

Orkot[®] C620

**STRONG AND LIGHT HIGH-LOAD COMPOSITES
FOR AEROSPACE**



Orkot® C620

A high-load composite material for lighter, safer and more efficient aircraft.

DEVELOPED FOR PERFORMANCE

Orkot® C620 pushes the boundaries of composite technology. It has been specifically designed and developed to meet the needs of the aerospace market, in particular for a strong and light material to withstand high loads and stresses over a long service life, making it ideal for landing gear.

This high-specification material builds upon regular composite formulation by featuring a strong glass fiber backing alongside a low-friction Orkot® lining. The properties of the different layers increase load capacity and strength, while reducing friction and wear to maximize efficiency and service life.

OPTIMIZED MATERIAL PROPERTIES

Orkot® C620 is light in addition to being strong. This allows standard metallic components found within the aircraft to be replaced with Orkot® material, reducing weight and increasing fuel efficiency.

Through careful selection of ingredients within the material, it is versatile enough to be used across multiple elements of the aircraft, including landing gear, structural components and applications within the interior.

INCREASING PROFIT BY REDUCING DOWNTIME

Mechanical properties have been optimized based on market requirements. Orkot® C620 gives efficient low-friction performance with high wear resistance to eliminate maintenance requirements across the product lifecycle. This means less downtime, reducing overall costs. It is also self-lubricating with dry-running capabilities, enabling new builds to be lubricant-free.

Orkot® C620 is part of the future of aerospace, offering manufacturers a route to the next generation of lighter, safer and more efficient aircraft.

**Withstands
high loads and
stresses**

**Zero
maintenance**

**Dry-running
capable
and self-
lubricating**

**Reduces
friction with
minimal
stick-slip**

**Strong
and light**

PROVEN PERFORMANCE

The mechanical properties of Orkot® C620 have been quantified and validated through rigorous testing to industry standards. These properties provide high stiffness and ensure no plastic deformation takes place (Figure 1).

Property	Value (N/mm ²)
Compressive Strength	470
Compressive Modulus	6,800
Tensile Strength	145
Tensile Modulus	5,200

Table 1: Orkot® C620 mechanical properties

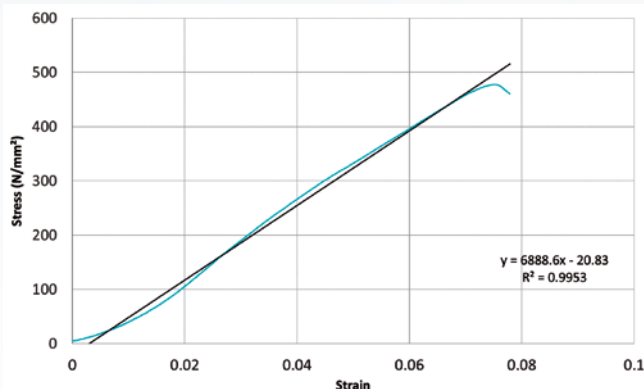


Figure 1: Stress-strain curve for Orkot® C620

SUPERIOR STRENGTH AND FRICTION PROPERTIES

In comparison to other bearing materials, Orkot® C620 is superior in both compressive strength and frictional properties (Figures 2 and 3). Table 2 gives a comparison of the relative properties of Orkot® C620 against alternative materials.

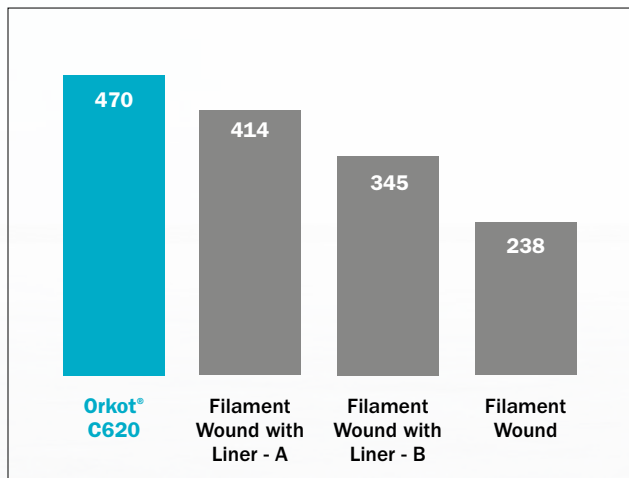


Figure 2: Compressive strength versus comparative materials

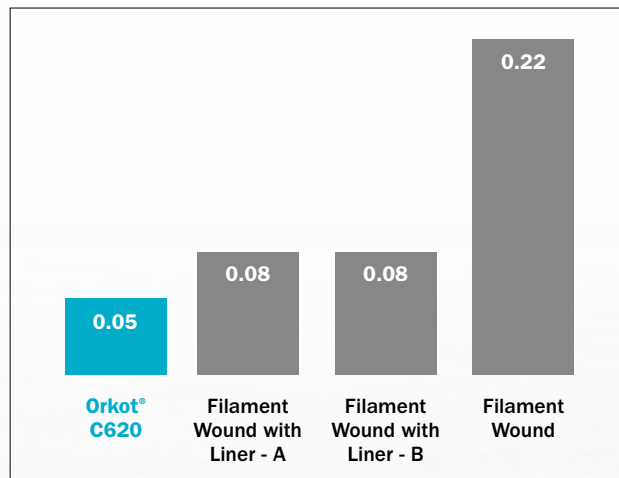


Figure 3: Coefficient of friction versus comparative materials

	Orkot® C620	Filament Wound with Liner - A	Filament Wound with Liner - B	Filament Wound
High Load Capability	Superior Performance ●●●●●	High ●●●●	Good ●●●	Satisfactory ●●
Low Friction Performance	Superior Performance ●●●●●	High ●●●●	High ●●●●	Satisfactory ●●
Dry Running Capability	High ●●●●	High ●●●●	High ●●●●	High ●●●●

Table 2: Material comparison

Orkot® in Landing Gear

Whilst Orkot® C620 can benefit multiple components within the aircraft, it has been specifically designed for the high-load requirements of landing gear.

UPPER LINKAGES

Due to the hidden position of the upper pin, reliability is critical. The small contact area, combined with high loading, requires a versatile material, such as Orkot® C620.

SMALLER, LIGHTER AND MORE POWERFUL

Orkot® C620 reduces weight by allowing smaller components and replacing metallic parts, enabling manufactures to design smaller, lighter and more powerful products.

SLOWER, SMOOTHER AND SAFER

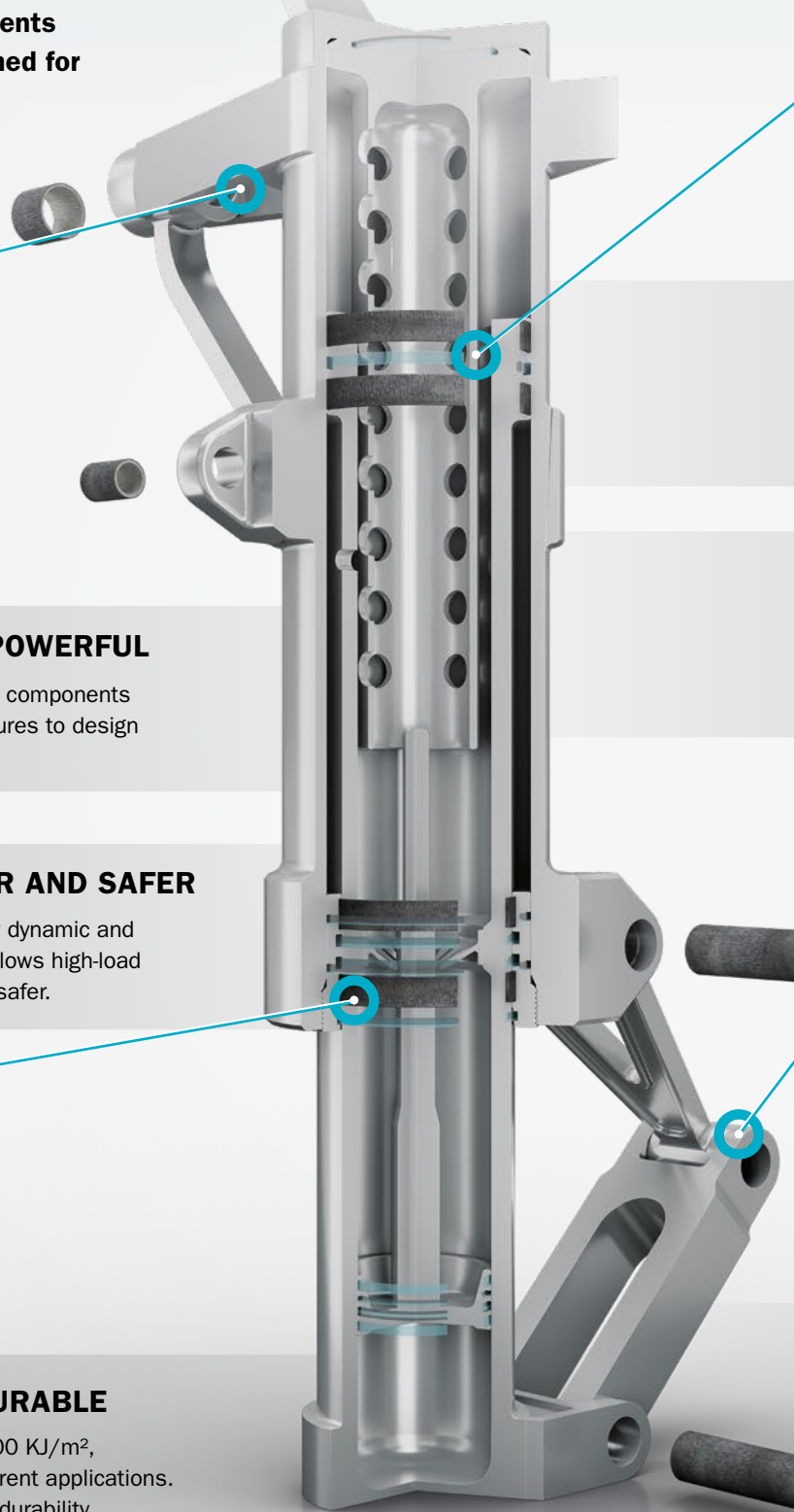
By reducing stick-slip with low dynamic and static friction, Orkot® C620 allows high-load motions to be smoother and safer.

LOWER BEARING

The high sideloads on lower bearings mean that Orkot® C620 is the perfect material to replace standard metallic bearings, whilst providing other benefits.

RESILIENT, ADAPTABLE AND DURABLE

Orkot® C620 has a high impact strength of 200 KJ/m², making it both resilient and adaptable to different applications. A TX layer offers outstanding and long-lasting durability.



UPPER BEARING

Orkot® C620 offers low static and dynamic friction with minimal stick-slip for smooth operation over a 20 year service life.

BIGGER, BETTER AND STRONGER

For highly demanding applications, Orkot® C620 enables manufacturers to design bigger, better and stronger components.

RELIABLE, STABLE AND EFFICIENT

With a low coefficient of friction, Orkot® C620 reduces wear and withstands high loads. Manufacturers can design components that are more reliable, stable and efficient using Orkot® materials.

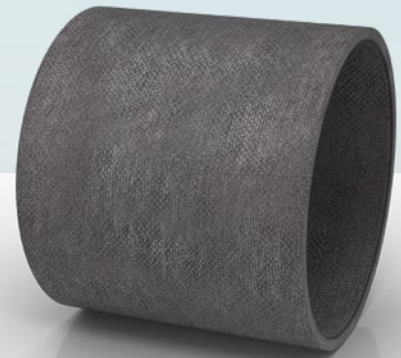
LOWER LINKAGES

Linkages, such as those within the retracting actuator, require smooth operation. Orkot® C620 minimizes stick-slip, while reducing static and dynamic friction.

TOUGH, VERSATILE AND FLEXIBLE

Orkot® C620 has a flexural strength of 320 MPa, giving the versatility and durability to replace metallic components. It remains flexible and elastic enough to return to its original shape to provide vibration damping.

ORKOT® C620



Orkot® C620 has the highest load capability of all Orkot® grades, making it the perfect material for landing gear applications. The high-load, lightweight design means standard metallic components within the landing gear can be replaced.

Orkot® C620 offers:

- **Reduced weight**
 - Increased fuel efficiency
 - Increase passenger/luggage capacity
- **Low/no maintenance**
 - Decreased downtime
 - Increased revenue generation
 - Decreased cost
- **Low static and dynamic friction**
 - Smoother operation
 - Improved customer experience

As Orkot® C620 can withstand high loads, components within the landing gear can be manufactured to be smaller, while still ensuring it meets the needs of the environment. This saves space and means that the surrounding components with low loads can also be made smaller – saving on material costs.

SERVICE & SUPPORT

Trelleborg Sealing Solutions has experienced and highly skilled engineers that offer a complete service, tailored to your requirements. Orkot® C620 bearings are available in sizes from 8 mm to 2 m in diameter, with laminates available up to 3 m x 1.3 m x 40 mm.

For support, general enquiries and orders, contact your local Customer Solution Center.

Orkot® in Aerospace

The aerospace industry is continuing to evolve. There is a long-term trend towards the adoption of new, greener materials and solutions that reduce weight without compromising on performance or service life.



STRUCTURES

Orkot® C620 is lightweight and strong, making it the ideal material for structural components, wear pads, specialized fasteners and fuel system components. An effective way to increase overall aircraft efficiency.

Optimum material: C620

- High load capability, up to 350 MPa
- Weight saving – no compromise on structural strength
- Increased aircraft efficiency



LANDING GEAR

Orkot® offers low friction and minimal stick-slip for smooth operation on every take-off and landing. A high-load solution for bushes, pins and structural components, such as the upper and lower bearing.

Optimum materials: C620, C480, C384

- Light weight and maintenance free – 20-year service life
- Low static and dynamic friction and minimal stick-slip



ENGINES

The low conductivity of Orkot® makes it an excellent electrical and heat isolator, ideal for use around aircraft engine components. High-load and low friction properties make it the optimal choice for engine cowling hinges and the reverse thruster mechanism.

Optimum materials: C338, C406

- High temperature and chemical resistance
- Ideal for electrical and temperature isolation
- High-load and low friction

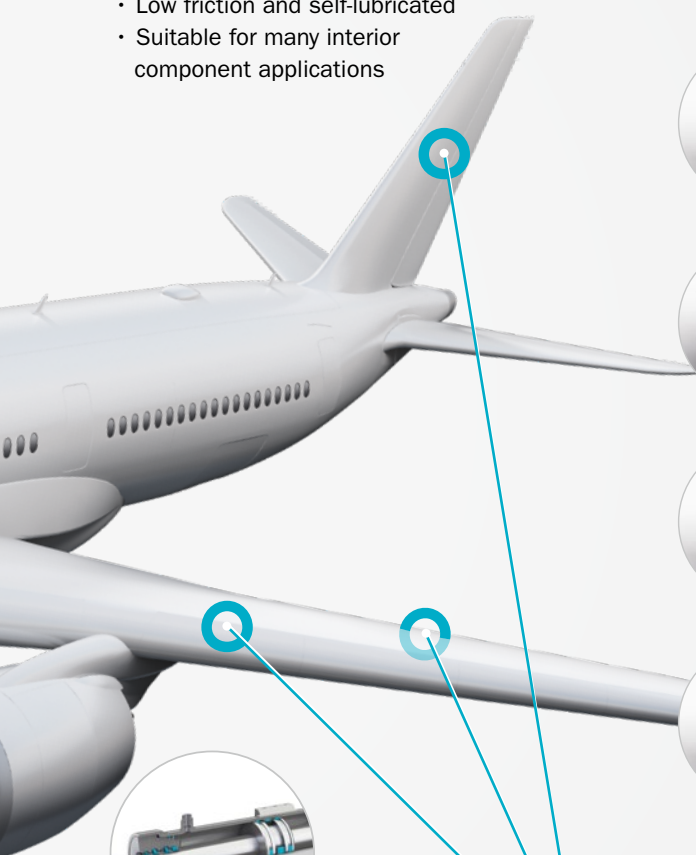


INTERIOR COMPONENTS

Orkot® C620 can be used in many interior components, such as overhead storages, seats, or anywhere requiring grease-free hinges, pins and bushes.

Optimum material: C620

- High load capability, up to 350 MPa
- Low friction and self-lubricated
- Suitable for many interior component applications



HYDRAULICS & ACTUATION

Trelleborg offers a range of Orkot® components and assemblies for hydraulic and actuation systems. Orkot® has a low coefficient of friction, allowing smooth operation at high loads and low speeds.

Optimum materials: C380, C480

- Peak efficiency and reliability with market-leading SLYDRING® designs
- Fluid compatibility with all aerospace-grade lubricants

HIGH PERFORMANCE MATERIALS



ORKOT® C620

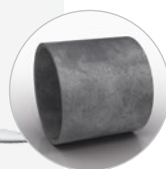
Highest load capability of all Orkot® grades. Features a self-lubricating, low friction layer on the sliding surface.

- High load capability, up to 350 MPa
- Self-lubricating and low friction



ORKOT® C384

Standard aerospace grade. Graphite-lubricated.



ORKOT® C338

Extra chemical and temperature resistance compared with Orkot® C384.

- High temperature resistance, up to +250 °C
- Increased thermal stability and chemical resistance



ORKOT® C480

Oleophilic behavior reduces stick-slip and can be used in marginally lubricated positions.



ORKOT® C406

Resin and aramid fiber construction for high-temperature performance.

- PTFE-rich sliding layer for low friction with self-lubricating properties.



ORKOT® C380

Standard Wear Ring material compatible with all aerospace-grade lubricants.



ONE-STOP-SHOP FOR AEROSPACE

Scan the QR code to view our full range of aerospace products.

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.

WWW.TRELLEBORG.COM/SEALS



facebook.com/TrelleborgSealingSolutions
twitter.com/TrelleborgSeals
youtube.com/TrelleborgSeals
linkedin.com/company/trelleborg-sealing-solutions

If you'd like to talk to Trelleborg Sealing Solutions, find your local contact at: www.trelleborg.com/seals/worldwide