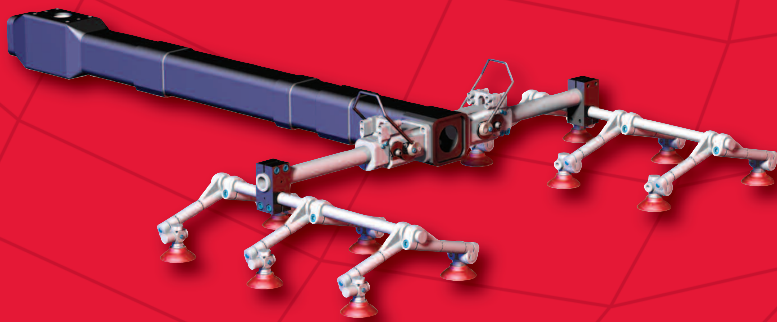
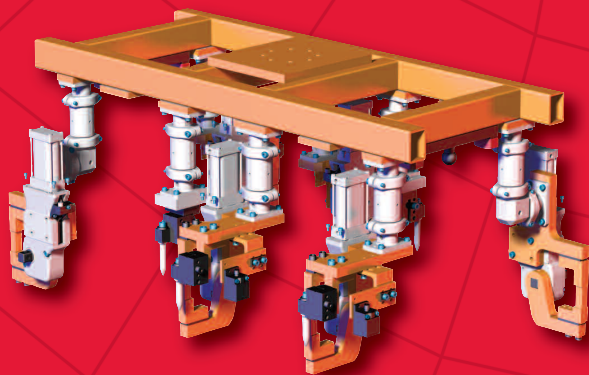
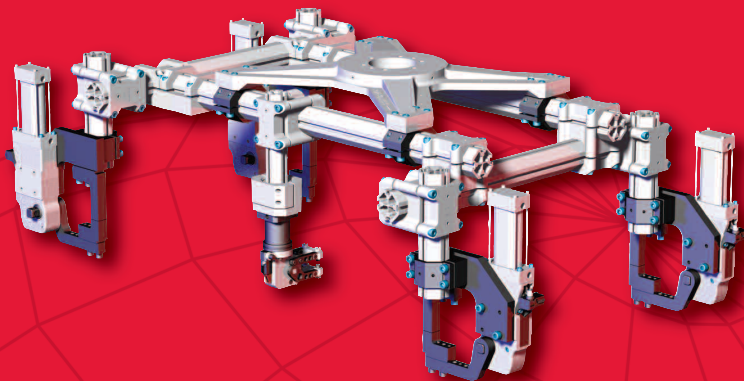




A DOVER COMPANY

DE-STA-CO END EFFECTOR SOLUTIONS

JANUARY 2009



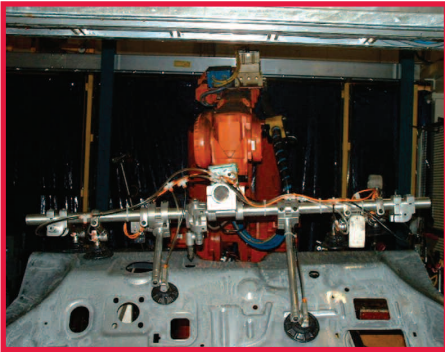
www.destaco.com



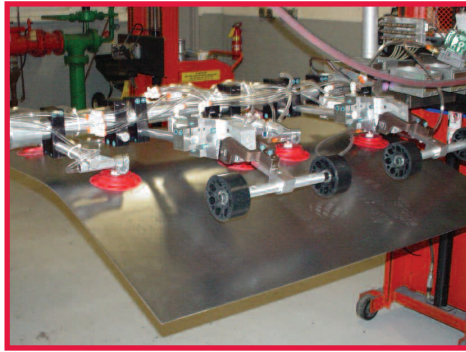
CAD FILES
AVAILABLE
ONLINE



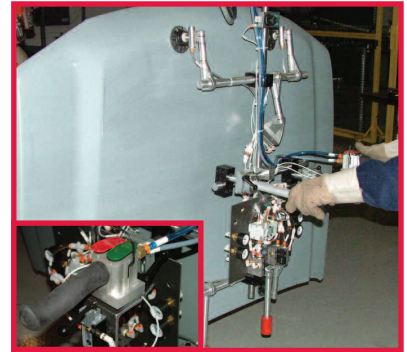
Complete Product Handling and Application Solutions...



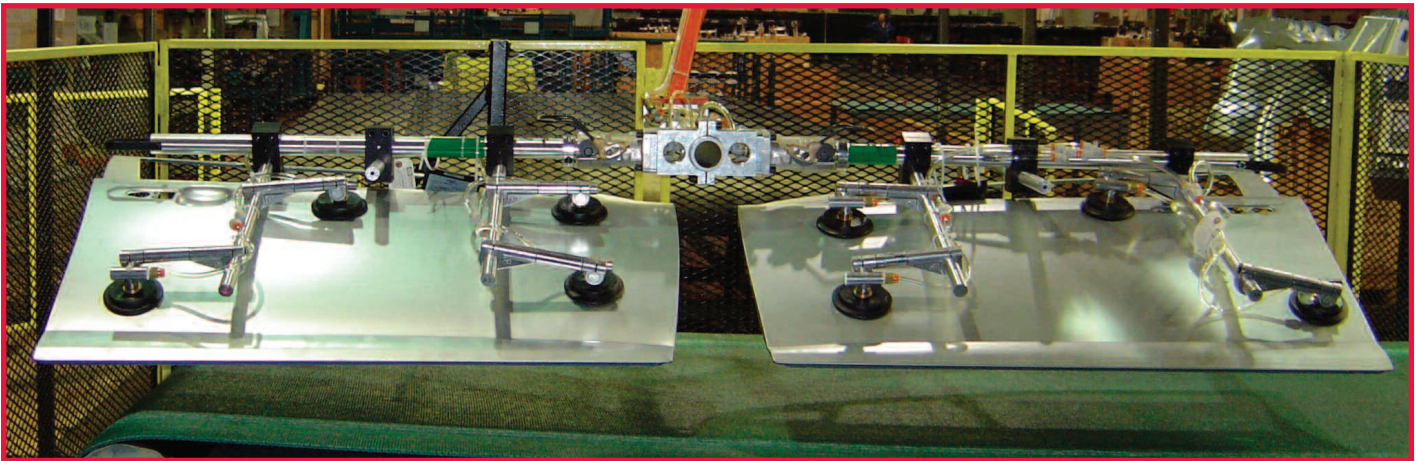
Round Tooling with Vacuum Cups



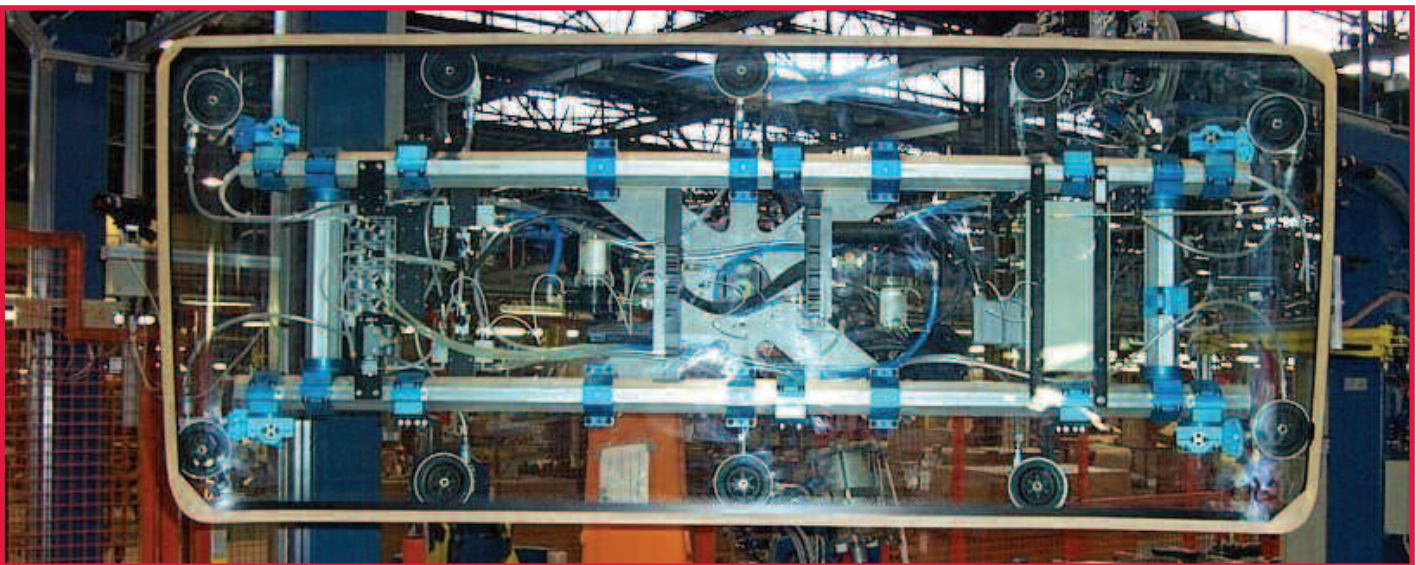
Round Tooling Pre-bend with Vacuum Cups



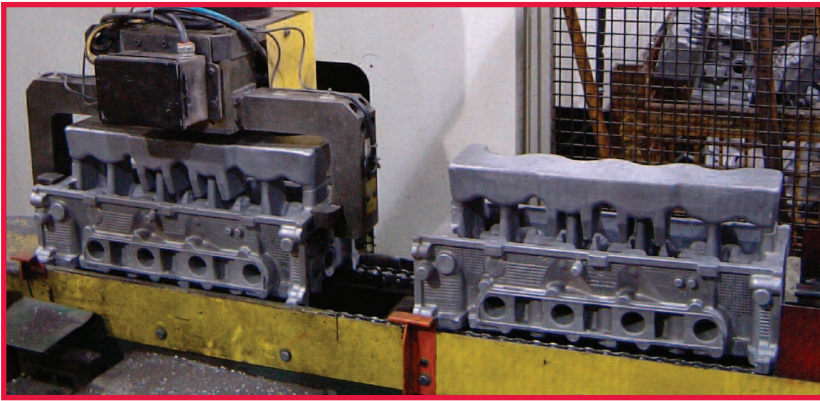
Manual Assist with Round Tooling



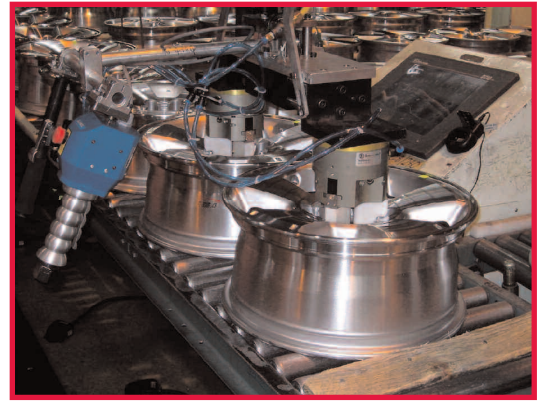
WorldTool End Effector with Vacuum Cups



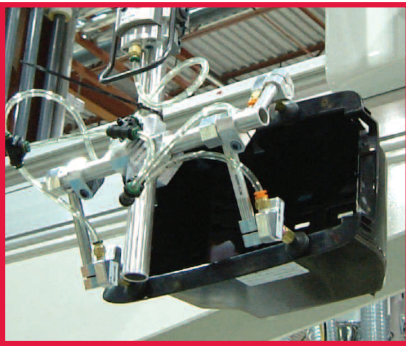
Glass Handling with BodyBuilder™ and Vacuum Cups



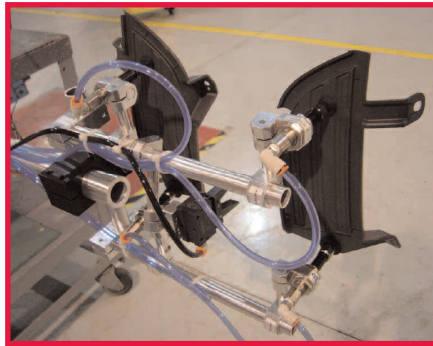
Engine Block Handling with a RP Series Double Wedge Parallel Gripper.



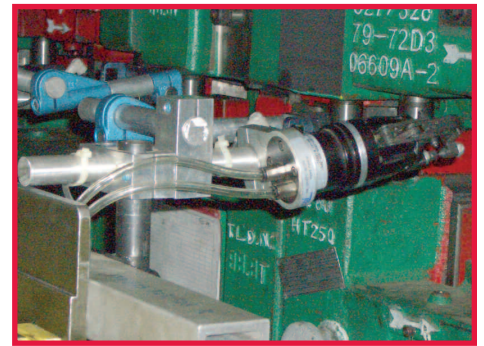
Lift Assist Wheel Rim Tool



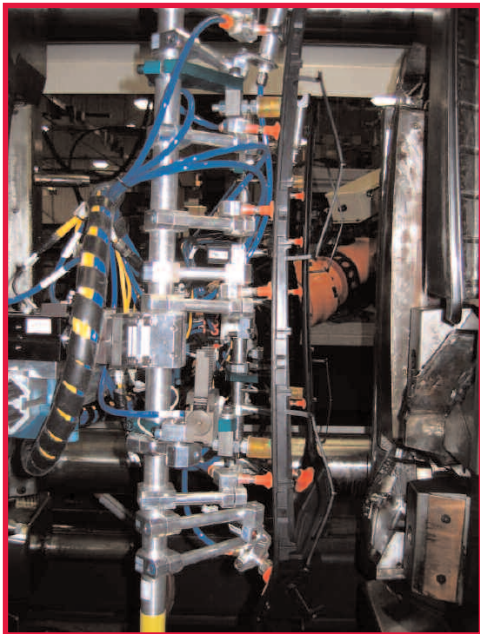
Plastics Handling with Round Tooling



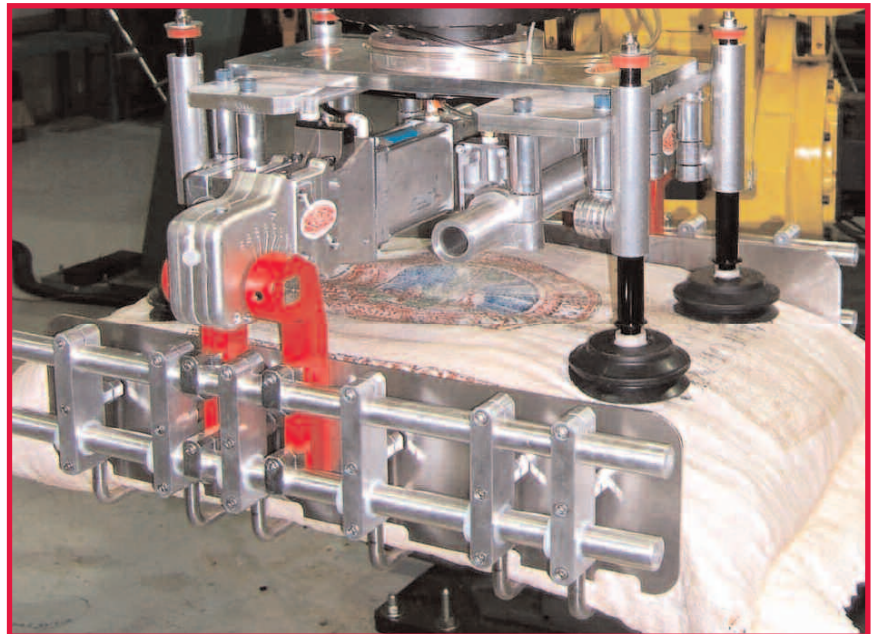
Plastics Injection Mold Unload Tool



Tri-Axis Tool with GR1 Gripper



Plastic Seat Trim Tool



Bag Lifting and Palletizing Tool

...Solutions for every stage of Manufacturing.

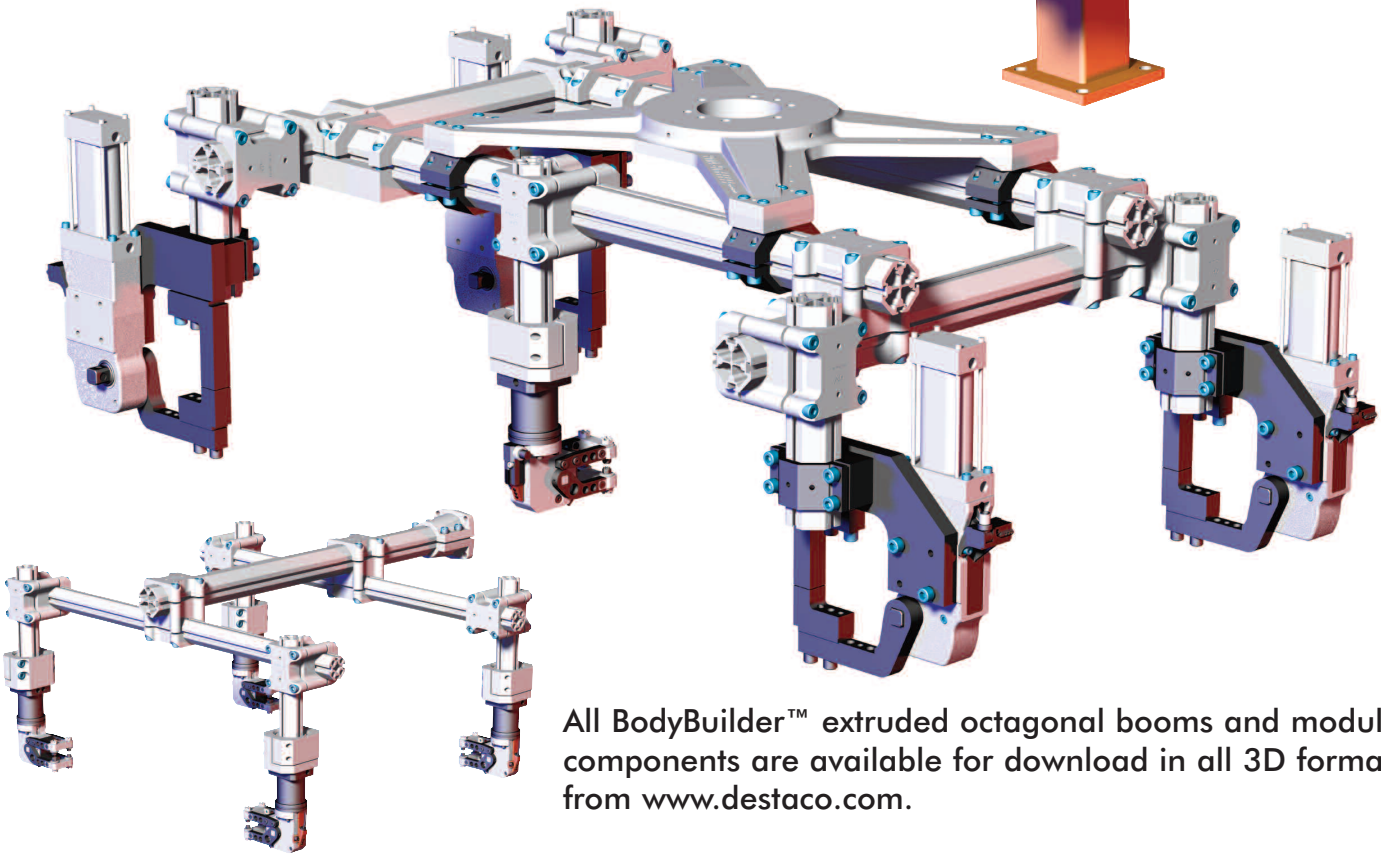
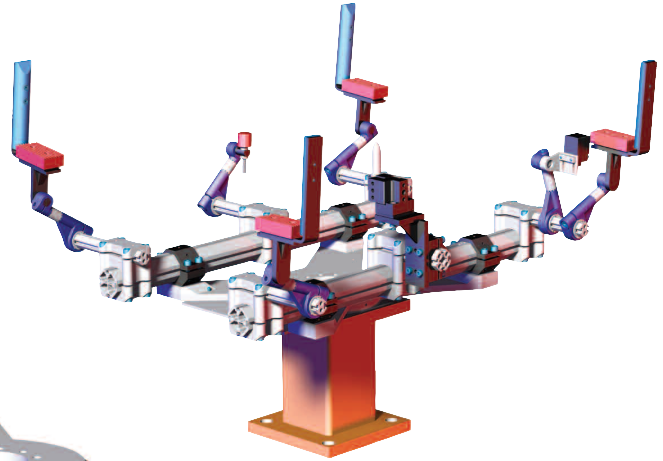
Bodybuilder™ End Effector Systems

Designed to maximize productivity, both before and after installation.

The flexibility of the system allows modifications to the end effector in minutes, greatly reducing start up time to launch.

Ready-to-assemble mounts and accessories eliminate drilling and welding at assembly.

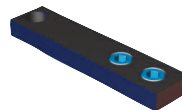
Octagonal structures available in four sizes: 30mm, 45mm, 60mm, and 90mm.



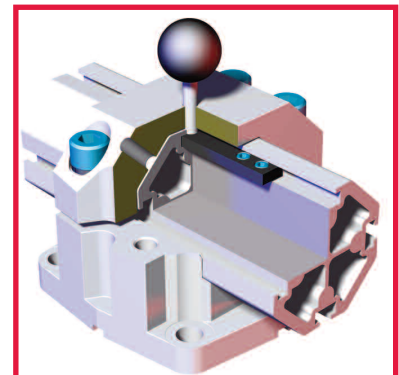
All BodyBuilder™ extruded octagonal booms and modular components are available for download in all 3D formats from www.destaco.com.

The patented BodyBuilder™ Alignment System allows the modular components to be replaced individually and easily returned to their original positions.

Alignment nut(s) are included with every Bodybuilder™ modular component utilizing the patented alignment system.



U.S. PATENT 6,349,912

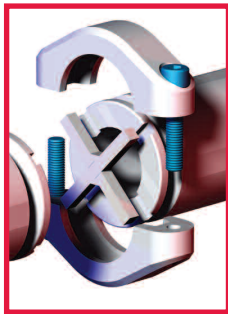
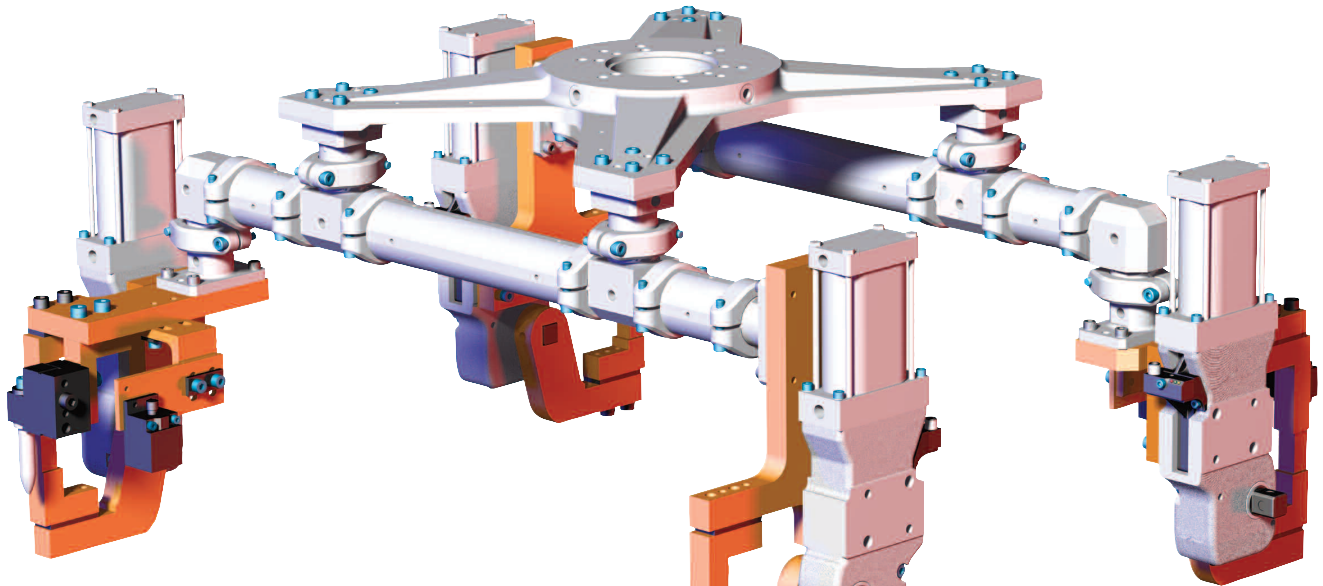


**Body
Builder**

SpiderGrip Geometric End Effector Systems

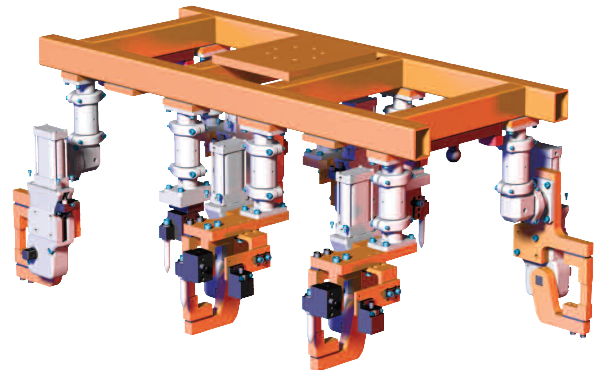
Modular Components for Quick Configurations and Accuracy for Geo Tool Solutions

SpiderGrip offers a standard cost effective solution by making it easy for each component to be replaced individually in the robotic cell, dramatically reducing production downtime and eliminating the need for a backup end-effector.

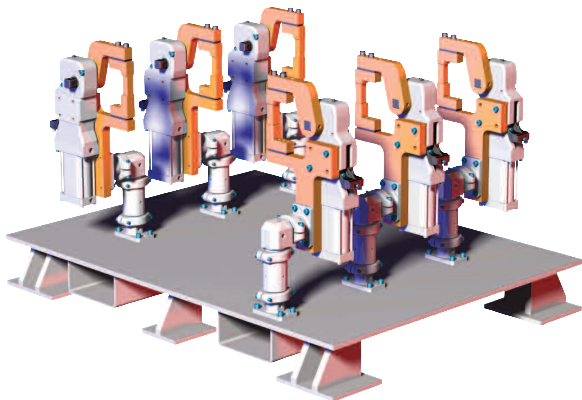


The lightweight collar and cross-key assembly is the cornerstone of SpiderGrip's modularity. The durable assembly serves as the vital connection between the components.

PATENT PENDING



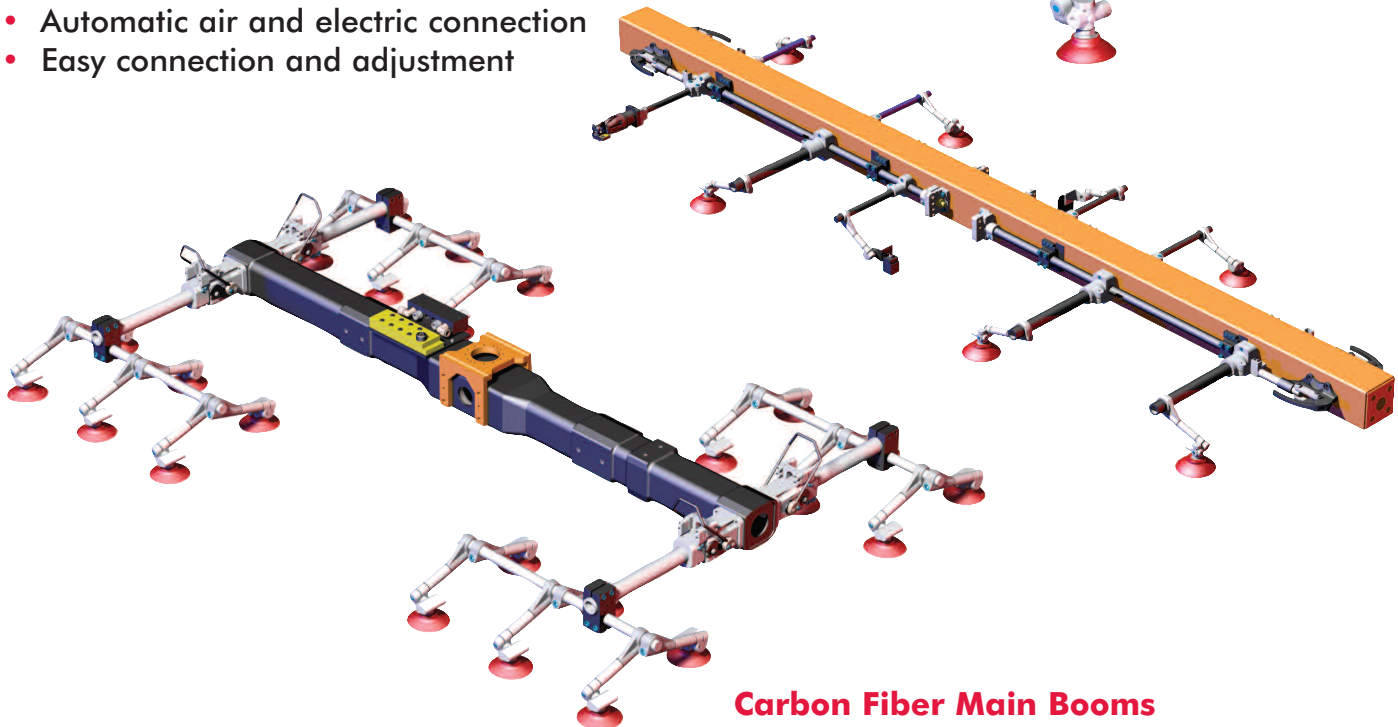
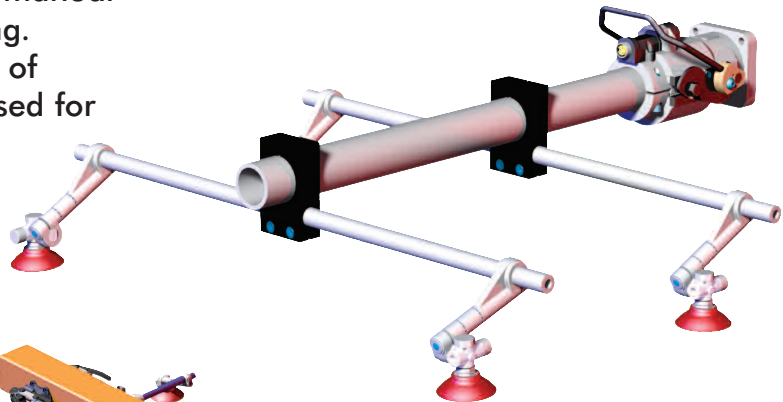
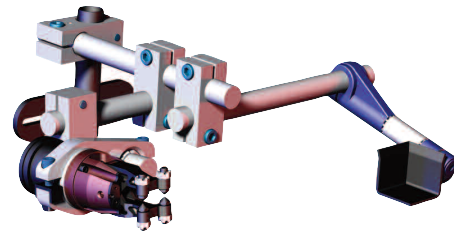
Mounts to a family of mounting structures and application driven platforms with standard hole patterns.



Round Tooling Systems

Imperial and Metric round aluminum tubing with fully adjustable clamping system.

- Offers standard finger clamps for high volume, low cost, lightweight solutions.
- Part holding devices, such as grippers offer fast open/close cycle times and the best power to weight ratios.
- Other part holding devices include shovels and vacuum cups.
- Ideal for pick-and-place part handling, manual manipulating, and packaging/palletizing.
- All tooling components are constructed of lightweight aluminum and can be re-used for future applications.
- Automatic air and electric connection
- Easy connection and adjustment



Carbon Fiber Main Booms

- low Density, Reduced Weight
- High Stiffness, Low Deflection and Torsion

Round Tooling Systems

Ideal for small part handling, injection press unloading, pick-and-place applications, and unusual shaped objects.

Fully Customizable

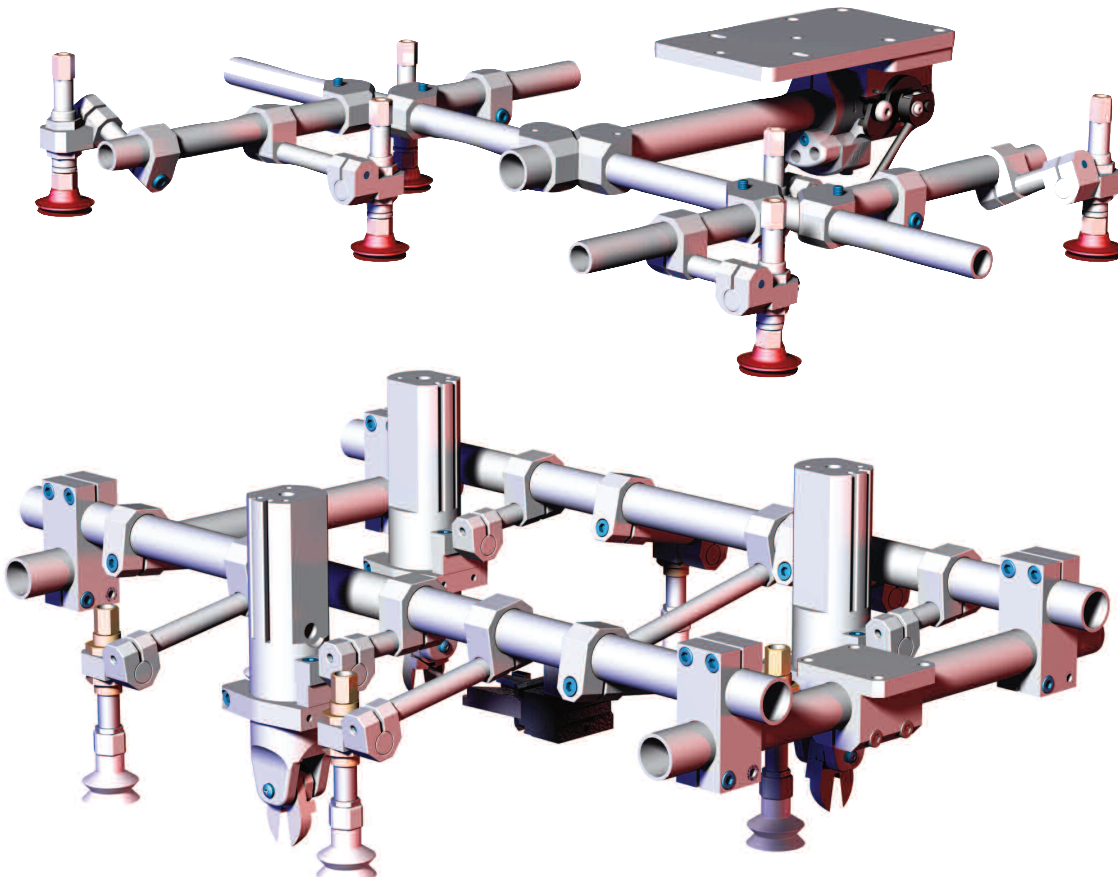
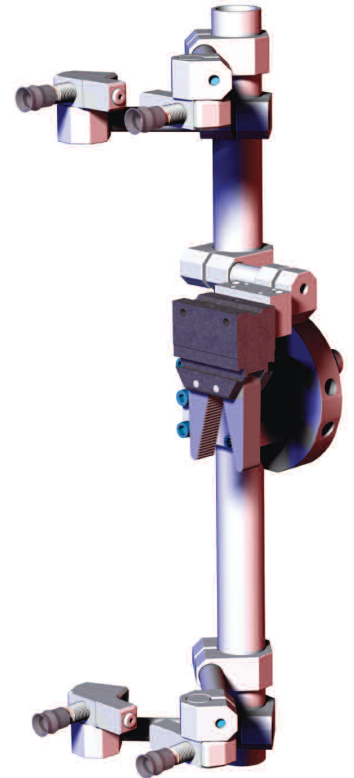
Allows for unlimited configuration possibilities utilizing vacuum cups, sprue nippers, grippers, or other tooling.

Flexible Mounting

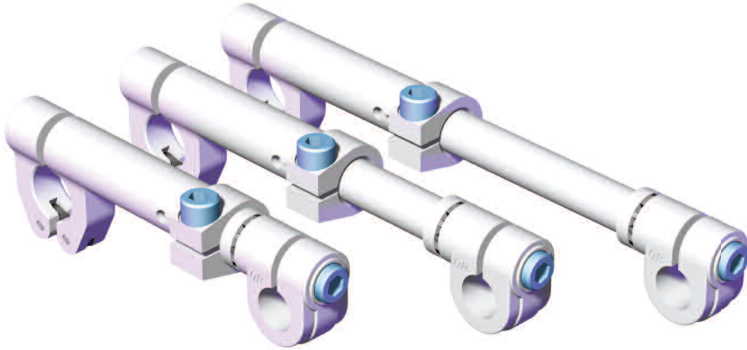
Systems allow for both cantilever end and mid-frame mounting for interfacing with the robot.

Manual or Fully Automatic Tool Changer

Permanently mount your tooling to the robot or choose from either manual or automatic tool changer. Optional quick disconnect air ports provide simple connect/disconnect for air power between various end effectors.



“Extend Arm” Swivel Arms are available in (3) standard lengths to offer (3) ranges of linear adjustability.

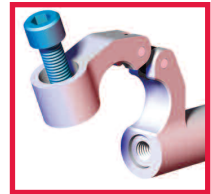


2.00" Linear Extension allows precise adjustment in restricted locations



Three-bolt adjustment system; (2) bolts for individual adjustment of each joint along with (1) bolt for linear Adjustment. Adjust a single point of axis while the other areas of adjustment remains secure.

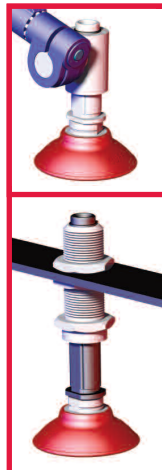
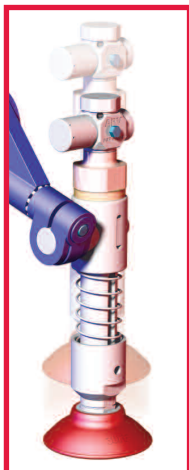
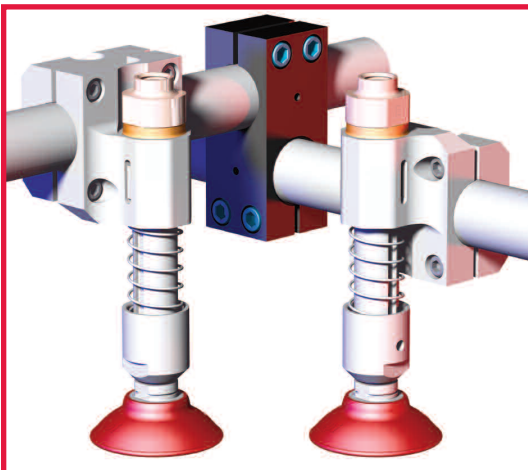
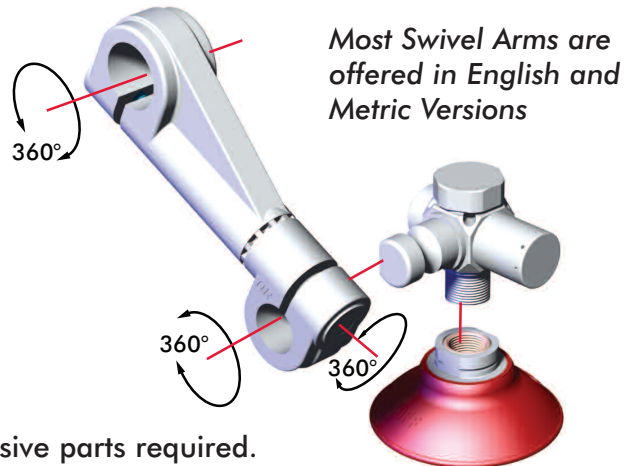
Double-Hinge Design provides even clamping force to better hold mounting position. End opens to allow mounting in the center of tube/bar without removing existing components. These features reduce downtime for setup and adjustment.



Standard Swivel Arms offers a versatile attachment point for vacuum generators and adaptors, proximity switches and nest mounts brackets.

Single-Bolt adjustment for (3) axis
Standard Swivel Arms, as well as Single-Bolt Transition Swivel Arms, and Single End Extensions all share the convenient one-bolt design for quick setup, easy assembly and adjustment. Tool setup is therefore quick and easy, saving time and money.

360° of adjustment in (3) different axes
Easily locate cups on most panels. No special or expensive parts required.



Spring-Loaded Cup Mounts

Available both as a standard version and extended travel version. Both versions offer several mounting options and three different travel lengths.

DE-STA-CO spring-loaded cup mounts are designed to be used with ARV and VSA 000 series venturi vacuum generator cup mount and complete line of vacuum cups to offer a total vacuum system solution.

Patent Pending

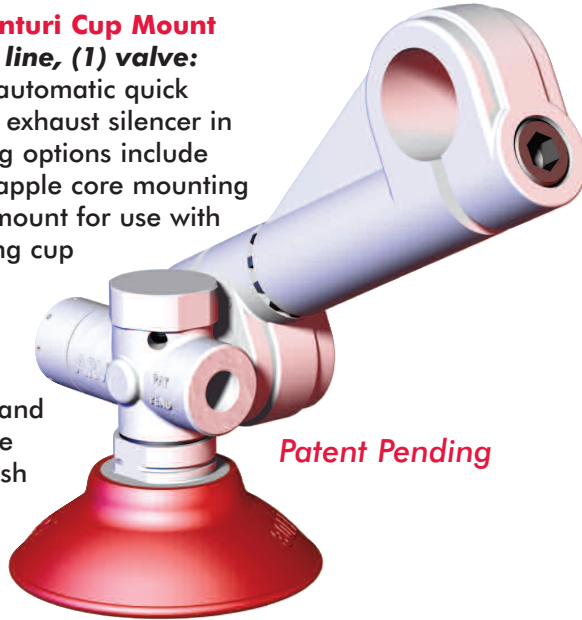
The ARV Series

Auto-Release Venturi Cup Mount

Requiring (1) air line, (1) valve:

Offers integrated automatic quick panel release and exhaust silencer in one part. Mounting options include right or left hand apple core mounting or no apple core mount for use with DE-STA-CO's spring cup mounts.

The ARV Series is also available in a block style for remote mounting and each mount can be ordered with English or Metric ports.



Patent Pending



The VSA Series Venturi Cup Mount

Can be ordered with or without blow-off. Blow-off typically requires two air lines and multiple valves. The VSA series offers a low-profile version as shown. Additional options includes silencer and sensor port options. Mounting threads can also be ordered in English or Metric ports.

DE-STA-CO also offers PA Series cup mounts



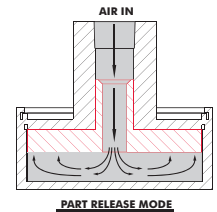
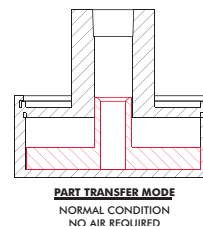
US Patent# 7,309,089

DE-STA-CO Vacuum Cups are offered in different families, and may be offered in different durometers. Vacuum cups are also offered in English and Metric mounting options which may vary according to the size and type of the vacuum cup.



CPI-TLP Series Magnets

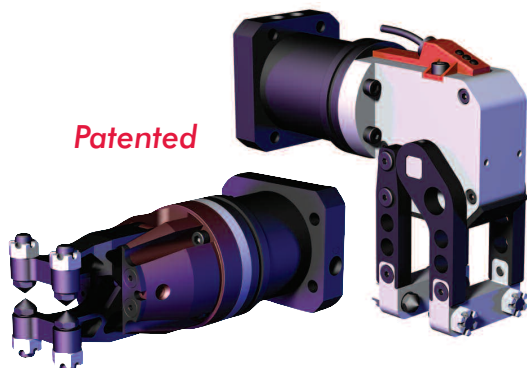
- Provides instantaneous pick up and release without electricity, maintaining positive hold even when air pressure is lost.
- Supplied with urethane pad which softens the impact of the magnet and avoids damage to delicate surfaces.



GR1 Modular Gripper

- Can be flange or cylinder mounted.
- Offered with several different jaw opening and point options.
- Toggle-Locking Mechanism holds the part if air pressure is lost.

Patented



GR84 Enclosed Modular Mini Clamp

- Also offers several different jaw and tip options.
- Can also be flange or cylinder mounted.
- Locking Mechanism holds the part if air pressure is lost.
- Protected from contaminants.



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