

Bench-Type MPI Machine

Product Description:

The **Bench-Type Magnetic Particle Inspection (MPI) Machine** is a high-performance, semi-automated or fully automated testing unit designed for detecting surface and near-surface defects in ferromagnetic components. It is ideal for **shafts, rods, crankshafts, gears, and other cylindrical or complex-shaped components.**



This system provides **high sensitivity flaw detection** using **fluorescent or non-fluorescent magnetic particles** under **AC, HWDC, or FWDC magnetization modes.**

Key Features:

- ✓ **Heavy-Duty Construction** – Robust, durable, and corrosion-resistant frame for long-lasting operation.
- ✓ **Multi-Directional Magnetization** – Enables defect detection in multiple orientations in a single cycle.
- ✓ **Adjustable Headstock & Tailstock** – Allows testing of various part sizes.
- ✓ **High-Intensity UV LED Illumination** – Enhances visibility of indications during fluorescent testing.
- ✓ **Precise Control Panel** – User-friendly controls for current adjustment, clamping, and magnetization.
- ✓ **Automatic Demagnetization** – Ensures effective removal of residual magnetism after testing.
- ✓ **Integrated Particle Flow System** – Provides uniform application of magnetic particles.

✓ Compliance with International Standards – Meets ASTM E1444, ISO 9934-1, ASME Section V requirements.

Technical Data Sheet:

Specification	Details
Model	Bench-Type MPI Machine
Magnetization Modes	AC / HWDC / FWDC
Current Output	Up to 6000 A (customizable)
Clamping System	Pneumatic / Manual
Test Part Length	Up to 1500 mm (customizable)
Test Part Diameter	10 mm – 300 mm
Power Supply	415V, 3-Phase, 50 Hz
Control Panel	Digital / Analog options
UV Light Intensity	4,000 – 6,000 $\mu\text{W}/\text{cm}^2$ (for fluorescent inspection)
Magnetic Particle Application	Wet / Dry Method
Cooling System	Air-Cooled / Water-Cooled
Demagnetization	Automatic (Adjustable)
Safety Features	Emergency Stop, Overcurrent Protection

Compliance Standards	ASTM E1444, ISO 9934-1, ASME Section V
Weight	Approx. 500 – 1000 kg (varies with model)
Customization	Available for specific applications

Applications:

- ✓ **Automobile Industry** – Crankshafts, camshafts, connecting rods, gears
- ✓ **Aerospace Industry** – Landing gear, turbine components
- ✓ **Railway Industry** – Axles, wheelsets
- ✓ **Oil & Gas Industry** – Drill pipes, valves, flanges
- ✓ **General Engineering** – Welded joints, forgings, castings

Optional Accessories:

- ◆ **Magnetic Particle Suspension System** – For uniform particle flow
- ◆ **UV LED Inspection Booth** – For enhanced fluorescent visibility
- ◆ **Customized Fixtures & Clamping Devices** – For specialized parts
- ◆ **Touchscreen Digital Control Panel** – For ease of operation

Why Choose Our Bench-Type MPI Machine?

- ✓ **High Efficiency & Accuracy** – Detects minute cracks and defects
- ✓ **User-Friendly Controls** – Easy to operate and adjust settings
- ✓ **Heavy-Duty Design** – Built for continuous industrial use
- ✓ **Customizable** – Available in different configurations to meet industry-specific needs