



Vacuum Components

Modular System for Vacuum End Effectors VEE

Vacuum End Effector VEE

Application



Vacuum end effector with bellows suction pads SPB1 for cardboard packaging



Vacuum end effector with bellows suction pads SPB4 for flow-wrapped packaging



Vacuum end effector with flat suction pads SGPN for firm foil packaging

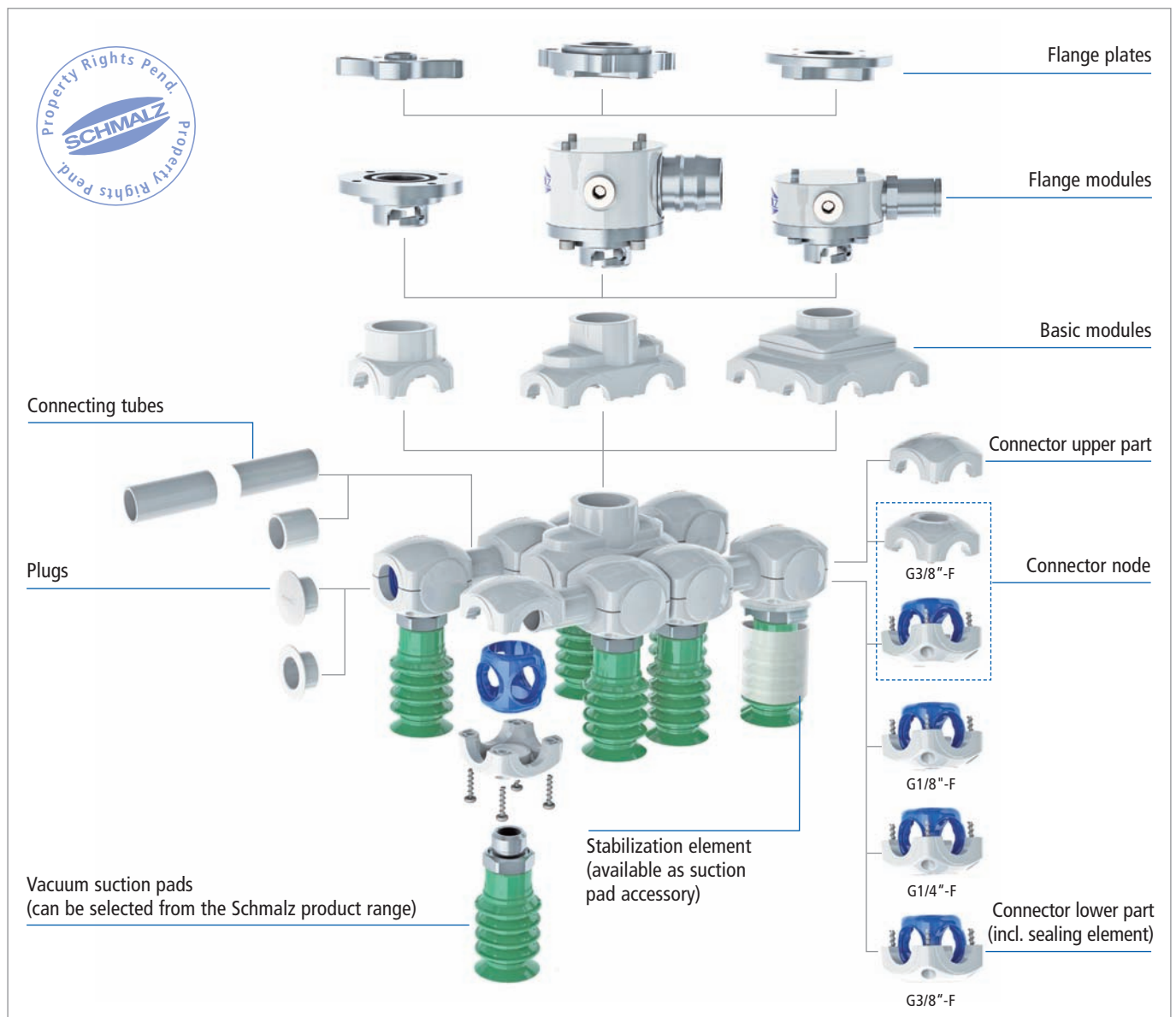
Modular system for quick and cost-efficient assembly of vacuum end effectors

- Fast pick-and-place processes in combination with delta and SCARA robots
- Use in both primary and secondary packaging processes
- Automated filling of cardboard boxes using case packers
- Use in 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 pads SPB4 for stand-up bags

Assembly and Sample Configurations



Sample configuration 1

- Based on 1-connection basic module with six suction pads
- Gripper weight only 395 g
- Gripper size approx. 200 mm x 200 mm



Sample configuration 2

- Based on 2-connection basic module with six suction pads
- Gripper weight only 350 g
- Gripper size approx. 160 mm x 80 mm



Sample configuration 3

- Based on 4-connection basic module with eight suction pads
- Gripper weight only 425 g
- Gripper size approx. 220 mm x 80 mm

System Modules



Flange plates FLAN-PL

Quick and easy connection of the flange module to the robot; available for all conventional robot types and as a universal flange.

www.schmalz.com/flan-pl



Flange modules VEE-QCM

Quick-change adapter and vacuum connection; either horizontal (max. 20 m³/h and max. 60 m³/h volume flow rate) or vertical (max. 60 m³/h volume flow rate).

www.schmalz.com/vee-qcm



Basic modules VEE-QCF

Tool-free connection of the end effector to the flange module and central vacuum feed; available as a 1-, 2-, or 4-connection module.

www.schmalz.com/vee-qcf



Connector upper part VEE-CO-U

Top half-shell for assembly of connecting nodes; available in closed design or with connection for additional vacuum feed (G3/8"-F).

www.schmalz.com/vee-co-u



Connector lower part VEE-CO-L

Bottom half-shell including sealing element and screws for assembly of connecting nodes; either closed or with connection for suction pad (G1/8"-F, G1/4"-F, G3/8"-F).

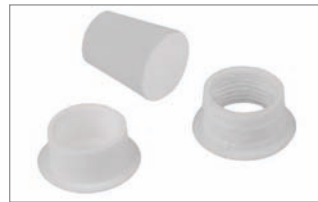
www.schmalz.com/vee-co-l



Connecting tubes VEE-TU

Vacuum guide and variable connection of nodes; available in 18 mm and 200 mm lengths. Pipe scissors for quick and safe cutting available as accessory.

www.schmalz.com/vee-tu



Plugs VEE-PL

For sealing unneeded connections on connecting nodes, lateral vacuum feed and partitioning into different vacuum zones.

www.schmalz.com/vee-pl



Stabilization element SP

Increased process speed by additional support of the workpiece; available as an option for bellows suction pads.

Vacuum Suction Pads for the Packaging Industry



Flat suction pads SPF/ Bellows suction pads SPB1

- For intrinsically stable and slightly unstable cardboard boxes and packaging
- High intrinsic stability
- Wear-proof material ELASTODUR ED-65

www.schmalz.com/spf.../spb1



Bellows suction pads SPB4

- For bags and other flexible packaging
- Reinforced basic body with 4.5 folds
- Flexible sealing lip
- FDA-compliant silicone material SI-55

www.schmalz.com/spb4



Flat suction pads SGPN

- For films, blister packs and other sensitive packaging
- Extremely thin sealing lip
- Natural rubber material NK-40 or FDA-compliant silicone material SI-50

www.schmalz.com/sgpn



Bellows suction pads FSG/FSGA

- Standard suction pads for various packaging applications
- Stable basic body with 1.5 or 2.5 folds
- FDA-compliant silicone material SI-55

www.schmalz.com/fsg.../fsga

Vacuum End Effector VEE

Overview of Highlights

Modular system for time and cost saving construction of vacuum end effectors



Individual configuration

- Flexible modular design with perfectly coordinated parts
- Variable number of suction pads and variable suction pad distances
- Hose-free vacuum distribution



Reduced construction and manufacturing effort

- Significant reduction of construction effort by modular design principle and CAD data (available online)
- Minimizes configuration and production time by more than 80 %
- Reduces manufacturing costs by up to 75 %



Minimum weight for maximum process speeds

- Complete end effector with SPB4-30 bellows suction pad and quick change coupler weighs as low as 95 g (even by selective laser sintering SLS, this can hardly be achieved)
- Designed for high-speed applications with accelerations up to 10 g (100 m/s²)



Outstanding hygiene properties

- FDA-compliant polysulfone material (PSU)
- Suitable for steam sterilization (up to 134 °C at 3 bars pressure)
- Excellent resistance to cleaning agents used in the food industry

All you need for a quick start

The Vacuum End Effector Starter Set

The VEE starter set (Article No. 10.01.36.00030) allows you to configure vacuum end effectors for high-speed packaging processes within minutes.

Contents

- 120-piece starter set with all components for assembling up to two VEE vacuum end effectors
- Eight vacuum suction pads SPB4-30 for bags and other flexible packaging
- Quick-change coupler with bayonet fastener
- In sturdy plastic case with detailed assembly instructions

 www.schmalz.com/vee-starterset



Vacuum End Effector VEE

Technical Data and Design Data



Technical Data

Specification	Vacuum end effectors from the VEE modular system
Max. rated flow	60 m ³ /h
Max. vacuum value	-980 mbar
Overpressure resistance	up to 3 bar
Temperature range	-25 °C to +80 °C
Material	Polysulfone PSU (BfR and FDA approved)
Max. load capacity	2,000 g



Design Data

The modular system VEE allows you to freely configure individual end effectors. This together with the large selection of suction pads for the packaging industry leads to a nearly unlimited number of possible applications.

Specification	Vacuum end effectors from the VEE modular system	
	Minimum configuration (1-connection basic module)	Maximum configuration (4-connection basic module)
Gripper size	38 x 38 mm	300 x 200 mm
Gripper weight ¹	40 g	800 g
Suction pad connection thread	G1/8"-F G1/4"-F G3/8"-F	G1/8"-F G1/4"-F G3/8"-F
Qty. of suction pads	1	12
Workpiece size	15 x 15 mm	400 x 300 mm

¹ without flange module and suction pad

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PDF brochure



J. Schmalz GmbH

Aacher Strasse 29

D-72293 Glatten

Tel. +49 (0)7443 2403 0

Fax +49 (0)7443 2403 259

schmalz@schmalz.de

www.schmalz.com