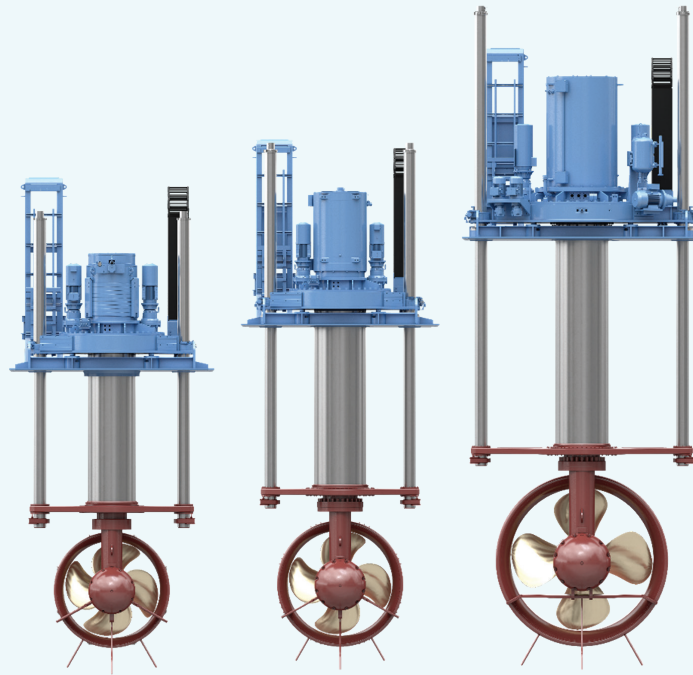


# RETRACTABLE THRUSTERS TYPE ULE PM



KONGSBERG



## KONGSBERG RETRACTABLE AZIMUTH THRUSTERS

### Type ULE PM

KONGSBERG is the most experienced manufacturer of retractable azimuth thrusters, delivering hundreds of units since 1970. Our wide product range of retractable thrusters offer effective solutions for all vessel types with enhanced maneuvering and dynamic positioning requirements. ULE PM is the result of extensive development work based on the experience from hundreds of delivered retractable units, of which over 200 UL/ULE units are currently in operation.

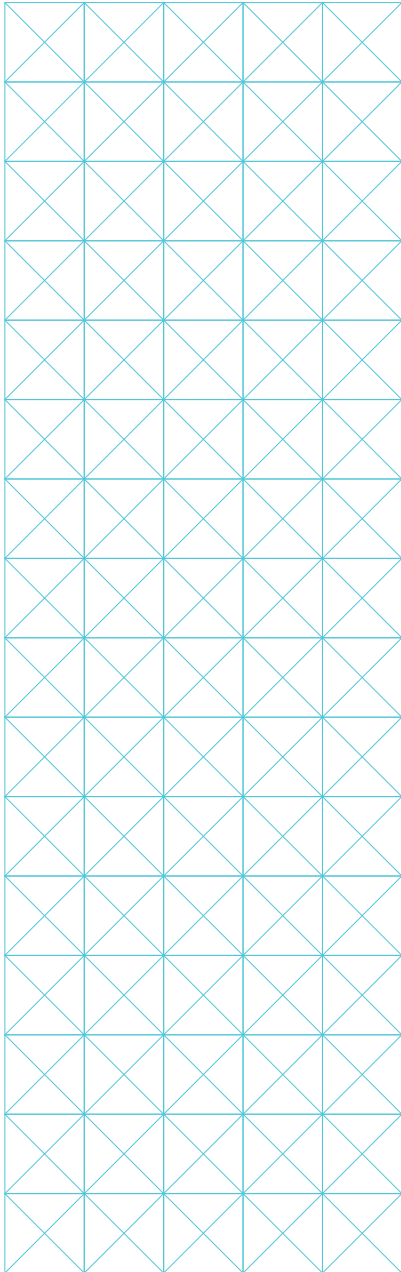
Our retractable thrusters provide the full maneuvering and positioning capability of an azimuth thruster, without affecting the draft or running resistance of the vessel, when the extra propulsive power is not needed. In addition, the retractable thrusters provide important added redundancy and “take me home”-capability to the vessel, in case of issues with the main propulsion system.

The ULE PM type retractable thrusters represent a new generation of thrusters with many improvements, stemming from the ground up redesign of the units to meet the requirements of vessel designs. Resulting retractable thrusters are very compact in size, while having unparalleled efficiency, allowing even the small thrusters to deliver the required thrust and manoeuvring capability. In addition, extra attention has been given for simple installation, and easy maintenance.

ULE PM type azimuth thrusters have a unique design where an integrated electric prime mover is mounted very low between the steering gear resulting in markets lowest retractable unit for given unit size, with the units requiring over than a meter less vertical space than a traditional retractable thruster designs.

#### KEY BENEFITS

- Market leading thrust per thruster size through patent pending hydrodynamic innovations, optimised design, and integrated PM-motor
- Minimal installation footprint and height requirement achieved through new mechanical layout
- Simple installation with clear interfaces to vessel
- Easy maintenance through reduced number of components and accessible service locations
- The ULE PM Combi provides the performance of an azimuth thruster and tunnel thruster with the investment and installation volume of a single thruster



## ULE PM Combi

All ULE PM type thrusters are available as a combi unit, which feature optimised drivetrain and hydrodynamics for high thrust and fast response time. Both, while operating in tunnel as a tunnel thruster, and as azimuth thruster for manoeuvring or dynamic positioning.

## ULE PM & ULE PM Combi retractable thruster's standard range

	ULE PM P12	ULE PM 155P14	ULE PM 205
DNV Power (kW)	880	1200	1600
Non DNV Power (kW)	1100	1300	1900
Input rpm (RPM)	1000	1050	750
Propeller size (mm)	1600	1800,2000	2400,2500
Ice class	DNV ICE C, other on request	DNV ICE C, other on request	DNV ICE C, other on request

The KONGSBERG retractable thrusters can be further configured to meet special customer needs such as redundancy, ice, noise, and shock requirements.

All KONGSBERG azimuth thrusters can be configured to comply with Vessel General Permit (VGP) and to use environmentally accepted EAL oils.

## Hydrodynamic expertise

Good hydrodynamic interaction between the thruster and the vessel hull is important for the best efficiency and performance. Our customers benefit from our world class expertise on hydrodynamics, computational fluid dynamics and model testing to optimize the performance of the vessel and the propulsive system.

## Global customer support

The worldwide service network ensures the high-level execution of the product over its entire lifecycle, providing all solutions from one place. We always have a good supply of spare products in our storages, including certain reserved products for UL and ULE devices.

Our worldwide service ensures the availability of experienced service personnel and spare parts allowing the carefree operation of the propulsion system through the commissioning to the operational life of the vessel.

## TYPICAL APPLICATIONS OF ULE THRUSTERS

- Offshore supply vessels
- AHTS (Anchor Handling Tug Supply)
- Offshore construction vessels
- Fishing vessels
- Research vessels
- Multipurpose vessels
- Cargo vessels
- Jack-ups

