

ELECTRIC STEEL SHEET TESTER DAC-BHW-5



DAC-BHW-5 is AC Magnetic Core Loss Tester for Single sheet (Single Strip Tester) to test electromagnetic steel sheets. Introducing Magnetic Potentiometer Method, influence by air gaps between test specimen and detector is minimized. B-H Curve can be observed by connecting an oscilloscope. Different testing coils (D1, D2, and an optional D3) are provided for wide measuring range.

Test Specimens

Oriented and non-oriented core in sheet

Specifications

- Magnetization Condition: Existing Sinusoidal waveform of Magnetic Flux
- Applicable Size of specimen (D1, D2, D3 = Detecting Coil)

Thickness:	D1:0.100-1.000mm	D2:0.100-1.000mm	D3*:0.100-2.000mm
Width	: D1:10.0-50.0mm	D2:10.0-100.0mm	D3*:10.0-50.0mm
Length	: 60.00mm or longer		(*D3: option)
- Measuring Range

Magnetic Flux Density	: 0-2.000 T
Magnetizing Force	: 0-5000 A/m
Watt Loss	: 0.20.00 W/kg

Flux Density	Magnetizing Force	Fundamental Range of Core loss	High Resolution Range of Core loss
2T	5k A/m	0 – 200.0 W/kg	0 – 20.00 W/kg
	2000 A/m	0 – 20.00 W/kg	0 – 2.000 W/kg
	200 A/m	0 – 2.000 W/kg	0 – 200.0 mW/kg
	20A/m	0 – 200.0 mW/kg	0 – 20.00 mW/kg
200mT	5kA/m	0 – 20.00 W/kg	0 – 2.000W/kg
	2000 A/m	0 – 2.000 W/kg	0 – 200.0 mW/kg
	200A/m	0 – 200.0 mW/kg	0 – 20.00 mW/kg
	20 A/m	0 – 20.00mW/kg	0 – 2.000 mW/kg

- Measuring Accuracy : $\pm(3\%rdg+2 \text{ digits})$ by an electric calibration
- Measuring Frequency : 50Hz or 60Hz, synchronized with AC source
- AC Source : 100V-240V \pm 10% 50/60Hz
- Interface : GP-IB and RS232C
- Output : B/H monitoring, BNC type
- Size and Weight: Main Unit : W430xH199xD450(mm) 15kg
BH Detector : W177xH270xD213(mm) 4kg
- Accessory : Connecting Cable, BH Detector, Detecting Coil, D1 and D2, AC Cord

Model DAC-BHW-5

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Features

- Test can be done with small quantity of specimen (single sheet).
- Influence by a gap between test specimen and detector is minimized by introducing Magnetic Potentiometer Method.
- Possible to measure magnetic characteristics at low magnetic field.
- When combined with an oscilloscope, B-H curve can be observed directly.
- Measurement is possible with test specimens in small size.
(Minimum area: 10×60mm).
- Measurement results are closely coincident with those data obtained by Epstein Method.
- Compact Body, and suitable for field test.
- Easy-to-read digital display.
- User-Friendly for operating in dialogue.
- Automatic measurement and data processing, such as evaluation of magnetic permeability, are possible by using a PC.
- B-H Curve can be recorded with use of a memory-installed oscilloscope supplied as option. Br and Hc Values are obtained from the B-H curve.
- Referred to test method 2, ASTM A804/A804M
- Good correlation with ASTM A343/A343M IEC 60404-2 JIS C2550

Principal

Magnetic materials for electrical appliances are evaluated by the characteristics with Magnetic Field Strength (H), Magnetic Flux Density (B) and Core Loss (W). So far the magnetic standard test has been traditionally practiced by the 25cm Epstein method. However, the EPSTEIN measuring system requires a lot of test pieces, special preparation of several measuring devices and quite operational skill as well.

This instrument can simplify the Epstein test method and examine the magnetic characteristics related to B, H and W with a single sheet of an iron core inserted in the B-H Detector. The Magnetic Field Strength (H) and the Magnetic Flux Density (B) detected by the B-H Detector can be automatically controlled by a built-in microprocessor, and alphanumerically displayed as B, H and Watt of the measured sample.

As an optimum means for quality control of electrical steel sheets, the instrument has been utilized broadly among producers of electrical steel sheets as well as assembly makers like transformer or motor manufacturers.

REMARKS:

DAC-BHW-5 is adjusted to closely match the values obtained by Epstein instruments for test samples meeting the conditions below. To ensure accuracy in testing electrical steel sheets, prepare and measure test samples as shown below.

- 1) Test samples with width of 30mm and length of 100mm or more, cut using a typical shearing machine (warping of 20 μ or less, shear angle of 1°)
- 2) For grain-oriented cores, anneal it in the way recommended by the steel manufacturer.
- 3) Test samples without warp or twist.
- 4) Measure several test samples, and take the average.

Specifications are subject to change for improvements without prior notice.

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