SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

Phone: +91 7015865225 **Email:** info@scienticoindia.com **Web:** scienticoindia.com **Address:** #71, Industrial Area, Ambala Cantt, Haryana, India

Polariscope | FortiTestX - 19

Category: Strength of Materials · **Country of Origin:** India

Product Overview

Polariscope is a dedicated strength of materials lab equipment unit designed for the investigation and measurement of principal stress components and stress directions in photoelastic specimens using the photoelastic method. Made by Scientico India, ISO 9001:2015 certified, and supplied with a calibration certificate and operation manual.

View this product online: https://scienticoindia.com/product/polariscope-fortitestx-19/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Polariscope FortiTestX 19, Technical Specifications

Field	Details
Product Name	Polariscope FortiTestX 19
Model Reference	FortiTestX 19
Product Category	Strength of Materials Lab Equipment
Apparatus Type	Photoelastic polariscope for stress analysis
Frame Dimensions	600 x 750 mm (w x h)
Frame Cross-Arms	Height-adjustable
Light Source	Fluorescent tube (white light) and sodium vapour lamp (monochromatic yellow)
Polarisation Filters	2 x plane polarisation filters (dark olive)
Quarter Wave Filters	2 x quarter wave filters (colourless)
Filter Diameter	425 mm (enclosed in glass)
Filter Mounting	Roller bearing mounted, rotating, 360 degree angle scale
Load Application	Threaded spindle, bending, tensile, and compressive
Model Material	Polycarbonate (PC)
Models Supplied	Arch, mounting, crane hook, weld seam, notches, wrench

Field	Details
Manufacturer	SCIENTICO, Ambala Cantt, India
Certifications	ISO 9001:2015, CE Marked

Technical Data, Light Source

Parameter	Value
White Light Source	Fluorescent tube, lamp box with white diffuser
Monochromatic Light Source	Sodium vapour lamp, colour yellow

Technical Data, Filters

Filter Type	Specification
Polarisation Filters	2 x dark olive, diameter 425 mm, enclosed in glass
Quarter Wave Filters	2 x colourless, diameter 425 mm, enclosed in glass
Filter Mounting	Roller bearing, rotating, 360 degree angle scale with main optical axis marking

Technical Data, Frame and Models

Parameter	Value
Frame Dimensions	600 x 750 mm (w x h)
Cross-Arms	Height-adjustable
Model Material	Polycarbonate (PC)
Models Supplied	Arch, mounting, crane hook, weld seam, notches, wrench

Key Features

Key Features

- Complete polariscope strength of materials lab equipment unit: light source, four filters, height-adjustable frame, threaded spindle load device, six polycarbonate models, and instruction manual all supplied
- Dual light source operation: white light via fluorescent tube for coloured stress patterns and monochromatic yellow light via sodium vapour lamp for dark and light contrast fringe patterns
- Four filters for circular polarisation: two plane polarisation filters (dark olive) and two quarter wave filters (colourless), all 425 mm diameter, enclosed in glass
- Roller bearing mounted rotating filters with 360 degree angle scales and main optical axis markings for precise angular positioning
- Height-adjustable frame cross-arms (600 x 750 mm) accommodating various model sizes and load configurations
- Threaded spindle load application: bending, tensile, and compressive loads applicable to all supplied models
- Six polycarbonate model types supplied: arch, mounting, crane hook, weld seam, notches, and wrench for comprehensive stress pattern demonstration
- Compatible with custom polycarbonate models for flexible experimentation beyond the standard supplied set
- Supports both plane polarised and circularly polarised light investigation modes
- Stress concentration, zero point, neutral fibre, and stress gradient identification through isochromatic fringe pattern interpretation
- ISO 9001:2015 certified manufacture; CE marked product

Experiments

- Generation of planar stress states in various models under bending, tensile, and compressive load
- Investigation of stress diffusion with plane polarised light
- Investigation of stress diffusion with circularly polarised light
- Interpretation of photoelastic fringe patterns including stress concentrations, zero points, neutral fibres, areas of constant stress, and stress gradients

- Determination of occurring stresses and strains visually through fringe pattern analysis

Construction and Design

Polariscope FortiTestX 19 is constructed as a rigid strength of materials lab equipment unit built around a 600 x 750 mm frame with height-adjustable cross-arms that support the load-bearing model attachments and the complete four-filter optical system. The light source assembly houses both a fluorescent tube with white diffuser for white light operation and a sodium vapour lamp for monochromatic yellow light, selectable depending on the type of fringe pattern required for the experiment. Light passes first through a plane polarisation filter, then through a quarter wave plate to produce circularly polarised light, then through the loaded photoelastic model, and finally through a second quarter wave plate perpendicular to the first and a second plane polarisation filter acting as the analyser. All four filters are enclosed in 425 mm diameter glass housings, mounted on roller bearings with freely rotating action and 360 degree angle scales with main optical axis markings for precise and repeatable angular positioning. A threaded spindle integrated into the frame cross-arm assembly applies bending, tensile, or compressive loads to the model under test. Six polycarbonate models covering arch, mounting, crane hook, weld seam, notches, and wrench geometries are supplied for demonstration and quantitative experiments. The open optical layout of this polariscope ensures that every stage of the fringe pattern formation is directly visible and interpretable during the experiment. All construction and materials conform to ISO 9001:2015 quality standards and meet CE marking requirements.

Scope of Delivery

- 1 x Experimental unit (Polariscope FortiTestX 19)
- 1 x Set of test models (arch, mounting, crane hook, weld seam, notches, wrench)
- 1 x Set of filters (2 polarisation filters, 2 quarter wave filters)
- 1 x Instruction manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What light sources are available in the Polariscope FortiTestX 19?
Two light sources are provided: a fluorescent tube with a white diffuser for white light operation producing coloured stress patterns, and a sodium vapour lamp for monochromatic yellow light producing dark and light contrast fringe patterns. Both are housed within the same lamp box assembly.

Q2: How is circularly polarised light produced in the FortiTestX 19?
A plane polarisation filter is combined with a quarter wave plate on the illumination side to produce circularly polarised light. A second quarter wave plate, oriented perpendicular to the first, and a second plane polarisation filter acting as the analyser are positioned on the observation side behind the model.

Q3: Which model types are supplied with the Polariscope FortiTestX 19?
Six polycarbonate models are supplied: an arch model, a mounting model, a crane hook model, a weld seam model, a notches model, and a wrench model. Custom polycarbonate models are also compatible with the apparatus for extended experimentation.

Q4: What load types can be applied to the models in the FortiTestX 19?
The threaded spindle load application device integrated into the frame applies bending, tensile, and compressive loads to the model under test, covering the full range of planar stress states demonstrated in the supplied experiments.

Q5: What stress features can be identified from the fringe patterns in the Polariscope FortiTestX 19?
Isochromatic fringe pattern interpretation allows identification of stress concentrations, zero stress points, neutral fibres, areas of constant stress, and stress gradients. The order of dark isochromatics is assessed to determine the principal stress difference at any specific location in the model.