MASCOT

PCB Hand Assembly Made Easy

Over 1,000 MASCOT systems sold worldwide!

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MASCOT – PCB Hand Assembly Made Easy

Summary

MASCOT is a uniquely precise and rapid hand assembly solution for populating Printed Circuit Boards. MASCOT minimises PCB assembly time, significantly improves production quality and offers far greater flexibility for through-hole & odd form insertion, inspection and re-work. Using MASCOT can eliminate set up time making it perfect for manufacturers who produce a high mix of PCBs and have small to medium sized batch runs. MASCOT is the essence of Lean Manufacturing.

MASCOT ensures that the right component is placed in the right position, in the right orientation every time, at speed. Not only does MASCOT significantly reduce the time that it takes operators to populate their PCBs, but our customers report that the number of mistakes made by operators have reduced by 60% since the implementation of their MASCOT systems.

The user friendly operation requires virtually no training and allows for even non-experienced operators to begin building PCBs immediately.

Program changes can be made simply & quickly, supporting Kaizen continuous improvement.

In the past 25 years, Robotas have installed over 1,000 MASCOT systems around the world, in companies such as Hewlett Packard, Agilent, Intel, Westinghouse, Jabil, Venture, and Parker.

If you carry out hand assembly of products other than PCBs, please contact us about our new range; SIGMA - Product Hand Assembly Made Easy.

Customers include NOKIA, who use 29 of our SIGMA systems to assist with the hand assembly of their prestigious VERTU mobile phones.

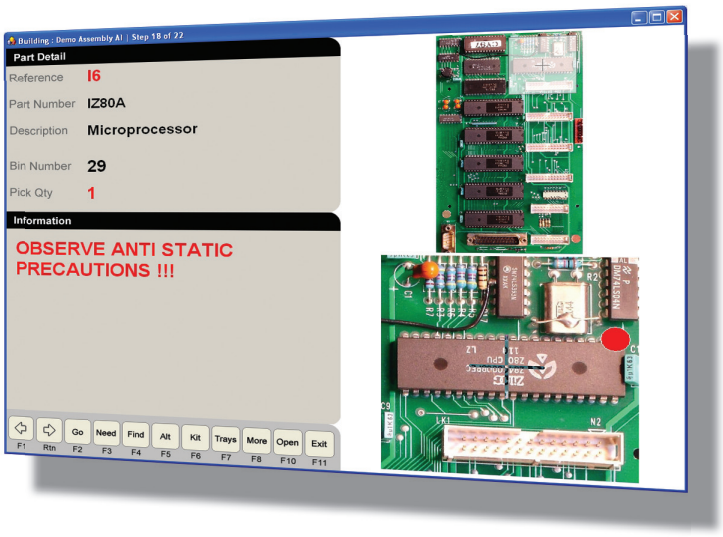
How does MASCOT work?

Computer assisted work instructions are displayed on screen, notifying the operator of the component part information. Component images or assembly videos are displayed, together with assembly instructions

At the same time, an eye-safe laser precisely indicates the component's exact position & orientation on the PCB. Polarity is indicated by the laser hesitating at one corner of the component, e.g. pin 1 of an IC. The beam is accurate, fast moving and clear to see in all lighting conditions and there are no bulbs to change or filters to clean.

Simultaneously, the correct component is presented to the operator by motorised carousels, ensuring that the correct part is delivered at exactly the right time, removing the possibility of incorrect component selection.

Operators can signal when they are running low on material. This information is immediately available for action by stores, who can deliver straight to that Mascot, meaning that your operators get the right parts and never leave their seats, resulting in higher productivity.



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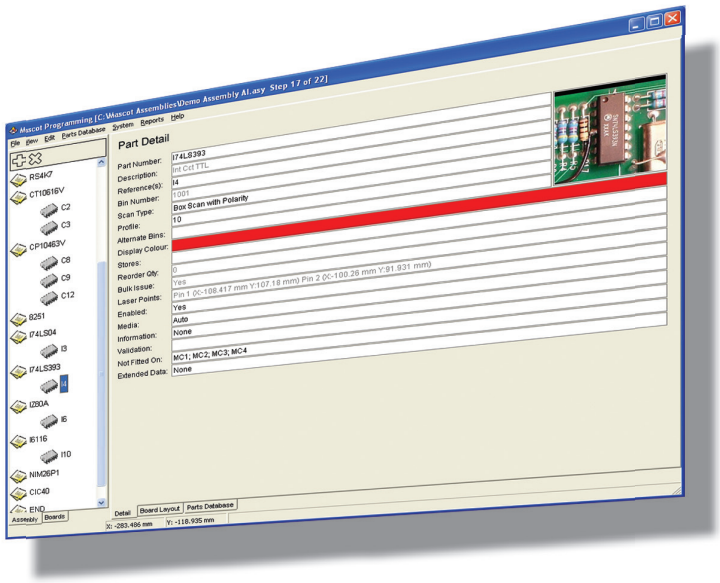
Programming

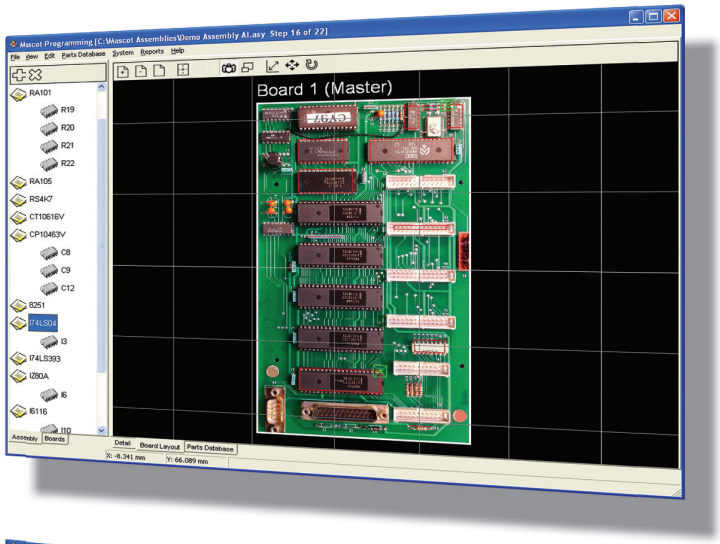
The user friendly Mascot Programming software enables the simple and speedy creation of your unique PCB assembly's work instruction steps including the laser locations and the correct bin. Functions include:

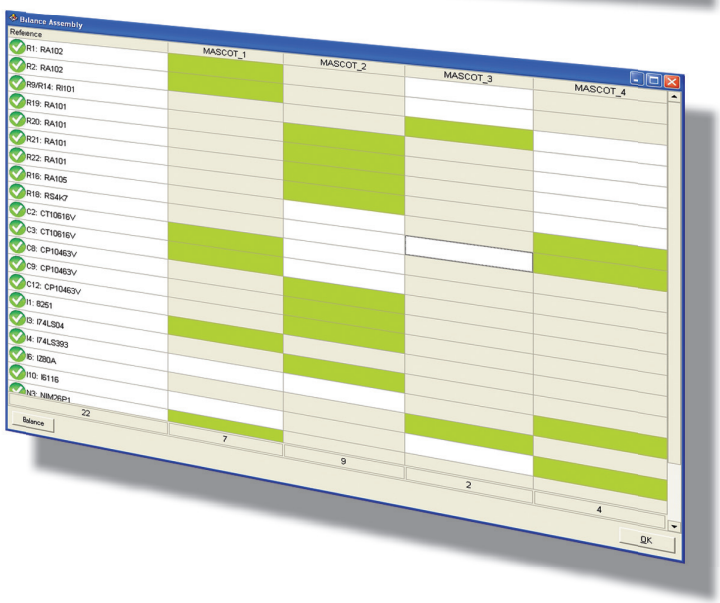
- Auto Image – Add one single high quality image of the 'golden board' to your assembly program. Then at every step the software automatically displays both the component's exact location, and a magnified view of a correctly placed component. This feature was described by one Robotas customer as "the best kept secret in electronics assembly".
- Step by step software wizard helps you create the assembly program.
- Add sound and visual polarity indicators to inform operators of a component's polarity.
- Add verification stages to ensure that critical steps or safety measures are executed correctly.
- Step & Repeat matrix of PCBs can be generated in seconds.
- PCBs can be programmed as a collection of sub assemblies. An engineering change to one sub assembly is immediately available to all PCBs that use this, considerably reducing programming time.
- Import your Parts Database – Use your existing parts to create new assemblies.
- Drag and Drop Programming – Move parts from your database to create or alter the sequence.
- PCB Build Order Sorting – Optimised in one click.

Robotas' optional Pro Compiler software allows you to generate the majority of your assembly programs in a matter of minutes by importing your existing PCB CAD data and BOM files.

Robotas' optional Workflow software collects and analyses time and other data from all your Mascots, and monitors each stations progress against its schedule of work.







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Different configurations of MASCOT

The MASCOT System is specifically designed to be modular so that it can be configured to meet your requirements, whatever your budget or application. The software, laser projector head, automated dispensers and specialised benches can be easily reconfigured, should your needs change in the future.

To cater for the number of part numbers you need and the size of your parts, you can select from a range of component dispensers. Each MASCOT can run up to four carousels, each holding 50 bins, so a single MASCOT workstation can present up to 200 random access bin locations. In addition a MASCOT can drive up to 176 LED indicators on Tote Bin Arrays, IC Dispensers, or even clip-on LEDs that can be fitted onto your own bins.

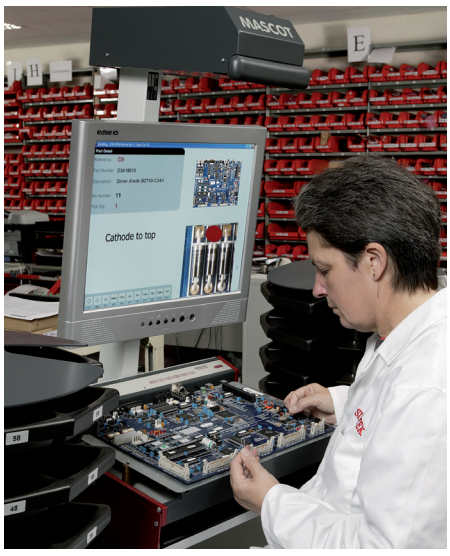
Our most popular configurations of the MASCOT System are outlined below. However, if you have an application for MASCOT and do not feel that any of these configurations would be a perfect solution, please let us know. MASCOT's modular nature allows us to easily build a system around your needs.

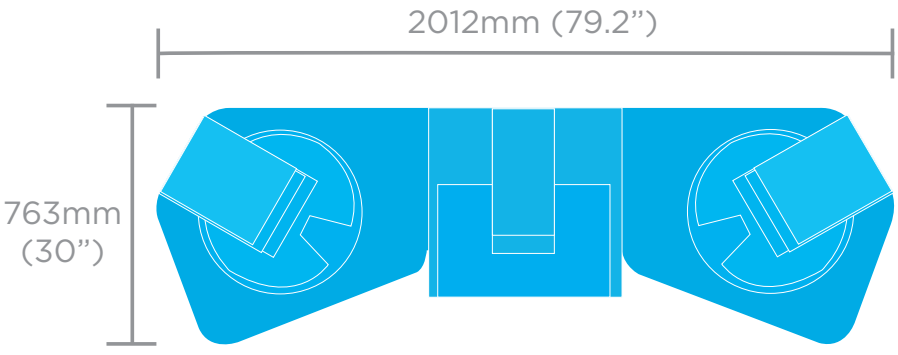
MASCOT Standalone

Perfect for manufacturers that do not have the need for a flowline, MASCOT Standalone enables one operator to build the entire PCB. Ergonomically designed for maximum operator comfort, the workstation sweeps around the user's position offering the minimum distance to pick parts from the carousels. The height adjustable work bench ties all the elements together. MASCOT Standalone can accommodate turnover fixtures, wave solder pallets and crop plates.

The system's work area is available in 2 sizes, for PCBs or pallets up to:

Size 1 - 457mm x 305mm (18" x 12")
Size 2 - 600mm x 500mm (23.6" x 19.7")





Floor Plan

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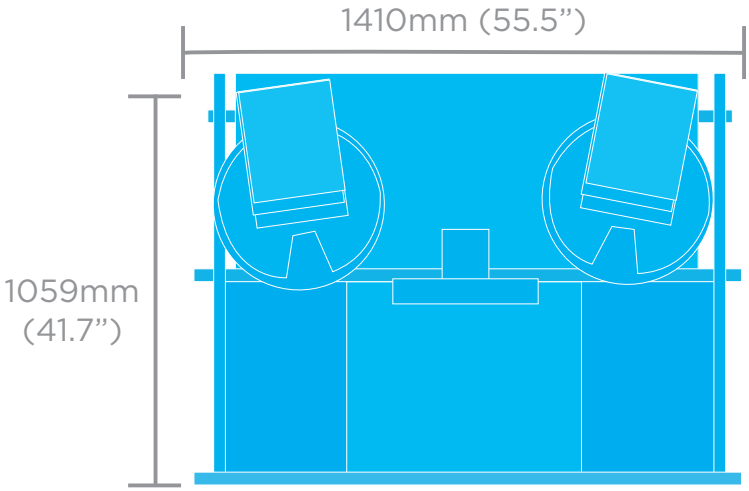
MASCOT Pushtrack

MASCOT Pushtrack allows multiple MASCOT systems to be configured in-line making flow line production possible. The non motorised pushtrack has an adjustable line-width to suit PCBs or pallets up to 500mm front to back. PCB ride height is also adjustable.

MASCOTS in a flowline configuration can spread all the materials needed to build your full range of PCBs across the different MASCOT systems in the flowline. Each MASCOT then presents those parts of the assembly which it holds in its bins. Once this MASCOT has completed all its steps, the operator is notified to move the PCB to the next MASCOT to follow the same process.

This procedure continues until the whole PCB has been built. Robotas calls this process “Lean Line”. Working in this way eliminates kitting and setup time, enabling high volumes of small batches to be built with ease. Using your MASCOT carousels to store all the part numbers needed to build your entire range of PCBs results in zero kitting and set up time on your flowline. Many of our customers find this an invaluable feature.



Floor Plan

MASCOT Pushtracks working in a ‘Lean Line’ configuration

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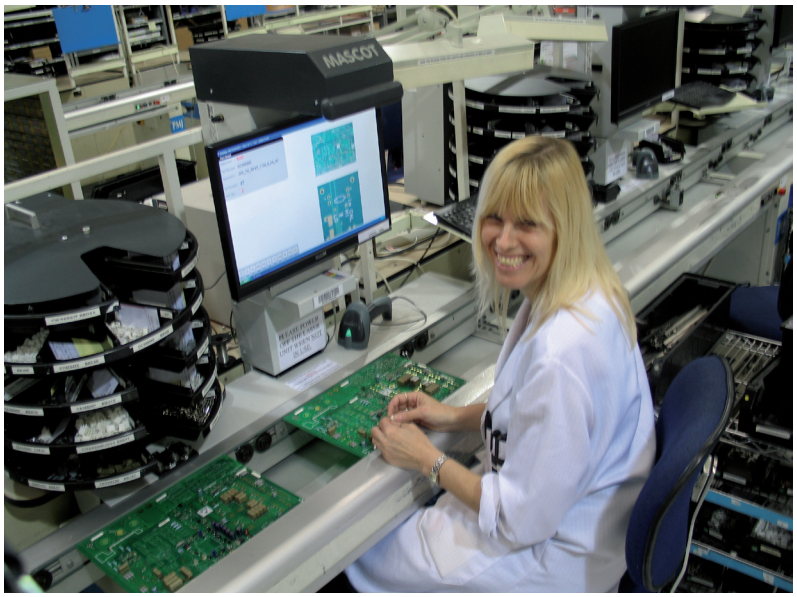
MASCOT Custom

MASCOT systems can be retrofitted to production lines with existing motorised flowlines, giving you all the benefits of MASCOT's automated hand assembly systems on existing or new motorised conveyors. We have fitted MASCOT to many manufacturers' motorised flowlines around the world including Flexlink, Nutek, Promass and PMJ.

The whole MASCOT system is built to operate in static sensitive areas with sockets for anti-static wrist straps built into both sides of the bench. Installation is very easy and the whole machine is designed for minimum on-site maintenance.



MASCOT Technical Specification

Power consumption	200W
Electrical requirement	100 – 110VAC 60Hz, 220-240-VAC 50Hz, switchable.
Laser Scan Speed	Variable to max 600mm/sec
Assembly rates	750 to 1200 components/hr
Laser	Sealed unit to IEC60825/ 1-2006, Class 2, Output 0.5w. Eye-safe
PCB size	PCB, Pallet or Crop-plate up to 500mm x 600mm maximum (23.6" x 19.7")
Carousel Bin index Time	<2 seconds components maximum
Maximum Working Area	457mm x 305mm (18" x 12") or 600mm x 500mm (23.6" x 19.7")
Up to 200 bins, in 4 carousels	Each carousel has 5 trays (450mm (17.7") in diameter), each with 10 bins. We can also supply 4 bin trays for larger items.
Bin size	Depth 58mm (2.3") x Length 131mm (5.2") x Width 117mm (4.6") tapering to 34mm (1.3")
Air Supply	Not needed
Floor space required, including operator	**Standalone –** Depth 1200mm (47.2") x Length 2012mm (79.2") **Pushtrack** - Depth 1500mm (59") x Length 1410mm (55.5")
Language	Can be set to English, French, Italian or Chinese (other languages can be added easily)

For more information please feel free to contact us directly, or visit our website to find your local agent's contact details (worldwide).

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