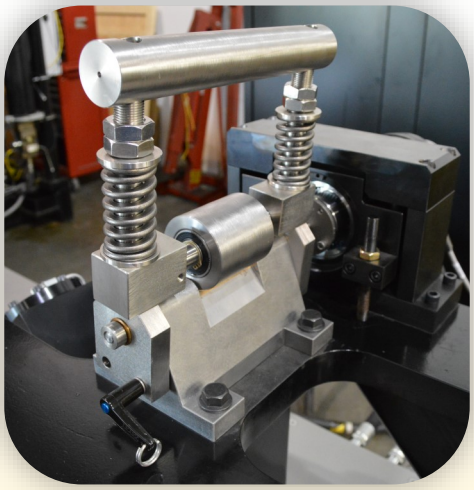
Interlaken Technology Company

Bend Tester

Description:

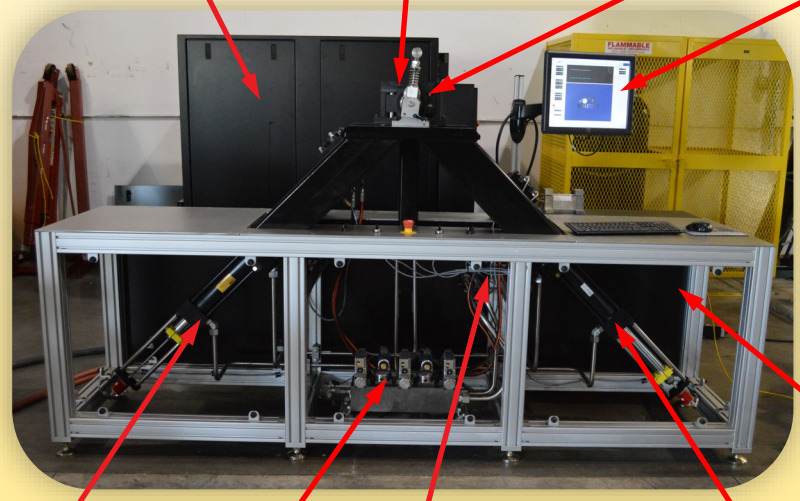
The 90 Degree Bend Test System is typically used for determining the coefficient of friction, lubricant ranking, and springback effects in the sheet metal forming process. The test involves drawing a test strip over a bead roller that is either fixed in rotation, or controlled to roll at a desired rate. There are two linear actuators positioned 90 degrees from each other with the bead roller located at the intersection of the two actuators. The bead roller is held fixed or controlled to rotate at a defined rate by utilizing a rotary hydraulic torque motor. By using fixed and free rolling bead testing, the 90 Degree Bend Test provides an accurate coefficient of friction measurement. The sample size is typically 2.00 inches (50.8mm) wide by 24 inches (609.6mm) long.

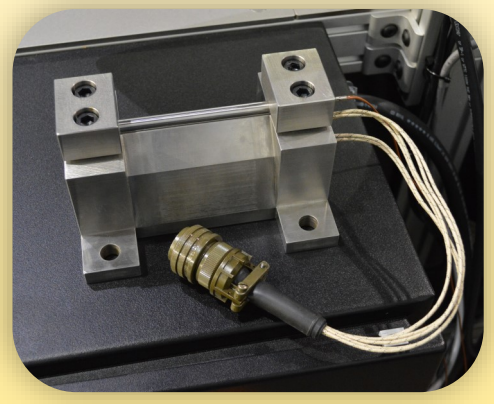


Rolling Die

Use the Bend Tester to:

- Qualify lubricants by establishing actual coefficient of friction values for each lubricant, material, and tooling material combination
- Evaluate tooling materials, coatings, and surface finishes
- Examine material characterization at actual operational temperature ranges using elevated temperature dies.
- Accomplish advanced material studies, as the bead roller rate can be any ratio of the draw actuator rate





Fixed Heated Die

INTERLAKEN TECHNOLOGY
www.interlaken.com

Contact: Ron Bass
ron.bass@interlaken.com
sales@interlaken.com

Mobile: 636.692.8898
Office: 952.856.4212

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Bend Tester

Specifications:

Pulling actuator & Back tension actuator (each)

- Maximum static pull force = 17,000 lbs (75.6kN)
- Maximum actuator stroke = 10 in. (254mm)
- Temposonic position feedback
- Load cell force feedback
- Maximum no load velocity = 2.0 in/s (50.8mm/s)

Rotational actuator

- Maximum rotational speed = 415 rpm
- Maximum torque = 4,160 lb/in (728.5 N/mm)
- Rotary encoder feedback

Hydraulic grips

- Maximum static gripping force = 20,000 lbs
- Gripping force can be reduced manually via a pressure reducing valve on each grip control valve
- Gripping jaw style = Dual beads
- Maximum opening = 0.38 in. (9.6mm)

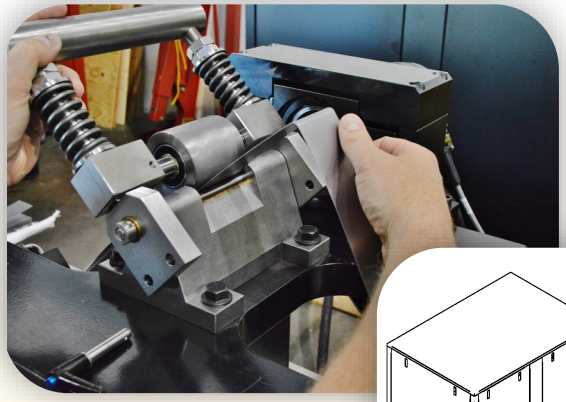
Hydraulic Power Supply

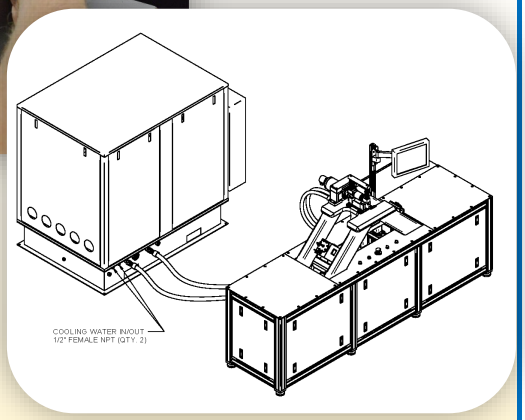
- 12.5 gpm @ 3,000 psi output
- 25 hp limit design for increased pump flow at lower pressures
- Sound absorbing enclosure

Hydraulic Service Manifold

- High pressure, 5 micron filtration of incoming oil
- Pressure accumulator = 1 quart (0.94 L)
- Return accumulator = 1 pint (0.47 L)

Welded load frame





Transducers:

The system utilizes an internal LVDT (in each linear actuator) in order to monitor actuator displacement and a load cell (on each linear actuator) to measure load. The rotary actuator utilizes a rotary encoder to control the position rate or hold the position stationary.

LVDT: The displacement transducer provides the position of the actuator. The total travel is 10 inches (50.8mm). The “zero” position is relative to the particular set of tooling and related test type defined.

Load Cell: The load cell provides a load reading from the actuator. The system is calibrated with a positive and negative scale.

Operating Software:

· Custom B&R Automation operating system, user-friendly graphical interface for operating, programming process sequences, process-following data display, data storage, and data evaluation.

· Status display on machine functions, settings and safety.

· Numerical data display as well as in diagrams with X-Y coordinates.

· Network (LAN) functionality (data storage, data evaluation from other PCs).

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