

## UNIVERSAL TESTING MACHINE

### HSM58



**Year 1**  
study

**4 to 5**  
participants

**60 min**  
setup

**60 min**  
duration

**Space required**  
**1.0 x 0.8 m**

**6**  
modules

#### Features

- Apparatus fully enclosed behind safety guard.
- Interface and Software supplied as standard.
- Compressive and Tensile Testing as standard.
- Supplied with Tensile & Compression Specimens as standard.
- Tensile Specimen Elongation measured on actual specimen for increased accuracy.
- 100mm mechanical stroke.
- 6 optional experiments available.
- 7 replacement test specimens available.

#### Description

The HSM58 is a modular, flexible, compact, safe, materials tester allowing students to conduct up to six (6) experiments on seven (7) different material types. The results of these experiments allow students to gain a thorough understanding of materials properties and how the performance of these effects design. The fully enclosed unit allows safe 360° viewing maximising visibility for large class sizes.

#### Related Laws/Applications

- Young's Modulus
- Hooke's Law
- Poisson's Ratio
- Modulus of Elasticity
- Shear Modulus
- Material Hardness (Brinell Method)
- Beam Bending Theory
- Planar Moment of Inertia
- Deep Drawing

## Learning capabilities

- Tensile and compression testing.
- Recording of stress-strain diagrams.
- Modulus of elasticity testing.
- Percentage elongation.
- Shear (unsymmetrical, symmetrical shear both supported and unsupported).
- Deep draw testing.
- Three-point bending.
- Hardness testing.

## Technical Specification

- 35kN Breaking Force
- 360° Safety Guard.
- Sturdy ground steel pillars – for durability and repeatability.
- Utilises linear slide bearings – for ease of use.
- Digital Extensometer accurate to 3 decimal places.
- Fixing and accessories designed to x 2.5 factor of safety.
- Tensile Specimens: 85(L) mm; gauge length 36mm; Ø6mm neck diameter; M10 x 1.5mm thread.
- Compression Specimens: Ø25 x 50(L) mm
- Compression plates: Ø50mm
- 6 optional experiments available.

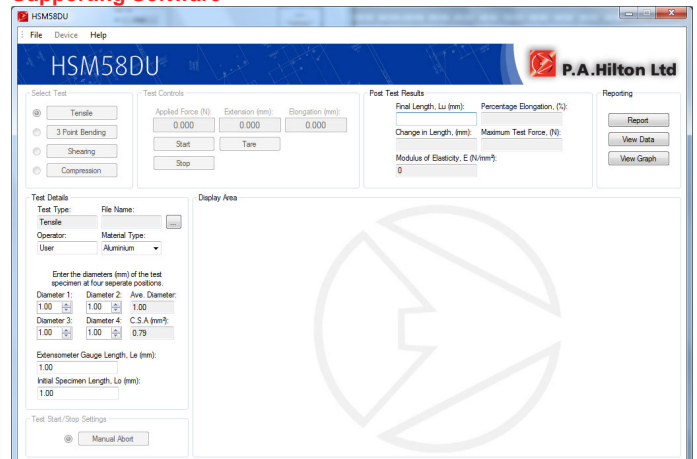
## Recommended Ancillaries

- HSM58A: Tensile Test Specimen Set (10 x Steel; 10 x Aluminium, 10 x Brass)
- HSM58B: Brinell Hardness Test Set
- HSM58C: Bending Device Test Set
- HSM58E: Symmetrical Shearing Test Set
- HSM58F: Measuring Magnifier for Brinell
- HSM58G: Asymmetrical Shearing Test Set
- HSM58H: Set of 16 Copper Shear Specimens
- HSM58I: Spring Testing Set
- HSM58L: Compression Specimen Set (8 x Wood; 8 x Plastic)
- HSM58M: Set of Bending Test Specimens (1 x Brass; 2 x Aluminium; 2 x Steel)
- HSM58P: Device for Deep Drawing
- HSM58Q: Deep Drawing Test Specimens (40 x Aluminium; 0.5/1.0/1.5/2.0mm thick)
- HSM58T: Set of 10 Titanium Tensile Specimens
- HSM58U: 16 x Hardness Specimens (4 x Steel; 4 x Aluminium; 4 x Brass; 4 x Copper)

## What's in the Box?

- 1 x Base unit
- 1 x Pair Tensile Grips
- 1 x Pair Compression Plates
- 4 x Levelling Feet
- 1 x Ear Defender & Safety Glasses
- 40 x Tensile Specimens (10 each of Aluminium, Brass, Steel & Titanium)
- 16 x Compression Specimens (8 x wood; 8 x Plastic)
- 1 x Linear Potentiometer
- 1 x Data Acquisition System
- 1 x USB Data Stick containing Software
- 1 x Set of Tools
- 1 x Flight Case
- Spare Oil
- 2 Year Spares
- Instruction Manual
- Packing List
- Test Sheet

## Supporting Software



- The system displays and captures data relating to elongation, extension and applied force

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**Minimum System Requirements**

- Intel Pentium 3 or equivalent processor > 800MHz processor speed
- Microsoft Windows WIN7 operating system and above (end user must have operating system CD for XP and below)
- VGA Monitor capable of at least 16-bit colour at 800 x 600 resolution
- 150Mb space available on hard drive
- USB1.1 and USB2 for data acquisition connection.
- Powered USB port(s) if possible.

**Weights & Dimensions**

- Weight: 51 kg
- 520(L) x 630(W) x 800(H) mm
- Gross Packed Weight – 77kg
- Gross Packed Dimensions – 710(L) x 580(W) x 950(H) mm

**Essential Services**

- Sturdy bench top
- 110/120V, 60Hz or 220/240V, 50Hz, single phase, live neutral and earth

**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

**Ordering information**

To order this product, please call PA Hilton quoting the following code:  
HSM58

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