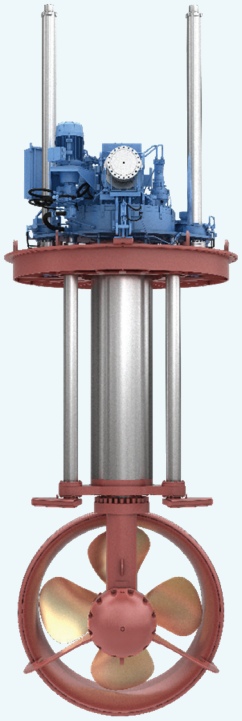
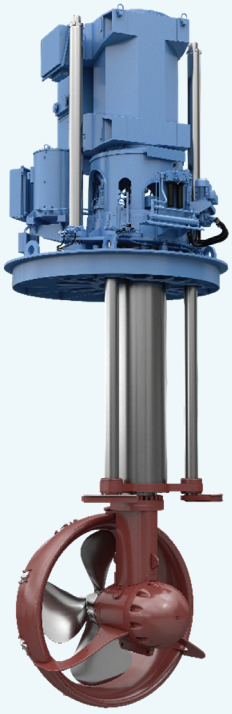
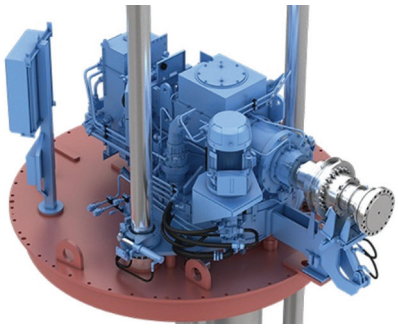
RETRACTABLE THRUSTERS





KONGSBERG



KEY ADVANTAGES ON USING KONGSBERG UL/ULE THRUSTERS

- Proven design, over 200 units currently in operation.
- Optimum unit choice from a wide product range
- Improved maneuvering, thrust and station keeping
- Cost-effective solution for increased propulsive capability
- Easy installation and maintenance

KONGSBERG RETRACTABLE AZIMUTH THRUSTERS

Type ULE and UL

KONGSBERG is the most experienced manufacturer of retractable azimuth thrusters, delivering hundreds of units since the 1970. The wide product range offers effective solutions for any vessels with enhanced manoeuvring and dynamic positioning needs.

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 all around the world allowing the carefree operation of the propulsion system through the commissioning to the operational life of the vessel.

KONGSBERG retractable thrusters provide the full manoeuvring 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.

KONGSBERG retractable thrusters are available with L and Z-drive configurations to fit and fill the needs of the any vessel design. The L-drive ULE units can furthermore be configured to operate as a tunnel thruster when the unit is retracted, thus reducing the cost and installation volume of the propulsion system.

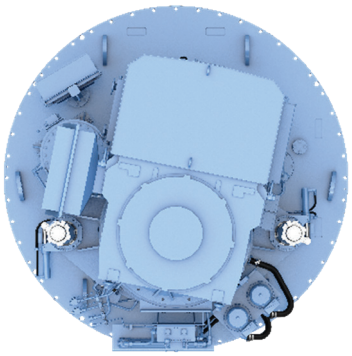
UL

The Z-drive UL type azimuth thrusters feature a horizontal input shaft which allow the unit to be driven by an electric or diesel prime mover, while maintaining a very low installation space requirement. For use with a diesel engine the unit features an integrated clutch.

The hydraulic equipment of the UL unit can be configured to be run by an electric power pack or by a belt drive, from the input shaft, which minimizes the need for any auxiliary equipment.

UL type Z-drive retractable thruster's standard range

	UL 155P12	UL 155P14	UL 205	UL 255	UL 305	UL 355
DNV Power (kW)	880	1200	1500	2200	3100	3700
Non DVN Power (kW)	1100	1300	2000	2500	3000	3800
Input rpm (RPM)	750-2000	750-1800	750-1800	750-1600	720-1200	750-1200
Propeller size (mm)	1800	1800, 2000	2400, 2500	2800	3000	3500



ULE

The L-drive ULE type azimuth thrusters have a vertically mounted electric motor as the prime mover, while the hydraulic equipment is driven by a power pack.

The ULE type azimuth thrusters can be configured operate as a tunnel thruster when the unit is in the retracted position, thus providing the benefits and performance of both azimuth and tunnel thruster in one compact and cost-effective package.

ULE type L-drive retractable thruster's standard range

	ULE 155P12	ULE 155P14	ULE 205	ULE 255	ULE 305	ULE 355
DNV Power (kW)	880	1200	1600	2200	3100	3700
Non DVN Power (kW)	1100	1300	2000	2500	3000	3800
Input rpm (RPM)	1000	1050	750	750	720	720
Propeller size (mm)	1800	1800, 2000	2400, 2500	2800	3000	3500

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

All KONGSBERG azimuth thrusters are VGP compliant and 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 can leverage the KONGSBERG's world class expertise on hydrodynamics, computational fluid dynamics and model testing to optimize the performance of the vessel and the propulsive system.

TYPICAL APPLICATIONS OF UL/ULE THRUSTERS

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

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