



## POLARISCOPE HSM60



Year 1  
study

4  
participants

### Features

- Easy to rotate quarter wave plates and polarisation filters to vary stress colouration
- Compact bench-top design with rubber feet for stability
- Quick and Precise Loading of Specimens, in tension, using screw-jack, loading spring and dial gauge mechanism
- Dial Gauge mechanism allows the calculation of the applied force
- Standard set of two (2) specimens provided, with extras available to order
- The light box measures 210mm x 297mm with an overall working area of 357mm x 270mm. The colour temperature is 9,000 - 10,000 kelvin and the light intensity is 1,500 - 1,800 lux. The light source is LED and has an estimated life span of around 30,000 hours and gives even light output over the illuminated surface. There is an on/off front mounted switch fitted on the light box.

### Description

The HSM60 polariscope is a bench top mounted frame which allows the study of stress patterns and photoelasticity resulting from geometrical changes in loaded mechanical models. The frame has integral slots along its lengths into which can fit quarter wave plates and polarisation filters. The frame has both polarisation filters and quarter wave plates mounted in to a rotational mechanism that allows independent angular adjustment and hence vary the colourisation seen by the user. A lightbox (supplied as standard) provides monochromatic or white light to pass through the specimens when loaded. The light box is mounted vertically to suit the frame. Specimens are made from CR39 photoelastic material which is a highly specialised reactive plastic polymer commonly used in lens manufacture. A variety of specimens can be optionally supplied and each one in turn is mounted into the loaded mechanism using quick connect knobs. The loading mechanism consists of a loading spring, dial gauge and screw-jack for precise loading of the specimens. This mechanism allows the user to calculate the load applied to the specimen in tension. The loading mechanism can be adjusted to suit the length of the specimen using the quick release knobs supplied. 250N loading is achievable from the loading mechanism. Standard specimens supplied include rod and square plate.

**Related Laws/Applications**

- Material Science

**Learning capabilities**

- Photoelastic analysis of standard mechanical models
- Variation of stress colourisation
- Rotational position of wave plate and filters

**Technical Specification**

- Bench top unit for teaching of Photoelastic principles
- To be supplied with quarter wave plates and polarisation filters
- Wave plates and filters to easily slide in frame assembly and rotate independently
- Fine tuning loading mechanism using loading spring, dial gauge and screw-jack
- A variety of mechanical specimens supplied as optional extras
- To load the specimen in tension & compression

**Recommended Ancillaries**

- HSM60A - Model Set 'A' (includes Perforated Beam, Bar Specimen & Bending Element Overlap)
- HSM60B - Model Set 'B' (includes Crane Hook, Spanner & Shaft)
- HSM60C - Model Set 'C' (includes 'n' Notch, 'v' Notch, Scalloped 'n' Notch & Welded Seams)
- HSM60D - Replacement Light Box

**What's in the Box?**

- 1 x Base Unit
- 1 x Dial Gauge
- 2 x quarter wave plates polarisation filters
- Samples - 1 x Square Plate & 1 x Rod
- 1 x Light Box

**You might also like**

- HSM58 - Universal Testing Machine
- HSM41 - Pendulum Impact Tester
- HSM19D - Rotating Fatigue Machine
- HSM31 - Torsion Testing Machine

**Weights & Dimensions**

- Unpacked Height 400mm, Depth 460mm, Width 200mm, Weight 5kg

**Essential Services**

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

**Ordering information**

To order this product, please call PA Hilton quoting the following codes:  
HSM60/230 Polariscope (includes Square Plate & Rod samples along with HSM60D Light Box)  
HSM60/115 Polariscope (includes Square Plate & Rod samples along with HSM60D Light Box)  
HSM60A - Model Set 'A'  
HSM60B - Model Set 'B'  
HSM60C - Model Set 'C'  
HSM60D - Replacement Light Box

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