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Accessories for Materials Testing newsletter

Welcome to the February 2006 issue of the Instron® Materials Testing Accessories e-newsletter

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- New Wood Testing Fixtures
- New Basic Screw Action Grips

Application Article:

- Grip types and suitable applications - Part 1 of 3
- Specimen Gripping Solutions and Grip Care - Part 1 of 3

Introduction to Accessories Newsletter

The purpose of this new Instron communication feature is to provide the customer with new product or application information and articles of interest to materials testing. It will feature new product releases, applications articles and details on Instron product promotions. The newsletter will also act as a one-stop information centre, allowing you access to the many different Instron products and support.

We would be delighted if you provided us with feedback or an interesting story in regards to materials testing using the link at the base of the newsletter.

Product Feature: New Wood Testing Fixtures

Instron has redesigned a number of wood testing fixtures and now offers an improved line of bend fixtures, as well as enhanced versions of the compressive shear and internal bond fixtures for testing wood.

Wood Bend Fixtures (2820-04x)

- The new range consists of three basic beams at 10kN with a 800mm span and 50kN with 800mm and 1200mm spans. A range of anvils and four-point kits allow the beams to meet a much wider range of international standards than before, as well as providing a much lower entry price for basic requirements.



Wood Shear Fixtures (2820-060)

- The wood shear fixture is designed for testing shear strength properties of wood or adhesive bonds in wood by compressive loading. The fixture consists of a high-strength steel body with a sliding, self-aligning anvil, which is used to apply the compressive loading to the specimen in shear.



Wood Internal Bond Fixture (2820-061)

The Internal bond fixture is designed for testing the strength properties of wood or adhesive bonds in wood by tensile loading. The fixture consists of a self-aligning upper grip and a rotatable lower grip. Tensile loading is applied to the specimen via blocks bonded to the specimen itself.



Product Feature: Basic Screw Action Grips

These new [basic screw action grips](#) provide a very simple and effective method for holding test specimens in a wide range of applications. The dual action design of 2710-200 series grips means jaw faces can be independently adjusted to accommodate different specimen thicknesses and geometries, ensuring that the line of tensile force remains concentric with the grip body. They can be equipped with a choice of surfaces including smooth-ground, rubber coated, serrated and wave profile.



Application Article: Grip Types and Suitable Applications - Part 1 of 3

Selecting the best gripping solution has a number of aspects to it. In particular, the specimen must be held in a way that prevents slippage and jaw breaks and ensures axiality of the applied force. However, there are other considerations such as productivity and ease-of-use that may make one design better suited to your needs. Some grip applications are determined by particular testing standard requirements making the grip choice straightforward.

For many tests however you can use a general-purpose accessory. General purpose grips and fixtures have the advantage of being able to grip a wide variety of specimen types and materials, using differing jaw faces, alignment fixtures etc.

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Related Links

- [FREE Accessory Catalog](#)
- [Sign up](#) for other Instron newsletters

Future Events

- Cisile Beijing China
9th-11th March, 2006
- HISPAC Fira
Barcelona Spain
27th-31st March, 2006
- 18 th Korean
International Plastics
and Rubbers show
March 29 th to April 2
nd KINTEX Goyang
Korea
- Plaspol10th
International Fair of
Plastics Processing
Kielce Poland 30 May
- 2 June, 2006

The table below includes examples of grip types and possible applications.

Mechanical Wedge Grip

- Static or dynamic, reverse stress loading capability
- Suitable for metallic, polymeric and ceramic material samples
- Round section (not buttonhead) or flat specimen with or without shoulder tab geometry capability



Hydraulic Wedge Grip

- Static or dynamic, reverse stress loading capability
- Suitable for metallic, polymeric and ceramic material samples
- Round section (not buttonhead) or flat specimen with or without shoulder tab geometry capability



Mechanical Grips for Threaded and Buttonhead specimens

- Static or dynamic, reverse stress loading capability
- Suitable for metallic material samples
- Round section, buttonhead and threaded specimen geometry capability



Lever Action Grips

- Tensile, static, cyclic and tension-tension test capability (not suitable for high-cycle fatigue)
- Suitable for fine wire and filament material samples
- Round and flat with or without shoulder tab specimen geometry capability



Pneumatic Side Action Grips

- Static, tensile and tension-tension cyclic test capability (not suitable for high-cycle fatigue)
- Suitable for thin sheets, films, foils, threads, plastic tapes, fine wires and soft materials such as elastomers
- Round (wires) and flat with or without shoulder tab ends specimen geometry capability



Specimen Gripping Solutions and Grip Care - Part 1 of 3

Two of the most common problems operators face are grip slippage and jaw break of specimens. Slippage occurs most frequently when using mechanical or screw action grips with flat faces. Faces come in various combinations of sizes and surfaces finishes. When selecting faces, the surface area should be large enough to cover the tab if it is a dumbbell shape or as much of the surface area as possible if it is a parallel sample. Jaw breaks usually occur when the sample inside the grips is damaged by too much clamping force or by serrated faces biting too deep.

Specimen Slippage Solutions

- Use larger faces to provide a greater contact area
- Cover the jaw face with masking tape, crocus cloth or grades of emery cloth
- Using pneumatic grips will allow you to control and duplicate the clamping forces applied to the specimen
- When running tests at elevated temperatures, use faces coated in brake lining material rather than rubber
- Check the pressure to the pneumatic grips

Jaw Break Solutions

- Screw action grips - the operator may be using too much force when tightening onto the sample. Use a torque wrench or pneumatic grips.
- Pneumatic grips - drop the pressure but not to the point specimen slippage occurs
- Serrated faces - change to faces that have more serrations per unit area; this spreads the load across more points
- Serrated faces - cover with masking tape or comparable material; this will soften the bite and prevent damage to the sample

With any grip, ensure that the specimen end is gripped by at least 75% of the available jaw face length. Otherwise, gripping efficiency will reduce and in some cases jaw faces can be damaged.

- [Application Specific Solutions](#)
- [General Purpose Static Tensile testing grips](#)
- [General purpose Fatigue Grips](#)
- [General Purpose Flexure Fixtures](#)

For more information on Accessories

Please submit an [online request](#) or call us at +1 800 473 7838 (U.S 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](#).



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