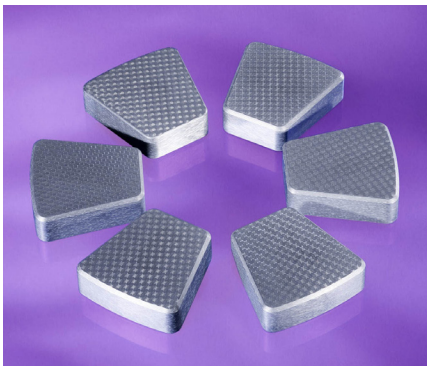
WR® 575 Thrust Pads

High-Performance Composite Design



WR® 575 Thrust Pads

Applications

- Refining, chemical, and power applications
- Axial bearings in oil - and medium - lubricated applications
  - Pumps (vertical submersible motor pumps, vertical, & horizontal centrifugal pumps)
  - Compressors
  - Steam and gas turbines
  - Generators

Availability

- Available up to 22 in. x 28 in. x 1.25 in. (600 mm x 710 mm x 30 mm) thick plates
- Shapes — Able to offer custom shape finished parts. Thrust ring designs also available

Enhanced Stability for High Speed Machinery

Greene Tweed's WR® 575 thrust pads are wear components used in hydrodynamic bearings for high-speed machinery such as pumps, compressors, and turbines. Their primary task is to take the axial bearing load and counterbalance the force applied on the shaft.

Made of WR® 575, a carbon-fiber thermoplastic composite material, and primarily designed as tilting thrust pads, WR® 575 thrust pads show excellent stiffness leading to high stability in machines with high-speed rotors. WR® 575 thrust pads are the optimum solution for high-speed and high-load applications.

The WR® 575 material permits operating temperatures up to 480°F (249°C). Because the versatile material is not limited by high temperatures, WR® 575 is the material of choice for thrust pad applications.

WR® 575 thrust pads are an ideal replacement for metal, carbon, ceramic, and bronze pads.

Contact Us

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10/18-GT EN-DS100-US-08-29-2016

Features and Benefits

Increased reliability and performance

High corrosion and chemical resistance — Performs well in water, eliminating corrosion caused by galling/seizing or conductivity of metallic pads. Resists aggressive chemicals and eliminates swell due to chemical attack. As a result, WR® 575 offers higher dimensional stability and better mechanical properties.

High-temperature capability — Permits higher operating temperatures compared to white metal bearings (up to 480°F/250°C), thus avoiding pad thermal defection created by heat generated in the oil film.

Enhanced stability

Excellent shock and impact resistance — Composite pads will not crack or wear in fine powder like carbon or ceramic pads when subject to high shocks or impacts, thus improving resistance to mechanical shocks and avoiding system contamination by particles.

High load capability — Supports larger axial loads than traditional pads (e.g., rubber, babbitt, carbon). Load capacity can be increased without requiring larger pads, or smaller pads can be used to support the same load, resulting in more cost-effective applications. WR® 575's higher load capability will also avoid fatigue problems faced by white metal and the possibility of cracking.

Improved wear resistance — Excessive loads, galling/seizing, or poor material chemical resistance can generate operating conditions that will dramatically increase wear of traditional pads. Composite pads offer superior wear resistance that avoids generation of small particles and system contamination.

Simplified machinery

Oil lubrication system unnecessary — WR® 575 thrust pads use the application's existing media to lubricate the pumps, so oil lubrication systems are unnecessary, saving cost and simplifying pump design.

Optimized design — Traditional design featured white metal bonded to metal substrate, a two-component design. WR® 575 is a one-component solution, eliminating the possibility of failure in the bonded area.

Typical Properties		
Physical Properties (ASTM Standard)		Typical
Color		Black
Density Volumic Mass, g/cm^3 (D792)		1.54
Fiber Orientation, Degree Angle		0/90
Fiber Volume, %		50
Water Absorption @ 48 Hours, 212°F (100°C), % (D570)		0.05
Mechanical (ASTM Standard)		
Tensile Strength XY, ksi (MPa) (D3039)		91 (627)
Tensile Modulus XY, ksi (MPa) (D3039)		8,700 (60,000)
Flexural Strength XY, ksi (MPa) (D790)		120 (827)
Flexural Modulus XY, ksi (MPa) (D790)		7,000 (48,300)
Compressive Strength XY, ksi (MPa) (D3410)		83 (572)
Compressive Strength Z, ksi (MPa) (D3410)		107 (738)
Compressive Modulus XY, ksi (MPa) (D3410)		8,010 (55,200)
Compressive Modulus Z, ksi (MPa) (D3410)		1,650 (11,400)
Thermal (ASTM Standard)		
Coefficient of Thermal Expansion, x-y plane, parallel to the layer plane, in./in./°F, mm/mm/°C (D696:E831)	70°F to 300°F (21°C to 149°C)	2.67 x 10^{-6} (4.80 x 10^{-6})
	300°F to 410°F (149°C to 210°C)	2.69 x 10^{-6} (4.80 x 10^{-6})
z-direction, perpendicular to the layer plane, in./in./°F, mm/mm/°C (D696:E831)	70°F to 300°F (21°C to 149°C)	3.64 x 10^{-5} (6.55 x 10^{-5})
	300°F to 410°F (149°C to 210°C)	9.63 x 10^{-5} (1.73 x 10^{-4})
Glass Transition Temperature, °F (°C) (D3418)		290°F (143°C)
Service Temperature Range, °F (°C) (DSC)		480°F (249°C)

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