

Graphite Flexural Tests

By The Instron Applications Team

Summary

The purpose of these tests was to measure the modulus of rupture (maximum stress) and the flexural modulus of two types of small graphite/ epoxy specimens using a four-point flex fixture.

Description of Tests

The specimens were made of graphite/epoxy orthotropic material and had dimensions of 35 mm x 20 mm x 3 mm. Two sets of specimens were tested: Cut A and Cut B. The cuts were from the same material but were made perpendicular to each other. A four-point flexural fixture with a lower span of 29.5 mm and an upper span of 14.8 mm was used to perform the tests. Deflection was measured with a deflectometer mounted under the center of the specimen. It consisted of an extensometer attached to a spring-loaded plunger.

Conclusions

The four-point flexural test is a simple and reliable way of obtaining flexural properties of this material. Shear modulus and shear strength could be found by using notched specimens in an iosipescu fixture in accordance with ASTM D 5379.

Apparatus

- Model 5569 with 500 N load cell
- Flexural application software
- 2810-400 four-point flex fixture with 4 mm anvils and deflectometer
- 2620-826 extensometer (0.1 in travel)