

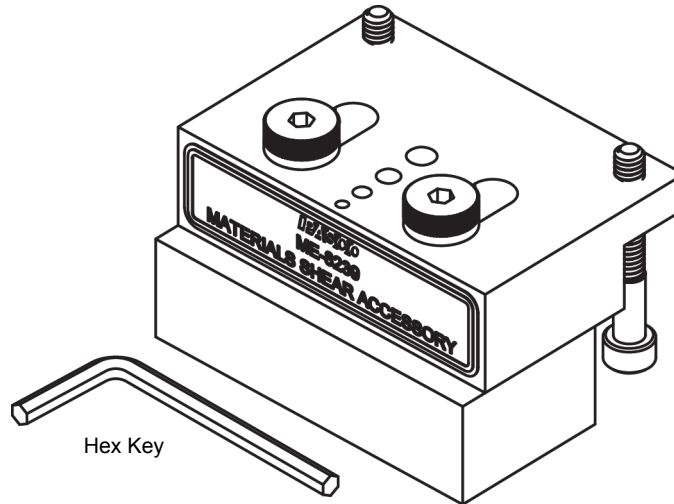
# Materials Shear Accessory

ME-8239

For Use with the Materials Testing Machine (ME-8236)

**WARNING:** Do not use a sample with a hardness greater than mild steel.

**WARNING:** Provide proper eye protection when using the Materials Testing Machine or its Accessories. Operate the Machine behind a protective shield.



## Included Items

Materials Shear Accessory

Materials Shear Samples (ME-8240)<sup>1</sup>

Hex Key (allen wrench)

<sup>1</sup>ME-8240 Materials Shear Samples (not shown) consist of nine 1/8" diameter rods; three each of steel, aluminum, and brass.

## Required Items\*

Materials Testing Machine (ME-8236)

PASCO Interface (PASPORT compatible)

PASCO Data Collection Software

\*See the PASCO catalog or web site at [WWW.PASCO.COM](http://WWW.PASCO.COM)

## Introduction

The Materials Shear Accessory is designed to work with the PASCO Materials Testing Machine (ME-8236), part of the Materials Testing System (ME-8230). The Materials Testing Machine is a device for measuring force and displacement for various materials as the materials are stretched, com-

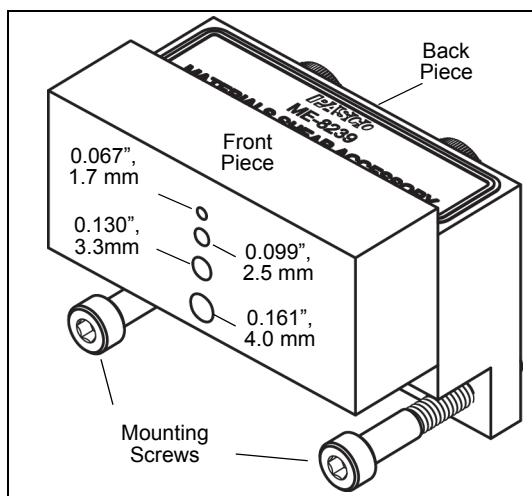
pressed, sheared, or bent. The Materials Testing Machine has a built-in load cell (strain gauge transducer) capable of measuring up to 7100 newtons (N) of force (1600 pounds), and an optical encoder module that measures displacement of the load bar. Force data from the load cell and displacement data from the encoder module can be recorded, displayed, and analyzed by a PASCO Interface with PASCO Data Acquisition Software. The sensor cable from the Materials Testing Machine connects to a PASPORT input port.

## Materials Shear Accessory (ME-8239)

The Materials Shear Accessory consists of two metal pieces - a front piece and a back piece - held together by a pair of permanent screws. The front piece slides vertically relative to the back piece, which is designed to be mounted on the load cell of the Materials Testing Machine. The two pieces have pairs of matching holes with four different diameters to fit a variety of samples for testing. The hole diameters are approximately 1/16", 3/32", 1/8", and 5/32".

The Materials Shear Samples (ME-8240) includes three 1/8" diameter rods each of three metals: aluminum, brass, and mild steel.

**NOTE:** Do not use a sample with a hardness greater than mild steel.



Use the two mounting screws and the included hex key (allen wrench) to attach the back piece of the Materials Shear Accessory to the top of the load cell. Note that when the front piece is raised as far as it will go, the holes in the front piece align with the matching holes in the back piece.

Insert the sample to be tested through the pair of holes that best match the diameter of the sample. Use a sample that is long enough so that it extends about 1/4" (6 mm) beyond the front and back pieces so that it will be easier to remove the sample remnants from the accessory after the test.

## Operation

**Caution: Stay behind a protective shield when using the Materials Testing System or its accessories.**

Basic operation involves mounting the item to be tested onto the Materials Testing Machine, connecting the Materials Testing Machine to an interface for data recording, and then turning the crank.

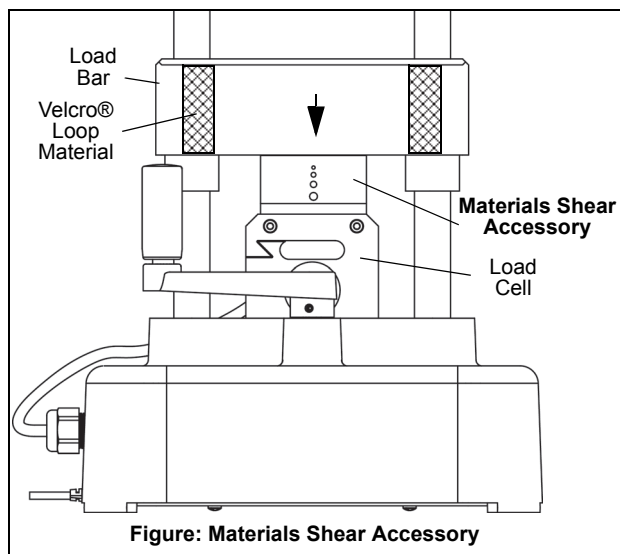


Figure: Materials Shear Accessory

Adjust the position of the load bar so that it rests on the top surface of the front piece.

## Attach the Safety Shields

Attach the safety shields that come with the Material Testing Machine. Match the Velcro® hook material on the two safety shields to the Velcro® loop material on the front and back of the Load Bar. Adjust the position of the shields so that they will block any fragments that may come from the sample.

## Record Data

Connect the plug on the sensor cable into a PASPORT input port on a PASCO interface. Setup the PASCO software with a graph display of force. Use the software to zero the two sensors of the Material Testing Machine.

Start data recording. Turn the crank in a counter-clockwise direction to apply a compression force on the sample.

## Experiment Guide

NOTE: An Experiment Guide in electronic format for the Materials Testing System (ME-8230) is available to download from [www.pasco.com](http://www.pasco.com). Enter "Materials Testing System" in the Search window and look for the downloadable file(s) under "User Resources".

## Materials Shear Samples (ME-8240)

The optional Materials Shear Samples (ME-8240) consist of nine 1/8" diameter rods; three each of steel, aluminum, and brass. The steel is 1018 cold finished, the aluminum is 2024-T4, and the brass is 360.

## Other Equipment

Other accessories are available separately for the Material Testing Machine. Please see the PASCO web site at [www.pasco.com](http://www.pasco.com) for more information..

## Technical Support

For assistance with any PASCO product, contact PASCO at:

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10101 Foothills Blvd.  
Roseville, CA 95747-7100

Phone: +1 916 462 8384 (worldwide)  
877-373-0300 (U.S.)

E-mail: [support@pasco.com](mailto:support@pasco.com)

For information about the Materials Testing System, go to [www.pasco.com](http://www.pasco.com) and enter the model number or the name in the search window.

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