**SCIENTICO INDIA**

Manufacturer & Exporter · Ambala, Haryana, India

**PRODUCT DATA SHEET**

Catalogue reference for product evaluation

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# Universal Testing Machine 50kN | FortiTestX - 40

**Category:** Strength of Materials · **Order Code:** MACHINE 50 · **Country of Origin:** India

## Product Overview

A CE-certified computer-controlled universal testing machine for tensile, compressive, bending, and shear strength testing of materials, manufactured by Scientico India to ISO 9001:2015 standards. Supplied with calibration certificate, operation manual, and complete export documentation. Designed for Strength of Materials laboratories in engineering colleges and technical institutions.

View this product online: https://scienticoindia.com/product/universal-testing-machine-50kn-fortitestx-40/




**Request a model-specific quotation**

Include quantity and delivery country.

## Technical Specifications

### Universal Testing Machine 50kN FortiTestX 40 - Technical Specifications

| Field | Details |
|---|---|
| Product Name | Universal Testing Machine 50kN FortiTestX 40 |
| Model Reference | FortiTestX 40 |
| Product Category | Strength of Materials Lab Equipment |
| Apparatus Type | Vertical benchtop universal testing machine 50kN, hydraulic or servo ball screw |
| Maximum Test Force | 50 kN |
| Maximum Stroke | 150 mm |
| Force Measurement | Full bridge strain gauges with acoustic overload signal |
| Maximum Overload Tolerance | 150 percent |
| Displacement Measurement | Linear potentiometer |
| Display | Digital displays for force and displacement with zero and maximum value memory |
| Loading System | Gear pump with double-acting hydraulic cylinder or servo-controlled ball screw |
| Test Force Range | 0 to 50 kN |
| Displacement Range | 0 to 150 mm |
| Cross-Member Adjustment | Adjustable in steps for coarse height setting |

| Field | Details |
|---|---|
| PC Connectivity | USB or Ethernet |
| Software Platform | Windows-based data acquisition software |
| Optional Software | FX-40 (LabVIEW-based DAQ, Windows compatible) |
| Manufacturer | SCIENTICO, Ambala Cantt, India |
| Certifications | ISO 9001:2015, CE Marked |

**Technical Data, Measuring Ranges**

| Parameter | Value |
|---|---|
| Test Force Range | 0 to 50 kN |
| Maximum Stroke | 150 mm |
| Displacement Range | 0 to 150 mm |
| Force Measurement Method | Full bridge strain gauges |
| Overload Signal | Acoustic, maximum overload 150 percent |
| Displacement Measurement Method | Linear potentiometer |
| Data Output | USB or Ethernet to PC |

**Standard Accessories**

**FX 40-02.** Compression Plates for Compression Test

| Parameter | Value |
|---|---|
| Compression Specimens | Set of 5 (4 x plastic, 1 x wood) |

**FX 40-10.** Threaded Grips for Threaded End Tensile Specimens

| Parameter | Value |
|---|---|
| Tensile Specimens | Set of 10, steel, B10 x 50 |

Optional Accessories

**FX 40-01.** Device for Bending Test

| Parameter | Value |
|---|---|
| Bending Specimens | Set of 5, cast iron |

**FX 40-03.** Wedge Grip for Round and Flat Tensile Specimens

| Parameter | Value |
|---|---|
| Tensile Specimens | Set of 10, steel, F10 x 50 |

**FX 40-04.** Device for Testing Helical Springs

| Parameter | Value |
|---|---|
| Specimens | Set of helical spring specimens |

**FX 40-05.** Device for Testing Disc Springs

| Parameter | Value |
|---|---|
| Specimens | Disc spring specimens |

**FX 40-06.** Device for Shear Test, Double Shear

| Parameter | Value |
|---|---|
| Shear Types | Single point and double point |
| Shear Specimens | Set of 5, copper |

**FX 40-07.** Device for Deep Draw (Cupping) Tests

| Parameter | Value |
|---|---|
| Deep Draw Specimens | Set of 5 each in aluminium, copper, steel, brass |

**FX 40-08.** Measuring Magnifier for Brinell Impression with Brinell Experiment Setup

| Parameter | Value |
|---|---|
| Brinell Indenter Ball Diameter | 4.75 mm and 10 mm |
| Brinell Specimens | Set of 4 (aluminium, copper, steel, brass) |

**FX 40-09.** Device for Shear Test Unsymmetrical

| Parameter | Value |
|---|---|
| Shear Plug Diameters | 2 mm, 6 mm, 8 mm (2 sets) |

**FX 40-11.** Holder for Dumbbell-Shaped Tensile

| Parameter | Value |
|---|---|
| Dumbbell-Shaped Tensile Specimens | Set of 10, steel |

## Key Features

### Key Features

- Complete universal testing machine 50kN strength of materials lab equipment unit: vertical benchtop tester with hydraulic or servo ball screw loading, digital displays, standard accessories, and instruction manual all supplied
- Maximum test force 50 kN, maximum stroke 150 mm for both compressive and tensile force generation in a single unit
- Dual loading system options: gear pump with double-acting hydraulic cylinder or servo-controlled ball screw system, with test force and travel velocity both adjustable
- Full bridge strain gauge force measurement with acoustic overload signal and 150 percent maximum overload tolerance
- Linear potentiometer displacement measurement across the full 0 to 150 mm stroke range
- Digital displays for force and displacement with zero and maximum value memory for convenient test result capture
- Adjustable lower cross-member height in steps for coarse specimen clearance across a wide range of specimen sizes
- Cylindrical receptacles on cross-members for rapid and simple switchover between experimental setups
- PC data acquisition via USB or Ethernet using Windows-based software included as standard on this universal testing machine 50kN unit
- Nine optional accessory sets extending capability to bending, wedge grip tensile, helical spring, disc spring, single and double point shear, unsymmetrical shear, deep draw cupping, Brinell hardness, and dumbbell-shaped tensile testing
- Optional DAQ software (FX-40): LabVIEW-based data logging and results processing on Windows
- ISO 9001:2015 certified manufacture; CE marked product

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### Experiments

### Standard Experiments

- Compression testing
- Tensile testing

### With Optional Accessories

- Bending test
- Shear test
- Deep draw test
- Screw testing

**Construction and Design**

**Universal Testing Machine 50kN FortiTestX 40** is constructed as a rigid vertical benchtop strength of materials lab equipment unit built on a robust pillar frame that directly generates both compressive and tensile forces through either a hydraulically operated gear pump with double-acting hydraulic cylinder or a servo-controlled ball screw system. Test force is adjustable within the 0 to 50 kN range and travel velocity is independently adjustable, providing precise control over the loading rate throughout the test. Force is captured by full bridge strain gauges with an acoustic overload alarm activating at 150 percent of rated capacity, and displacement is tracked continuously by a linear potentiometer across the full 150 mm stroke. Both values are shown on dedicated digital displays with zero and maximum value memory, and transmitted to a PC via USB or Ethernet for real-time data acquisition and analysis using the included Windows-based software. The lower cross-member height adjusts in steps for coarse clearance setting, and cylindrical receptacles on both cross-members allow the full range of standard and optional test fixtures to be installed and exchanged without specialist tools. The open and accessible layout of this universal testing machine 50kN unit ensures that every phase of loading, deformation, and fracture is clearly visible throughout the experiment. All construction and materials conform to ISO 9001:2015 quality standards and meet CE marking requirements.

**Software, FX-40 (Optional)**

Customised software designed in the National Instruments LabVIEW environment for data logging and results processing. Compatible with any Windows-based operating system. Connected to the apparatus via USB or Ethernet. The software is optional and selected independently of the base unit, which includes Windows-based data acquisition software as standard.

**Scope of Delivery**

- 1 x Experimental module (Universal Testing Machine 50kN FortiTestX 40)
- 1 x Set of specimens
- 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 is the maximum test force and stroke of the Universal Testing Machine 50kN FortiTestX 40?**
The FortiTestX 40 universal testing machine 50kN has a maximum test force of 50 kN and a maximum stroke of 150 mm, covering both compressive and tensile force generation within a single vertical benchtop unit.

**Q2: What loading systems are available for the FortiTestX 40?**
Two loading system options are available: a hydraulically operated gear pump with a double-acting hydraulic cylinder, and a servo-controlled ball screw system. Both generate forces within the 0 to 50 kN range with adjustable test force and travel velocity.

**Q3: How does the FortiTestX 40 differ from the FortiTestX 16 universal testing machine 30kN?**
The FortiTestX 40 universal testing machine 50kN offers a higher maximum test force (50 kN versus 30 kN), a greater stroke (150 mm versus 45 mm), a servo ball screw loading option in addition to hydraulic, full bridge strain gauge force measurement with acoustic overload protection, linear potentiometer displacement measurement, and PC data acquisition via USB or Ethernet as standard.

**Q4: How is force measured in the FortiTestX 40?**
Force is measured using full bridge strain gauges. An acoustic overload signal activates when the applied load exceeds 150 percent of the rated capacity, providing an audible safety alert during testing.

**Q5: Is PC data acquisition included as standard with the FortiTestX 40?**
Yes. Windows-based data acquisition software with USB or Ethernet connectivity is included as standard with the universal testing machine 50kN FortiTestX 40. The optional FX-40 LabVIEW software provides additional data logging and results processing capability.