

7 Vacuum technology



- + Vacuum generator: vacuum generators according to the Venturi principle in various performance categories
- + Vacuum gripping technology: wide variety of suction gripper and suction cups
- + Assembly, connection and compensating elements
- + Accessories

Highlights



OVEM

Vacuum generator

- + Compact design
- + Monitoring with vacuum sensor

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OGGB

Bernoulli gripper

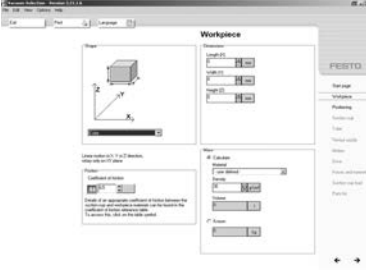
- + Ideally suited to transporting thin, extremely delicate and brittle workpieces
- + Low energy costs thanks to minimised air consumption

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Product overview 630

Software tool





Vacuum selection		<p>Which suction cup for which surface and which movement? Don't experiment – calculate! This software tool even enables a differentiation to be made between linear and rotary movements.</p> <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Vacuum generators


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Type	 Vacuum generator, metric OVEM	 Vacuum generator, pneumatic VN	 Vacuum generator VAD	 Vacuum generator VAK
Nominal size of laval nozzle	0.45 ... 2.0 mm	0.45 ... 3 mm	0.5 ... 1.5 mm	1 mm
Ejector characteristics	Standard, high suction rate, high vacuum	Inline, standard, high suction rate, high vacuum	High vacuum	High vacuum
Integrated function	Electric ejector pulse valve, flow control valve, electric on-off valve, filter, electric air economy circuit, check valve, open silencer, vacuum switch	Pneumatic ejector pulse valve, open silencer, vacuum switch		Ejector pulse, pneumatic
Max. vacuum	93 %	86 ... 93 %	80 %	80 %
Max. suction rate with respect to atmosphere	6 ... 92 l/min	6.1 ... 339 l/min		
Description	<ul style="list-style-type: none"> • Compact design • Monitoring with vacuum sensor • Central electrical connection via an M12 plug • Maintenance-free operation and reduced noise level through an integrated, open silencer • Integrated filter with inspection window • Optionally with air-saving function and LCD display • Adjustable ejector pulse 	<ul style="list-style-type: none"> • Can be used directly in the work space • Available as straight type (inline: vacuum port in line with the supply port) or T-shape (standard: vacuum port at 90° to the supply port) • Compact and cost-effective • Maintenance-free operation and reduced noise level through an integrated, open silencer 	<ul style="list-style-type: none"> • Sturdy aluminium housing 	<ul style="list-style-type: none"> • Sturdy aluminium housing • Ejector pulse by built-in reservoir • Connection for external reservoir
→ Page/online	ovem	vn	vad	vak




Vacuum generators

				
Type	Vacuum generator, electro-pneumatic VN	Vacuum generator VADM, VADMI	Vacuum generator VAD-M, VAD-M-I	Vacuum generator for valve terminal CPV CPV10-M1H, CPV14-M1H, CPV18-M1H
Nominal width of laval nozzle	0.45 ... 3 mm	0.45 ... 3 mm	0.7 ... 2 mm	0.7 ... 1.4 mm
Ejector characteristics	Standard, high suction rate, high vacuum	High vacuum	High vacuum	High vacuum
Integrated function	Pneumatic ejector pulse, electric on-off valve, open silencer	Electric ejector pulse valve, flow control valve, electric on-off valve, filter, electric air economy circuit, check valve, vacuum switch	Electric ejector pulse valve, electric on-off valve	
Max. vacuum	92 ... 93 %	85 %	85 ... 90 %	85 %
Max. suction rate with respect to atmosphere	7.2 ... 186 l/min			
Description	<ul style="list-style-type: none"> • Can be used directly in the work space • Cost-effective • Maintenance-free operation and reduced noise level through an integrated, open silencer • With solenoid valve vacuum On/Off 	<ul style="list-style-type: none"> • Compact and sturdy design • Built-in solenoid valve (On/Off) • Integrated filter with inspection window • Optionally with air-saving function, vacuum sensor • Optionally with adjustable ejector pulse 	<ul style="list-style-type: none"> • Compact and sturdy design • Built-in solenoid valve (On/Off) • Optionally with ejector pulse 	<ul style="list-style-type: none"> • Combinations of switching valves with vacuum generators are possible on a valve terminal • With solenoid valve vacuum On/Off • Optionally with ejector pulse
→ Page/online	vn	vadm	vad-m	cpv10-m1h

Vacuum generators



	
Type	Vacuum generator cartridge VN
Nominal size of laval nozzle	0.45 ... 2 mm
Ejector characteristics	Standard, high suction rate, high vacuum
Integrated function	
Max. vacuum	92... 93 %
Max. suction rate with respect to atmosphere	7.2 ... 184 l/min
Description	<ul style="list-style-type: none"> • For fitting into customised housing for decentralised vacuum generation
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Vacuum gripping technology


			
Type	Bernoulli gripper OGGB	Suction gripper ESG	Suction cup ESS
Suction cup size		10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm	10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm
Suction cup diameter	60 mm, 100 mm, 140 mm	2 ... 200 mm	2 ... 200 mm
Holding force at nominal operating pressure –0.7 bar		0.1 ... 1610 N	0.1 ... 1610 N
Design		Vacuum port on top, vacuum port on side, with height compensator, with long height compensator	Round, bell-shaped
Information on materials suction cup	POM, NBR	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan
Description	<ul style="list-style-type: none"> • Ideally suited to transporting thin, extremely delicate and brittle workpieces • Minimised workpiece contact, gentle workpiece handling • Low energy costs thanks to minimised air consumption 	<ul style="list-style-type: none"> • Modular system of suction cup holders and suction cups with over 2000 variants • Optionally with angle compensator, height compensator, filter • 15 suction cup diameters • 6 suction cup shapes • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Vacuum port: push-in connector or barbed fitting for plastic tubing, threaded connection 	<ul style="list-style-type: none"> • Suction cup consisting of the suction cup itself, plus the support plate with mounting • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Mounting for suction cup holder: female thread, male thread, push-in connector
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Vacuum gripping technology

		
Type	Suction cup ESV	Suction cup VAS, VASB
Suction cup size		
Suction cup diameter	20 ... 200 mm	2 ... 125 mm
Holding force at nominal operating pressure –0.7 bar	0.1 ... 1610 N	0.14 ... 606 N
Design	Bell-shaped or round bellows	Vacuum port on top, vacuum port on side, round, bellows 1.5 times, round, flat
Information on materials suction cup	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan	NBR, PUR, TPE-U(PU), VMQ (silicone)
Description	<ul style="list-style-type: none"> • Suction cup wearing part • Easily interchangeable • Suction cup volume: 0.318 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm 	<ul style="list-style-type: none"> • Sturdy and reliable • Suction cups with fixed connecting thread • 11 suction cup diameters • Round suction cup shape, bellows • Vacuum port on top, on side • Screw-in thread
→ Page/online	esv	vas





Assembly and connecting components

	
Type	Suction cup holder ESH
Design	Vacuum port on top, vacuum port on side, with height compensator
Description	<ul style="list-style-type: none"> • With or without height compensator • 6 holder sizes • 8 holder types • 3 tubing connector options
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Accessories for vacuum

				
Type	Silencer UO/UOM Silencer extension UOMS	Vacuum security valve ISV	Vacuum gauge VAM, FVAM	Vacuum filter VAF
Description	<ul style="list-style-type: none"> • For vacuum generator VN • Facilitates trouble-free operation of the vacuum generator 	<ul style="list-style-type: none"> • For maintaining the vacuum when using multiple suction cups and one fails • Gripping of randomly placed products 	<ul style="list-style-type: none"> • EN 837-1 • Optionally with red/green range • Analogue display • For front panel mounting 	<ul style="list-style-type: none"> • Vacuum connection PK-3, PK-4, PK-6 • Grade of filtration 50 µm
→ Page/online	uo	isv	vam	vaf

Accessories for vacuum

				
Type	Height compensator VAL	Filter ESF	Elbow fitting LJK	Angle compensator ESWA
Description	<ul style="list-style-type: none"> • Vacuum port M5, G$\frac{1}{8}$, G$\frac{1}{4}$ 	<ul style="list-style-type: none"> • Vacuum port M4x0.7, M6x1 • Grade of filtration 10 µm 	<ul style="list-style-type: none"> • Vacuum port M5, G$\frac{1}{8}$, G$\frac{1}{4}$ 	<ul style="list-style-type: none"> • Vacuum port M4x0.7, M6x1, M10x1.5
→ Page/online	val	esf	ljk	eswa

Accessories for vacuum

	
Type	Adapter AD
Description	<ul style="list-style-type: none"> • Vacuum port M5, G$\frac{1}{8}$, G$\frac{1}{4}$, G$\frac{3}{8}$
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