



Western Instruments

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Established 1965

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W-FI Field Indicators (Magnetometers)

Western Instruments manufactures 3 models of Disposable Field Indicators, which provide readings in *Gauss*;

1. W-FI-10 Intended to be used for Demagnetization and are calibrated during manufacture in a Homogeneous Field (**Helmholtz Coil +/- 10 Gauss**).
2. W-FI-20 Intended to check residual fields on small parts, and are calibrated during manufacture for a Homogeneous Field (**Helmholtz Coil +/- 20 Gauss**).
3. W-FI-50 Intended to check residual fields on heavy parts, and calibrated during manufacture for a Homogeneous Field (**Helmholtz Coil +/- 50 Gauss**).

The Certification Decal, illustrated below, is affixed to the back of every W-FI, and the date of shipment is etched onto the decal. The Certification Decal reads as follows;



"This Magnetic Field Indicator (Magnetometer), as outlined in the *ASNT Handbook (2nd Edition, Volume 6)* and Defined in ASTM E 1316, is designed to measure the Relative Intensity of a Magnetic Field (measured in *Gauss*) before or after Magnetic Particle Inspection. At the time of shipping ___/___/___, the accuracy of this W-FI was confirmed to be within +/-1 Gauss or 5% of the scale value, whichever is greater."



A magnetic field of under 10 Gauss is typically not strong enough for Magnetic Particle Inspection (MPI), thus the W-FI-10 is used to ensure a workpiece is demagnetized after testing and before further processing. A magnetic field, for MPI, should be

approximately 18 to 24 Gauss, thus an inspector uses the W-FI-20 to ensure his residual field is strong enough prior to applying his inspection media (Wet or Dry). A workpiece can be magnetically saturated prior to (or after) inspection, and the inspector must measure the field strength and polarity prior employing his demagnetization procedure. Therefore, the W-FI-50 is used to measure fields that are too strong for Magnetic Particle Inspection.

The W-FI is intended to be disposable, so when the user's 'Quality Control Procedure' requires the unit to be recalibrated, it can be simply replaced. Western does offer 3 "Verification Fixtures" to measure W-FI accuracy however, as W-FI's can only be verified, the user has two choices, either verify it or replace it. This may seem wasteful, but W-FI's sell for less than the cost of competitive 'Calibrateable Field Indicators' and are priced competitively with Calibration Charges for these Calibrateable units.

Instructions

- Hold the W-FI so the Arrow points toward the surface of the Work Piece. Laying the unit flat on its back is not correct.
- Do not expose W-FI's to AC Magnetic Fields.
- W-FI's are delicate Instruments, not Hockey Pucks.
- When performing Demag with a Reversing & Decaying DC Field, pull the W-FI as far away as possible. A typical arm length is satisfactory.
- "Pinning" the pointer in a strong field will affect the accuracy of a W-FI.
- Field Orientation can be measured by placing a W-FI flat on it's back, and rotating it until the maximum field is measured. At the maximum reading, the direction of the field is parallel with the instrument pointer (not the arrow).

Verification



- Verification Fixtures are available for each of the 3 models of W-FI's.
- To verify the accuracy of a corresponding W-FI, simply place it in the fixture as illustrated, with the arrow lined up to the indicator line on the fixture.
- Each Verification Fixture has a Certification Decal affixed to the front on the Case, Indicating the date of Field Confirmation.
- It takes just seconds to verify the accuracy of a W-FI.

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