

Highlighting innovative design features  
and useful applications information for  
**Thermo Scientific Centrifuges and Rotors**

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# smart notes

► design and innovation

SUPERSPEED FLOOR MODEL CENTRIFUGES



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**How do carbon fiber rotors ensure greater sample integrity than metal rotors during the sample preparation process?**

Sample integrity is a key concern in laboratories; depending on the application, small changes in temperature can affect sample stability as well as its biological properties. A Thermo Scientific Fiberlite LEX carbon fiber rotor possesses naturally insulating properties, which can mitigate unwanted temperature changes without impacting the momentum of your sample preparation process.

Rotors composed of metals, like aluminum, conduct heat rapidly; in contrast, carbon composite Fiberlite® LEX rotors, do not. Carbon fiber is naturally insulating and maintains sample temperature longer than in comparable-sized metal rotors to help ensure the integrity of your samples during sample handling, as well as maintaining refrigeration temperature during the centrifuge run.



# Thermo Scientific Fiberlite LEX rotors maintain sample temperatures longer during the sample preparation process.

## 10 Minutes in the Life of a Sample

Time delays in your process are inevitable – from transporting a sample between the lab bench and a centrifuge to an unexpected phone call. Even during process delays, samples are protected from the detrimental effects of rapid temperature change and sample integrity is maintained with Fiberlite LEX carbon fiber rotors. The carbon fiber construction of a Fiberlite LEX rotor provides superior insulating properties compared to metal equivalents. Just as it is quicker to follow a straight line than it is to follow a winding one, for example, heat traveling along the multi-directional fibers of a Fiberlite LEX rotor takes longer to penetrate and warm samples than in an aluminum rotor. This insulating effect increases as the rotor size increases, with the largest capacity floor model rotors demonstrating the greatest temperature protection for your samples.

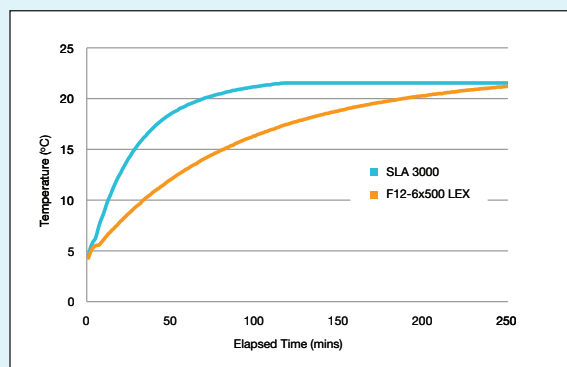
## Controlled Sample Temperature from Preparation to Separation

While carbon fiber is a natural insulator, it does not inhibit the refrigeration properties of the centrifuge during the run. Samples placed in a Fiberlite LEX carbon fiber rotor maintain set temperature of a refrigerated centrifuge, further ensuring sample integrity throughout the centrifuge separation process.

### ► Summary

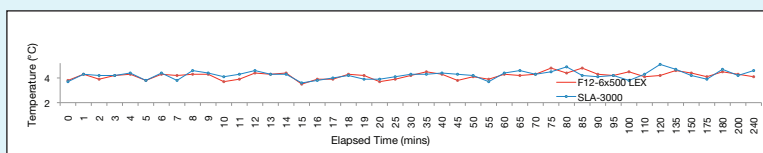
Thermo Scientific Fiberlite LEX rotors maintain sample temperatures longer to ensure the integrity of precious laboratory samples during the sample preparation process.

### Sample Temperature Comparison During the Sample Preparation Process



**Figure 1:** Samples at 4 °C in the aluminum Thermo Scientific SLA-3000 rotor warmed to 10 °C in just 10 minutes, compared to 4 °C samples in the equivalent Thermo Scientific Fiberlite F12-6x500 LEX carbon fiber rotor, which took 33 minutes to warm to 10 °C.

### Sample Temperature Comparison During Centrifugation



**Figure 2:** The aluminum Thermo Scientific SLA-3000 rotor and the Thermo Scientific Fiberlite F12-6x500 LEX carbon fiber rotor were fully loaded with an aqueous solution and centrifuged at 12,000 rpm with a temperature setting of 4 °C. During centrifugation, sample temperatures were taken at timed intervals and demonstrated no affect by rotor composition.

Experience our Fiberlite carbon fiber rotors in action at [www.thermoscientific.com/fiberlite](http://www.thermoscientific.com/fiberlite)

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