

HUNDESTED CP PROPULSION SYSTEMS IN MOTOR YACHTS

100 YEARS
ANNIVERSARY

Over 100 years of experience, advanced machining capabilities, and highly qualified employees enable us to design and manufacture optimum and individual solutions.



HUNDESTED  **PROPELLER A/s**

REDUCE YOUR IMPACT ON THE ENVIRONMENT AND SAVE TIME AND MONEY

are just some of the benefits of Hundested's Controllable Pitch Propellers and Gear Boxes in conventional and hybrid propulsion systems



CONTROLLABLE PITCH PROPELLERS

Controllable Pitch Propellers (CPPs) have several benefits for motor yacht owners, crew, and their guests. With the adjustable pitch, the propellers can be set for any operational condition, RPM, and speed, and the results speak for themselves, with reduced fuel consumption, less environmental impact and less noise. CPPs also offer great advantages in manoeuvring, for example when in the harbour you can have instant thrust and switch between ahead and astern without the need for a reversing gear box. Furthermore, the CPPs offer feathering capabilities, for minimising drag from a stagnant propeller when running only a single drive line. This is achieved by adjusting the pitch, so the blades align with the shaft and thereby cause only minimum resistance. This technology has been in sailing yachts for many years when under sail.

With demand for reducing our impact on the environmental and fuel prices increasing, CPPs are becoming more appealing for use in all yachts, motor and sail. Apart from the above mentioned, there are several good reasons for using Hundested CPPs with a Hundested gear box. Let's look in more detail at how motor yachts can utilise this technology.

WHEN UNDER MOTOR

When a twin-screw motor yacht is in transit, one engine is often enough to give the desired speed. An option here is to run just one engine, while leaving the other engine turned off and the propeller shaft blocked. This will reduce hours and thereby service & maintenance on the engine as it is not in operation. The drawback is that this can slow the yacht by as much as 2 knots, with additional engine power



needed to compensate for the drag created by the blocked propeller; this can correspond to approximately 20% of the maximum engine power! Furthermore, the blocked propeller can cause severe noise.

As an alternative, you can run both engines at a reduced rpm. This would lead to higher efficiency on the propellers and thereby lower fuel consumption than with the blocked shaft; however, you will be putting running hours on both engines.

So, what's your best option, so far both alternatives seem to have disadvantages?

"Equip your motor yacht with CPPs, and this investment can result in your biggest saving," comments Erik Foldager, Sales Manager for Hundested Propeller.

With a Hundested CPP, when in 'transit mode' one propeller is adjusted to feathering position whilst the other is propelling the boat.

When compared to the fixed pitch propeller solution, the boat will now be a little faster, it will burn less fuel, and with only one engine running the service interval on the engine will be longer. By installing CPPs, you can switch between the two propulsion lines to operate equal hours on both engines.

MANOEUVRING

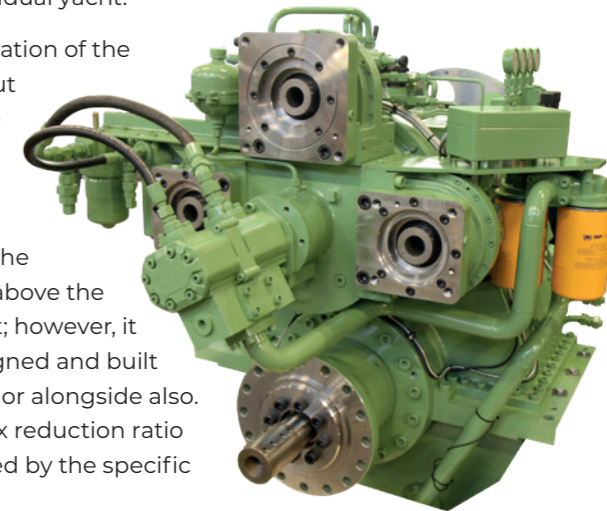
When manoeuvring a yacht with CPPs the engines will be on a fixed rpm and you only need to change the pitch. In this scenario you have instant thrust when desired. If the thruster is driven by the Power Take Off (PTO), the engine RPM will be sufficient to give you maximum thruster output.

HUNDESTED GEAR BOXES

All Hundested gear boxes have built-in hydraulic servo for pitch control, eliminating the need for extra pitch

control units. This, together with a long list of very useful options and the flexibility Hundested offers in the design and adaption to any needs, enables designers and engineers to create the perfect solution for the individual yacht.

Even the location of the in and output shaft can be customised. The most common setup is for the input shaft above the output shaft; however, it can be designed and built underneath or alongside also. The gear box reduction ratio is determined by the specific application.



HYBRID PROPULSION - POWER TAKE OUT (PTO) AND POWER TAKE IN (PTI)

Hundested gear boxes have the possibility of up to three PTO/PTIs – all with individual clutches. On each PTO/PTI you can have a hydraulic pump, or a generator/electric motor connected to the gear. This generator can replace a normal diesel/auxiliary generator and at the same time function as a motor if 'silent mode' is required. The electric motor can even be used as a boost function if needed. This is a viable option and several yachts have managed to minimise the size of the diesel engine and in the few occasions when maximum power is needed the electrical motor will boost the diesel engine. Together with Hundested's newly developed clutch for the input shaft of the gear box, full flexibility in hybrid propulsion is achieved – running fully electrical, diesel or both.

CUSTOMISED FOR YOU

As every propeller is unique, and every system is designed for its specific application. Hundested Propeller A/S design and manufacture your CPPs and Gear Box just for you.

For more information or any unanswered questions please visit **www.hundested.com** or feel free to contact us **hundested@hundestedpropeller.dk** as we are always interested in hearing about your project and seeing how we can be of any help.



EXCELLENCE ONBOARD

BSI Group provides you with specialist equipment for cruising, racing, and super yachts from some of the business' most dedicated brands – all under one sail



HUNDESTED PROPELLER A/S

HUNDESTED PROPELLER A/S

Stadionvej 4 · 3390 Hundested · Denmark

+45 4793 7117 · hundested@hundestedpropeller.dk

www.hundested.com