Rotor & Bearing Insertion Machine

TECHNICAL SPECIFICATION

Equipment Dimensions: H: 3650mm W: 2200mm D:2070mm Weight: 2000Kg - Approx.

Product info

Electrified Automation's Rotor & Bearing Insertion Machine uses the latest in press technology to deliver the perfect turnkey solution.

It is semi-automated as standard resulting in short repeatable cycle times.

The press system moves up to 0.38 m/s - extremely fast compared to other systems on the market.

Accurate positioning of parts up to 0.01 (10 microns) all with force feedback gives assurance all joining parts will be exactly where they need to be.

Bearing insertion

The secondary function of the machine is to insert bearings into motor housings or endplates. It can also press / join bearings and shafts together.

Depending on the motor architecture, all processes can be achieved within one stroke, with rotor insertion and bearing into shaft and endplate all happening simultaneously.

Rotor insertion

Perfectly concentric insertion of the rotor and stator be achieved without parts colliding which can lead to damaged stator laminations.

Surface damage to rotor laminations is also eliminated by the machine.

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Joining process

The latest in 'servo controlled' press technology gives rapid and controlled movement of parts up to 0.38 m/s and positional accurancy of 10 microns.

Full mapping of the joining process and creation of pass and fail criteria from the force curve are monitored during each cycle. Any abnormalities are quickly detected and the process can be stopped.

Pass and fail criteria is set using plus or minus percentages on the force curve. The final position can also be added to ensure perfect assembly.

Analysing the process is easy with visual graphs, reducing commissioning times and fault finding.

Data is stored for each joining for quality records or future analysis.

Industry 4.0 ready with easy data harvesting.

Maximum joining loads up to 30kN.

Programme creation is user friendly and requires minimum training.

Guarding

European Standard safety components.

Double-handed engagement switches remove the risk of accidental operations.

Light curtains with a fully guarded cell and rear interlocked door.

Guarding has been deliberately designed away from the loading area. This allows automated loading of products or gantry systems to be easily integrated into the manufacturing line.

Ergonomics

Ergonomically designed to aid fast product load and unload.

Industrial manipulator arms, or fully automated robot loading can be used to lift product on and off.

The loading of motor housings and stators is at an ergonomic height to help reduce operator fatigue.

Fixture

Future proof design with quick change and easy set-up.

Equipment can be across different product ranges.

Data logging

All process parameters for each moulding test cycle can be stored locally or sent to a central database.

Local memory storage is availabe on the device with port capability for removing data (SD card or USB or ethernet).

Communication

ProfiNet.

Modes

Semi-automated and fully automated available.

Control system

SIEMENS safety PLC with 10" HMI.

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Safety

The rotor insertion into a stator can be very dangerous due to pinch and crushing hazards. With the automated rotor insertion machine this hazard is completed removed from production and is safely contained within the cell.

Machine limits

Housing 414mm Dia x 400mm, 30kg

Total weight assembly is estimated at 177.3kg, SWL 200kg

Rotor assembly estimated 50.3kg

Services required

Power – 230VAC/50Hz/1ph+N+E – 16A total kVA for system = 4.6kVA

Air supply - Clean dry compressed air at 6Bar minimum to standard quality class 5.4.3 or better according to DIN ISO 8573-1.

Environment: Normal, clean, factory environment temperature 10-30°C, humidity 45-95% RH

Process Requirements

Process pressing force: 30 kN

Process time – estimated at 1 mins –

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