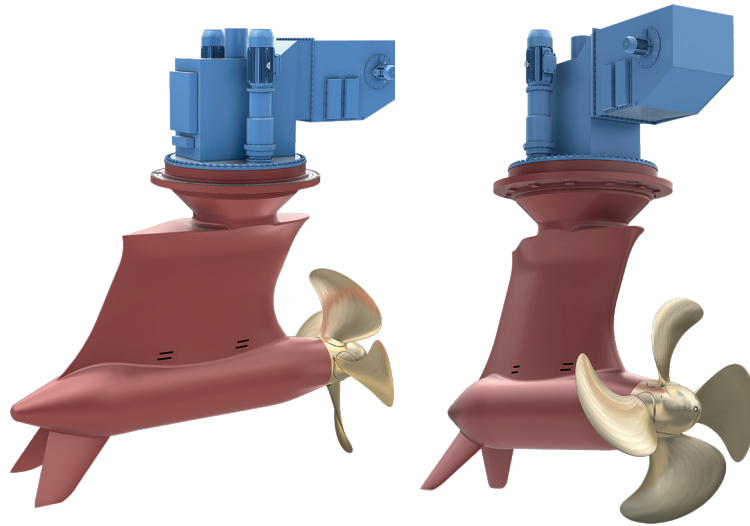


ELEGANCE POD



KONGSBERG

KONGSBERG PROPULSION SYSTEMS

Elegance pod

With permanent magnet motor technology for optimal system efficiency and compact design. Hydrodynamically optimised based on system efficiency for optimal vessel performance. Flexible design, Ice class capability and optional underwater mounting, for wide range of applications.

Elegance pods provide propulsion units for precise and efficient vessel operation. It has a built in permanent magnet electric motor for optimal efficiency over a large speed range, combined with an excellent hydrodynamic design developed by the well renowned Kongsberg Maritime Hydrodynamic Research Centre.

The Elegance propulsion system combining Pods and KONGSBERG frequency drives and control system, will provide exact and effective propulsion and manoeuvring for a broad range of vessel types.

The Elegance pod units builds on KONGSBERG long tradition and experience from mechanical thrusters and pods that goes decades back. This has been refined by implementing the latest permanent magnet motor technology into the units. Driven by KONGSBERG SAVE electric system solutions, optimal electric propulsion can be supplied.

The pods has been shaped to hydrodynamic excellence through extensive CFD analysis and model scale testing. The latest feature added is the twin tail system, positioned at the rear of the pods.

The system improves efficiency and delays cavitation inception during steering and manoeuvring, reducing noise and improving efficiency.

With a well-proven and durable electric steering arrangement, a clean and exact steering of the units with minimal energy use can be provided. A new integrated hull fitting interface allows a compact head-box to be used, minimising the hull drag and improving hull efficiency.

The design provides means for replacement of the complete units, including the steering gear, for ease of maintenance. Alternatively, seals and bearings can be replaced in situ when in dry-dock, even without removing the complete pod.

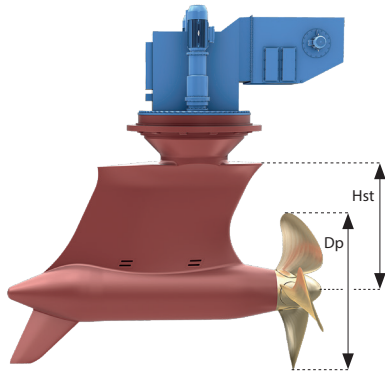
For maximal availability, the complete units are designed for underwater mounting, based on the long experience of underwater mounting of azimuthing propulsors and larger pods.

For the maintainability of the units much focus has been put into safe operation and long service intervals. To achieve this, the pods are designed with several layers of redundancy on critical and hard-to-reach components, while the service points are positioned for easy access.

The Elegance pod system is also available with a ducted pushing type pod for applications where high thrust at lower speeds is required. For specification of the ducted version, see separate fact sheet.

OWNER/OPERATOR BENEFITS

- High cargo capacity from small inboard space requirements
- High propulsion system efficiency allows:
 - Reduced total installed power generation requirements
 - Reduced total fuel consumption and exhaust emissions
- Low noise and vibration levels
- High manoeuvrability

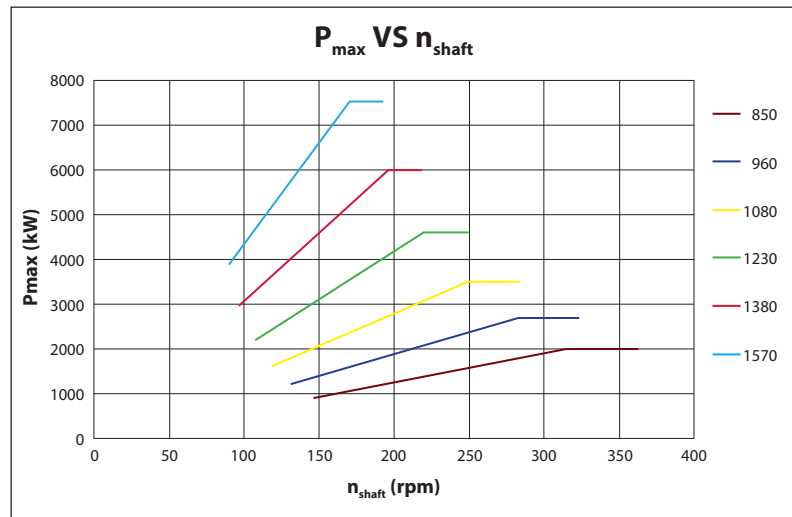


Elegance benefits

- A variety of electric system and drive alternatives to provide an optimal solution for each application
- Permanent magnet motor technology for optimal electric efficiency and compact design
- Combined cooling by air and surrounding sea water provides high efficiency and compact air cooling cubicle
- Optimised drive/motor and hydrodynamic design for excellent overall efficiency
- Adjustable design to provide optimal adaption to hull for each vessel
- Twin-Tail (pat pending) for improved efficiency and cavitation behaviour
- VGP compliant Anti-Pollution Seal System to ensure environmental safe operation
- Hydrodynamic Research Centre to support customer in hull/pod optimisation
- Easy access of all service points
- Long service intervals of main components
- Safe and easy fitting of units to hull without heavy lifting equipment
- Underwater mounting and maintenance feasibility
- Strong operational support. Both for system monitoring and maintenance

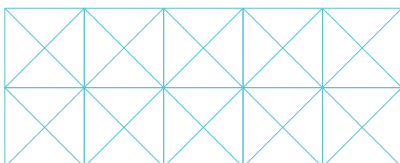
SHIPYARD AND CONSTRUCTION BENEFITS USING PODS

- Flexible machinery arrangement
- Modularised design
- Simplified vessel machinery installation
- Simplified hull form and structure
- Reduced installation time and cost
- Fewer components
- Reduced shipyard/sub-supplier co-ordination



SIZE	850	960	1080	1230	1380*	1570*
Max Power [kW]	2000	2700	3500	4600	6000	7500
Propeller diameter [m]	1.8 - 2.9	2.1 - 3.4	2.4 - 3.9	2.7 - 4.4	3.0 - 4.9	3.3 - 5.4
Shaft speed [rpm]	145 - 365	130 - 325	117 - 285	106 - 250	95 - 220	88 - 192
Hst [mm]	1700	1950	2250	2550	2800	3000
	1900	2200	2550	2900	3200	3450
	2100	2450	2850	3250	3600	3900
Approx. Weight [tonnes]	27	34	45	58	75	95

*Dual Winding motor



Kongsberg Maritime
P.O.Box 483, NO-3601
Kongsberg, Norway

Switchboard: +47 815 73 700
Global support 24/7: +47 33 03 24 07
E-mail sales: km.sales@km.kongsberg.com
E-mail support: km.support@kongsberg.com