

# integrated dispensing solutions

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## Benchtop Robots

Benchtop robots have been a valuable tool and have aided the assembly process since the mid-1990s. These small footprint robots can perform multiple tasks without compromising precision and flexibility, while able to provide the advantage of an advanced automated process to the smallest manufacturers who did not have the financial ability to invest in automated equipment - until now.

These robots are simple to program, easy to maneuver, cut down on learning curve and come with self-diagnostic features to assess errors in programming. These benchtop robots are designed to handle operator assisted tasks such as solder and glue dispensing, pick and place, screw driving, cutting tracks, testing, as well as many other important and labor intensive jobs. Only a few manufacturers around the world produce this small but dynamic cost saving type of robot and even fewer manufacturers and distributors have the know how to place them so that small business maximizes profits from this advance.

Among the advantages of these robots;

- Functionality is curbed only by the user's imagination.
- They are built on a robust platform and can be configured to suit numerous end-user applications without investing in additional equipment.
- They offer numerous cost benefits to manufacturers.
- Small footprint translates to huge savings on the factory floor space.
- Manual activities can be performed with much greater precision and repeatability.
- Maintenance on these machines is negligible and their throughput is much higher as compared to humans, thus stepping up production capacities.

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Some industrial robots are less popular, owing to high cost and longer payback periods. However, the payback period on smaller machines can sometime be as small as six months, especially in countries that have high labor costs.

## Extending the Scope

Robots are now coupled with cameras to suit inspection purposes. Inspection is yet another field that can be addressed by integrating high performance cameras with desktop robots. Various image-processing tools for image capture and measurement and verification accompany them. It has the capability of identifying locations down to the sub-pixel level. Standard inspection systems with one camera can be custom configured to include a maximum of four as per end-user requirements. Many Robot manufacturers now also offer both monochrome and color camera options.

Sales of industrial robots have been increasing dramatically since 2003. According to the United Nations Economic Commission for Europe (UNECE), worldwide yearly installations were at 68,595 in 2002. This increased to 86,200 in 2004 and is expected to reach 106,300 in 2007. The number of units expected to be in operation forecasts to be 997,700 in 2007, which is a substantial improvement from 770,105 in 2002. Benchtop robots overall are not usually clubbed with the larger robots but, due to their high flexibility and low capital costs involved, their sales outnumber the larger industrial robots by almost two to one. The future growth of the desktop robot market looks promising as regular process improvements and reengineering are enabling their sizes to shrink further while making them still affordable for even small start-up companies.