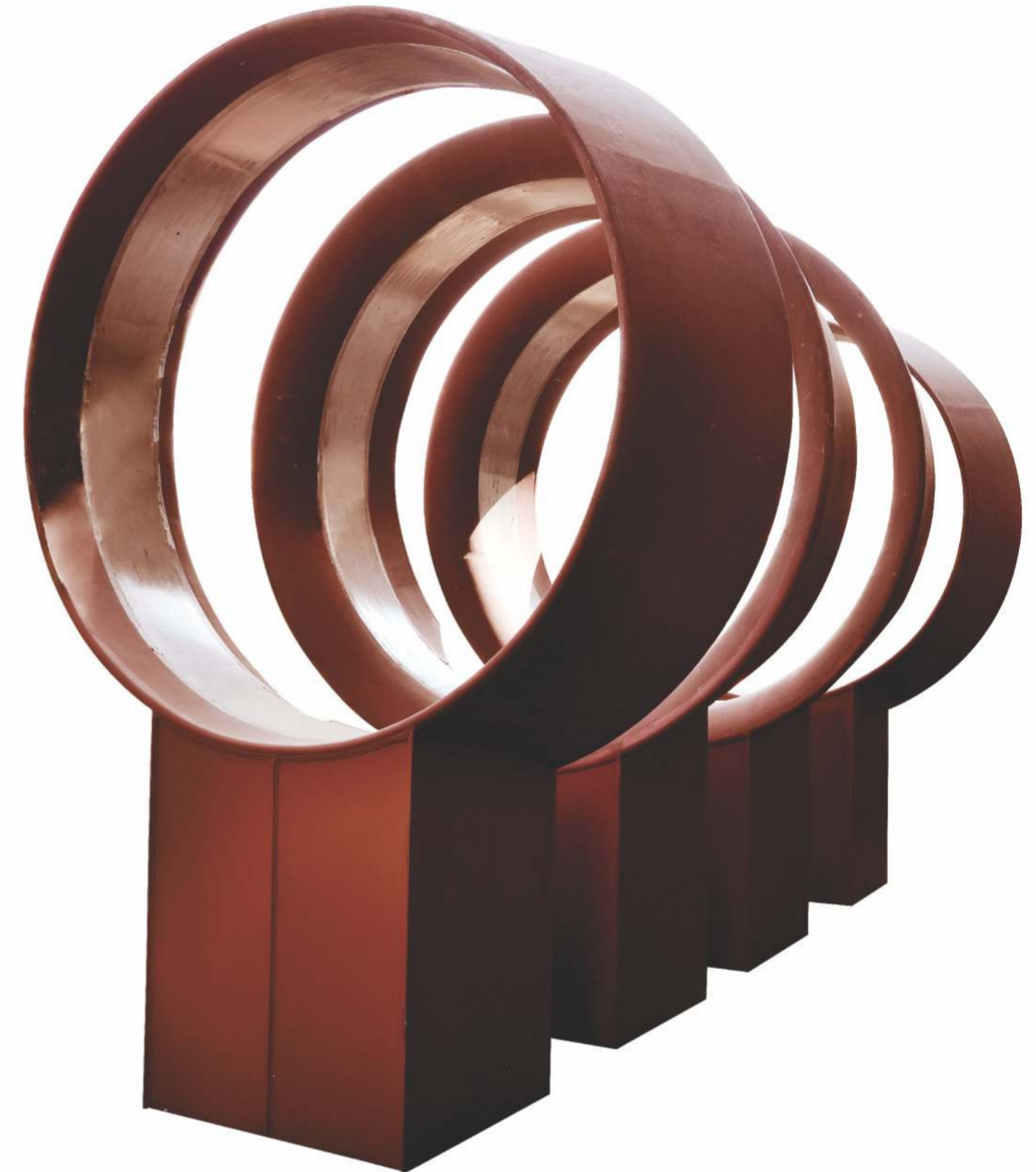
◀ Machining of Shaft Up to Dia 250MM
& length 10 Meter

Shaft & Stern Tube Pipes Arrangements
for stock Purpose ▶



◀ Rudder Stock Arrangements for Tug Boats

Kort Nozzles for Tug Boats



Quality Certifications

SGP has obtained work approval certification from all major classification societies such as ABS, NKK, LR, DNV, and IRS. Also we provide technical advice on compliance with certification requirement.

		CERTIFICATE NUMBER 14-MAPS-CR-PAC-617
		POST BOX NO. ABS MATERIALS FACILITY

CERTIFICATE OF CASTING FACILITY AND PROCESS APPROVAL

This is to certify that a representative of ABS did, at the request of

Shree Gajanan Prasad Workshop, Navi Mumbai, India

intend its facilities as indicated in the ABS Machine post office survey report number (PY2042153) dated 13 June 2014, in order to carry out a survey of the facilities and associated quality procedures. The facility is considered capable of manufacturing

Bronze Castings for Marine Applications

In accordance with the ABS Approval letter, ABS Rules, designated standards and ABS approved drawings. The approval is valid subject to adherence to relevant ABS Rules and survey requirements and annual facility endorsement by an ABS representative.

SIGNATURE	13 Jun 14	EXPIRATION DATE	12 Jan 19
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SIGNATURE


V. BALAJI BRAMANIAM
 PRINCIPAL ENGINEER,
 ABS MATERIALS, INDIA/OM



FIRST ENDORSEMENT
 EXPIRATION DATE



SECOND ENDORSEMENT
 EXPIRATION DATE

THIRD ENDORSEMENT
 EXPIRATION DATE

FOURTH ENDORSEMENT
 EXPIRATION DATE



Page 01 of 01 ABS/OM Issue 01 1/1/2014 1/1/2014 1/1/2014

ABS is pleased to announce that it has approved the facilities of Shree Gajanan Prasad Workshop, Navi Mumbai, India, for the casting of bronze castings for marine applications. The approval is valid subject to adherence to relevant ABS Rules and survey requirements and annual facility endorsement by an ABS representative.

NIPPON KAIKI KYOKAI



Approval No. CU34PR
Certificate No. TAI42708

APPROVAL OF MANUFACTURING PROCESS

This is to certify that:

**Shree Gajanan Prasad Workshop
Navi Mumbai, Maharashtra
India**

has been approved for the manufacturing process of undermentioned articles by the NIPPON KAIKI KYOKAI in accordance with the requirements of 1.2, Part K of the Society's Rules for the Survey and Construction of Steel Ships" and Chapter 6, Part 1 of the Society's "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use".

ARTICLE	: Flued Pitch Propeller (PTPP)
MATERIALS	: Mangrove Irons Casting (C1046C1)
MAX. DIA	: 2.2m
PROCESS	: Casting


The products for the ships classed with the Society are to be manufactured, tested and inspected in compliance with the Rules.

This Certificate is valid until 11 November 2018.
Issued at Tokyo on 26 February 2016.

Initial Approval Date: 08 November 2014


T. Inamura
General Manager
Material and Equipment Department

ClassNK



Certificate No : M3002/2300/4002/74

HEDGE GAJANAN PRASAD WOODHOOF
 Flat No. 302/26, Sector 2,
 Dronagiri, 7th-Store, Durg Road,
 Newt Mumbai-400 707,
 India

has been appointed as a manufacturer in accordance with the requirements of
 Lloyd's Register for :-

Copper Alloy Castings for Propellers in grade Cu3
 (maximum weight 600 Kg)
Copper Alloy Castings for Propellers in grade Cu1
 (maximum weight 3.5 tonnes)

Approved does not include for the heat treatment or weld repair of castings

This approval is subject to compliance with the Rules for the Manufacture, Testing
 and Certification of Materials.

Lloyd's Register is not notified of any change that may affect the validity of this
 Certificate.

This Certificate is issued to the above manufacturer and is valid until the date
 given below.

Valid Until : 19 May 2004
 Date of Issue : 25 September 2003

Ch. D. S. T. S.

Clive D'S Tuck
 Lead Managing Director for Lloyd's Register EMEA
 A subsidiary of the Lloyd's Register Group Limited

Lloyd's Register

Lloyd's Register group consists of affiliate and subsidiary and/or corporate offices, respectively in Europe, Asia, Australasia and elsewhere, all of which are the "Lloyd's Register Group". Lloyd's Register assumes no responsibility for the actions or omissions of any of the companies or individuals named in this document or the information contained in this document or any document produced in reliance thereon. Lloyd's Register Group Limited is not responsible for the actions or omissions of any of the companies or individuals named in this document or the information contained in this document or any document produced in reliance thereon. Lloyd's Register Group Limited is not responsible for the actions or omissions of any of the companies or individuals named in this document or the information contained in this document or any document produced in reliance thereon.



Indian Register of Shipping

Place : Mumbai
Date : 22/02/2013
Certificate No : 2013WJCC09

Works Approval Certificate for Repair of Propeller Blades

This is to certify that based on the existing repair facilities and satisfactory assessment of repair and quality control procedures by our Surveyors, the name of

M/s. Shree Gajanan Prasad Workshop
Navi Mumbai, Maharashtra, India

is being retained in the list of approved works for repair of propeller blades by weld build up in way of zone B and C in accordance with the relevant requirements of Part 2, Chapter 8 of "Rules & Regulations for the Construction & Classification of Steel Ships".

MATERIAL	1	Cu Alloy (Single Cu)
CONDITIONS OF APPROVAL	4	See ATTACHMENT I
VALIDITY	1	This certificate is valid until 22 nd December 2017
ANNUAL INSPECTION DUE	1	December 2013 December 2014 December 2015 December 2016


U. S. KALGHATGI
 CHIEF SURVEYOR

*Date of first approval: 22nd December 2009
 See Overleaf for Conditions of Issue of This Certificate*

<h2 style="text-align: center; margin: 0;">APPROVAL OF MANUFACTURER CERTIFICATE</h2> <p style="margin-top: 20px;">This is to certify: that Shree Gajanan Prasad Workshop Plot No. 35/36D, Sector-2, Dronagiri, Raigad-400707, Maharashtra, India</p> <p>is an approved manufacturer of Copper Alloy Castings</p> <p>in accordance with DIN Norske Veritas' Rules for Classification PE, 2</p> <p>and the following particulars:</p> <table border="0" style="width: 100%; margin-top: 20px;"> <tr> <td style="width: 30%;">Alloy types</td> <td>Br-bronze, Ni-Al-bronze,</td> </tr> <tr> <td></td> <td>Loaded gunmetal</td> </tr> <tr> <td>Max. weight</td> <td>600 kg</td> </tr> <tr> <td>Remarks</td> <td>including propeller castings</td> </tr> </table>	Alloy types	Br-bronze, Ni-Al-bronze,		Loaded gunmetal	Max. weight	600 kg	Remarks	including propeller castings	<div style="text-align: center;">  </div> <p>Certificate No: AMM-6886</p> <p>Title No: NPC-CJ</p> <p>Job ID: 263.11.004396-1</p>
Alloy types	Br-bronze, Ni-Al-bronze,								
	Loaded gunmetal								
Max. weight	600 kg								
Remarks	including propeller castings								
<p>Reviz. 2015-01-05 for DNV GL</p> <div style="text-align: center; margin-top: 20px;">  <p>Hanne Anita Hjerpetjenn Head of Section</p> </div>	<p>This Certificate is valid until 2015-06-30</p> <div style="text-align: center; margin-top: 20px;">  <p>Shyam Maheshi Surveyor</p> </div>								
<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <p>DNV GL local office Mumbai</p> </div> </div>									
<p><small>2. If any serious deficiency or damage which is proven to have been caused by any equipment or component of the Facility, then the facility shall stop the operation in such position for the period determined by the competent authority. The competent authority shall not resume the operation until the defect has been corrected by the service's supervisor. The measures shall be taken shall be approved by the competent authority.</small></p> <p><small>3. This certificate (the "Certificate") shall expire (herein, "it shall") and shall be renewed only on the terms, conditions, limitations, deviations, officers, inspectors, agents and any other provisions hereby setting the basis of DNV GL, 2015.</small></p>									