

Highest international award for electrical boat engine with planetary gears of IMS Gear

An outstanding innovation on the market for outboard motors is the concept of Torqeedo which is based on brushless electric motors and integrated lithium manganese high performance batteries. The Torqeedo outboard motors were honoured with the two most important innovation prizes in their line of business at the beginning of November 2006 both in the USA and in Europe: The IBEX innovation award in Miami and METS innovation award in Amsterdam. The gear supplier of choice for this innovative new motor design is IMS Gear.



Fig. 1: IMS Gear Planetary Gear P42

Torqeedo started the development of its electrical boat drives with the IMS Gear standard planetary gears from the modular system.

By easily incorporating these minor design modifications the planetary gear unit was now prepared for the new intended purpose.

Having successfully completed the testing regarding efficiency, life time and other performance data, we then began discussions about custom-designed changes for this application.

The following models of electric motors are available:

Travel

A 2-stage P42 planetary gear unit with a reduction ratio of 14:1 is used for the Travel model. The foldable Travel 800 obtains the efficiency of a 2 hp internal combustion engine.

Cruise

The Cruise model is operated with a 1-stage PM72 gear with a reduction ratio of 7:1. It achieves the thrust of a 6 hp internal combustion engine.

In order to cope with the special operating conditions under water, the output side of the unit was designed with a special flange. The extremely long output shaft incorporated two ball bearings for support and exact positioning and also a thick radial-lip wave seal. This modification prevents the leakage of lubricant and simultaneously prevents the ingress of water, thereby increasing the level of protection to IP 65. To meet the demands of the over all length which should be as short as possible, Torqeedo designed a new motor bearing assembly being able to be directly mounted to the motor without any adaptor flange.

Torqeedo is the first supplier worldwide who has enhanced the torque motor (electronically commutated permanent magnet-external rotor motors which are optimized on torque) for the boat drive industry.

The torque is further increased again with the help of the IMS Gear planetary gear unit and will be transmitted on a triple bladed propeller which has been specifically designed for this case of operation.

Due to the superior torque characteristic at these torque motors, propellers can be used up to three times as high as the degree of effectiveness than with conventional gasoline engine.

Dive into the "endless depths" of the IMS Gear planetary gear world – we are happy to help you with your application case!

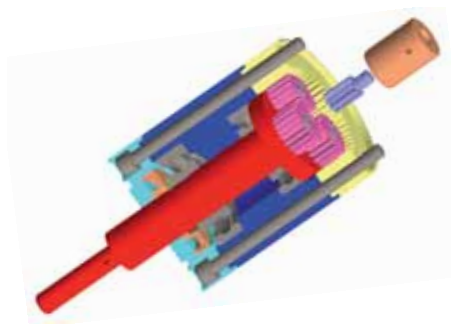


Fig. 2: IMS Gear Planetary Gear PM72

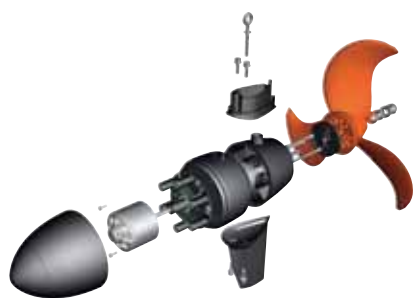


Fig. 3: The variable Pitch variable Camber propeller translates the strength of the Torqeedo Motors by a maximum amount of efficiency into the boat drive.



Fig. 4: Foldable outboard motor Torqeedo Travel and the model Torqeedo Cruise