Issue 32

INSTRON®

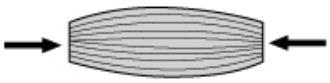
Materials Testing Accessories Newsletter

In This Issue: Accessories for Composite Testing

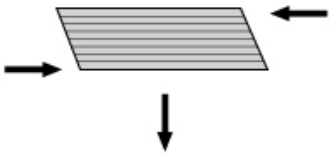
Instron® systems are used worldwide for testing the mechanical properties of composite materials. With applications including aerospace, automotive and renewable energy, the requirements for accuracy, reliability, and ease of use has never been greater.

Composites are complex anisotropic materials and to characterize their properties, we suggest a range of tests.

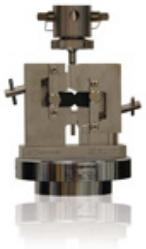
Tension test: This fiber-dominant property is dependant on the tensile stiffness & strength of the reinforcement.

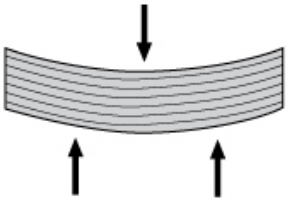


Compression test: This matrix-dominant property is dependant on the stiffness and adhesion qualities of the resin's ability to maintain the fibers as straight columns and not buckle.



Shear test: This matrix-dominant property transfers stresses across the composite in both in-plane and inter-laminar.





Flexure test: Combination of the above three: upper is in compression; lower is in tension; middle is in shear.

More Information

Composites Testing Solutions

Contact Us

Tel (US):
+800 564 8378

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+44 1494 456815

Online Request

Related Links

• Fifth Edition of the Accessories Catalog for Materials Testing is now available!

• Missed previous issues of the Accessories Newsletter?
Catch up at the Instron Library. Follow the link and select "Newsletter" as the Document Type.

• Visit our Testing Solutions to find technical tips relevant to your testing application.

Future Events

For a list of upcoming shows that Instron will be attending, please visit the Events page of our website.

Our new range of specialized composite testing fixtures provides full compliance with International and industry standards for a wide range of test requirements to meet the different modes of composite testing including:

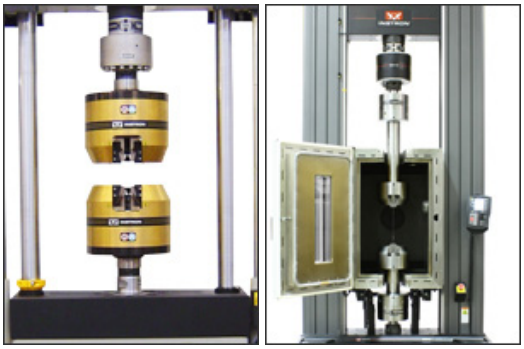
- Tensile (ASTM D3039, EN 2561, EN 2597 ISO527-1 and 5)
- Flexure and ILSS Interlaminar Shear (ASTM D2344, EN 2563, EN ISO 14125, and EN ISO 14130)
- Climbing Drum Peel (ASTM D1781)
- IITRI and Celanese Compression (ASTM D3410 and ISO14126 Method 1)
- Combined Loading Compression (ASTM D6641)
- Compression After Impact (ASTM D7137, Boeing BSS 7260 and Airbus AITM 1-0010)
- Compression Anti-Buckling (ASTM D695, ASTM D3846, SACMA SRM1-88, BSS 7260)
- Shear (ASTM D4255 and ASTM D5379)
- Flatwise Tensile and Shear of Sandwich Core (ASTM C297 and C273)

Many application solutions for composites can be found at Instron testing solutions.

In addition to the dedicated fixtures above, Instron also offer a wide range of hydraulic grip and chamber combinations.

Hydraulic Wedge Grips for Composites Testing

- Tension and compression
- Excellent alignment and repeatability
- High lateral stiffness
- Use very short unsupported gauge lengths (<10 mm) for compression testing
- Extended versions available for use inside temperature chambers
- Control of initial gripping force
- Capacities < 600 kN



In addition to the mechanical part of testing, it is important to present the results in a professional way and have confidence in the data. This can be done by using any version of our Bluehill® Software.

For more information on Accessories, visit us on the web,submit an online request, or call us at +800 564 8378 (US only) or +44 1494 456815 (Europe only)

Are you testing something a little different? Do you think more people should know about it? Would you like to submit an article for possible publication in the Instron accessories newsletter? If so, please submit your story.

What do you think? Tell us!

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