

MBU - 2000A / 3000A

Version 2026-08-04

Medium MPI Bench Unit - 'MANUAL' Control

The Johnson & Allen Medium Bench Unit (MBU) is horizontal wet bench for performing MPI methods of NDT. Magnetisation of components is performed in two perpendicular planes, using both current flow and coil techniques for 100% inspection of ferromagnetic components.

Components are clamped between the headstocks and magnetic ink is drenched over components using the recirculating inking out hose and hopper system. When a current is applied the fluorescent magnetic particles in the ink are drawn to the magnetic poles created by defects, which under UV light provide vibrant indications.

The MBU is available in 2000A and 3000A versions with bed lengths options from 750mm to 1500mm in length. The base model features AC output modes only with options for additional HWDC and FWDC (3Ph) available on request.



Construction

- Robust welded steel box section frame coated with industrial matt black finish.
- External 1.5mm mild steel panels coated in hardwearing epoxy coating RAL 5003.
- Internal stainless-steel tank draining into a 20 Litre internal 'slide-out' ink hopper fitted with single re-circulating agitation pump incorporating ink applicator and hose.
- Stainless steel box section bed bars with manual adjustment of right-hand headstock giving component access up to the maximum headstock separation.
- Component 'V' supports to hold components up to 100kg.
- Current flow pneumatic grip cylinder mounted in the left headstock actuated by footswitch.
- 5 turn encircling coils made from ½ Inch solid Copper conductor with insulated bore.

- Coil is traversed manually with locking facility along the bed bar - Coil parks over the left headstock for easy component loading access
- U4 - 100mm Ø Copper gauze faced contact pads.

Bed Length Options

- 750mm maximum component length.
- 1000mm maximum component length.
- 1250mm maximum component length.
- 1500mm maximum component length.
- For sizes exceeding 1500mm see the LBU models.

Coil Options

- 300mm Ø internally working area - Round or Square.
- 400mm Ø internally working area - Round or Square.

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Machine Functions

- Auto switchable AC-CF and AC-Coil output modes.
- Twin 'MANUAL' current control system - Current Flow and Coil independently adjusted.
- Manual regulation: Current energise actuated by press and hold footswitch - Current is adjustable using pot dial potentiometer(s).
- Auto AC decaying field demagnetizing function utilising CF or Coil techniques.
- Demagnetization results dependent on component material and geometry.
- Timed current energies 5 position pre-set values @ 1.0, 1.5, 2.0, 2.5, 3.0 seconds.
- 2 x Auxiliary socket positioned on the front of the unit with a fused rating of 5 Amperes for handheld UV lamp etc.

OPTION: Current Control System

- 'MANUAL' System [Default] - Current Flow and Coil independently adjusted with digital ammeter display.
- 'START' System - Microprocessor current control with Auto Regulation: If the required current is achievable this value will always be run regardless of secondary resistance, current adjustable by keying the required current value into the HMI. Operator adjustable timer - 0.1 second increments.
- 'PLATO 3' System - Microprocessor-controlled system with 17" Backlit LED monitor. Allows programmable routines with 5000 'job' storage memory and access to advanced features like data logging inspection parameters for increased tractability and barcode reader for auto recall of a pre-programmed component techniques and inspection.

Electrical Output Specification

- Thyristor controlled output.
- Multi-function ammeter for all current modes.
- AC (rms) - Current flow rated at 2000 / 3000 Amperes.
- Current produced from a AC open circuit output.
- Transformer rating is no reflection on the current obtainable due to unknown cable length, number of turns being used, inductance of component being magnetised and the heating effects which increases resistance all influence the output available.
- Guarantee of ammeter accuracy from 100 to maximum available.
- Recommended duty cycle not to exceed 6 seconds on 30 seconds off.

OPTION: Current Rating

- 2000A rated primary transformer.
- 3000A rated primary transformer.

OPTION: Waveforms

- AC - Highest resolution for surface breaking defects.
- HWDC - Slightly sub-surface inspection capability.
- FWDC (Ph3) Including Quick Break - Sub-surface inspection capability.

OPTION: Magnetic Flow / Flux Flow

- Axially mounted coils in headstocks - Flux Flow rated at 4000mA DC effectively 22,000 amperes turns.

Lighting / Blackout Booths

- An extensive range of UV-A inspection lighting solutions including handheld and overhead units.
- Options for various blackout enclosures including free standing and cantilever designs.
- Booths constructed of steel box section frame coated with industrial matt black finish. Booth canopy manufactured from heavy-duty flame-retardant PVC.

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