



VERTEX SYSTEMS



# MPT & FPT SYSTEMS & ACCESSORIES

1. MPI BENCH TYPE EQUIPMENT
2. MPI POWER SOURCE
3. FPT FACILITY

VERTEX is a trusted supplier of Magnetic Particle Inspection (MPI) equipment to the Non-Destructive Testing (NDT) industry.

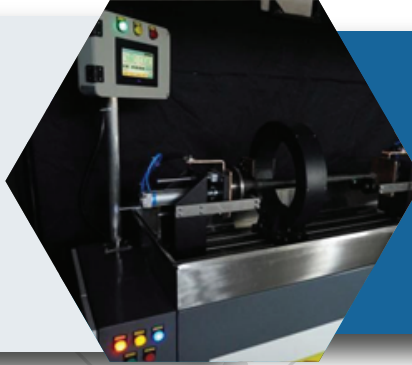
The VERTEX VS-30/4560 Series benches have a proven track record of reliability and durability and are in daily use by many of the leading aerospace companies.

The VERTEX Series offers testing capabilities for components of all sizes that require high magnetizing currents. Our benches are available in various sizes, with a wide range of magnetizing modes, current waveforms, accessories, and ancillary equipment.

The modular design allows us to custom-build benches to meet individual customer specifications, providing the optimum combination of technical performance and commercial value.

The VERTEX MPI Bench features a stainless-steel drain tank that incorporates a fixed-position head stock and a movable tailstock. The power pack is integrally mounted beneath the bench, enclosed within a heavy-duty steel cabinet. This cabinet is mounted on a steel plinth, allowing the entire bench to be easily moved using a forklift truck.

In the VERTEX VS-30/45/60 model, the clamping pressure can be adjusted to protect delicate components. A small-piece device can also be installed, enabling rotation of components for easier viewing. For heavier test pieces, support rollers mounted on the bed bars are available to provide additional support and stability.



## CONSTRUCTION

The VERTEX and its larger counterpart, the EBU, share the same control system and digital ammeters. The control panel is designed to suit specific application requirements, with function buttons configured according to the user's operational needs.

Digital metering is standard across all units and can be calibrated to display output current in PEAK, RMS, or 2×MEAN modes. Two independent meters are provided — one for measuring HEAD current and the other for FLUX/COIL current.

The VERTEX VS-30/45/60 model features a universal, microprocessor-based electronic system that incorporates advanced functions such as current pre-selection and a built-in memory capable of storing up to 99 sets of test parameters.



## CONTROLS & METERING

Damsole  
Technologies

Damsole  
Technologies



## VS- WET HORIZONTAL MPI BENCH UNIT - HW SERIES

The multi-directional magnetization unit, equipped with a 6000-amp transformer, provides both Alternating Current (AC) and Full-Wave Direct Current (HWDC) outputs. It is suitable for testing products in accordance with ASTM E1444 and AMS specifications.

**Type of Testing: Visible and Fluorescent Testing**

**Diameter Range: 12 mm to 400 mm**

**Bench Length: 2 meters**

**Type of Magnetization: Head Shot, Coil, and Central Conductor**

### FEATURES

- ✓ Contact Shot: For circular magnetization.
- ✓ Coil Shot: For longitudinal magnetization of parts.
- ✓ Frame Construction: Fabricated M.S. frame with splash guard for durability.
- ✓ Circulation Tank: Stainless Steel (SS-304 grade) with turbulence agitation system, mono-block pump, and hand nozzle.
- ✓ Construction: Rugged and reliable design for consistent magnetic inspection performance.
- ✓ Power Source: In-built power supply with infinitely variable, self-regulating current control.
- ✓ Coil: Base-mounted MPI coil.
- ✓ Headstock & Tailstock: Pneumatically operated headstock with foot switch, rail-mounted hand-operated tailstock, both with steady rest for heavy job handling.
- ✓ Meters: Analog ammeters with calibration facility.
- ✓ Control Panel: Equipped with push-bar assembly.
- ✓ Demagnetization: Built-in AC decay demagnetization facility.
- ✓ Inspection Hood: Black resin hood suitable for fluorescent wet particle inspection under UV light.
- ✓ Magnetization Mode: AC / HWDC selectable via changeover switch.
- ✓ Magnetization Control: Time-controlled by logic control PCB.
- ✓ Material: Metal construction.
- ✓ Power Source: Electric.
- ✓ Automation Grade: Semi-Automatic.
- ✓ Operating Voltage: 415 V.
- ✓ Magnetization Capacity: Up to 6000 Amps.



## VS - WET HORIZONTAL MPI BENCH UNIT - HW SERIES

## MODEL SERIES: VS-30 / SB-45 / SB-60 (WET HORIZONTAL MPI BENCH UNITS – FW SERIES)

The VERTEX Series Magnetic Particle Inspection Benches are rugged, high-performance systems built to detect even the smallest surface and subsurface flaws in ferromagnetic materials. Designed for precision, durability, and ease of operation, these benches are trusted across aerospace, automotive, energy, and heavy engineering sectors for consistent and reliable inspection results.

SPECIFICATIONS	VS-30	VS-45	VS-60
Maximum Out put	2500 A AC/3000 A fdwc	4000 A AC/5000 AFWDC	5000 A AC/6000 AFWDC
Maximum job length	1300 mm	1300 mm	1300 mm
Coil size	300m*5 turns	300m*5 turns	300m*5 turns
Input supply	415v,50hz,1 phase/2 lines of 3ph	415v,50hz,1 phase/2 lines of 3ph	415v,50hz,1 phase/2 lines of 3ph
Maximum coil output	1300 A AC/2000 AFWDC	1600 A AC/4500 AFWDC	1800 A AC/5200 A FWDC
Line amperage	55A	135A	250A
Open circuit voltage	16A	22A	26A
transoformerrating	80KVA	130KVA	156KVA
Transformer insulation	CLASS F	CLASS F	CLASS F
Intermittent	Intermiten	Intermiten	Intermiten
Thyristor rating	5A	132A	250A
White light (Dark rom)	<10 Lux	<10 Lux	<10 Lux
Airsuply required	4-6 Bar	4-6 Bar	4-6 Bar
Bath tank material	SS304	SS304	SS304
Bath tank capavity	40L Approx	40L Approx	40L Approx
Job clamping	Pneumatic	Pneumatic	Pneumatic



Black light hood for fluorescent inspection

Auto bath agitation and circulation system

Contact bar with extension

Steady rest for heavy components

Centrifuge tube and measuring kit

Cooper-control type connectors

In-built demagnetization system

Digital ammeter (Peak / RMS / 2×Mean modes)

VERTEX Portable MPI Power Packs are compact, rugged, and high-performance units designed for on-site magnetic particle inspection of ferromagnetic components. These units provide both Alternating Current (AC) and Half-Wave Direct Current (HWDC) outputs, enabling the detection of surface and subsurface defects with high sensitivity.

Built for mobility and reliability, the portable power packs feature a robust steel enclosure, user-friendly controls, and precise current regulation. They can be easily connected to handheld yokes, coils, or prods, making them suitable for field inspection of welds, castings, forgings, and fabricated structures.

Available in various current capacities (typically 1000 A to 3000 A), these units comply with ASTM E1444, IS 3703, and AMS standards, ensuring dependable performance across power plants, refineries, shipyards, and fabrication sites.

### FEATURES:

- ✔ **Dual Current Output:** Provides both AC and Half-Wave DC (HWDC) for detection of surface and sub-surface defects.
- ✔ **Wide Range of Magnetizing Modes:** Supports head shot, coil, and prod testing operations.
- ✔ **Variable Current Control:** Infinitely variable current regulation through thyristor or step control for precise magnetization.
- ✔ **Digital Metering:** Equipped with digital ammeter and voltmeter for accurate current and voltage measurement.
- ✔ **High Output Capacity:** Available in 1500 A, 2000 A, and 3000 A models to suit various component sizes.
- ✔ **Portable and Robust Design:** Compact, heavy-duty steel enclosure with handles or wheels for easy mobility and durability.
- ✔ **Efficient Cooling System:** Air or forced-air cooling ensures consistent performance and extended equipment life.
- ✔ **Built-in Protection:** Thermal overload, short-circuit, and overcurrent protection for operator and equipment safety.
- ✔ **Compliance:** Designed and manufactured in accordance with ASTM E1444, IS 3703, and AMS 2641 standards.
- ✔ **Versatile Applications:** Ideal for on-site and in-house inspection in automotive, aerospace, power, foundry, and fabrication industries.
- ✔ **Reliable Power Source:** Delivers stable magnetizing current output for consistent, repeatable test results.

# TECHNICAL SPECIFICATIONS – VERTEX PORTABLE MPI POWER PACKS

PARAMETER	1500 A MODEL	2000 A MODEL	3000 A MODEL
Magnetizing	1500 Amps	2000 Amps	3000 Amps
Current Output			
Current Type	AC / HWDC (Half-Wave DC)	AC / HWDC (Half-Wave DC)	AC / HWDC (Half-Wave DC)
Input Supply Voltage	230 V / 415 V	230 V / 415 V	415 V
Frequency	50 Hz	50 Hz	50 Hz
Phase	Single / Three Phase	Single / Three Phase	Three Phase
Duty Cycle	20%	20%	20%
kVA Rating	3 kVA	5 kVA	7.5 kVA
Class of Insulation	Class F	Class F	Class F
Line Current (Approx.)	15 A	20 A	30 A
Magnetizing Modes	Head Shot / Coil / Prod	Head Shot / Coil / Prod	Head Shot / Coil / Prod
Current Control	Continuously	Continuously Variable	Continuously Variable
	Thyristor / Step Control)	(Thyristor / Step Control)	(Thyristor / Step Control)
Ammeter Type	Digital / Analog (Optional)	Digital / Analog (Optional)	Digital / Analog (Optional)
Voltmeter	Digital Display	Digital Display	Digital Display
Cooling System	Air Cooled	Air Cooled	Forced Air Cooled
Protection	Thermal Overload & Short-Circuit	Thermal Overload & Short-Circuit	Thermal Overload & Short-Circuit
Construction	Heavy-Duty Portable Steel Cabinet	Heavy-Duty Portable Steel Cabinet	Portable Steel Cabinet with Wheels
Compliance Standards	ASTM E1444 / IS 3703 / AMS 2641	ASTM E1444 / IS 3703 / AMS 2641	ASTM E1444 / IS 3703 / AMS 2641
Approximate Weight	55 kg	80 kg	101 kg



# FLUORESCENT PENETRANT TESTING (FPT) SYSTEMS

## RUGGED | RELIABLE | PRECISION-ENGINEERED

The VERTEX Series Magnetic Particle Inspection Benches are rugged, high-performance systems built to detect even the smallest surface and subsurface flaws in ferromagnetic materials. Designed for precision, durability, and ease of operation, these benches are trusted across aerospace, automotive, energy, and heavy engineering sectors for consistent and reliable inspection results.

### SYSTEM CONFIGURATION

Our FPT Systems are built with modular stainless-steel construction, ensuring long service life and corrosion resistance. Each unit is designed for easy operation, quick maintenance, and precise process control, suitable for both manual and semi-automatic inspection lines.

Testing Method: Water washable, post-emulsifiable, and solvent removable processes

Material Compatibility: Ferrous and non-ferrous metals, aluminum alloys, titanium, stainless steel, etc. Standards Compliance: ASTM E1417, ISO 3452, AMS 2647

### SYSTEM CONFIGURATION

**Pre-Cleaning & Drying Station** – Hot air / infrared dryers for effective surface preparation

**Penetrant Application Tank** – Uniform and controlled spray or immersion system

**Dwell Station** – Adjustable dwell time with digital timer

**Water Wash / Emulsifier Station** – Spray rinse with temperature and pressure control

**Drying Oven** – Thermostatically controlled forced air drying

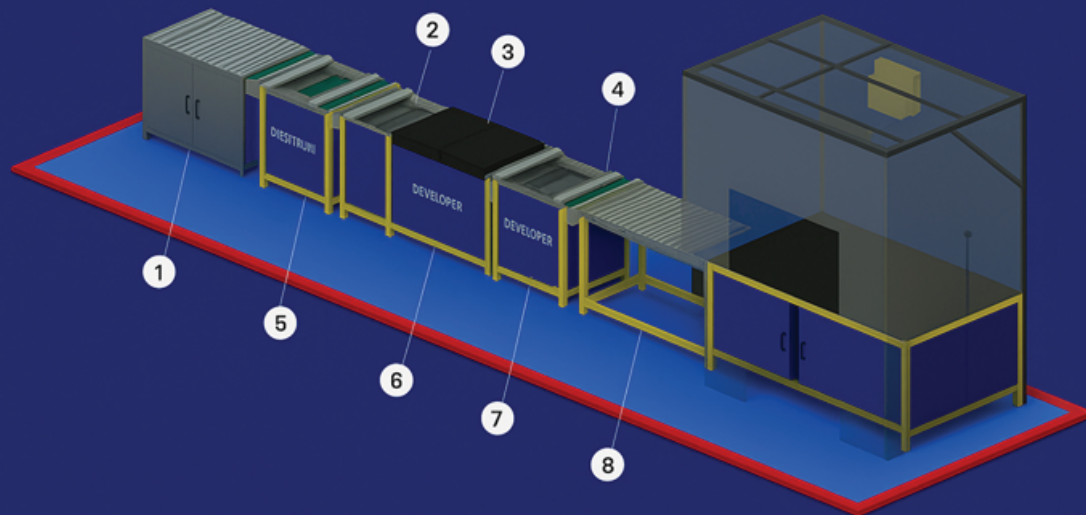
**Developer Station** – Dry, aqueous, or non-aqueous developer options

**Inspection Booth** – UV-A blacklight chamber (365 nm) with light intensity  $>1000 \mu\text{W}/\text{cm}^2$

### APPLICATIONS

- ☑ Aerospace components
- ☑ Automotive engine parts
- ☑ Weld inspection and castings
- ☑ Turbine blades and critical assemblies
- ☑ Precision machined components





FPI Line

## TECHNICAL SPECIFICATIONS

### FLUORESCENT PENETRANT TESTING SYSTEM, MODEL-Vertex-1000

- ✓ **Machine Description** : Fluorescent penetrant inspection system, Model: VERTEX -1000
- ✓ **Component Description** : Aerospace components
- ✓ **Component dimensions** : Max. Length can be inspected -150CM x130 CM x100CM.
- ✓ **Finished component weight** : Maximum of 200 Kg. 5.Condition of the component: Finished.
- ✓ **Direction of cracks** : All directions on surface
- ✓ **Equipment Cycle Time** : 25 minutes approx. (Continuous flow) (Depends on the developer dwell time).
- ✓ **Floor space required** : 15 M x 2.5 M x 2.5 M (L X B X H).Approx.
- ✓ **Number of operators required** : Two
- ✓ **Power requirement** : 63Amps Max., 415 V+/- 10, 50 Hz +/-6%.
- ✓ **Air requirement** : 5 Kg/sq.cm pressure, filtered dry air.
- ✓ **Water requirement** : 3-4 kg/sq.cm, in 1 inch line.

## TECHNICAL FEATURES OF THE FLUORESCENT PENETRANT TESTING SYSTEM.

### The System consists of the following stations.

- ✓ Penetrant brush and Liquid spraying station – 1 no.
- ✓ Water wash & Air Drying- 2no's (pre-wash and post wash)
- ✓ Emulsifier dip station – 1no'
- ✓ Hot air drier station- 1 no's
- ✓ Dry developer powder cabinet – 1no.
- ✓ Inspection station - 1 no.