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MPI-P

PORTABLE MAGNETIC POWDER FLAW DETECTOR

OPERATATION MANUAL

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VIDEO

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I Overview

Magnetic Yoke Flaw Detector has the advantageous of compact structure, reasonable layout, compact volume, light weight and convenient to carry. It is suitable for magnetic particle inspection of surface and near-surface defects of ferromagnetic materials in various kinds including iron and steel structural parts, boilers, pressure vessels, pressure pipes and welding structures in electric power, metallurgy, petrochemical and mechanical industries. In addition, it can be used directly connected to AC, or optional with AC magnetization power supply and DC magnetization power supply, which is of high efficiency and portability. Moreover, it is especially suitable for ship hull weld detection, high-altitude steel structure weld detection and pressure vessel internal operation.

Fulfill standards

JB/T7411-2012 ASTM E1444-05 ASTM E709
EN10228-1:1999 ISO 9934 ASTM E3024

II Features

1.Compact size and light weight.
2.Integrated molding, comfortable handle.
3.Special work pocket, easy for carrying magnetization power supply, magnetization suspension, contrast aid, etc.
4.Optional for three power supply modes:
· Single-phase AC power supply
· AC magnetization power supply
· DC magnetization power supply

III Specification

Code		MPI-P110	MPI-P220	MPI-P330
Magnetic field strength		>2KA/m		
Sensitivity		15/50 engraved groove clearly displayed on A1standard sensitivity test piece		
Illumination		—	White light ≥2320 Lux	UV Lamp ≥5220μW/cm²
Duty cycle		>50% maximum excitation time 90 seconds		>30%
Lifting Power	AC	≥4.5kg(44N)		
	DC	≥18.1kg(177N)		
Magnetic pole spacing		0-230mm		
Magnetic pole size		22×22mm		
Power supply		AC220V, 50Hz (DC battery pack or AC battery pack are optional)		
Operation temperature		-10-40°C		
Relative humidity		<80% (No condensation)		
Dimension(L×W×H)		235×50×195mm		
Weight		2.3kg		

IV Operational Method

Before using this instrument, please read this instruction carefully, well understand the structure and technical performance, as well as whether the connection is correct. Power supply can be connected only after checking correctly. Instrument should be checked during first use or long storage reuse.

4.1 Magnetization operation
4.1.1 Connect one end of the probe wire to the electromagnetic yoke, the other end to the 220V/110V AC power socket (or DC magnetized power or AC magnetized power) to ensure the reliable connection of the plug.
4.1.2 Contact two poles feet of the electromagnetic yoke with the tested workpiece, spraying magnetic suspension, press the switch on the electromagnetic yoke, then the magnetic yoke will magnetize the workpiece. Release the switch and the magnetization will be stopped as a result.
4.1.3 Please pull off the connecting wire of electromagnetic yoke when the work was finished.
4.1.4 Work cycle of the electromagnetic yoke: if work continuously for a long time: recommended magnetizing time≤ 3 seconds, intermittent time≥ 5 seconds.
4.1.5 Pole feet of the electromagnetic yoke should be in good contact with the workpiece under detection, and then press the magnetizing switch, best magnetization effect can be realized.
4.1.6 Loosen the switch timely before Yoke pole foot leaving the workpiece, in order to avoid instrument overheating due to improper operation. No-load should be avoided (pole feet do not in contact with the workpiece), to reduce unnecessary temperature rise.
4.2 Use of DC magnetized power supply
4.2.1 Connect one end of the yoke DC magnetized power supply cable to the yoke, the other end to DC magnetized power supply, LCD screen can be lighted up, meanwhile reliable connection of the plug should be ensured.
4.2.2 After the LCD is lit up, remaining power can be displayed. When the remaining power is close to 15%, power should be charged, or the lifting force should be tested. Power should be charged in time if the lifting force is less than 18.1kg.

4.2.3 After connecting the electromagnetic yoke to the DC magnetized power supply, magnetic particle testing can be carried out, using method please refer to (4.1.2 ~ 4.1.6).

4.3 Use of AC magnetized power supply
4.3.1 Connect one end of the yoke AC magnetized power supply cable to the yoke, the other end to AC magnetized power supply to ensure reliable connection of the plug, meanwhile turn on the power switch.
4.3.2 Switch on the magnetization power supply, two short buzzes will be sent out in the host machine after 2 ~ 3 seconds, as well as current battery power will be displayed. At this time, the magnetized power supply enters the standby state, magnetic particle detection can be carried out as a result, using method please refer to (4.1.2 ~ 4.1.6).
4.3.4 Turn off the magnetization power switch if not in use, unplug the yoke cable when not in use for a long time.
4.3.5 Please charge the battery when only one indicator light is on. Please turn off the magnetization power when charging (strictly prohibit charging on start-up)! Connect one end of the charger to AC power supply, the other end to the charging jack of magnetized power supply, the charger indicator light will be in red. After the charger indicator light changes from red to green, it indicates charging is completed. It can be turned on and used normally after the charger removed.
4.4 LED light
The lighting includes white light and ultraviolet light. The switch is located on one side of the lighting window. To turn on the white light, simply touch the switch button with your fingers. The brightness is divided into three levels with cycled button. To turn on the ultraviolet light, also touch the button to turn on and off. As shown in the following figure.

V Matters Need Attention
5.1 Please stop use if some parts are found of very overheating until the reason is found out.
5.2 Instrument and accessories should be used or stored in a clean, dry, non-corrosive environment.
5.3 A small amount of lubricant can be added to the hinge pin before use.
5.4 Magnetic yoke pole foot should be in good contact with the workpiece under detection, and then press the magnetization switch, best magnetization effect will be realized.
5.5 No-load should be avoided (pole feet do not in contact with the workpiece), to reduce unnecessary temperature rise.
5.6 Work continuously for a long time: recommended magnetizing time ≤3 s, and intermittent time ≥5s.
5.7Customers are advised to use direct plug-in power for long periods of time and use lithium batteries temporarily.

High pressure inside, please do not dismantle it by yourself!
·AC magnetizing power supply
If the first indicator light of the magnetized power supply flashes twice in succession,accompanied by two beeps, it indicates the instrument enters low power protection, charging must be made to extend the battery life, charging time is about 3 hours.
Please turn off the magnetization power when charging (strictly prohibit charging on start-up)!
If the buzzer rings three times in succession, it indicates internal failure of magnetized power supply. Please return it to factory for maintenance.
·DC magnetizing power supply
Charging must be made when the battery quantity is 5% so to extend the battery life, and the charging time is about 3 hours.