

Vacuum generators VAD/VAK

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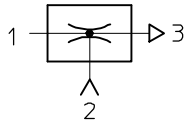
Vacuum generators

Key features

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Product overview

Vacuum generator



All Festo vacuum generators have a single-stage design and operate according to the venturi principle. The product families described below

have been designed for a wide range of applications. The different performance classes of the individual

product families make it possible to select vacuum generators tailored to suit specific requirements.

Standard and inline ejectors

VN-...

Technical data → Internet: vn



- Nominal size 0.45 ... 3 mm
- Max. vacuum 93%
- Temperature range 0 ... +60 °C
- A range of extremely effective generators suitable for use directly in the workplace
- Available as straight or T-shaped housing
- Low space requirement
- Low-cost
- No wearing parts
- Extremely fast evacuation time
- Vacuum switch (optional)
- Optional with additional functions:
 - integrated eject pulse
 - electric control for vacuum ON/OFF
 - combination of eject pulse and control

VAD-.../VAK-...

→ 6



- Nominal size 0.5 ... 1.5 mm
- Max. vacuum 80%
- Temperature range -20 ...+80 °C
- Range of vacuum generators with sturdy aluminium casing
- VAK-...: Built-in reservoir
- VAD-...: Connection for additional external reservoir
- Maintenance-free
- VAK-...: Reliable setting down of workpieces

Vacuum generators

Key features

Compact ejectors

VADM-...VADMI-...

Technical data → Internet: vadm



- Nominal size
0.45 ... 3 mm
- Max. vacuum
84%
- Temperature range
0 ... +60 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VADMI-...: Additional built-in solenoid valve for ejector pulse
- Filter with display
- Air-saving circuit (optional)
- Vacuum switch (optional)
- Reliable setting down of workpieces

VAD-M-.../VAD-M-I-...

Technical data → Internet: vad-m

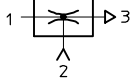


- Nominal size
0.7 ... 2 mm
- Max. vacuum
85%
- Temperature range
0 ... +40 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VAD-M-I-...: Additional built-in solenoid valve for ejector pulse
- Reliable setting down of workpieces

Vacuum generators VAD/VAK

Key features

At a glance



- Vacuum generation via ejector principle
- Mounting holes in metal housing
- Connecting thread for the suction cup

Compressed air flowing from 1 to 3 generates a vacuum at port 2 in accordance with the ejector principle.

The low noise levels which occur during exhaust can be further reduced with a silencer at port 3.

Workpieces can be picked up in any position. When the compressed air is turned off, the suction process ends and the vacuum dissipates.

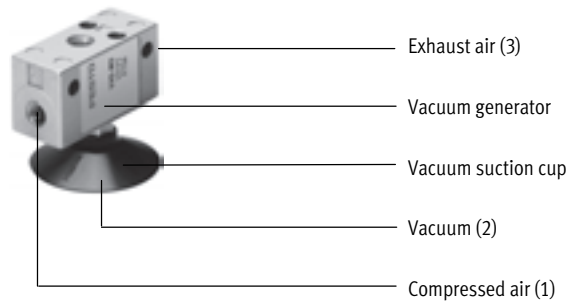
During the suction process, the vacuum generator VAK fills a reservoir of approx. 32 cm³ with compressed

air, which creates an ejector pulse when the input pressure is switched off and reliably releases the workpiece from the suction cup.

Max. switching frequency approx. 10 Hz at 6 bar and with approx. 1 m suction line.

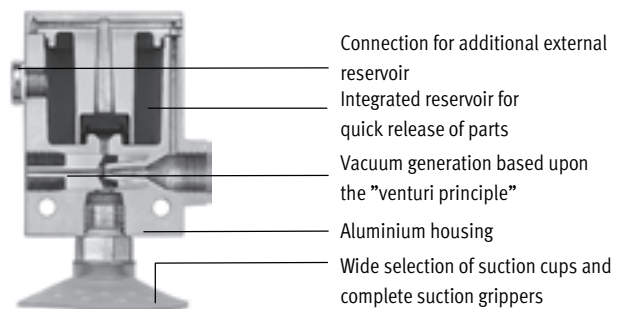
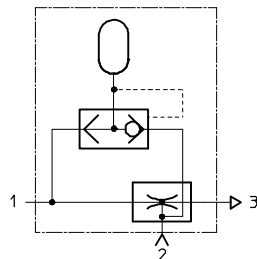
Vacuum generator VAD-... without ejector pulse

- Workpieces can be picked up in any position.
- Sturdy and resistant to environmental factors
- Easy to install
- No moving parts, maintenance-free
- Connecting threads and mounting holes available



Vacuum generator VAK-... with ejector pulse

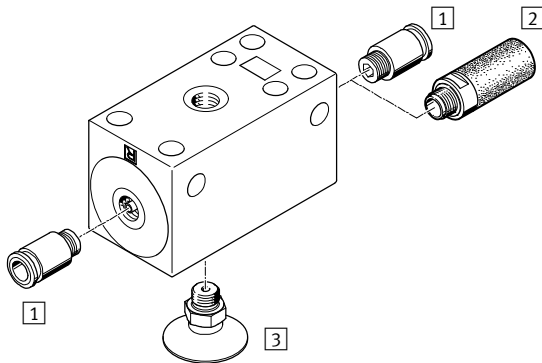
- Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir
- Robust vacuum generator for a broad field of applications
- Optional silencer



Vacuum generators VAD/VAK

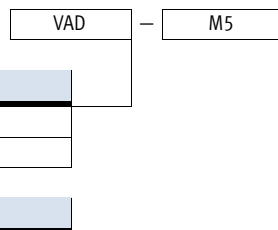
Peripherals overview and type codes

Peripherals overview




Mounting attachments and accessories		→ Page/Internet
1	Push-in fitting QS	qs
2	Silencer U/UC	u
3	Suction cups VAS/VASB	vas
-	Suction gripper ESG	esg
-	Suction cup holder ESH	esh
-	suction cup ESS	ess

Type codes



Type	
VAD	Vacuum generator
VAK	Vacuum generator

Connection sizes	
M5	Thread M5
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8

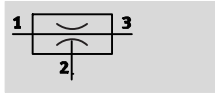
-  - Note
Possible combinations can be found in the ordering data.



Vacuum generators VAD/VAK

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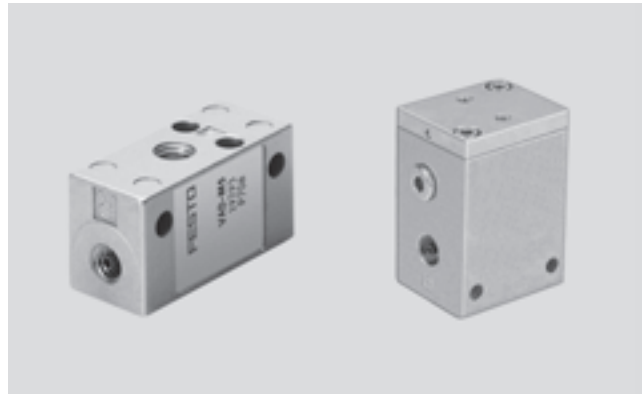
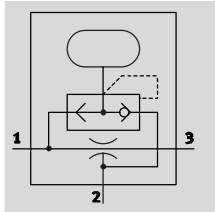
Technical data

VAD



-  - Temperature range
-20 ... +80 °C
-  - Operating pressure
1.5 ... 10 bar

VAK



General technical data					
Type	VAD				VAK
Size	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Nominal size of laval nozzle [mm]	0.5	0.8	1	1.5	1
Ejector characteristic	High vacuum				
Max. vacuum [%]	80				
Pneumatic connection 1	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Vacuum connection	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Pneumatic connection 3	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$
Design	T-type				
Integrated function	-				Pneumatic ejector pulse
Type of mounting	Via through-holes				
Assembly position	Any				

Operating and environmental conditions	
Operating pressure [bar]	1.5 ... 10
Operating medium	Compressed air according to ISO 8573-1:2010 [7:4:4]
Note about the operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-20 ... +80
Temperature of medium [°C]	-20 ... +80
Corrosion resistance class CRC ¹⁾	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Response time [s] as a function of vacuum [bar] at 6 bar operating pressure and 1 l volume						
Type	VAD					VAK
Size	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	
Evacuation						
At vacuum	0.2 bar	1.3	0.51	0.29	0.142	0.29
	0.4 bar	3.53	1.38	0.745	0.35	0.745
	0.6 bar	8.18	3.41	1.69	0.817	1.69
	0.8 bar	26.6 ¹⁾	11.67	4.04 ¹⁾	2.72	4.04 ¹⁾
Air supply						
At vacuum	0.2 bar	2.8	0.89	0.61	0.265	-
	0.4 bar	3.8	1.3	0.89	0.372	-
	0.6 bar	4.65	1.64	1.12	0.46	-
	0.8 bar	5.45	1.98	1.32	0.536	-

1) At 0.75 bar vacuum.

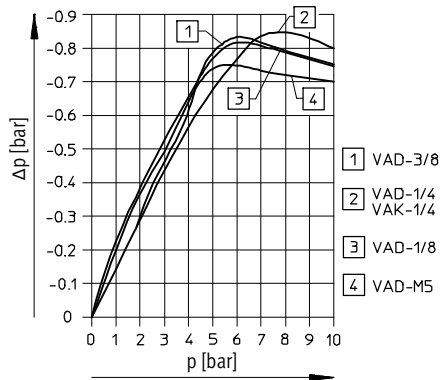
Vacuum generators VAD/VAK

Technical data

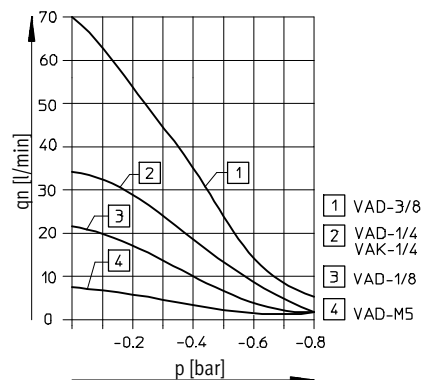
Materials

Housing	Die-cast aluminium
Note on materials	Free of copper and PTFE

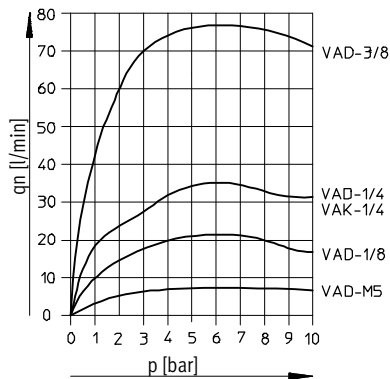
Vacuum Δp as a function of operating pressure p



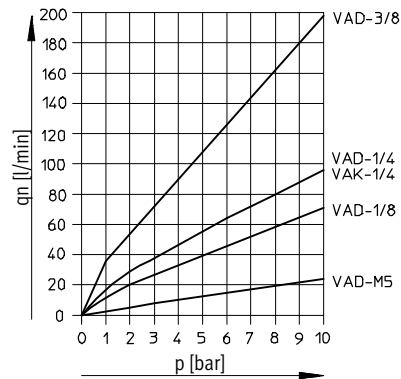
Suction capacity q_n as a function of vacuum p



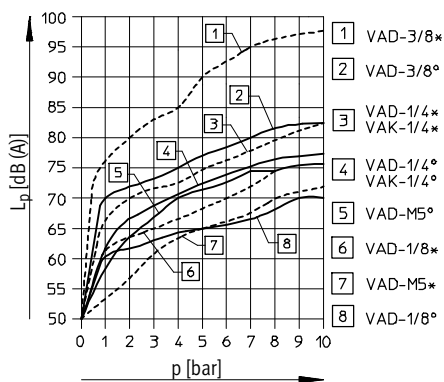
Suction capacity q_n as a function of operating pressure p



Air consumption q_n as a function of operating pressure p



Noise level L_p as a function of operating pressure p



* = without silencer; ° = with silencer

Vacuum generators VAD/VAK

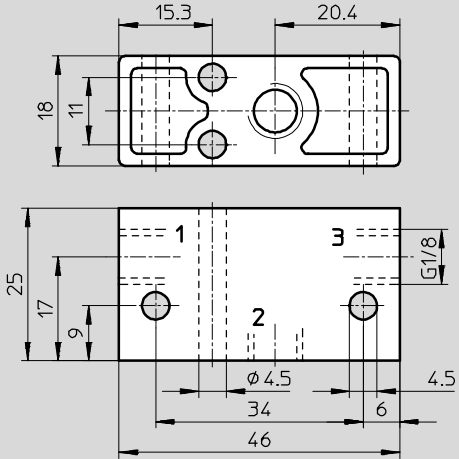
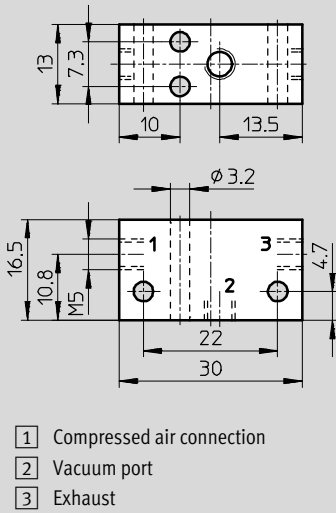
Technical data

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Dimensions

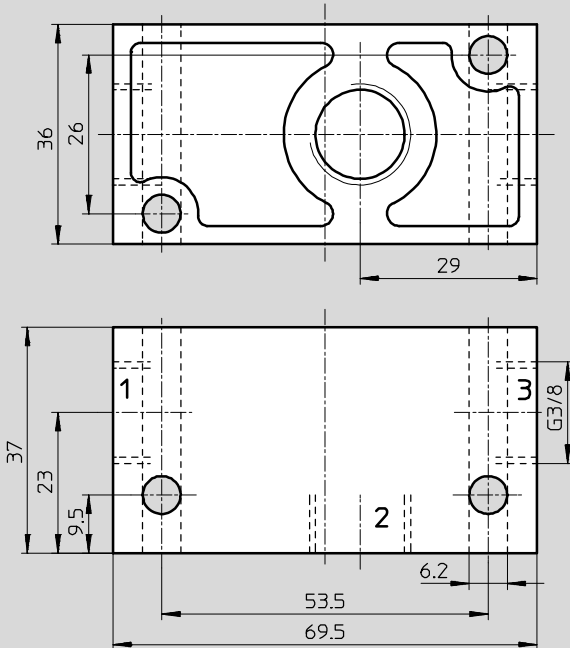
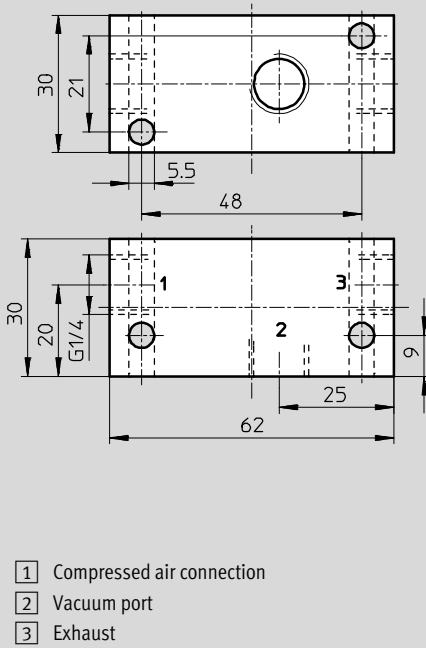
VAD-M5

VAD-1/8



VAD-1/4

VAD-3/8

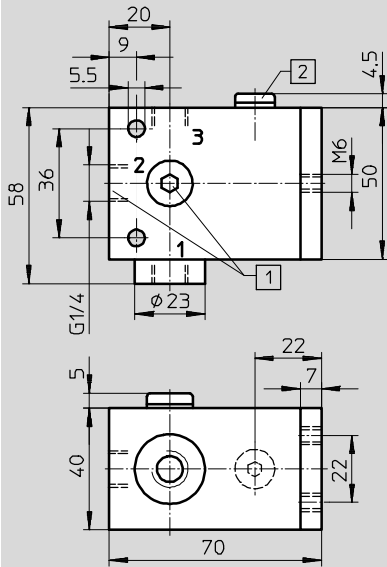


Vacuum generators VAD/VAK

Technical data

Dimensions

VAK-1/4



- 1 Alternative connection 2
- 2 Connection for additional reservoir

- 1 Compressed air connection
- 2 Vacuum port
- 3 Exhaust

Ordering data

Pneumatic connection	Nominal size of laval nozzle [mm]	Weight [g]	Part No.	Type
Without ejector pulse				
M5	0.5	14	19293	VAD-M5
G $\frac{1}{8}$	0.8	40	14015	VAD- $\frac{1}{8}$
G $\frac{1}{4}$	1	90	9394	VAD- $\frac{1}{4}$
G $\frac{3}{8}$	1.5	155	19294	VAD- $\frac{3}{8}$
With ejector pulse				
G $\frac{1}{4}$	1	265	6890	VAK- $\frac{1}{4}$

Product Range and Company Overview

A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical
Electromechanical actuators, motors, controllers & drivers



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

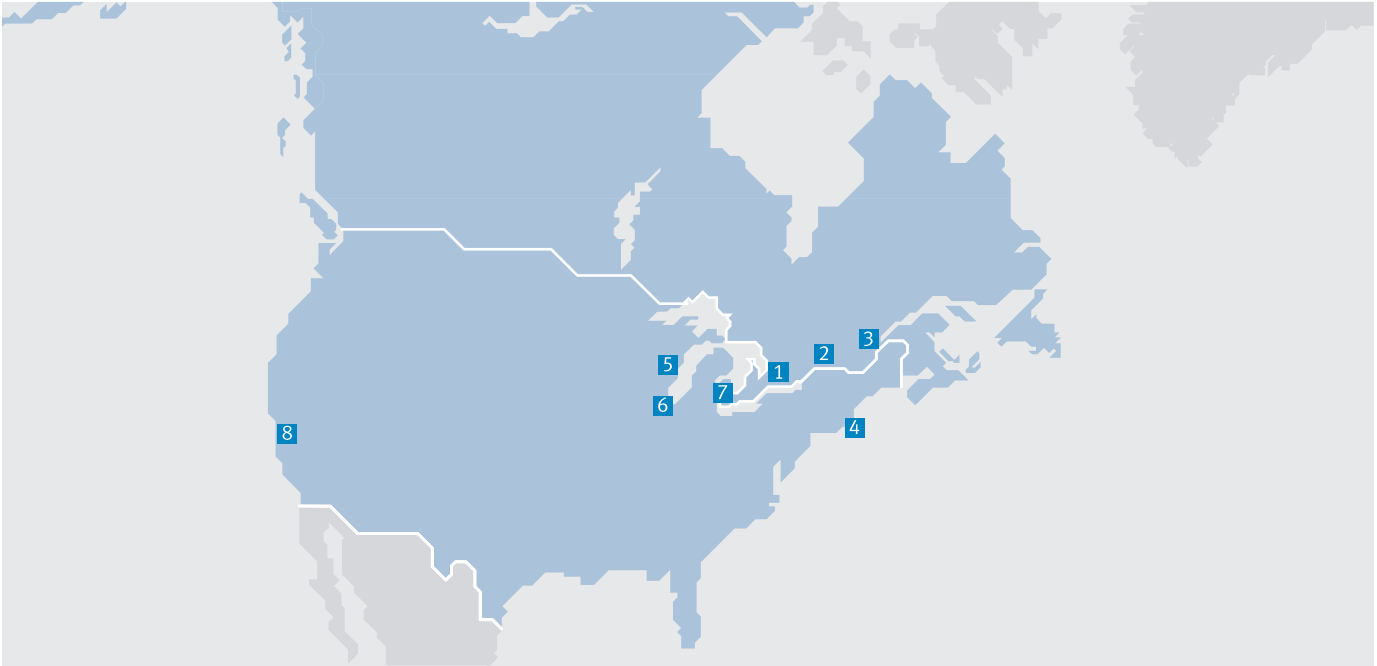


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Festo North America



**1 Festo Canada
Headquarters
Festo Inc.**
5300 Explorer Drive
Mississauga, ON
L4W 5G4

2 Montréal
5600, Trans-Canada
Pointe-Claire, QC
H9R 1B6

3 Québec City
2930, rue Watt#117
Québec, QC
G1X 4G3



**4 Festo United States
Headquarters
Festo Corporation**
395 Moreland Road
Hauppauge, NY
11788

5 Appleton
North 922 Tower View Drive, Suite N
Greenville, WI
54942

7 Detroit
1441 West Long Lake Road
Troy, MI
48098

6 Chicago
85 W Algonquin - Suite 340
Arlington Heights, IL
60005

8 Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA
94550

Festo Regional Contact Center

Canadian Customers

Commercial Support:
Tel: 1 877 GO FESTO (1 877 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: festo.canada@ca.festo.com

Technical Support:

Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: technical.support@ca.festo.com

USA Customers

Commercial Support:
Tel: 1 800 99 FESTO (1 800 993 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: customer.service@us.festo.com

Technical Support:

Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: product.support@us.festo.com