

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 since 1980.

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

- 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

For information on Trelleborg's entire portfolio of sealing & bearing solutions please look under 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.

■ Orkot TLM & TXM Marine Bearings

PROVEN BENEFITS

- Extensive stock available
- Classification approval for up to 15N/mm²
- 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

Material Spotlight

MECHANICAL PROPERTIES

Property	TLM Marine metric	TLM Marine inch	TXM Marine metric	TXM Marine inch
Compressive Strength Normal to Laminate Parallel to Laminate	300 N/mm ² 90 N/mm ²	43,500 lbs/in ² 13,000 lbs/in ²	280 N/mm ² 90 N/mm ²	40,600 lbs/in ² 13,000 lbs/in ²
Tensile Strength	60 N/mm ²	8,700 lbs/in ²	55 N/mm ²	8,000 lbs/in ²
Flexural Strength	65 N/mm ²	9,400 lbs/in ²	65 N/mm ²	9,400 lbs/in ²
Shear Strength	80 N/mm ²	11,600 lbs/in ²	80 N/mm ²	11,600 lbs/in ²
Impact Strength Charpy Impact Unnotched Normal to Laminate	120 KJ/m ²	57 ft-lb/in ²	120 KJ/m ²	57 ft-lb/in ²
Hardness - Rockwell M	90	90	90	90
Density	1.3 g/cm ³	0.047 lbs/in ³	1.3 g/cm ³	0.047 lbs/in ³
Swell in water, % of wall thickness	0.1%	0.1%	0.1%	0.1%
Thermal Expansion Coefficient 20 – 100 °C (per °C x 10⁻⁵) 68 – 212 °F (per °F x 10⁻⁵) 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
Sliding Properties Typical coefficient of friction running dry against a corrosion resistant surface such as stainless steel. Bearing Pressure 15N/mm ² /2175 lbs/in ²	0.13	0.13	0.05	0.05

Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Sealing Solutions is a leading developer, manufacturer and supplier of precision seals, bearings and custom-molded polymer components. It focuses on meeting the most demanding needs of aerospace, automotive and general industrial customers with innovative solutions.

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