

- Professional manufacturer, best quality with competitive price
- $\,$  Recommended by the world UT NDT inspection association for training and examination  $\,$   $\,$   $\,$   $\,$   $\,$
- Core technology with independent intellectual property rights, certificate of CE, GOST and etc.. 🛛 🔘

# **Portable Eddy Current Flaw Detector**



#### **Overview**

**MET400** 

Mitech MET Series Portable Eddy Current Flaw Detector, also known as digital electromagnetic detector, based on the principle of electromagnetic induction, it can detect various defects on the surface or near surface of metal workpieces at high speed. Adopted with advanced DSP digital processing and designed with FPGA technology innovation, selected with 5.7-inch TFT LCD screen, it can display the detection data clearly. The product has high sensitivity, stable performance, multi-channel simultaneous detection and intelligent data analysis. It can be equipped with intelligent probe as well as customized probe according to customer needs. It has many practical functions such as extended magnetic memory, coating thickness measurement, conductivity measurement and so on. It is widely used in all kinds of metal pipe rods, auto parts, bearings, oil casing, oil control rods, ring metal parts in non-destructive testing and the scientific research of higher education institutions and other fields. It is the necessary professional precision testing equipment to improve production efficiency, and saving production cost.

### **Technical Parameters**

Technical Parameters   MET401   MET402   MET404     Testing range   0-5mm   0   <		MET Sreies				
lesting channel 1 2 4   Independent detection frequency Single frequency Single frequency   Frequency range 10H2-10MHZ, Step by 1KHz Crack detection accuracy   Orack detection accuracy 0.3mm through hole to 8db (20mm within the probe) 0.3mm through hole to 8db (20mm within the probe)   Phase rotation 0-3990.0B, Step by : 0.105.5/1 dB 0.4990.0B   Phase rotation 0-359°Continuously adjustable , step by 15/10 Deg 210dB   ratio of gains (Y/X) : 0.1-10.0 Probe drive 1-8   Calibration curve Equivalent amplitude 200H2 ; Qualcomm/0H2-200H2 200H2   Digital filtering Lowpass:0H2-2000H2 ; Qualcomm/0H2-200H2 200H2 200H2   Filter points 0-1024 00H2-10MHZ 200H2 200H2 200H2   Real-time hardware sampling 10-01z AD converter with sampling speed of 160MH2 200ar condinates, polar coordinates 200 rest of 200 groups   Storage type SD Card Sof aguare 200 groups 20 feet of 200 groups 20 fee	Technical Parameters	MET401	MET402	MET404		
Independent detection frequencySingle frequencyFrequency range10HZ-70MHZ, Step by 1KHzCrack detection accuracyL×W×H 3mm×0.0mm×0.072mm (Using flat probe to detect steel test block)Pipe inspection accuracy0.3mm through hole to 8db (20mm within the probe)Gain range0.0-99.0dB, Step by 1.01/0.5/1 dBPhase rotation9.359°C ontinuously adjustable, step by 1/5/10 DegSignal to noise ratio(SNR)≥ 10dBratio of gains(YX ): 0.1-10.0Probe drive1-8Calibration curveEquivalent amplitudeDigital filteringLowpass:0Hz-2000Hz; Qualcomm:0Hz-2000HzFilter points0-1024Broadband100Hz-10MHzAutomatic balanceDigital electronic balanceDigital electronic balance11mpedance, time base, round hole, Gartesian coordinates, polar coordinatesScan speed1-1000 LevelReal-time hardware sampling10-bit AD converter with sampling speed of 160MHzAlarm windowFaar squareWindow adjustment5/2 kardStorage type5/2 kardDisplay method1-12 LevelStorage typeSo fardDisplay5/7 inch color TFT-LCD liquid crystal display with a resolution of 640 * 480Standby time1.12 LevelDigital conductivity display range0.9%-110%IACS or 0.5-64MS/mDigital conductivity display range0.9%-110%IACS or 0.5-64MS/mDigital conductivity costargy0.9%-65%IACS : ±0.5%IACS : ±1.0%Nonconductive costing thickness0.025 mm (±0.001 in )Dimensions	Testing range	0-5mm				
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Crack detection accuracy L×W×H 3mm×0.1mm×0.072mm (Using flat probe to detect steel test block)   Pipe inspection accuracy 0.3mm through hole to 8db (20mm within the probe)   Gain range 0.0-99.0dB , Step by : 0.1/0.5/1 dB   Phase rotation 9-359*Continuously adjustable , step by 1/5/10 Deg   Signal to noise ratio(SNR) ≥10dB   ratio of gains (YX) : 0.1-10.0   Probe drive 1-8   Calibration curve Equivalent amplitude   Digital fittering Lowpass:0H2-2000Hz ; Qualcomm:0H2-2000Hz   Points 0-1024   Broadband 100Hz-10MHz   A/D rate 2bit 80M   Automatic balance Digital electronic balance   Digital electronic balance Impedance, time base, round hole, Cartesian coordinates, polar coordinates   Alarm window Fan, square   Alarm window Fan, square   Window adjustment S-17 inch color TFT-LCD liquid crystal display with a resolution of 640 * 480   Stardby time 10-b   Interface LEMO-6 DB-15   Magnetic memory sensitivity 5Gs   Digital conductivity display range 0.9%-65%IACS : ±0.5%IACS : over 62%IACS : ±1.0%   Digital conductivity A	Independent detection frequency	Single frequency				
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Dimensions 240*175*75mm	Nonconductive coating thickness	0 mm-0.648 mm				
	Coating Thickness Accuracy	0.025 mm ( ±0.001 in	)			
Total weight 1.5kg	Dimensions	240*175*75mm				
	Total weight	1.5kg				

## Working Condition

- Operation Temperature : 0°C-+45°C ;
- Storage temperature : -20°C-+50°C ;
- Relative humidity : ≤85% ;
- In an environment free from vibration, corrosive medium, strong magnetic field and Severe dust.

#### Working Principle

The eddy current detection technique is based on the principle of electromagnetic induction, and the excitation signal is loaded into the probe coil. When the probe is close to the metal surface, the alternating magnetic field around the coil will generate the induced current on the metal surface. For flat metal, the flow of induced current is a coil concentric circular, shaped like a vortex, named as the eddy current. The size, phase and flow pattern of the eddy current are affected by the conductivity of the specimen. The eddy current also produces a magnetic field that in turn causes the impedance of the detection coil to change.

So when the conductor surface or near the surface of the defect or the measurement of metal materials change, the intensity and distribution of eddy currents will be affected by changes in the impact, Which in turn causes a change in the detection coil voltage and impedance. Eddy current testing is based on this change, the indirect feedback of the existence of defects within the conductor and the performance of metal materials have changed.



#### Features

- Widely used in nuclear power, military, petrochemical, metallurgy, university teaching, machinery manufacturing and other fields;
- With modular compact design, small size, light weight, easy to carry, the products can be customized according to customer needs;
- The detector with 10Hz-10MHz test frequency range, can meet a variety of different metal detection requirements;
- Using 5.7-inch color TFT-LCD liquid crystal display, menu design, easy to operate, intuitive display;
- One-button to achieve a variety of modes of switching, the operation more convenient. It can quickly detect a variety of metal surface defects;
- With customizable magnetic memory, coating thickness measurement, conductivity measurement and other functions;
- It has large capacity rechargeable battery, to meet the long-term outdoor work needs, can also be directly connected 220V power supply;
- Compatible with a variety of types of probes, and flexible custom wear, wear, plane, point, weld, fan and other probes;
- It can achieve multi-channel multi-frequency simultaneous detection and can achieve limited mixing, high detection efficiency, high sensitivity;
- Using eddy current impedance plane and time base scan display technology, real-time multi-window display with the same window eddy current signal;
- Chinese and English version of a key to switch, automatic, manual amplitude and phase adjustment, the rapid realization of digital analog electronic balance;
- Real-time alarm output, a variety of alarm window mode, non-equal amplitude, asymmetric phase alarm area settings;
- Using professional "digital filter", effectively suppress the interference signal to ensure the accuracy and stability of the test;
- Can store a large number of various testing procedures and data, with signal acquisition, read, transfer, analysis, storage, playback and other full intelligent processing functions can be connected to the printer to print the file output, storage management;
- Consistent with ASME、GB/T、YB、EN、JIG、API-5L、API-5CL、MH/T and other relevant domestic and foreign standards.

## Applications

- All kinds of metal pipe rod wire high-speed non-destructive testing (according to user needs customized package of non-destructive testing solutions);
- Quality quality links of bearing, ring, auto parts and other metal parts manufacturing quality control links;
- Colleges and universities learning, scientific research and other fields;

## Configurations

	NO.	Name	QTY.	Remarks
	1	Main unit	1	
	2	Flat probe	1	
34	3	Standard eddy current test block	1	Aluminum block
	4	Probe cable	1	
Standard config	5	Battery	1	
	6	Power adapter	1	
	7	Attaced files	1	
1	1	Various probes		Customized to customer requirements
	2	Magnetic memory measurement system	1	
Optional config	3	Coating thickness measurement system	1	
	4	Conductivity measurement system	1	