

QUADRA Pick & Place Laser



The TWS Automation Quadra, well known for its flexibility, easy of use and simple ownership.

A quality/price ratio that has revolutionised the concept of surface mounting which has always been considered as suitable only for large volume manufacturers with high costs.

Unbeatable for small and medium size manufacturing, the machine eliminates the need to sub contract work out thus allowing users to control the quality in house.

These particular characteristics have lead many customers to expand their production by buying their second Quadra's rather than looking for machines with higher throughput.

The most important characteristics are:

Economy: the machine, having laser centring, has been designed to heavily reduce the price comparing to other similar machines currently available. The low cost of the feeders enables users to work with a large feeder inventory in order to speed up the operations.

High durability: with a simple mechanical design and no delicate mechanisms, the Quadra has been tested to have long and reliable life span; the new placement head equipped with laser centring ensures high durability, and high speed of placement.

Easy to manage: the unit's software enables the Operator to acquire a high level of confidence by means of extremely simple menus.

The machine comes with a detailed user and maintenance guide and with a practical guide for assembly that includes all production process phases of boards, such as SMD component analysis, solder cream, adhesive, screen printing, soldering, board verification, repairing and cleaning.

Easy to maintain: all parts of the machine are easy to access and maintain. Operations can be carried out by the Operator, who can, if required, call upon our assistance for any queries. A standard PC drives the machine. The spare parts have low cost and always available in stock together with a fast response turnaround.

An integrated system enables testing and measuring power absorption of the boards inside the machine. The integrated CPU also controls the machine I/O's such as vacuum, electro-magnets, laser centring, axis movement and status checking of the limit switches.

Quick feeder changeovers: the feeders can handle various tapes or stick sizes. New feeders may be prepared off-line in order to reduce downtime for program changeovers.

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High numbers of feeders: The unit can handle all the main types of components and accommodates up to 120 feeders in total, in tape from 8 mm to 44 mm width with 7" or 13" diameter.

There is a catalogue available for stick components. IC lanes components not indicated in the catalogue may be prepared in a short time.

Productivity: The maximum throughput is 4000 components per hour with an average productivity of around 3500 cph.

Programming modalities: There are four ways of programming: teaching through camera, data loading via CAD file, data loading via keyboard and prepared by an off-line programming digitiser.

Automatic fiducial recognition: At the beginning of every assembly cycle, the camera automatically moves to the reference points memorised, searches for their exact position and adjusts the placement positions, for better precision.

Dispensing of adhesives and solder creams: The dispenser enables easy and rapid dispenser of adhesive and solder cream. The dispenser is simple to set up and achieves over 4000 dots per hour.

Technical specifications

Dimensions

850x1000x1800 (WIDTH X DEPTH X HEIGHT)

Weight

160Kg.

Packaging

900x1100x1500 (WIDTH X DEPTH X HEIGHT); 220 kg

Components size and type

The unit can mount from chip components from 0402, Melf, Mini-melf, cylindrical components, transistors, Sot diodes, integrated circuits 0.5 mm (20 mil), PLCC and LCCC integrated circuits up to 35 mm, trimmers, inductors, connectors, alu minium electrolytic capacitors up to 10.5 mm high.

Placement area

The placement area and the maximum printed Area circuit board dimensions are 440 x 360 mm. For larger boards, the placement area can be extended by removing feeder magazines on one or two sides of the unit, making the maximum board size 550 x 450 mm.

The unit needs at least 2 m 2 area (included unit itself) to operate correctly.

Productivity

4000 components per hour. The average productivity is 3500 components per hour.

Placement heads

The unit is supplied with a dual-spindle laser centring head where the centring is obtained by means of a new laser system. The placement head moves along the X and Y axes.

Each head is equipped with a vacuum sensor to detect component pick-up failure and to command a new pick-up cycle. Some components may be centred off-line by a special mechanism.

Axes Movement

The stepper motor driven by a controlled slope, allowing the head motion to accelerate and slowdown at the starting and stopping points.

Resolution

0,02 mm on X and Y axes

018° on the Theta axis rotation

Repetability

± 0,06 mm on X and Y axes

± 0,18° on Theta axis

Accuracy

± 0,10 mm on X and Y axes

0,18° on Theta axis rotation

Noise

The noise coming from the unit is 65 dBA (average value) and 90 dBA (instantaneous peak value), measured at 1 meter from the unit and 1,6 meter from the ground.

Power supply

The unit works with an AC 220Volt ± 10%, 50/60Hz. Consumption is lower than 1 kW. One 8-10 bar air compressed source is required and consumption is about 60 l/air each minute.