

# MAGNETIC PARTICLE INSPECTION OF LARGE AEROSPACE COMPONENTS



This equipment is for the magnetic particle inspection of large aerospace components such as engine shafts. The machine provides motion control of the coil and the tailstock, thus ensuring a quick and easy set-up from component to component. These features are programmable, thus further reducing the change over time for any given component. See the reverse of this brochure.

**Programmable with automatic positioning of coil and tailstock and set-up of the magnetising parameters on program recall with up to 100 user programs available.**

**Circular Magnetising with Current Flow or Threader Bar.**

**Longitudinal Magnetising with large diameter coil.**

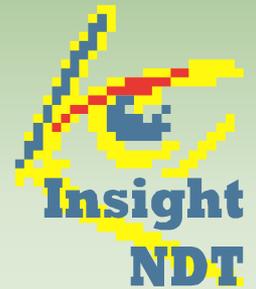
**Separate Power Pack with Output current up to 20,000 A Peak.**

**Separate Ink Tank complete with Ink Agitation to keep particles in suspension.**

**Motorised and Programmable tailstock position.**

**Motorised and Programmable Coil positions with up to 20 positions available along the length of the unit.**

**Fully adjustable motorised inspection rollers, allow the rotation of the test piece.**



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## HEADSTOCK

Is constructed from painted steel box section which supports a pneumatically operated ram fronted by a thick copper faceplate. It is also fitted with a vee-block support for small diameter components or for supporting threader bars. Pneumatic stroke is 50mm.

## TAILSTOCK

Is constructed in a similar way to the headstock but the whole assembly is mounted on a carriage which is motor driven along the length of the unit to accommodate different component lengths.

The tailstock speed is limited for maximum safety. When not being driven, the tailstock is locked in position by a pneumatic cylinder mounted on the underside of the carriage. This cylinder is operated at the same time as the headstock clamp. Protection is provided to prevent the tailstock from engaging the 5-turn coil and to limit its reverse movement.

## 5-TURN ENCIRCLING COIL

The coil is trolley mounted and motor driven along the same rack as the tailstock. The coil diameter is such that it will accept components up to 650mm diameter. Protection is again provided to prevent the coil from engaging either the tailstock or the headstock support rollers.



## COMPONENT SUPPORT ROLLERS

The tailstock is fitted with support rollers which are adjustable to suit a wide variety of component diameters. The longitudinal position is also adjustable and lockable.

At the headstock end, the support rollers are mounted on a manually positioned trolley and are again adjustable to suit the component diameter, however, these rollers is driven to allow controlled rotation of supported component for enhanced inspection.

## PENDANT CONTROLS

All frequently used controls, are supplied on a plug-in pendant, which also has an **Emergency Stop**. This pendant may be plugged into either of two positions along the length of the machine.

## INDICATING FLUID SYSTEM

All parts of system non-ferrous. A sloping tank is provided along the length of the unit which drains into the separate ink storage and agitation tank via a coarse filter. Mounted within this agitation tank is a spraybar assembly, which is pressurised by a pump mounted on the side of the tank and maintains the particles in suspension. A drain plug is fitted to the agitation tank which is withdrawable from the front of the machine to allow convenient cleaning and maintenance

The output from the pump is coupled to the agitation spraybar and the hand applicator hose on the unit as well as the automatic inking arrangement if provided.



## POWER PACK

Is a separate enclosure adjacent to magnetising unit. It is constructed in robust frame with removable panels and incorporates the control system and containing the main 20,000 amps A.C. (nominal) transformer to class E, heavy duty contactors including infinitely variable thyristor output regulator or as an option a pure sinusoidal stepped transformer arrangement with up to 128 steps, current or step pre-selection and automatic 16 <sup>2</sup>/<sub>3</sub> Hz demagnetising system.

## FOLDING CANOPY OPTION

This machine is fitted with a canopy frame, with a hinged section which may be driven back to allow overhead loading of heavy components. The frame is covered with a fire-resistant, light-excluding material with front curtains and the canopy frame is motor driven. White lights and extraction fans are also provided.