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MPI-CX50 ADJUSTABLE FREQUENCY MAGNETIC POWDER FLAW DETECTOR

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1. General description

MPI-CX50 adjustable frequency magnetic powder flaw detector, is the use of magnetic yoke on the workpiece made of ferromagnetic material magnetization of lightweight miniature magnetic particle flaw detection equipment, can be magnetized to a variety of parts, applicable to the oilfield, shipbuilding, internal combustion engine parts, coal mines, machinery, standard parts, oil pumps, oil nozzles, aircraft manufacturing, automotive parts, bridge building, chemical industry, boilers, pressure vessels, railroads and other industries, due to the forging, quenching, welding, fatigue, surface and near-surface defects caused by Surface and near-surface defects caused by forging, quenching, welding, fatigue, etc., such as chain rods, crankshafts, bearings, high-strength bolts, springs, forgings, petrochemical pipe fittings, valves, blades, gears, rollers, anchor chains, and welds and other geometrically complex workpiece flaw detection.

The machine lithium battery DC power supply, through the frequency inverter to generate high voltage, the control unit square wave drive to generate pulse excitation current, the maximum operating current of 2.4A, driven by pulse current to generate a high efficiency of the magnetic field, the heat is small on the lightweight design of the product is favorable.

Standard JJF1458-2014

2. Product introduction

1. Deep penetration of the magnetic field, which allows the detection of artificial cracks from the surface up to a depth of about 8 mm from the surface
2. For workpieces made of ferromagnetic materials with thin paint, plating, or other coverings on the surface, flaw detection can be performed without any treatment
3. Magnetization current using digital MCU to regulate phase inverter current, no demagnetization is required after flaw detection

3. Battery View



1. Power switch
2. Frequency switch button (3Hz,10Hz,20Hz)
3. Aerial plug interface to connect the yoke
4. Display to show the battery power
5. Fuse mounting fuse
6. Lithium battery charging port

4. Specification

| | | |
|-----------------------|--|----------|
| Frequency | 3Hz, 10Hz, 20Hz (adjustable) | |
| Sensitivity | 15/100 clearly displayed on A1 sensitivity test piece (20Hz) | |
| Lifting power | ≥44N (20Hz) | |
| White light power | 2W | |
| Magnetic pole spacing | 40~180mm | |
| Lithium battery | voltage | 12V |
| | current | 1~2.4A |
| | capacity | 10000mAh |
| | life | 4~6h |
| charging time | <6h | |
| Operation temperature | -10~40°C | |
| Dimension (LxWxH) | 200x45x160mm | |
| Weight | 2kg | |

5. Maintenance and matters needing attention

Note: This machine should be operated by the person who is familiar with the performance, operation and safety requirements of magnetic particle flaw detector and holds the certificate of magnetic particle flaw detection I or above.

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Relevant standards (NB/T47013, ASTM E709) and other provisions.

1. Preparation work before start-up

- 1.1 Check that the parts are intact and the cable is intact and unbroken. Check whether the lithium battery power is sufficient.
- 1.2 Remove the oil and oxidized skin on the surface of the test piece.
- 1.3 Configure the magnetic suspension concentration (15-25) g/l (black magnetic powder) specified in the relevant standards into the spray can.

2. Flaw Detector Start-up

- 2.1 Connect the yoke to the lithium battery.
- 2.2 Turn on the power switch.
- 2.3 Select the appropriate frequency of flaw detection. According to the probing depth from shallow to deep, frequency selection from large to small. The shallower the probing depth is, the larger the probing frequency is selected; conversely, the deeper the probing depth is, the smaller the probing frequency is selected.

3. Use of Flaw Detector

3.1 Hand-held magnetic yoke will be good contact with the yoke and the workpiece to be tested, the workpiece to be probed on the spraying of magnetic powder or magnetic suspension at this time, press the probe handle on the probe excitation switch, the LED indicator light, the work is magnetized; release the button switch, observe the workpiece whether there is a magnetic powder, the workpiece, such as cracks. In the process of magnetization, there are cracks in the place of agglomeration of magnetic powder, the formation of magnetic traces.

3.2 If there is a need to adjust the magnetic pole spacing, loosen the butterfly nut of the adjustable joint to change the magnetic pole spacing of the yoke, and tighten the nut after adjustment before working.

3.3 In the workpiece is magnetized, that is, press the yoke handle on the flaw excitation switch, the press time should not be too long, generally only 3-5 seconds can be, long time will cause unnecessary heating and energy consumption.

3.4 Steps for use are as follows:

When probing, place the yoke joint opening surface on the workpiece to be tested, keep good contact;

Press the yoke switch while spraying magnetic powder or magnetic suspension to the inspected area and hold it for 3-5 seconds;

Releasing the yoke switch, removing the yoke and observing the workpiece; Move the yoke to another inspection area and repeat the work in 3.2 and 3.3.

4. Use of strip test piece and A-type test piece

The artificial crack opening of the strip test piece will be facing down, the artificial defective side of the A-type test piece will be placed in the middle of the strip test piece, the magnetic suspension will be applied, and then the magnetic yoke will be placed on both sides of the strip test piece and energized and magnetized for 2-3 seconds, and cracks or defective magnetic traces will appear on the test piece.

5. Flaw Detector Shutdown

5.1 Disconnect the power supply and unplug the connection cable.

5.2 Clean the parts and put them into the chassis according to the specified position.

5.3 Make a good record of equipment operation.

6. Flaw detector maintenance

6.1 This product adopts rechargeable lithium battery, which can be recharged more than 600 times. When the lithium battery is under voltage (less than 30%), charge it as soon as possible to protect the lithium battery with good power storage performance.

6.2 When the instrument is not used for a long time, the lithium battery should be charged once every 1 month, so as not to affect the service life of the lithium battery and continuous working time.

6.3 When the magnetic suspension is used in water, appropriate amount of antirust agent should be added.

6.4 Before the use of the yoke, the activity of the joints to add an appropriate amount of oil lubrication, the use of the yoke and the activity of the joints should be wiped clean on the water, oil, magnetic powder, etc., and coated with antirust oil.

6.5 Although this instrument has a good no-load overcurrent protection circuit, but the instrument in use, should try to avoid no-load work to prevent unnecessary temperature rise or damage.

6.6 When using the yoke, keep good contact between the end face and the workpiece to be inspected. Then press the magnetizing button switch on the handgrip, at this time the best detection effect. The yoke should be kept clean from collision and dropping.

6.7 In use, if found that the instrument wire package heating is serious that is to stop using, check the cause of the failure, after overhaul and then use, otherwise it will damage the instrument.

6.8 When the instrument stops using, should cut off the power switch on the lithium battery panel.

6.9 After the end of flaw detection, in the movable joint parts of the yoke, should remove debris and note lubricant.

6.10 Instrument operators should conscientiously implement this system, take good care of the instrument, so that the instrument is often kept "neat, clean, parts and accessories intact, safe", to ensure the normal use of the instrument.

6. Caveat

For safe and effective use, please read the following precautions before use.

1. Do not use any chemical solvents or detergents to clean the product, which may cause unnecessary damage to the product. Please use a slightly damp cotton cloth to clean the product.
2. Please be sure to use the manufacturer's professional data cable to charge the product's lithium battery. Strictly prohibit the use of parameter specifications do not correspond to the data line charging, in order to prevent damage to the product.
3. Forced disassembly of the damage caused by the company is not responsible.
4. Be sure to plug and unplug the yoke cable with the power off.
5. Prevent the magnetic suspension from entering the device, so as not to cause a short circuit.