Configuring Rather Than Designing

Vacuum End Effectors VEE

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Vacuum End Effectors VEE

Overview of Highlights

Individual configuration
- Flexibly configurable, perfectly coordinated individual components
- Variable number and positioning of the suction cups
- Hose-free vacuum distribution
- Optional integrated vacuum generation available

Reduced construction and manufacturing efforts
- Online configurator for designing the end effector in just a few minutes including the creation of CAD data and parts lists
- Minimizes configuration and production time by more than 80 %
- Reduces manufacturing costs

Extremly lightweight
- Complete end effectors weighing as low as 150 g
- Designed for high-speed applications with accelerations up to 10 *g* (100 m/s²)

Outstanding hygiene properties
- FDA compliant material (high performance thermoplastic)
- Excellent resistance to alkaline agents

Assembly service
- Upon request, we can deliver your custom-configured vacuum end effector VEE as a complete unit

VEE Online Configurator

Configuring Rather Than Designing

1 Enter workpiece data → 2 Select the gripper layout → 3 Select the vacuum suction cups → 4 Define the suction cup positions → 5 Select a connection → 6 Generate 3D data – That's all!

With the VEE online configurator, you arrive at an individually tailored end effector solution with just a few mouse clicks.

Your benefits
- Live 3D preview of the configuration
- Creation of a 3D PDF data sheet including a parts list and CAD data
- Simple importing in your consisting construction
- Quick request for proposal (RFP)

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Vacuum End Effectors VEE

Application

Vacuum end effector with bellows suction cups SPB1 and electrical vacuum generator ECBPi handling cardboard boxes

Vacuum end effector with bellows suction cups SPB4f handling pouches with many wrinkles and a low filling degree

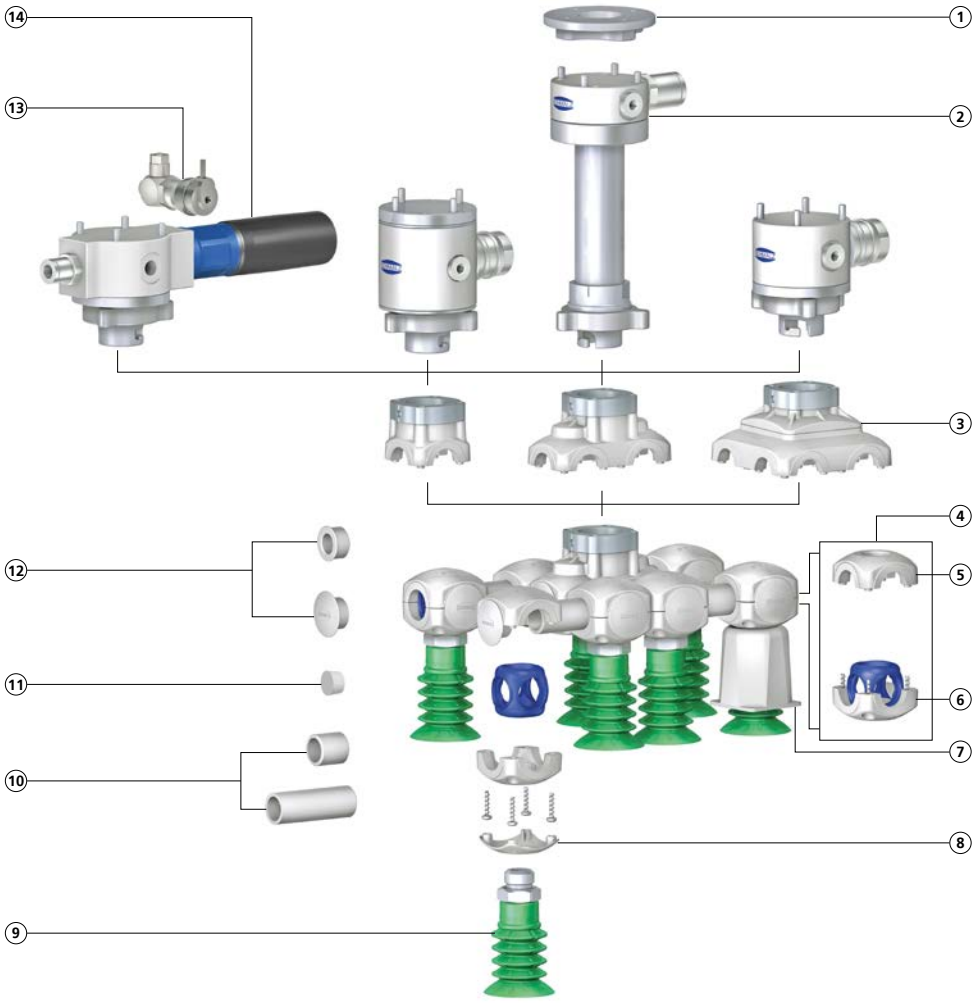
Vacuum end effector with bellows suction cups SPB4 and stabilization elements handling unstable flow-wrap packaging

SYSTEM COMPONENTS FOR QUICK AND COST-EFFECTIVE DESIGNING OF VACUUM END EFFECTORS FOR HIGHSPEED PACKAGING PROCESSES

- Pick-and-place applications with Delta, Scara and articulated robots
- Fully automated filling of cardboard boxes in case packers
- Primarily used in secondary packaging processes
- Transporting products into top-loading machines as well as in cardboard box and tray aligners
- Use in flexible packaging machines with frequent format changes

Vacuum end effector with bellows suction cups SPB4f handling pouches

Design



1. **Flange plates**
   for standard types of robots
2. **Flange modules**
   - rigid or rotating by 360°
   - can be extended (optional)
3. **Basic modules**
4. **Connector node**
5. **Top connector**
   G3/8"-F or closed
6. **Bottom connector incl. sealing element**
   G1/8"-F, G1/4"-F, G3/8"-F or closed
7. **Stabilization elements**
   (available as a suction cup accessory)
8. **Screw cover**
   (optional)
9. **Vacuum suction cups**
   (can be selected from the Schmalz product range)
10. **Connection tubes**
11. **Plugs**
    for partitioning into different vacuum zones
12. **Plugs**
13. **Solenoid valve**
    for active blow off
14. **Vacuum modules**
    flange modules with integrated vacuum generation

VACUUM SUCTION CUPS FOR THE PACKAGING INDUSTRY

Flat suction cups SPF / Bellows suction cups SP(O)B1
For intrinsically stable and slightly unstable cardboard boxes and packaging

WWW.SCHMALZ.COM/SPF
…/SPB1
…/SPOB1

Bellows suction cups SPB4(-f)
For bags and flexible packaging

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…/SPB4-F

Flat suction cups SGPN
For films, blister packs and other sensitive packaging

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Bellows suction cups FSG / FSGA
Universal suction cups for various packaging applications

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…/FSGA

Vacuum End Effectors VEE

Overview of VEE System

Flange plates FLAN-PL

Flange modules VEE-QCM

Vacuum modules VEE-QCMV

Solenoid valve EMV for active blow off

Flange extensions VEE-FE

Basic modules VEE-QCF

Top connector VEE-CO-U

Bottom connector VEE-CO-L

Connection tubes VEE-TU

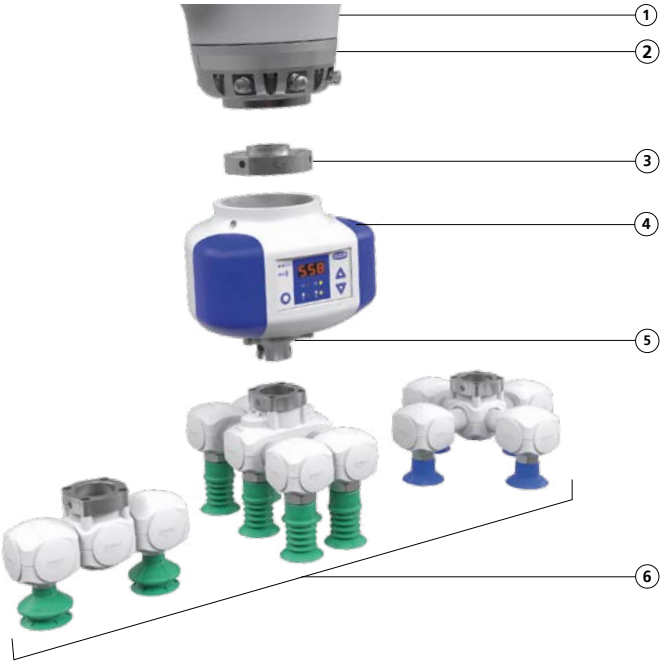
Plugs VEE-PL

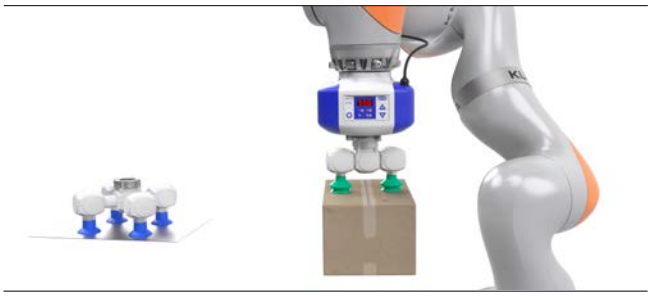
Stabilization elements SPSE

Tool center point VEE-TCP

Schmalz Vacuum Generator ECBPi

Intelligent Extension with Matching Vacuum Generator





Configure and connect VEE with ECBPi easily – individually for each application.

1. Collaborative robot (all common cobot models)
2. Robot flange for mechanical connection of the electrical vacuum generator ECBPi
3. Flange adapter plate
4. M12 8-pin plug connection or terminal block as digital interface between the ECBPi and the robot
5. Flange for gripper connection
6. Flexibly configurable grippers from the modular system for vacuum end effectors VEE

Vacuum End Effectors VEE

Starter Set

Whether for use directly in a robotic system or as handy design tool – with the VEE Starter Set you have all of the most important components for quickly assembling your effector right at your fingertips.

Contents
120-piece starter set with all of the components necessary for installing up to two VEE vacuum end effectors, including:
- 8 vacuum suction cups SPB4f-30 for bags and flexible packaging
- Lockable quick-change adapter with bayonet mount

Supplied in a sturdy plastic case with detailed assembly instructions. Part no.: 10.01.36.00030

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VEE Starter Set

Technical Data and Design Data

Technical Data

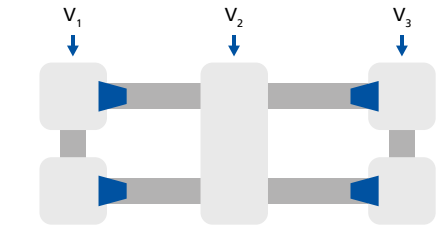
Specification	Vacuum end effectors from the VEE system
Max. rated flow	60 m³/h
Max. vacuum value	-980 mbar
Overpressure resistance	up to 3 bar
Temperature range	-25 °C to +80 °C
Material	High performance thermoplastic (compliant with FDA guidelines)
Max. load capacity	2,000 g

Design Data

Vacuum end effectors VEE can be freely configured within the framework values. When used in connection with our wide selection of suction cups, the possibilities are practically endless.

Specifications	Vacuum end effectors from the VEE system	
	Minimum configuration	Maximum configuration
Basic module	1-connection	4-connection
Suction cups connection thread	G1/8"-F, G1/4"-F, G3/8"-F	G1/8"-F, G1/4"-F, G3/8"-F
Dimensions (L/W)	38 x 38 mm	300 x 200 mm
Weight[1]	65 g	500 g
Qty. of suction cups	1	12
Workpiece sizes (L/W)	15 x 15 mm	400 x 300 mm

[1] without flange module and suction cup



Partitioning into multiple independent vacuum zones with plugs VEE-PL

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