

Vacuum generators OVEM

FESTO



Vacuum generators OVEM

Key features

At a glance

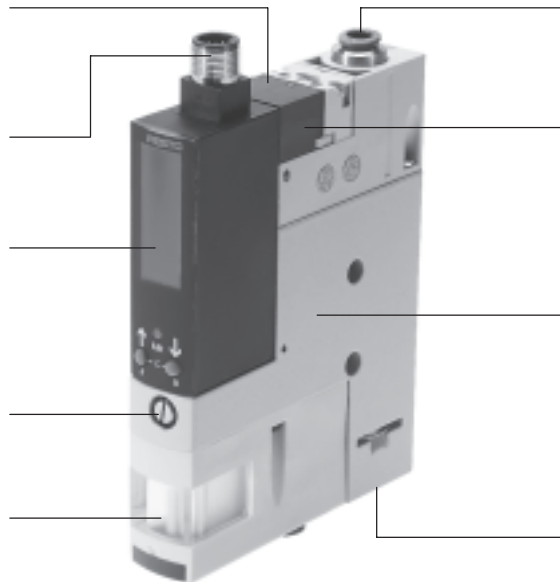
Accelerated vacuum reduction for safe placement of the workpiece by means of integrated solenoid valve for controlling the ejector pulse

Central electrical connection via M12 plug

Monitoring and visualisation of the vacuum by means of vacuum sensor with LCD display (inchHg)

Adjustment of the ejector pulse via flow control screw

Prevention of contamination of the vacuum generator through integrated filter



Quick and secure installation thanks to QS fitting

Fast vacuum build-up by means of integrated solenoid valve for controlling the compressed air supply

Prevention of pressure drops by means of integrated non-return valve

Maintenance-free operation and reduced noise level through integrated, open silencer

The innovative vacuum generator

Wide range of configuration options

The modular vacuum generator series OVEM offers a wide range of individual selectable functions, making it possible to find a solution for the most varied of applications.

- 3 nominal sizes
0.45 ... 0.95 mm
- Two types of vacuum generator characteristic: high vacuum and high suction rate
- Integrated solenoid valve for controlling the ejector pulse

- Integrated solenoid valve for controlling the compressed air using two different switching functions
 - NC - normally closed
 - NO - normally open
- Selectable electrical switching output for the vacuum sensor
- Alternative vacuum display can be selected (inchH₂O, bar)
- Different pneumatic connection variants (QS fitting or female thread)

Economical

- Short switching times thanks to integrated solenoid valves
 - vacuum ON/OFF
 - ejector pulse
- Quick, precise and safe placement of the workpiece by means of the ejector pulse
- Cost saving through integrated air-saving function
- Cost saving through preventive maintenance/service thanks to maintenance indicator
- Powerful supply of multiple vacuum generators via a common manifold rail (→ page 14)

Easy to use

- Simple installation via M12 plugs and QS fittings
- Simple mounting via screws
- All control elements on one side
- Vacuum is displayed numerically and as a bar chart on the LCD display
- Important parameters and diagnostic information are displayed on the LCD display
- Quiet operation thanks to integrated silencers

Process reliability

- Permanent monitoring of the entire vacuum system via a vacuum sensor with LCD display to reduce downtimes (condition monitoring)
- Prevention of pressure loss by means of an integrated air-saving function in conjunction with an integrated non-return valve

Space-saving

- All functions are compactly integrated in one unit.
- No protruding elements such as valves or vacuum sensor
 - Space-optimised installation is possible as all the control elements can be accessed from one side

Easy to maintain

- Integrated filter with inspection window for maintenance display
- Reduced contamination of the vacuum generator thanks to an open silencer

Choice of mounting types

- Direct mounting or via mounting bracket
- Straightforward mounting on H-rail via accessories
- Blocking of multiple vacuum generators on a common manifold rail (→ page 14)

Vacuum generators OVEM

Key features

Operational principle of OVEM

Vacuum ON/OFF

The compressed air supply is controlled by an integrated solenoid valve. The solenoid valve can be supplied with two different switching functions, NC and NO.

- NC - normally closed:
The vacuum is generated when the vacuum generator is pressurised with compressed air and the solenoid valve has been switched.
- NO - normally open:
The vacuum is generated when the vacuum generator is pressurised with compressed air and the solenoid valve is in the normal position.

Vacuum sensor

The set reference value for the generated vacuum is monitored via an integrated vacuum sensor. If the reference value is reached or if it is not reached due to malfunctions (e.g. leakages, dropped workpiece), the vacuum sensor emits an electrical signal. Vacuum monitoring is the basis for the vacuum generator's air-saving function.

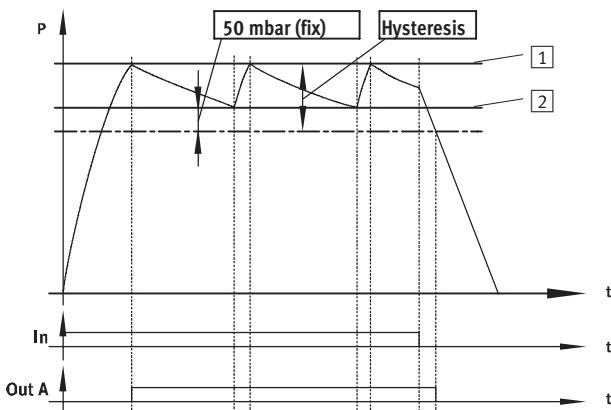
Switching outputs/switching input

The vacuum generator can be connected to higher-order systems by means of two digital switching outputs, or one digital switching input and one analogue input, or by means of one digital switching input. The switching outputs can be configured as normally open or normally closed contacts. The switching function of the outputs can be stipulated as a threshold or window comparator. In the case of vacuum generators with two switching outputs, the outputs can be configured independently of each other. This enables tasks to be performed in parallel with one vacuum generator, reducing the time needed for sorting good and reject parts, for example.

Ejector pulse

With a second integrated solenoid valve, an ejector pulse is activated and generated after the vacuum is switched off to release the workpiece safely from the suction cup and to reduce the vacuum quickly.

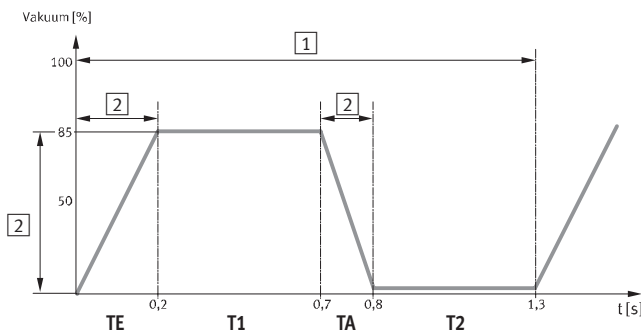
Air-saving function LS (-CE, -OE)



If the desired threshold value [1] is reached for the vacuum, vacuum generation is automatically switched off. A non-return valve prevents the reduction of the vacuum. Nonetheless, leakage (e.g. due to rough workpiece surfaces) will

slowly reduce the vacuum. If the pressure drops below the threshold value [2], vacuum generation is switched on automatically. Vacuum is generated until the set threshold value [1] is reached again.

Condition monitoring and diagnostics



- | | |
|--------------------|--------------------|
| [1] Cycle time | T1 Transport time |
| [2] Monitoring | TA Air supply time |
| TE Evacuation time | T2 Return time |

The main operating parameters

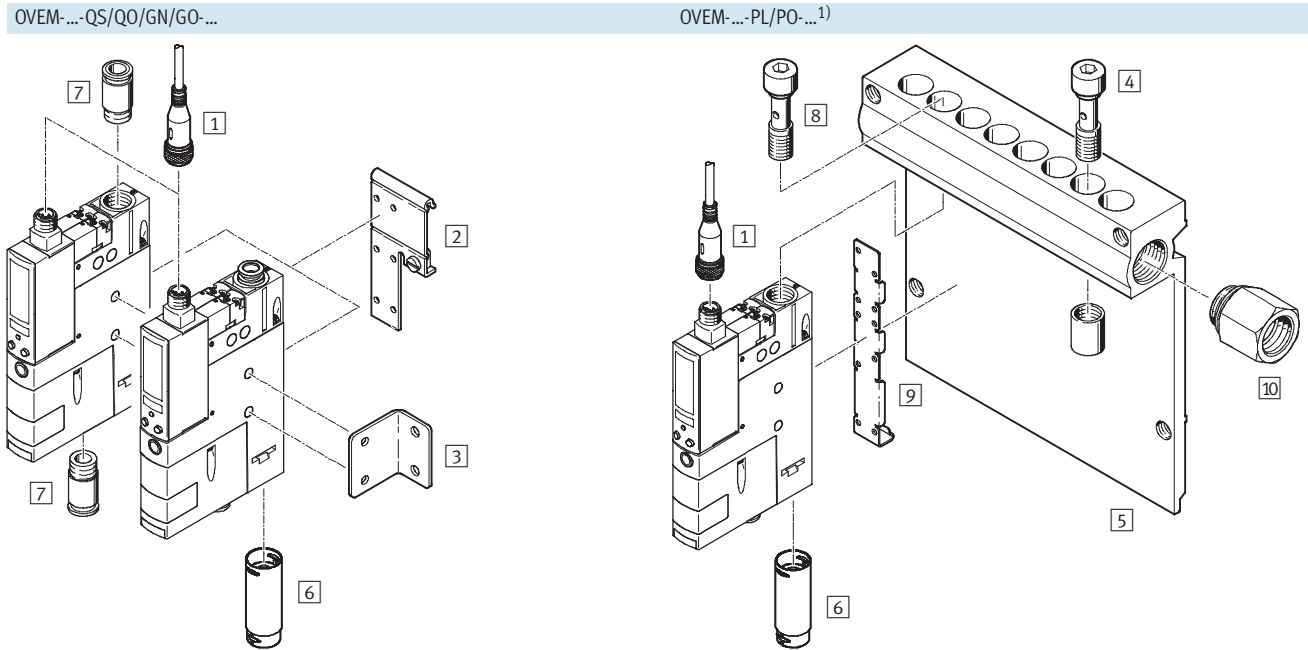
- vacuum,
 - evacuation time and
 - air supply time
- are continuously measured in the vacuum generator and compared with the individually set reference values (condition monitoring). If deviations in the reference values occur, these will be determined by the vacuum

generator and shown on the display (diagnostics). An electrical signal will also be transmitted to the higher-order controller.

- This permits preventative action
- in order to prevent machine failure or downtimes, for example, through timely maintenance
 - and to ensure process reliability (adherence to the cycle time).

Vacuum generators OVEM

Peripherals overview



1) Hollow bolt **8** and mounting bracket **9** are included in the scope of delivery for the OVEM-...-PL/PO-...
Adapter **10** is included in the scope of delivery for the common supply manifold OABM-P-...

Mounting attachments and accessories		OVEM-...-QS/QO/GN/GO-...				OVEM-...-PL/PO-...		→ Page/Internet
		QS	QO	GN	GO	PL	PO	
1	Connecting cable NEBU-M12G5		■			■		nebu
2	H-rail mounting OABM-H		■			-		15
3	Mounting bracket HRM-1		■			-		hrm-1
4	Blanking plug OASC-G1-P		-			■		15
5	Common supply manifold OABM-P-...		-			■		14
6	Silencer extension UOMS-¼	-	■	-	■	-	■	uoms
7	Push-in fitting QS	-		■		-		quick star
-	Suction gripper ESG		■			■		esg
-	Suction cup holder ESH		■			■		esh
-	Suction cup ESS		■			■		ess

Vacuum generators OVEM

Type codes

		OVEM	-	10	-	H	-	BN	-	QO	-	CE	-	N	-	2P	-		
Type																			
OVEM	Vacuum generator																		
Nominal size of laval nozzle [mm]																			
05	0.45																		
07	0.7																		
10	0.95																		
Ejector characteristic																			
H	High vacuum																		
L	High suction rate																		
Housing width																			
BN	Grid dimension 20 mm (inch version)																		
Pneumatic connections																			
QS	P-V-R with QS fitting (inch)																		
QO	P-V with QS fitting (inch), R with open silencer																		
GN	P-V-R with NPT female thread																		
GO	P-V with NPT female thread, R with open silencer																		
PL	Prepared for common supply manifold, V-R with QS fitting (inch)																		
PO	Prepared for common supply manifold, V with QS fitting (inch), R with open silencer																		
Normal position of the vacuum generator																			
ON	NO, normally open (vacuum generation)																		
OE	NO, normally open with ejector pulse																		
CN	NC, normally closed (vacuum generation)																		
CE	NC, normally closed with ejector pulse																		
Electrical connection																			
N	Plug M12 (5-pin)																		
Vacuum sensor, electrical switching output																			
2P	2 switching outputs PNP																		
2N	2 switching outputs NPN																		
PU	1 switching output PNP, 1 analogue output 0 ... 10 V																		
PI	1 switching output PNP, 1 analogue output 4 ... 20 mA																		
NU	1 switching output NPN, 1 analogue output 0 ... 10 V																		
NI	1 switching output NPN, 1 analogue output 4 ... 20 mA																		
Vacuum display																			
-	inchHg																		
W	inchH2O																		
B	bar																		

Vacuum generators OVEM

Technical data



Function

NC, normally closed:

- ejector pulse,
- QS fitting (inch) or NPT female thread,
- with open silencer,
- prepared for common supply manifold

NO, normally open:

- ejector pulse,
- QS fitting (inch) or NPT female thread,
- with open silencer,
- prepared for common supply manifold

-  - Temperature range
0 ... +50 °C
-  - Operating pressure
2 ... 8 bar



General technical data													
Type	OVEM-05			OVEM-07/10			OVEM-05			OVEM-07/10			
Pneumatic connections	QO	GO	PO	QO	GO	PO	QS	GN	PL	QS	GN	PL	
Nominal size of laval nozzle [mm]	0.45			0.7			0.45			0.7			
Grid dimension [mm]	20												
Ejector characteristic	High vacuum/standard H High suction rate/standard L												
Grade of filtration [µm]	40												
Duty cycle [%]	100												
Constructional design	Modular												
Mounting position	Any												
Type of mounting	Via through-hole Via female thread Via accessories												
Pneumatic connection 1	QS-1/4	NPT1/8	-	QS-5/16	NPT1/4	-	QS-1/4	NPT1/8	-	QS-5/16	NPT1/4	-	
Vacuum port	QS-1/4	NPT1/8	QS-1/4	QS-5/16	NPT1/4	QS-5/16	QS-1/4	NPT1/8	QS-1/4	QS-5/16	NPT1/4	QS-5/16	
Pneumatic connection 3	Open silencer, integrated						QS-5/16	NPT1/8	QS-5/16	QS-5/16	NPT1/4	QS-5/16	
Silencer design	Open						-						
Integrated function	ON/CN	On-off valve, electrical											
		Vacuum sensor											
		Filter											
		Silencer, open						-					
		-											
	OE/CE	On-off valve, electrical											
		Ejector pulse, electrical											
		Flow control valve											
		Vacuum sensor											
		Air saving function, electrical											
Valve function	ON/OE	Open											
		Closed											
	CN/CE	Open											
		Closed											
Manual override	Non-detenting												
	Additionally via operating buttons												

Vacuum generators OVEM

Technical data

Operating and environmental conditions		
Type	OVEM-05/07/10-...-QO/PO/GO	OVEM-05/07/10-...-QS/GN/PL
Operating pressure [bar]	2 ... 8	2 ... 6
Nominal operating pressure [bar]	6	
Operating medium	Filtered compressed air, unlubricated, grade of filtration 40 µm	
Ambient temperature [°C]	0 ... +50	
Temperature of medium [°C]	0 ... +50	
Corrosion resistance class CRC ¹⁾	2	
CE mark (see declaration of conformity)	To EU EMC Directive	
Certification	C-Tick	

- 1) Corrosion resistance class 2 to Festo standard 940 070
 Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Performance data – High vacuum												
Type	OVEM-05				OVEM-07				OVEM-10			
Normal position of the vacuum generator	ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE
Max. vacuum [%]	93											
Operating pressure for max. vacuum [bar]	5.1				4.1				3.5			
Max. suction rate with respect to atmosphere [l/min]	6				16				19.5			
Suction rate at p ₁ = 6 bar [l/min]	5.9				15.1				16.8			
Air supply time ¹⁾ for 1 l volume, at p ₁ = 6 bar [s]	4.8	2	4.8	2	1.9	0.4	1.9	0.4	1.2	0.2	1.2	0.2
Noise level at p ₁ = 6 bar db(A)	51				58				73			

- 1) Time required to reduce vacuum to -0.05 bar.

Performance data – High suction rate												
Type	OVEM-05				OVEM-07				OVEM-10			
Normal position of the vacuum generator	ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE
Max. suction rate with respect to atmosphere [l/min]	13				31.5				45			
Suction rate at p ₁ = 6 bar [l/min]	12.8				31.5				45			
Air supply time ¹⁾ for 1 l volume, at p ₁ = 6 bar [s]	2	1.3	2	1.3	1	0.2	1	0.2	0.8	0.2	0.8	0.2
Noise level at p ₁ = 6 bar db(A)	45				53				64			

- 1) Time required to reduce vacuum to -0.05 bar.

Vacuum generators OVEM

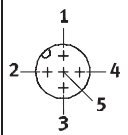
Technical data

Technical data – Vacuum sensor						
Electrical switching output	2P	2N	PU	NU	PI	NI
Mechanical						
Measured variable	Relative pressure					
Measuring principle	Piezoresistive					
Pressure measuring range	[bar]	–1 ... 0				
Accuracy FS ¹⁾	[%]	3				
Repetition accuracy of switching value FS ¹⁾	[%]	0.6				
Setting options	Via display and keys					
Threshold value setting range	[bar]	–0.999 ... 0				
Hysteresis setting range	[bar]	–0.9 ... 0				
Type of display	4-character alphanumerical, backlit LCD					
Displayable units	–	inchHg				
	W	inchH2O				
	B	bar				
Display range	[inchHg]	–29.5 ... 0				
	[inchH2O]	–401.9 ... 0				
	[bar]	–0.999 ... 0				
Switching status display	Visual					
Switching position display	LCD					
Electrical connection	Plug M12x1, 5-pin					
Electrical						
Switching output	2x PNP	2x NPN	1x PNP	1x NPN	1x PNP	1x NPN
Standard switching input	IEC 611 31-2					
Switching element function	N/O contact					
	N/C contact					
Switching function	Window comparator					
	Threshold comparator					
Operating voltage range	[V DC]	20.4 ... 27.6				
Idle current	[mA]	< 70				
Coil characteristics 24 VDC	[W]	Low-current phase: 0.3				
		High-current phase: 2.55				
Residual current	[mA]	0.1				
Max. output current	[mA]	100				
Voltage drop	[V]	≤ 1.5				
Inductive protective circuit	Adapted to MZ, MY, ME coils					
Switch-on suppression	Yes					
Analogue output	[V]	–			0 ... 10	
	[mA]	–			4 ... 20	
Permitted load resistance for analogue output	[ohms]	–		Min. 2,000		Max. 500
Accuracy of analogue output FS ¹⁾	[%]	–		4		
Protection against short circuit	Yes					
Protection against overloading	Yes					
Protection against polarity reversal	For all electrical connections					
Degree of protection	IP65					
Electrical protection class	III					

1) % FS = % of the measuring range final value (full scale)

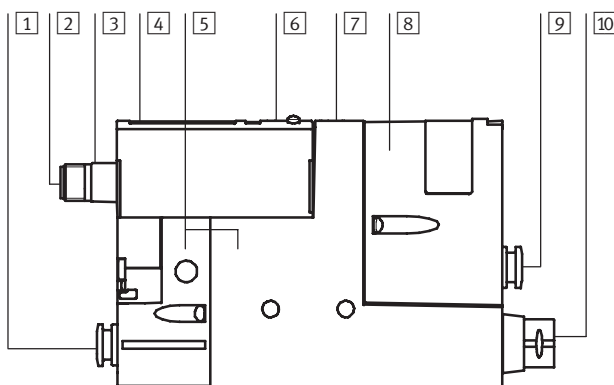
Vacuum generators OVEM

Technical data

Pin allocation		
Plug M12x1, 5-pin	Pin	Description
	1	Supply voltage +24 V DC
	2	Output B (function depending on variant)
	3	0 V
	4	Output A (switching output for vacuum sensor)
	5	Switching input In (vacuum ON/OFF and ejector pulse)

Materials

Sectional view



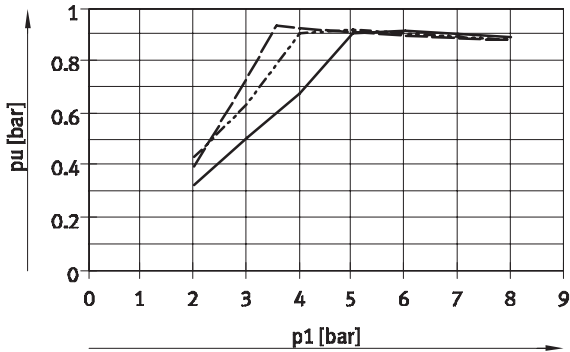
Vacuum generator OVEM-05/07/10			
1	Fitting	QS QO	Nickel-plated brass
	Connecting thread	GN	Wrought aluminium alloy, anodised
		GO	
2	Plug contacts		Gold-plated brass
3	Plug housing		Nickel-plated brass
4	Inspection window		Polyamide
5	Housing		Die-cast aluminium, reinforced polyamide
6	Key pad		Thermoplastic polyurethane elastomer
7	Adjusting screw	CE	Steel
		OE	
8	Filter housing		Reinforced polyamide
9	Fitting	QS	Nickel-plated brass
		QO	
		PL	
		PO	
Connecting thread	GN	Wrought aluminium alloy, anodised	
	GO		
10	Silencer	QO	Wrought aluminium alloy, PU foam
		GO	
		PO	
Fitting	QS	Nickel-plated brass	
	PL		
Connecting thread	GN	Wrought aluminium alloy, anodised	
-	Screws		Steel
-	Pins		Steel
-	Jet nozzle		Wrought aluminium alloy
-	Receiver nozzle		Polyacetal
-	Filter		Fabric, polyamide, sintered steel
-	Seals		Nitrile rubber
-	Hollow bolt	PL	Wrought aluminium alloy
		PO	
-	Mounting bracket	PL	Stainless steel
		PO	
Note on materials		QO	Contains PWIS (paint-wetting impairment substances)
		GO	
		PO	

Vacuum generators OVEM

Technical data

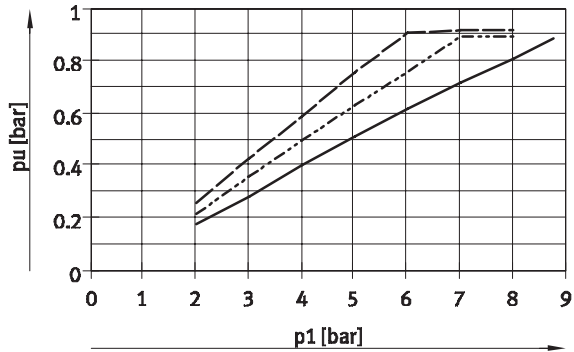
Vacuum p_u as a function of operating pressure p_1

High vacuum



- OVEM-05-H
- - - OVEM-07-H
- · - OVEM-10-H

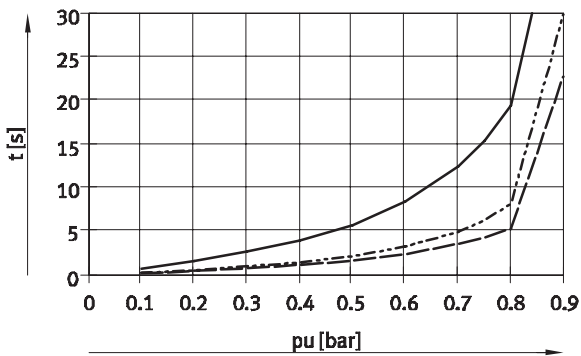
High suction rate



- OVEM-05-L
- - - OVEM-07-L
- · - OVEM-10-L

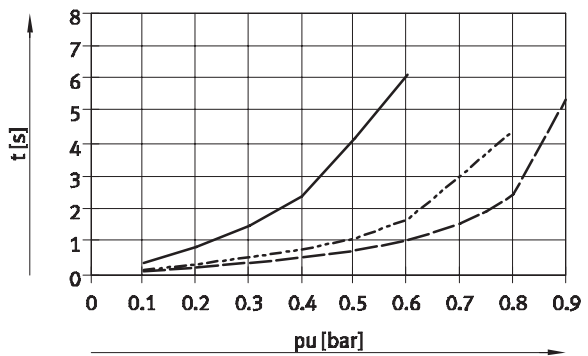
Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure

High vacuum



- OVEM-05-H
- - - OVEM-07-H
- · - OVEM-10-H

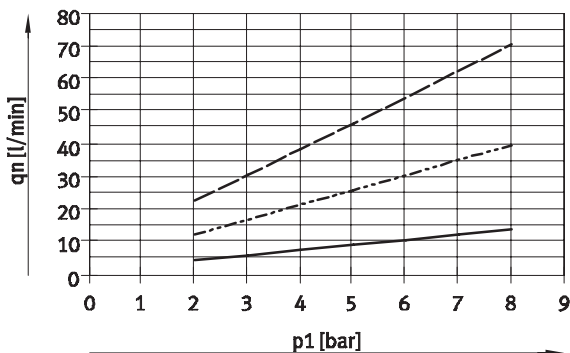
High suction rate



- OVEM-05-L
- - - OVEM-07-L
- · - OVEM-10-L

Air consumption q_n as a function of operating pressure p_1

High vacuum/high suction rate



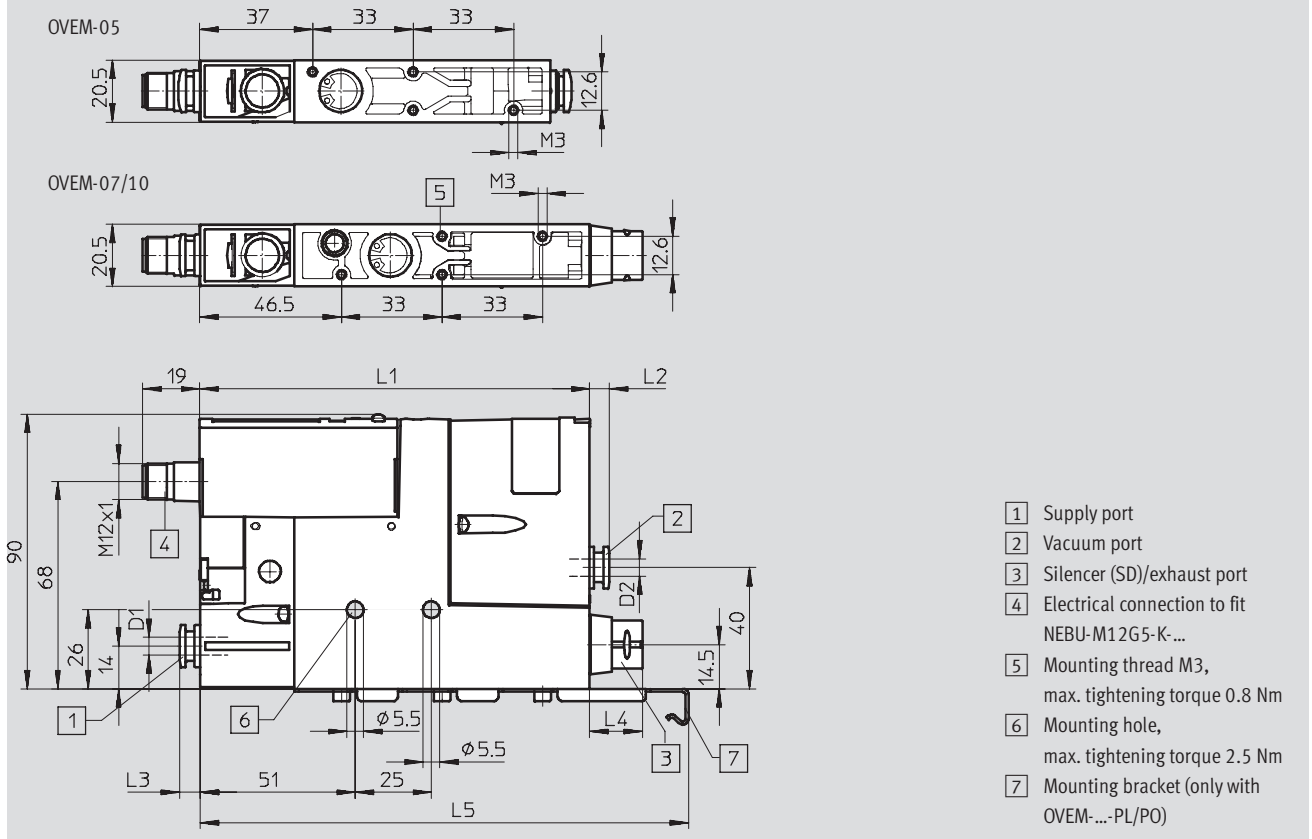
- OVEM-05
- - - OVEM-07
- · - OVEM-10

Vacuum generators OVEM

Technical data

Dimensions

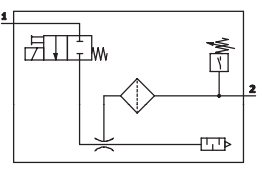
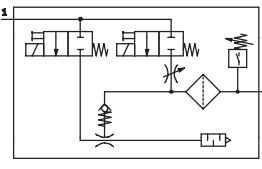
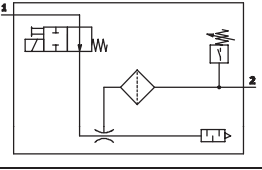
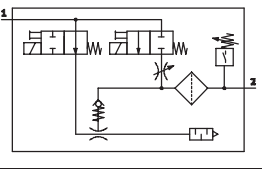
Download CAD data → www.festo.com



Type	Pneumatic connections			L1	L2	L3	L4	L5
	P D1	V D2	R					
OVEM-05-...-QS-...	QS-1/4	QS-1/4	QS-5/16	115	6.5	6.5	12	-
OVEM-05-...-QO-...	G1/4		SD				-	
OVEM-05-...-PL-...		QS-5/16	12					
OVEM-05-...-PO-...	NPT1/8	NPT1/8	SD		8.2	8.2	-	160.5
OVEM-05-...-GN-...			NPT1/8		8.2	-		
OVEM-05-...-GO-...	SD	-	-					
OVEM-07/10-...-QS-...	QS-5/16	QS-5/16	QS-5/16	128	6.5	6.5	12	-
OVEM-07/10-...-QO-...	G1/4		SD				17.3	
OVEM-07/10-...-PL-...		QS-5/16	12					
OVEM-07/10-...-PO-...	NPT1/4	NPT1/4	SD		17.3	-	160.5	
OVEM-07/10-...-GN-...			NPT1/4		17.2	17.2	-	
OVEM-07/10-...-GO-...	SD	17.3	-					

Vacuum generators OVEM

Technical data

Ordering data and weight					
Circuit symbol	Description	Nominal size [mm]	Weight [g]	Part No.	Type
Normally closed					
	With open silencer	0.45	317	539 992	OVEM-05-H-BN-QO-CN-N-2P
		0.7	322	539 993	OVEM-07-H-BN-QO-CN-N-2P
		0.95	322	539 994	OVEM-10-H-BN-QO-CN-N-2P
	With ejector pulse and open silencer	0.45	325	539 989	OVEM-05-H-BN-QO-CE-N-2P
		0.7	331	539 990	OVEM-07-H-BN-QO-CE-N-2P
		0.95	331	539 991	OVEM-10-H-BN-QO-CE-N-2P
Normally open					
	With open silencer	0.45	317	539 986	OVEM-05-H-BN-QO-ON-N-2P
		0.7	322	539 987	OVEM-07-H-BN-QO-ON-N-2P
		0.95	322	539 988	OVEM-10-H-BN-QO-ON-N-2P
	With ejector pulse and open silencer	0.45	325	539 983	OVEM-05-H-BN-QO-OE-N-2P
		0.7	331	539 984	OVEM-07-H-BN-QO-OE-N-2P
		0.95	331	539 985	OVEM-10-H-BN-QO-OE-N-2P

Vacuum generators OVEM

Ordering data – Modular products

M Mandatory data				O Options					
Module No.		Nominal size of laval nozzle		Housing size/width		Normal position of the vacuum generator		Vacuum sensor, electrical switching output	
Vacuum generator		Ejector characteristic		Pneumatic connections		Electrical connection		Alternative vacuum display	
539 075	OVEM	05 07 10	H L	BN	QS QO GN GO PL PO	ON OE CN CE	N	2P PU PI 2N NU NI	W B
Order example									
539075	OVEM	- 05	- H	- BN	- QO	- ON	- N	- 2P	- W

Ordering table				
Size		Conditions	Code	Enter code
M	Module No.	539075		
	Vacuum generator	Vacuum generator with solenoid valve for vacuum valve on/off and manual override	OVEM	OVEM
	Nominal size of laval nozzle [mm]	0.45	-05	
		0.7	-07	
		0.95	-10	
	Ejector characteristic	High vacuum	-H	
		High suction rate	-L	
	Housing size/width [mm]	20 (inch version)	-BN	-BN
	Pneumatic connections	All connections with inch fittings	-QS	
		Supply/vacuum port with inch fittings, exhaust port with open silencer	-QO	
		All connection with NPT female thread	-GN	
		Supply/vacuum port with NPT female thread, exhaust port with open silencer	-GO	
		Prepared for supply manifold, vacuum port and exhaust port with inch fittings	-PL	
		Prepared for supply manifold, vacuum port with inch fittings, exhaust port with open silencer	-PO	
	Normal position of the vacuum generator	NO, normally open (vacuum generation)	-ON	
		NO, normally open (vacuum generation) with ejector pulse	-OE	
		NC, normally closed (no vacuum generation)	-CN	
		NC, normally closed (no vacuum generation) with ejector pulse	-CE	
	Electrical connection	Plug M12 (5-pin)	-N	-N
O	Vacuum sensor, electrical switching output (standard scale in inchHG not with P1, N1)	Switching output 2x PNP	-2P	
		Switching output 1x PNP + U	-PU	
		Switching output 1x PNP + I	-PI	
		Switching output 2x NPN	-2N	
		Switching output 1x NPN + U	-NU	
		Switching output 1x NPN + I	-NI	
	Alternative vacuum display	inch H2O	-W	
		bar	-B	

Transfer order code

539075 OVEM - [] - [] - BN - [] - [] - N - [] - []

Vacuum generators OVEM

Accessories

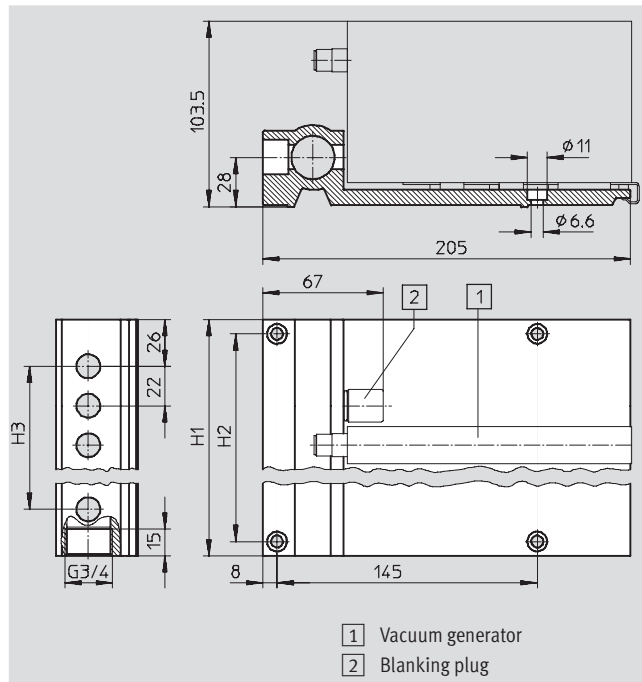
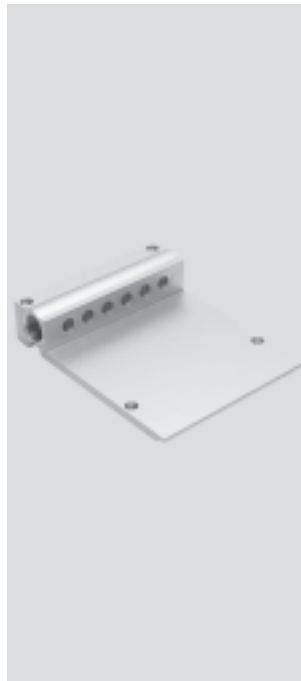


Common supply manifold OABM-P
for vacuum generator
OVEM-...-PL/PO

Pneumatic connection 1: G3/4
Type of mounting: Via through-hole

Material: Wrought aluminium alloy


Note on materials:
RoHS-compliant



Dimensions			
Number of device locations	H1	H2	H3
4	118	102	66
6	162	146	110
8	206	190	154

Tubing ID d_i as a function of total air consumption q_{nN}																	
Total air consumption [l/min]																	
50	75	154	175	225	310	400	480	500	750	890	1,000	1,190	1,340	1,850	2,240	2,300	2,900
Tubing ID ¹⁾ [mm]																	
≥ 2.5	≥ 2.9	≥ 3.8	≥ 4	≥ 4.4	≥ 5	≥ 5.5	≥ 5.9	≥ 6	≥ 7	≥ 7.5	≥ 8	≥ 8.4	≥ 8.8	≥ 10	≥ 10.8	≥ 11	≥ 12
Recommended tubing														Technical data → Internet: pun, pan			
PUN-4	PUN-6	PUN-8	PUN-10	PUN-12	PUN-16	PAN-16											

1) With a tubing length of 3 m

 **Note**

The total air consumption of the fully equipped common supply manifold vacuum generators with ejector pulse (OE, CE), the individually set values can be determined by adding the individual consumptions of the generators used. Note that in the case of for the ejector pulse (duration and intensity) can result in much higher air consumption.

Ordering data and weight					
	Number of device locations	CRC ¹⁾	Weight [g]	Part No.	Type
Common supply manifold	4	2	767	549456	OABM-P-4
	6	2	1,045	549457	OABM-P-6
	8	2	1,330	549458	OABM-P-8

1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Vacuum generators OVEM

Accessories

Blanking plug OASC-G1-P
for common supply manifold
OABM-P-...

Type of mounting: Screw-in
Max. tightening torque: 10 Nm

Material:
Hollow bolt: Wrought aluminium alloy
Blanking cap: Steel
Seals: Steel, nitrile rubber
Note on materials:
RoHS-compliant



Ordering data				
	CRC ¹⁾	Weight [g]	Part No.	Type
Blanking plug	2	53	549460	OASC-G1-P

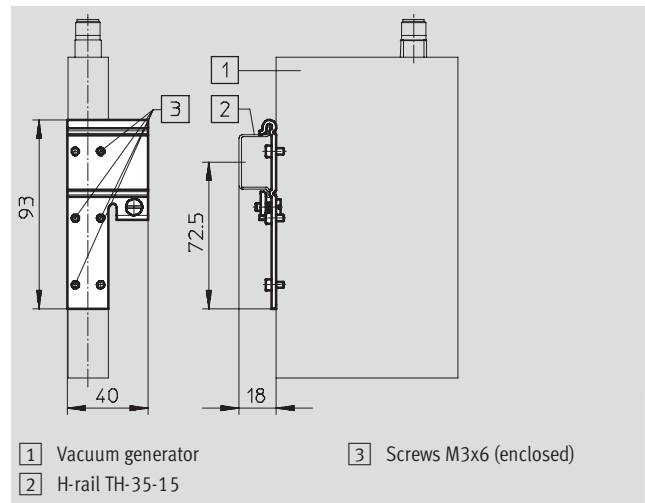
1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

H-rail mounting OABM-H
for vacuum generator OVEM

Max. tightening torque for H-rail mounting: 0.8 Nm

Material: Galvanised steel

Note on materials:
RoHS-compliant



Ordering data				
		Weight [g]	Part No.	Type
H-rail mounting		52	549461	OABM-H