

# Orkot® TLM & TXM Marine Bearings



**Your Partner for Sealing Technology**

## A Global Approach

Trelleborg Sealing Solutions is a world-leading manufacturer and supplier of bearings and bearing materials to the shipping and marine industries.

Supported by an extensive global network of manufacturing plants, agents and distributors, we are able to offer the highest levels of quality and service associated with a leading global company.

Part of the Trelleborg group of companies, Orkot® Marine Bearings has been active within the marine and shipping industry for over 25 years.

Apart from Marine bearings, Trelleborg offers a broad variety of products for on-deck machinery and other equipment. The product range includes o-rings, static, linear and rotary seals, wear rings, scrapers, bearings and custom made elastomer and plastics parts.



## TLM Marine Characteristics

Orkot® TLM Marine is an advanced, reinforced polymer (sometimes called synthetic polymer alloy) solid lubricants. The material has exceptional wear resistance and virtually no swell in water, providing dimensional stability.

Orkot® TLM Marine tolerates edge loading and misalignment even with the heaviest loads.

Orkot® Marine Bearings are installed with an interference fit. Bearings are normally freeze fitted using liquid nitrogen but can be press fitted or resin chocked as required.

Where there are extended periods without lubrication, such as upper pintle bearings under light ballast conditions, Orkot® TLM Marine proves especially effective.

## TXM Marine Characteristics

Orkot® TXM Marine is an advanced reinforced medium weave polymer material (sometimes called synthetic polymer alloy) using a unique manufacturing process that provides a high concentration of PTFE in the sliding area while maintaining high compressive strength. The PTFE layer is several millimetres thick, making it tolerant to wear, while maintaining its low friction properties throughout the service life of the bearing. The PTFE layer is backed by our well known polymer, Orkot® TLM Marine giving a truly homogeneous bearing material without a metal backing layer.

In areas where the running conditions are dry, Orkot® TXM Marine has proved particularly effective in eliminating stick-slip problems normally associated with these operating parameters. The special PTFE layer provides for similar mechanical properties to Orkot® TLM Marine, but with substantially reduced friction and wear characteristics.

## Service and Support

Orkot® Marine Bearings has a team of experienced and highly skilled engineers who offer a full and complete service tailored to your specific requirements. Some aspects of this service are:

- Recommendations on adapting our bearings to specific environmental and operational conditions
- Calculation of bearing dimensions for internal or on site machining

- Technical assistance with bearing installations
- Full technical backup and support throughout the service life of the bearing
- 24 hour emergency support

This extensive support service is complimented by a comprehensive range of technical documentation and the Orkot® Marine Bearing Calculation program.



## World Wide Web

Visit our website for general and technical information on Orkot® marine products and applications. You will also be able to view and download certificates, literature and other documents.

[www.orkotmarine.com](http://www.orkotmarine.com)

For information on Trelleborg's entire portfolio of sealing & bearing solutions please look under [www.tss.trelleborg.com](http://www.tss.trelleborg.com)

## World Wide Availability

Orkot® TLM & TXM Marine stock tubes can be shipped same day via our world wide distribution network. In addition we can manufacture specific sizes in both tube and sheet form within 24 hours and can supply a full range of finished-machined products quickly and economically.

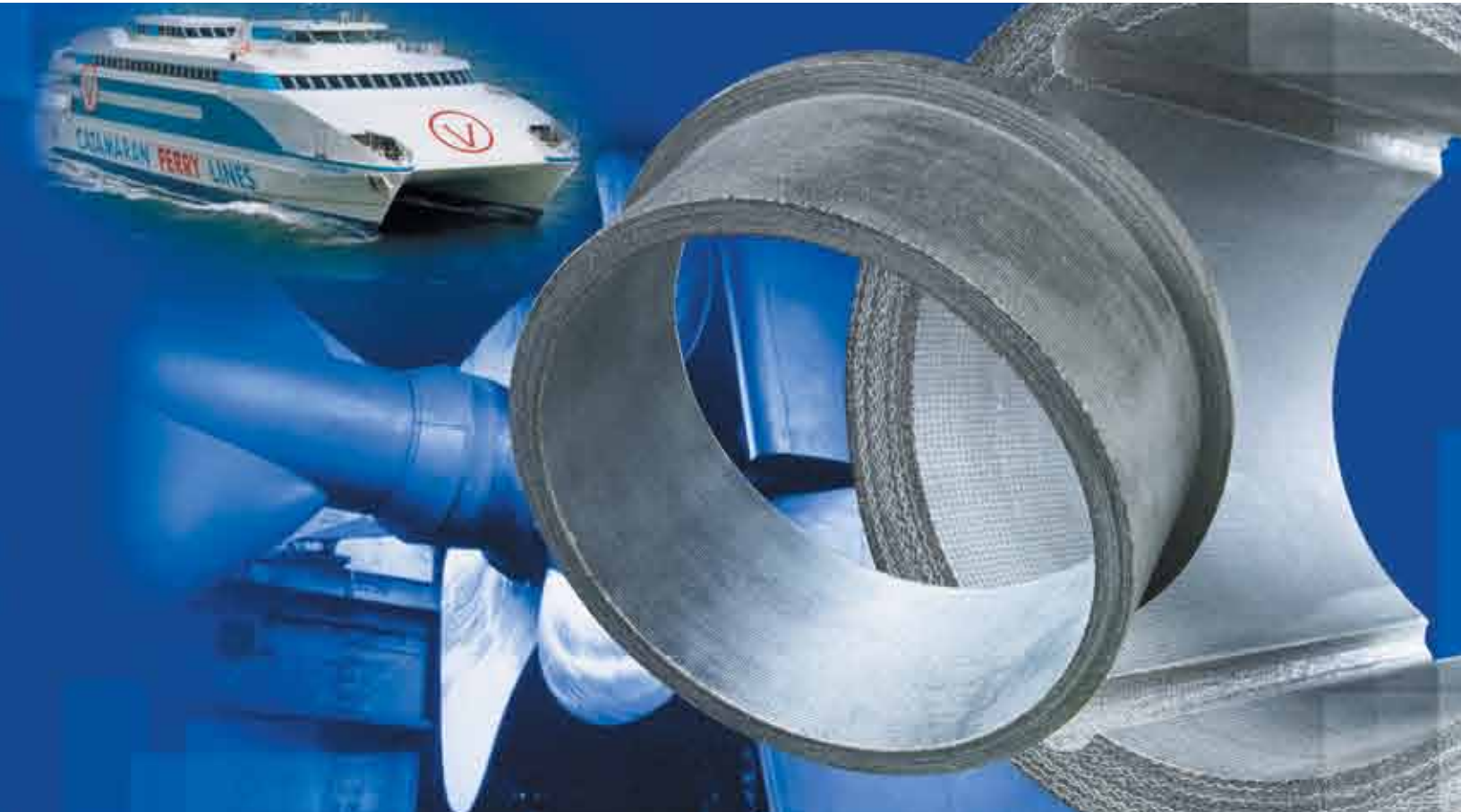
## Quality & Classification

ISO 9001 approval is held for all manufacturing operations and internal systems while in-house testing resources are used extensively to simulate the extreme operational environments where the material is used.

Orkot® TLM and TXM Marine is approved by all major marine classification societies including: Lloyds, DNV, ABS, GL, BV and NKK. Copies of our approval certificates can be viewed and downloaded from our websites.

## Mechanical Properties

	TLM Marine metric	TLM Marine inch	TXM Marine metric	TXM Marine inch
<b>Compressive Strength</b> Normal to Laminate Parallel to Laminate	300 N/mm <sup>2</sup> 90 N/mm <sup>2</sup>	43,500 lbs/in <sup>2</sup> 13,000 lbs/in <sup>2</sup>	280 N/mm <sup>2</sup> 90 N/mm <sup>2</sup>	40600 lbs/in <sup>2</sup> 13000 lbs/in <sup>2</sup>
<b>Tensile Strength</b>	60 N/mm <sup>2</sup>	8700 lbs/in <sup>2</sup>	55 N/mm <sup>2</sup>	8000 lbs/in <sup>2</sup>
<b>Flexural Strength</b>	65 N/mm <sup>2</sup>	9400 lbs/in <sup>2</sup>	65 N/mm <sup>2</sup>	9400 lbs/in <sup>2</sup>
<b>Shear Strength</b>	80 N/mm <sup>2</sup>	1600 lbs/in <sup>2</sup>	80 N/mm <sup>2</sup>	11600 lbs/in <sup>2</sup>
<b>Impact Strength</b> Charpy Impact Unnotched Normal to Laminate	120 KJ/m <sup>2</sup>	0.079 KJ/in <sup>2</sup>	120 KJ/m <sup>2</sup>	0.079 KJ/in <sup>2</sup>



	TLM Marine metric	TLM Marine inch	TXM Marine metric	TXM Marine inch
<b>Hardness - Rockwell M</b>	90	90	90	90
<b>Density</b>	1.3 g/cm <sup>3</sup>	0.047 lbs/in <sup>3</sup>	1.3 g/cm <sup>3</sup>	0.047 lbs/in <sup>3</sup>
<b>Swell in water, % of wall thickness</b>	0.1%	0.1%	0.1%	0.1%
<b>Thermal Expansion Coefficient</b> <b>20 – 100 °C (per °C x 10<sup>-5</sup>) 68 – 212 °F (per °F x 10<sup>-5</sup>)</b> Normal to Laminate Parallel to Laminate	9 - 10 5 - 6	5.0 - 5.5 2.7 - 3.3	9 - 10 5 - 6	5.0 - 5.5 2.7 - 3.3
<b>Sliding Properties</b> Typical coefficient of friction running dry against a corrosion resistant surface such as stainless steel. Bearing Pressure 15N/mm <sup>2</sup> /2175 lbs/in <sup>2</sup>	0.13	0.13	0.05	0.05

## Orkot® TLM & TXM Marine Bearings – Proven Benefits:

- Extensive stock available
- Classification approval for up to 15N/mm<sup>2</sup>
- Virtually no swell in water
- Environmentally friendly
- 24 hour turnaround for non-stock sizes
- Approved dry running capability
- Low coefficient of friction
- Tolerant to edge loading



## Applications

Orkot® TLM & TXM Marine is used in a wide range of proven applications, including:

- Rudder bearings
- Water lubricated propeller shaft bearings
- Stabilizer bearings
- Weapons handling bearings and guide strips
- Deck machinery bearings
- High strength synthetic rope termination bushings
- Offshore mooring system bearings
- Steering and diving system bearings
- Steering gear bearings
- Stern roller bearings
- Slipway pads
- Sonar bushings and guide strips
- Low magnetic permeability materials for mine counter measure vessels
- Door bushes
- Crane mast bearings

**Contacts:**

**Trelleborg Sealing Solutions has two specialized business centers for Orkot® marine bearings.**

**Trelleborg Sealing Solutions Rotherham**

Bradmarsh Business Park  
Rotherham S60 1BX United Kingdom

24 Hour Emergency Line:

Email: [enquiries@orkotmarine.com](mailto:enquiries@orkotmarine.com)  
[www.orkotmarine.com](http://www.orkotmarine.com)

Tel: +44 (0)1709 789 828  
Fax: +44 (0)1709 789 802

+44 (0)1709 789 840

**Trelleborg Sealing Solutions Streamwood**

901 Phoenix Lake Avenue  
Streamwood, IL 60107 USA

24 Hour Emergency Line:

Email: [tssusa@trelleborg.com](mailto:tssusa@trelleborg.com)  
[www.orkotmarine.com](http://www.orkotmarine.com)

Tel: +1 (630) 289 1500  
Fax: +1 (630) 289 5434

+1 (800) 546 7568

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