

Epstein Tester EP-400



Key Features

- Precision AC magnetic tester for flat-rolled materials, in compliance with ASTM A343, IEC 60404-2, and BIS 649; supports as-sheared and stress-relieved annealed conditions.
- Crystal-controlled sine wave generator (35–200 Hz) provides harmonics-free, distortionless power output for accurate testing across all modes.
- Built-in calibrated meters include Flux Voltmeter, RMS Voltmeter/Ammeter, Peak Ammeter, Wattmeter, and Power Factor meter for high-accuracy, long-term stable measurements.
- Simple keypad or PC input for weight, length, density, frequency, eddy % and induction; Start key instantly displays W/kg, W/lb, AT/m, force, and permeability.
- USB + Gopal Magnetic Tester V4 software enables 11-point induction testing in ~10 minutes; auto communication, setup, and PDF report generation with B/W, B/VA, B/H, permeability, and hysteresis data.
- User Mode for R&D allows custom voltage/frequency setup for testing transformers, EI cores, toroids, and other shapes, with real-time display of all key parameters.
- Calibration support via external power analyzer connection in User Mode for lab comparison and precise instrument adjustment.

Operating Principle

The Gopal Electronics EP-400 uses the standardized Epstein frame method (ASTM A343, IEC 60404-2, BIS 649) to test AC magnetic properties of flat-rolled materials in as sheared or annealed condition. It excites the specimen using a crystal-controlled sine wave (35–200 Hz), ensuring distortion-free and stable power. A set of built-in digital meters—Flux Voltmeter, RMS/Peak Ammeter, Wattmeter, and Power Factor meter accurately measure magnetic losses and electrical parameters.

Using the wattmeter-ammeter-voltmeter method, the EP-400 calculates Watt/kg, Watt/lb, AT/m, magnetizing force, and permeability. Users input material data via keypad or software, press Start, and results are shown instantly on the LCD. The USB-connected PC software automates 11-point induction tests in under 10 minutes and generates PDF reports with B/W, B/VA, B/H, and permeability curves.

User Mode allows testing of non-standard shapes like toroids, EI cores, and transformers. Voltage and frequency can be manually set, and real-time values are displayed for analysis. It also supports calibration using an external power analyzer, making EP-400 suitable for both production testing and advanced R&D.

Technical Specifications

Parameter	Specification
Sine wave Generator	35 to 200 Hz
Frequency Accuracy	0.03%
Source Capacity	800VA peak
Source Voltage	45.0V
Source Protection	Short Circuit, Overload, Low Power Factor, Thermal shut down
Input Voltage selectable	(210V to 255V / 50Hz 10A) OR (110V / 60Hz 10A)
Operating Temperature	20°C to 35°C
Operating Humidity	Less than 60%
Dimensions	Meter: Width: 540 mm, Depth: 690 mm, Height: 315 mm Bridge: Width: 400 mm, Depth: 370 mm, Height: 150 mm
Weight	~45kg (35.65kg of Meter + 9.3kg of Bridge)
Voltmeter Accuracy	0.1% @ 50Hz
Flux Meter Accuracy	0.1% @ 50Hz
Ammeter Accuracy	0.1% @ 50Hz
Peak Ammeter Accuracy	0.2% @ 50Hz
Power Meter Accuracy	0.2% of VA @ 50Hz
Power Factor Meter Accuracy	0.2% @ 50Hz



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Applications

- Quality control testing of flat-rolled magnetic materials
- Design validation for magnetic components and laminations
- Evaluation of core losses in electrical steel (CRGO/CRNGO)
- Specification compliance for material certification (ASTM, IEC, BIS)
- Research and development of magnetic materials and components
- Testing of as sheared and stress-relief annealed specimens
- Magnetic performance analysis of transformer laminations and cores
- Educational and laboratory use for magnetic material characterization
- Calibration and verification support in metrology or test labs



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