



## Marine Propeller Shaft

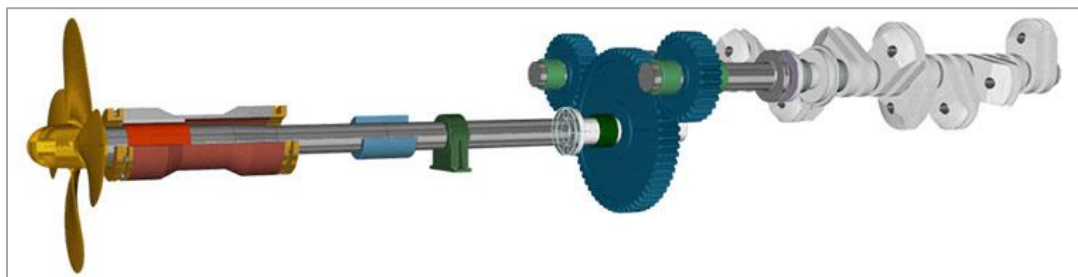
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### Marine Propeller Shaft:

The marine propeller shaft is a [main spare part](#) that transmits mechanical torque, rotation, and power. Driveshafts, driving shafts, tail shafts, and Cardan shafts are all names for these shafts. The marine propeller shaft is used to transfer torque between components that are not directly connected due to distance or the need for relative motion.

The marine propeller shaft is prone to torsion or shear stress because it transports torque. As a result, they must be robust enough to withstand the strain while avoiding gaining too much weight, which will increase their inertia.



### 3 Types of propeller shafts:

Tapered propeller shaft



A tapered propeller shaft is a wind-assemble structure or part of a tool fixed on a propeller shaft. More precisely, it is the adjustable part of a ship's or boat's [propeller](#), allowing variability in pitch or angle. This shaft works by tapping into the universal engine design. The tapered propeller shaft is also the main connecting thread in a propeller hub. At its heart, TPLS is a coil spring of constant length with constant load force being applied.

### Splined Propeller Shaft

These kinds of shafts handle torque transfer. They are the teeth of the drive shaft. It is tasked with maintaining alignment. Splined propeller shafts are a great way to get the most out of your marine engine. They provide better air volume with a flatter path in the engine such that the air that is burned has more speed ductile. They also help reduce vibration and unwanted noise.

### Flanged Propeller Shaft

Flanged Propeller Shaft is an elongated cylindrical shaft with one or more flanges or flat circular faces at regular intervals to resist bending. This type of shaft is usually used in various manufacturing industries and has different purposes.

## Propeller Shafts Pictures :



## Propeller shaft material:



The materials for most propeller shafts of marine are low carbon steel. Aluminum alloys are not a good fit for marine propellers because they possess a fatigue limit for rotors. When cyclic stress increases, your aluminum propellers cannot survive the magnitude.

Martensitic steel is quite a good choice, given they perform excellently during cyclic stress. They enhance the more they face that magnitude. Most commercial marine vessels and aerospace machining employ the Tobin bronze or monel for their propellers because they are primarily non-corrosive. This will ensure zero or minimal leakages.

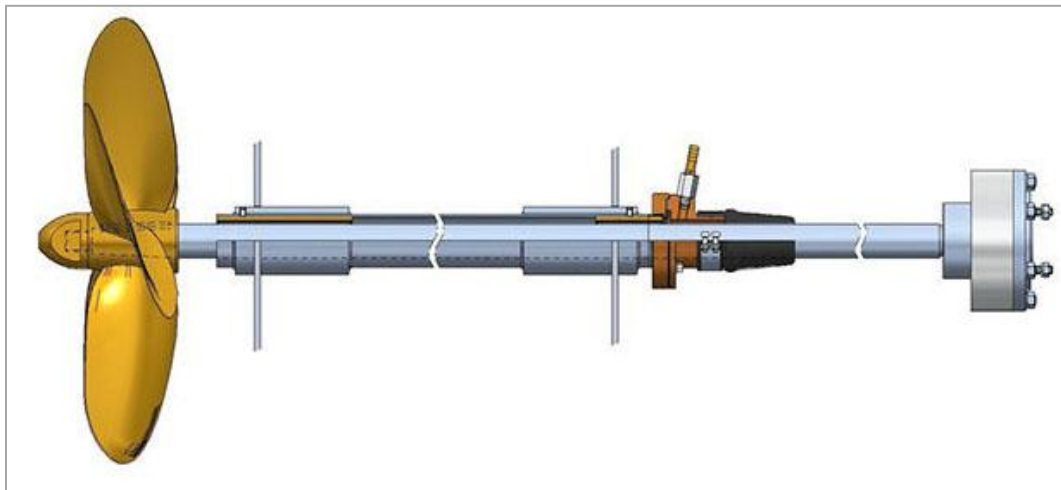
## Components of Propeller Shafts

The marine propeller shaft is divided into three major components:

- the thrust shaft,
- intermediate shaft(s)
- tail shaft

The thrust shaft is the primary shaft emerging out of the engine. It directly receives the rotational motion from the crankshaft and rotates at the maximum velocity in high-speed engines.

For high rpm engines, the thrust shaft is further connected to other components that lie further aft.

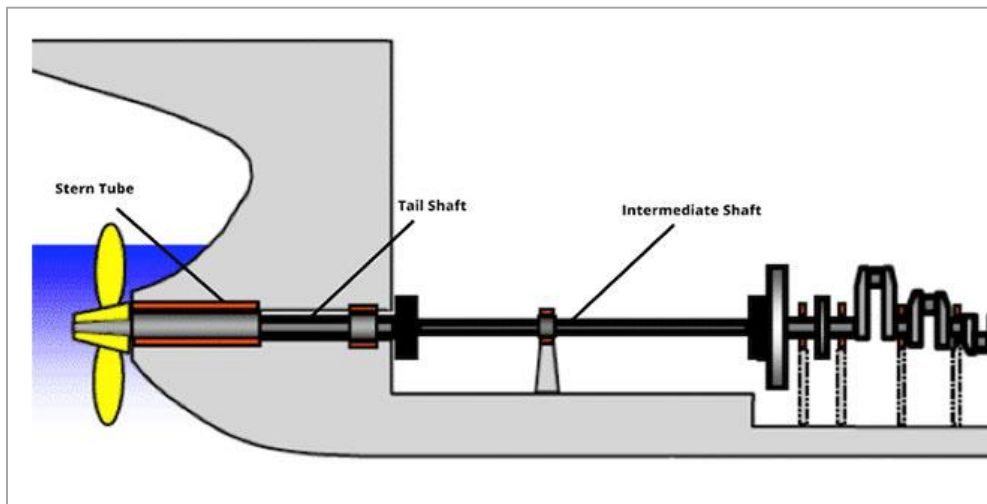


The next component is the intermediate shaft. There is no specific restriction on the number of intermediary shafts that a ship can have. However, beyond 2 shafts, it's difficult to service and maintain. The reason for this is the large catenary force acting on the entire propeller shaft. This force deforms and damages parts because of their weight.



When coupled with the large vibrational shocks that act on the shafts, there could be permanent damage to the propeller shafts. Thus, a low number of intermediary shafts is preferred. The only reason to have multiple intermediary shafts is if the engines are far away from the propellers.

The last part is the **tail shaft**. It is directly connected to the propellers and lies mainly encased in the stern tube. The tail shaft is connected to the intermediate shaft by a gearbox that manipulates torque transfer. The tail shaft is built to withstand a variety of forces that may act at the stern of the ship.



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