DeltaBot™
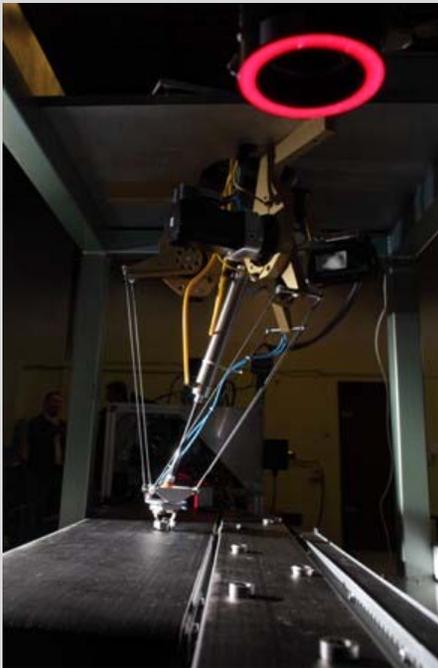
AEMK Systems Cable Robots

DeltaBot™ is a fusion of innovative vision systems with ultra high-speed cable robots, providing a revolutionary, cost-effective, and flexible solution for a wide range of automation applications.

DeltaBot™ Highlights

Low Maintenance and High Reliability

The employment of flexible cables instead of rigid links enables DeltaBot™ to perform with exceptionally high accuracy, repeatability and reliability, while requiring virtually no maintenance.

Cost-Effective

The innovative use of cables in DeltaBot™ drastically decreases component cost and fabrication time and hence qualifies DeltaBot™ as a cost-effective solution compared to other parallel robot designs. The zero footprint configuration also saves precious factory floor space. In addition, DeltaBot™ is based on an open architecture control platform using well established control solutions and fully supported components though-out. This results in significant savings in training, support, service, and integration.

Versatile

The unique mechanical properties of the DeltaBot™ enable it to be applied in a broad range of applications. DeltaBot™ is extremely effective in high-speed assembly and packaging. In addition, due to its stiff and rigid design, it can also resist reactive force and perform in higher payload operations.

- ❖ *Zero Backlash with High Accuracy*
- ❖ *Low Maintenance*
- ❖ *High Reliability*
- ❖ *Cost-Effective*
- ❖ *Zero Footprint*
- ❖ *Versatility*
- ❖ *Integrated Vision*
- ❖ *Compression Capability*
- ❖ *Integrated Conveyor Tracking*
- ❖ *Scalable Workspace*
- ❖ *Rockwell Automation® Supported Control System*

Integrated Vision

DeltaBot™ is capable of performing fast and complex material handling tasks with an intelligent vision system. The control system of DeltaBot™ can be configured for seamless integration of a wide range of vision systems. This makes DeltaBot™ an effective solution for inspection and sorting applications.

Compression Capability

The pneumatic cylinder, which constitutes the central spine of DeltaBot™, provides it with the capability of applying compressive forces in excess of 150lb. This enables the robot to be used for a wider range of applications.

Integrated Conveyor Tracking

DeltaBot™ is capable of dual conveyor tracking for painless and flexible integration of any complex pick and place application. The control system of DeltaBot™ supports most industrial encoder formats and requires no external signal modulations.

Rockwell Automation Control System

DeltaBot™ utilizes the "Delta Robot Control" software template developed by Rockwell Automation running on their Allen-Bradley® ControlLogix® PAC. Furthermore, the Rockwell Automation control system can accommodate numerous combinations of Allen-Bradley I/O and communication modules, providing unprecedented connectivity and modularity to the DeltaBot™. Support for the Rockwell Automation control system and software is available from Rockwell Automation support centers around the world.

How DeltaBot™ works?

DeltaBot™ has a kinematic architecture similar to the Delta configuration. Such a parallel configuration inherently provides a high stiffness to inertia ratio. DeltaBot™ further reduces the moving inertia by its innovative use of light cables in its kinematic chains. Once energized, these kinematic chains in DeltaBot™ not only become rigid, but also are loaded in one direction, eliminating the backlash inherent to joints and gearboxes.

DeltaBot™ Specifications:

- ❖ 2 to 6 degrees of freedom
- ❖ 120+ pick-and-place cycles per minutes
- ❖ Workspace: Scalable to several meters
- ❖ Payload: 1-5+ kilograms
- ❖ End-Effector compression capability: 150lb
- ❖ Low inertia and high stiffness for high cycle rates
- ❖ Zero foot print design
- ❖ Supporting Allen-Bradley Digital/Analog Input and Output Modules
- ❖ 2 Conveyors tracking
- ❖ Product Cavity Support
- ❖ Multi-Picker EOAT support
- ❖ Vision Support

Applications:

- ❖ Packaging
- ❖ Sorting and inspection
- ❖ Component assembly
- ❖ Polishing and deburring
- ❖ Food handling (wash down models available)
- ❖ Water-jet slitting/ cutting