



## HSM41 – 25J Pendulum Impact Tester



### Product Summary

- Notched bar impact tests
- 25Nm range (25J)
- Three different Start angles/ heights.
- Six different starting weights available.
- Bench mounted
- Impact Hammer with hardened (replicable) tip.
- Full safety guard with lock
- Steel and brass test specimens
- Charpy Notched specimens
- Replicable impact plates.
- Full technical instruction manual supplied
- 2 year warranty

### Tender Specification

- Bench top apparatus for notched bar impact strength tests.
- Quality testing and evaluation of the fracture behaviour of metals.
- Suitable for non-metals also.
- Impact Hammer and weight set provided.
- Full safety guard with lockable door.
- To have steel and brass test specimens supplied.
- Variable Start Height, 3 different start heights.
- Variable Start Weight, 6 different start weights.
- Replaceable impact tip and impact plates.
- 2 year warranty



## Description

A sturdy bench top mounted unit for the study of notched bar (Charpy) impact strength tests.

A sturdy base plate with protective guard surround houses all the components, the guard has a lockable door for ease of access when setting the test but also security whilst not in use. The base plate has an anvil and pillar which have replicable impact profiles for supporting the notched specimens prior to testing.

A heavy hammer swings on a pre-defined radius, set by the hammer arm. The initial energy of the hammer can be varied by changing the starting weight and/or the start height of the hammers' swing this can be varied between 3 set positions. As the hammer swings through its radius, it impacts on the specimen and the distance it travels passed the specimen is measured on an integral scale shown in degrees.

A special pointer travels with the hammer upon specimen breakage, thus indicating the change in angle from start position to highest point after fracture. The marker remains in position following specimen fracture to enable the value to be recorded. This can then be used to calculate the amount of energy absorbed by the specimen. The HSM41d is available to retro fit to the HSM41 main unit to allow digital display and computer linking of the results.

The release of the hammer is controlled with a plunger. A push block is situated on the protractor face, this facilitates a two handed operation and keeps the user away from the swinging arm for full safety.

A number of test specimens are provided, with further specimens available separately (HSM41a). The specimens are manufactured to specific notched specifications (British Standards EN 10045-1 (1990)) and come in steel and brass.

A comprehensive technical instruction manual is included along with all necessary tools and accessories, as well as a 2 year warranty.

## Experimental Capabilities

- To determine notched impact energy absorption.
- Notched bar impact strength, Charpy test.
- Observe and evaluate fracture surface characteristics from broken samples.
- Understand the influence of notched shape and cross sectional area on the notched bar impact.
- Understand the influence of materials and their properties on notched impact.
- The influence of starting mass, starting height on the overall potential energy of the swinging mass.

## Specification

- Bench top unit.
- Capacity of 6.75J (min) to 25J (max).
- 935mm (L) x 255mm (W) x 875mm (H).
- Weight 90Kg.
- Steel and brass specimens (10 of each).
- Bearing support span: 75mm
- Specimen cross section supplied; 10 x 7.5mm, Up to 10mm x 10mm and down to 10mm x 5mm available but only for specific materials.
- Notch cross section of standard samples: 10 x 5.5mm.
- 3 starting Positions.
- 6 possible starting weights of hammer head.
- Specimens, Impact tip and Impact plates to British Standards EN 10045-1 (1990).
- Full technical instruction manual
- 2 year warranty



## Accessories and Spares

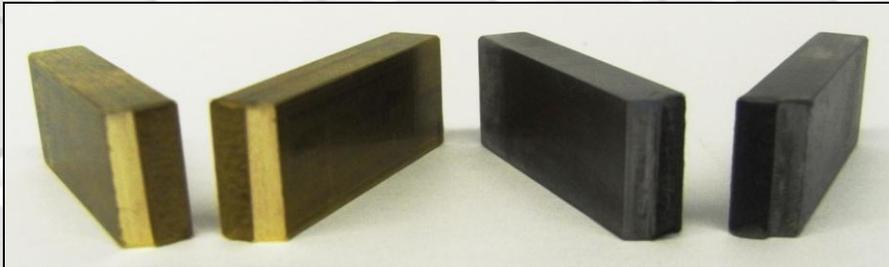
- Set of impact plates and impact tip with fixings.
- Guard lock keys.
- Specimens and Added weights supplied.
- Tools for any adjustment required.
- Full instruction manual which includes:
  - Operating instructions
  - Experimental set-up
  - Experiment procedure
  - Example set of results

## Operational Conditions

- Storage temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, non condensing.

## Non Essential Accessories

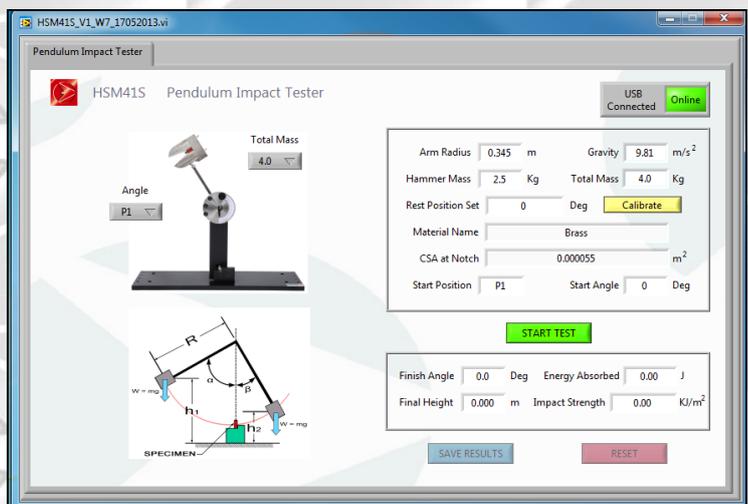
### HSM41a Additional Samples



HSM41a, Additional standard samples for Charpy impact testing.

- Set of 10 Brass test specimens
- Set of 10 Steel test specimens
- Samples produced to British Standards EN 10045-1 (1990).
- Specimen cross section supplied; 10 x 7.5mm, at notch of samples: 10 x 5.5mm.

### HSM41d Digital Upgrade





**Description**

The HSM41d is a digital upgrade that can be easily fitted to (or supplied with) the HSM41 standard impact testing unit. The apparatus mainly comprises of a display unit (HSM41DU), rotary sensor assembly and software.

The display unit shows a live feed of the angle reading as well as showing the maximum and minimum position readings. The display can work in two different modes; the first is as a standalone unit that can be used to conduct testing without the need of the PC connection or software. Tests can be run through using on screen instructions, results are displayed on the unit and readings can be changed between a result in degrees or Newton's. Secondly the DU can be used in conjuncture with the software, when connected to a PC or laptop (not supplied) the software can be used to adjust the settings for starting weight and position as well as the material cross sectional area.

The total weight for the hammer head is also displayed and can be adjusted to the pre set mass sizes as well as the set starting positions. Results from the software can be saved as a txt file as well as results displayed on screen as the energy absorbed (J) and as impact strength (KJ/m<sup>2</sup>).

A comprehensive technical instruction manual is included along with all necessary tools and accessories, as well as a 2 year warranty.

**Experimental Capabilities**

- To digitally read notched impact energy absorption.
- Software supplied to illustrate variables, display and save results.
- Understand the influence of notched shape on the notched bar impact work.
- Understand the influence of materials and their properties on notched impact work.

**Specification**

- Results can be shown in degrees or Newton's on the display.
- Rotary position input to 0.05° accuracy (1dp).
- Results on software to be calculated for user, final impact strength shown (KJ/m<sup>2</sup>)
- 150mm (L) x 120mm (W) x 50mm (H)
- Weight 3Kg
- Universal power supply for HSM41DU power (Input: 100Vac/ 240Vac, 50/60Hz, 0.6A. Output: 12Vdc, 0.8A)

**Accessories and Spares**

- Power Supply
- Master software CD and spare.
- USB cable.
- Tools for any adjustment required.
- Full instruction manual which includes:
  - Operating instructions
  - Experimental set-up
  - Experiment procedure
  - Example set of results

**Services Required**

Host Computer with the following specifications:

- Intel Pentium 3 or equivalent processor > 800MHz processor speed.
- Microsoft Windows NT, 2000, ME, XP, Vista, 7 (end user must have operating system CD for Windows 7 or below).
- VGA Monitor capable of at least 16-bit colour at 800 x 600 resolution.
- 150Mb space available on hard drive.
- USB1.1 or USB2 for data acquisition connection.

Power socket: 100Vac - 240Vac, 50/60Hz, 0.6A.