End-of-Arm Tooling Design Guide

VACCON
VACUUM PRODUCTS

Call Vaccon First!

We will save you time and money.

Here's why.

Robots and robotic tooling help you increase productivity, improve product quality, and reduce costs. The right End-of-Arm Tools (EOAT) can improve both the flexibility and cost effectiveness by working with and complementing the robot. Vaccon designs vacuum tooling using modular components that are compact, lightweight, durable, and easy to assemble. This creates flexible, streamlined End-of-Arm Tooling that works in harmony with the robot.

As experts in vacuum equipment design for manufacturing automation applications, Vaccon helps customers find solutions for their material handling problems by creating new tools, re-designing existing tools or re-building systems. Take advantage of our years of engineering expertise to quickly design, build, and re-tool your robotic EOAT to ensure safe part handling, extend the life of the robot, increase production, and reduce costs.

Work in reverse, design "the tool" first before selecting the robot.

Focus on key aspects of the part to be handled (i.e. weight, porosity, travel distance, desired speed, etc.)

For new applications, we highly recommend that you design the EOAT before selecting the robot. Knowing the load (the combined weight of the part and the EOAT) helps you to choose the optimum robot for the job.

For re-tooling applications when the robot is already in place, carefully consider the load limits of the robot.

Optimum EOAT Design Sequence:

1. Identify the part weight, size, material porosity and surface area for cup placement on the part.
2. Select cups and/or levelers based on accepted Safety Factors (see page 11.3)
3. Select the vacuum pump(s) based on performance and porosity (see page 11.4)
4. Select the Vaccon EOAT components required for your application.
5. Assemble the EOAT *or*
6. Vaccon will design, assemble, test and ship the completed EOAT to you.

Vaccon EOAT Application Engineering Support

Our dedicated application engineers are ready to help you to select the right components or to design, assemble, and test the EOAT. Vaccon customer support provides:

- Experts in vacuum technology
- Experts in manufacturing
- Experts in automation applications
- Experts in pneumatic design
- Free 2D & 3D drawings of all components or build your own using Vaccon's website or CD.

Vaccon End-of-Arm Tooling

All EOAT products are compatible with 1” [25mm] and 1.5” [40mm] extrusions

Vaccon designed, assembled, tested and shipped this new EOAT tool for a Kuka Robot in one day.

Ideal Applications:

- Automotive
- Packaging
- Palletizing
- Runners from molds
- Conveying systems
- Fruit packing
- Mold removal – Picking parts
- Work holding device
- Stamping press transfer
- Packaged food & bakery
- Medical

Features/Benefits:

- T-Slot fraction or metric compatible components – Attaches to customer supplied framework
- Minimal design time – pre-designed modular components, streamlined systems
- Easy set-up and fast installation – order out of the box complete or assemble on site
- Lightweight components – faster speeds with less stress on robot for longer life cycle
- Cost effective – integrates with existing plant equipment for quick tool changes, minimal downtime
- Flexible manufacturing/automation – optional accessories and adjustability
- Increased efficiency – large selection of venturi pumps to maximize productivity
- Built-in sensors – part-present signal and vacuum level

Vaccon’s modular End-of-Arm Tooling components offer everything you need to create a complete “wrist-down” EOAT for your material handling operations.

The EOAT innovative component design is modular, lightweight, compact, and easy-to-connect. Using EOAT, you can integrate vacuum pumps, vacuum cups, spring levelers, fittings, and manifolds using simple erector-set connectivity in minimum design time.

EOAT Components or Complete EOAT Solutions

You can order EOAT products separately and build your own tooling, or purchase a complete pre-built EOAT solution—fully configured, plumbed, and tested. EOAT solutions ship assembled using one robot-to-EOAT connection for easy, out-of-the-box installation.

Vaccon Designed, Built, and Tested

Vaccon engineers have years of material handling experience, in every industry from soap to electronics. We have a proven record of identifying customer needs, developing and testing End-of-Arm tools, and delivering projects on time and within budget. Take advantage of our extensive vacuum knowledge to select the proper vacuum pump/cup combination and design your tool. Vaccon will build your tool and test it using your product at our in-house Tech Center, usually within the same day.

Picking and placing packaged rolls, CDF 375H-ST6BX EOAT handles flexible, uneven objects.

Multi-port pump EOAT with multiple manifold blocks and cups for food packaging operation.

VP80-200H-MP and VP20-100H EOAT handle melons in fruit packing plant.

Eliminate the Guesswork: Contact Us!

Vacuum technology isn’t an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in multiple CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Modular Venturi Vacuum Pumps

Modular Venturi Vacuum Pumps

Modular Venturi Vacuum Pumps with Pneumatic Blow-off

Modular Venturi Vacuum Pumps Solenoid Operated with Pneumatic Blow-off

Multi-port Venturi Vacuum Pumps

Mid Series Modular Venturi Pumps

Max Series Modular Venturi Pumps

Vacuum Cups

Bellow Cups

Oval Cups

Flat Cups

Deep Cups

Vacuum Plenums & Grippers

For more information, please see page 11.37 in the Cups & Fittings section.

Plenum Blocks can be ordered in any size, shape or material. Consult factory.

Custom Dual Plenum w/ CDF 1000H picking up foam inserts

Custom Plenum w/ VDF 250 picking up packages of gum balls

Mounting Brackets for 1” [25mm] Extrusion fits 1/4” [6.5mm] T-slot

Universal Bracket (Fixed) with optional mounting hardware

Universal Bracket (Adjustable) with optional mounting hardware

Angled Universal Bracket with optional mounting hardware

Mounting Brackets for 1.5” [40mm] Extrusion fits 5/16” [10mm] T-slot

Universal Bracket (Fixed) with optional mounting hardware

Universal Bracket (Adjustable) with optional mounting hardware

Angled Universal Bracket with optional mounting hardware

Vacuum Cup Mount/Manifold

MB18-25
For 1” Extrusion Only

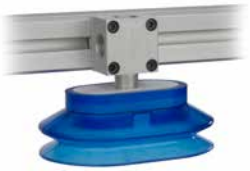
MB14-40

All Female Ports

Can be used with Vaccon’s VDF, CDF and DF Pumps. See page 12.28

Male Face Mount MBF14-40 Series

Male Bottom Mount MBB14-40 Series

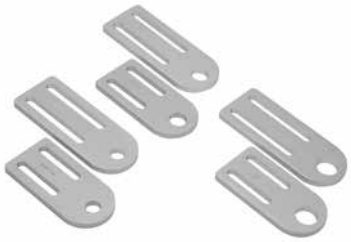


Male Bottom Mount with Oval Cup

Light Duty Spring Leveler Brackets

Spring leveler brackets and hardware for 1" [25mm] extrusions

Fits VSL1 & 2 Spring Levelers



Spring Leveler Brackets for 1.5" [40mm] extrusions (hardware not shown)

Fits VSL1, 2 & 3 Spring Levelers

Spring Levelers/Level Compensators and Swivel Joint

Spring Levelers VSL1, 2, & 3 Series

Heavy Duty Spring Levelers SLB40-2, 3 Series

Adjustable, Fixed Extension Shaft and Bracket – FEB40-2,3 Series

Vacuum Cup Locking Angle CSJ3 Series shown with Bellows cup

Push-to-Connect Fittings for Vacuum Pumps and Spring Levelers

Male Straight Fittings

Female Straight Fittings

Male Elbow Fittings

Female Elbow Fittings