

ED-400M

Eddy Current Flaw Detector



Special Features

The *Centurion NDT* ED-400M is the rugged version of the ED-400. Housed in a deep drawn aluminum enclosure, this version is built to take just about any punishment that comes its way. The ED-400M is a patented, solid-state eddy current instrument that is superior in detecting cracks in ferro-magnetic material. It is relatively compact, lightweight and simple to set up and operate. The ED-400M is the perfect compliment or even as a replacement for magnetic particle inspection.

- Excellent sensitivity for magnetic crack detection-provides full scale deflection for 0.008" slot.
- Extremely high signal/noise ratio. Virtually ignores background magnetic permeability variations.
- Excellent lift-off compensation eliminates erroneous signals due to surface scale and coatings.
- Adjustable threshold circuit with audio and visual indicators.
- LED indicator on probe eliminates need to constantly check meter.
- Wide selection of interchangeable probes.
- Operates for 40 hours or more on a single charge.
- Includes standard reference block for checking instrument performance.

Applications

The *Centurion NDT* ED-400M eddy current unit is an electronic test device that will locate surface and near surface discontinuities in magnetic materials. Non-magnetic materials may also be tested. In magnetic steel products and materials, defects as small as 0.005" deep may be detected with ease, if they are open and normal to the surface. The ED-400M is widely used to compliment or replace magnetic particle inspection methods in many industries. Its size and features makes the ED-400M valuable for testing finished goods in foundries, crack detection in heat treat shops, manufacturing plants, steel mills, automotive plants...and wherever accurate data must quickly be obtained, so as to establish product reliability.

Operation

The ED-400M utilizes the eddy current principle, wherein induced currents in the test part are affected by changes in homogeneity and uniformity. Variations in material conductivity, permeability and thickness are ignored due to special design features that are incorporated into the system.

Discontinuities, such as cracks, laps or seams, will disrupt the eddy current pattern induced in the material, causing localized magnetic changes. These unbalance the instrument and create meter needle deflections.

Initially, the balance controls are adjusted with the probe in air, so as to provide a minimum deflection on the meter. As the probe is scanned across the test object, discontinuities will be indicated as deflections in this meter. The Sensitivity Control is adjusted to give the desired amount of deflection for the defects to be located.

The **THRES.** may be adjusted to fire the threshold Alarm Indicator for a given meter deflection.

Not only is the ED-400M virtually insensitive to the background magnetic permeability changes that have plagued previous test devices, but this new instrument offers excellent lift off compensation. Thus, no adjustments are required when searching for defects through rust, oxide, and scale. Coatings, such as paint, do not have to be removed as with magnetic particle inspections. In addition, slightly rocking the probe during testing does not seriously affect the meter reading.

The ED-400M can operate continuously on batteries for 40-50 hours. A sensitivity standard is provided to periodically check the instrument performance.

Description

The ED-400M is a portable, compact, self-contained electronic instrument that offers high sensitivity and simplicity of operation. A differential probe forms two legs of the bridge circuit, which is contained within the instrument. The ED-400M is housed in a deep drawn aluminum enclosure. Standard accessories are stored in a pouch housed in the top cover. The standard accessories include a steel test block attached to the front panel, power cable to charge the internal battery pack and standard flaw detection probe. Other special probes are available upon request.

This instrument includes a rugged and easily read meter, as well as the following controls and components:

Sensitivity:	Determines overall gain level and, therefore, meter deflection for a given defect.
Balance Controls:	Used in conjunction with each other, these null (zero) the meter on good material.
Power Switch:	Provides power to the instrument.
Thres.:	Adjusts threshold firing point as a function of meter deflection.
Tone:	Varies the pitch of the tone when earphones are used.
Probe Connector:	4-pin screw on to attach test probe. Interchangeable with ED-400 probes.

Specifications

Case Dimensions:	6" x 9" x 5" (15.2cm x 22.9cm x 12.7) Cover included
Weight:	5.3 lb (2.4 kg)
Frequency:	100 kHz (kilocycles/second) fixed
Power Requirements:	Five "C" cell self-contained nickel-cadmium battery pack.
Readout:	3.5" (6.4cm) wide. Scale numbered from 0 to 500 in 50 divisions.
Environmental capability:	Temperature range--0° to 120°F at 85% RH.

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