

## 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.

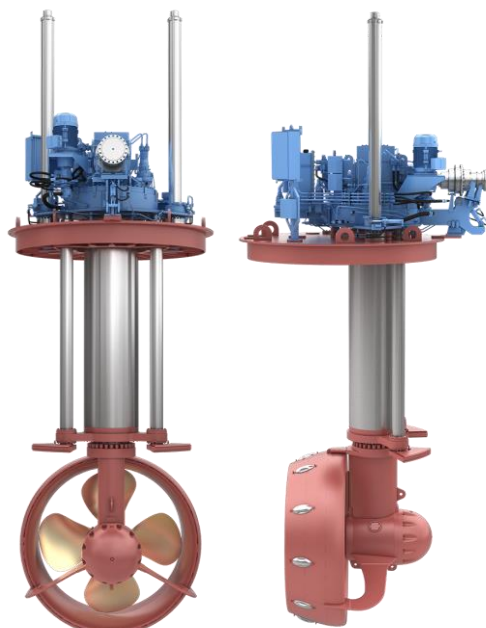
Our worldwide service ensures the availability of experienced service personnel and spare parts all around the world allowing the carefree operation of the propulsion system through the commissioning to the operational life of the vessel.

The UL/ULE type 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.

UL/ULE 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.

#### Typical applications of UL/ULE thrusters

- Offshore supply vessels
- Offshore construction vessels
- Fishing vessels
- Research vessels
- Multipurpose vessels
- Cargo vessels
- Jack-ups



#### Key advantages of KONGSBERG UL/ULE thrusters

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

## 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 155 P12 | UL 205     | UL 255     | UL 305     | UL 355     |
|---------------------|------------|------------|------------|------------|------------|
| DNV Power (kW)      | 880        | 1500       | 2200       | 3100       | 3700       |
| Non DNV Power (kW)  | 1100       | 2000       | 2500       | 3000       | 3800       |
| Input rpm (RPM)     | 750 – 2000 | 750 – 1800 | 750 – 1600 | 750 – 1200 | 750 – 1200 |
| Propeller size (mm) | 1800       | 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 255 | ULE 305 | ULE 355 |
|---------------------|---------|---------|---------|
| DNV Power (kW)      | 2200    | 3100    | 3700    |
| Non DNV Power (kW)  | 2500    | 3000    | 4000    |
| Input rpm (RPM)     | 750     | 720     | 720     |
| Propeller size (mm) | 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.

KONGSBERG azimuth thrusters are VGP compliant and use environmentally accepted EAL oils.

## Hydrodynamic expertise

A good hydrodynamic interaction between the thruster and the vessel's hull is essential for efficiency and performance. KONGSBERG is the world's only thruster manufacturer with its own hydrodynamic research centre and cavitation tank. Our customers can take advantage of KONGSBERG's world class expertise in hydrodynamics, computational fluid dynamics and unique model testing capability to optimise vessel and propulsive system performance.

## Global Customer Support

The global service network ensures high-level product execution throughout its lifecycle, providing all solutions in one place. We always have good availability of spare products in our warehouses, including certain UL and ULE units. Our global service ensures the availability of experienced service personnel and spare parts, allowing for smooth operation of the propulsion system from commissioning to the vessel's operational life.

