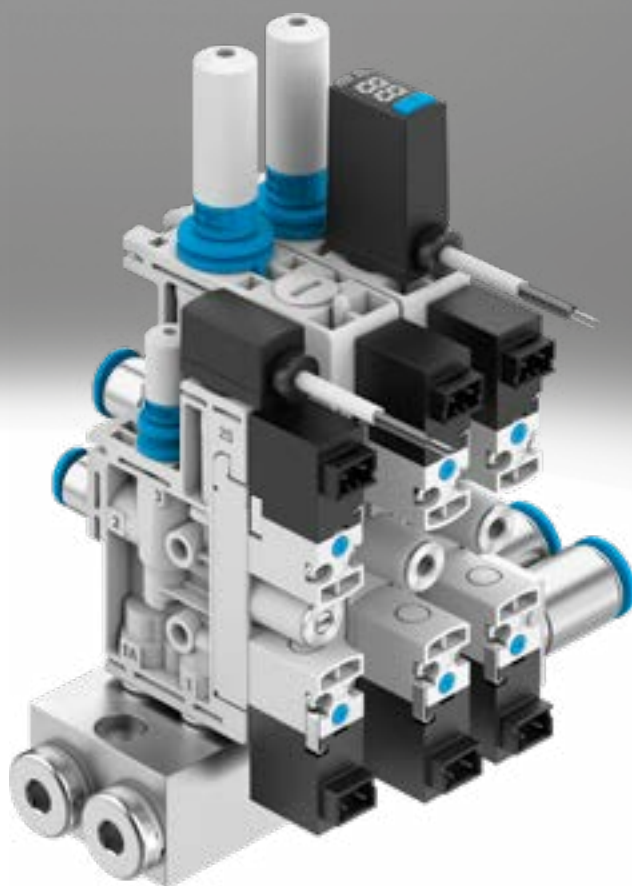


Vacuum generators OVTL

FESTO



Key features

At a glance

Rapid reduction of vacuum for safe placement of the workpiece by a solenoid valve to control the ejector pulse, optional

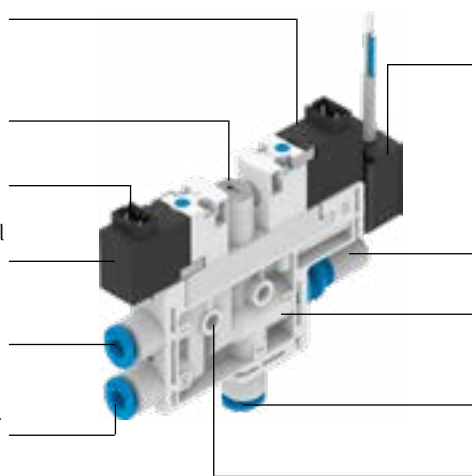
Flow control screw to adjust the ejector impulse

Electrical connection via H3 plug

Fast vacuum build-up using a solenoid valve to control the compressed air supply

Supply port, secured with wire clamp

Additional supply port for separate supply of the ejector pulse, optional, secured with wire clamp



Pressure transmitter SPTE/pressure sensor SPAE for monitoring the vacuum, optional, secured with clamping clip

Maintenance-free operation and reduced noise level with an open silencer, optional

Vacuum generator cartridge, secured with clamping clip

Vacuum connection, secured with clamping clip

Housing with mounting holes

The compact vacuum generator

OVTL → page 3

The vacuum generator OVTL is a configurable module comprising vacuum generator OVEL, the common supply manifold OABM-P and connection accessories.

All products are available from the factory fully assembled.



OVEL → ovel

- Low-cost, compact vacuum generator
- Low weight
- Various performance levels and vacuum types
- Short switching times with integrated solenoid valves
 - Vacuum on/off
 - Ejector pulse
- Simple installation with H3 plugs and push-in fittings
- Straightforward mounting with retaining screws
- Low-noise operation due to integrated silencer
- Integrated filter
- Reduced contamination of the vacuum generator thanks to an open silencer
- Solenoid valves are switched by mechanical manual override
- Vacuum monitored by vacuum sensor
- Link up to 8 vacuum generators on a single common supply manifold.

Functional principle of OVEL

Vacuum ON/OFF

The compressed air supply is controlled by a solenoid valve. The solenoid valve can be supplied with the N/C (normally closed) switching function,

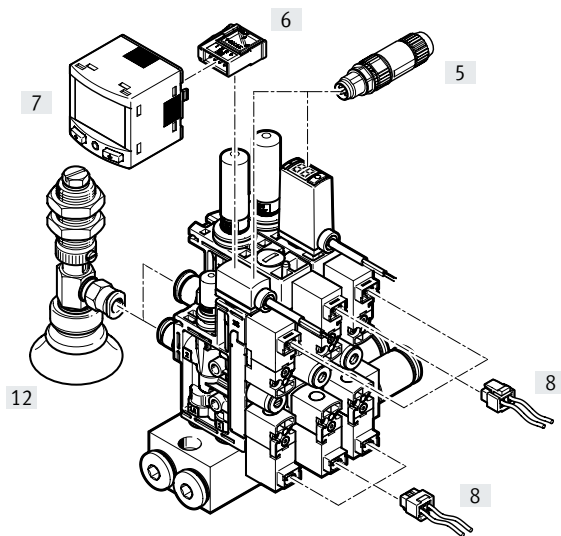
i.e. the vacuum is not generated until the vacuum generator is pressurised with compressed air and the solenoid valve has been switched.

Optional ejector pulse

After the vacuum is switched off, an ejector pulse is activated and generated by a second solenoid valve to release the workpiece safely from the suction cup with connection and to purge the vacuum quickly.

The compressed air for the ejector pulse can be supplied either via the supply port or a separate port.

Peripherals overview



Mounting attachments and accessories		→ Page/Internet
[5]	Plug NECU-S-M8G3/M12G3	13
[6]	Plug NECU-S-ECG4	13
[7]	Signal converter SCDN	13
[8]	Plug socket with cable NEBV	13
[12]	Suction gripper ESG	esg
-	Suction cup complete holder ESH	esh
-	Suction cup with connection ESS	ess
-	Vacuum filter OAFF	12

Type codes

001	Series	
OVTL	Vacuum generator	

002	Size	
10	10 mm	
15	15 mm	

003	Compressed air supply connection	
Q6	Push-in connector 6 mm	
Q8	Push-in connector 8 mm	
G18	G1/8	

004	Compressed air supply connection position	
	Both sides	
L	Left	
R	Right	

005	Exhaust connection	
RQ	QS connections, metric	
UA	Open silencer UO	

006	Number of vacuum generators	
2	2 pieces	
4	4 pieces	
8	8 pieces	



007	Position function	
SL	Vacant position	
SA	Laval nozzle 0.45 mm, for high vacuum, push-in connector 4 mm	
SB	Laval nozzle 0.7 mm, for high suction rate, push-in connector 6 mm	
SC	Laval nozzle 0.7 mm, for high vacuum, push-in connector 4 mm	
SD	Laval nozzle 0.95 mm, for high suction rate, push-in connector 6 mm	
SE	Laval nozzle 0.95 mm, for high vacuum, push-in connector 6 mm	

008	Sensor signal	
	None	
V	0 ... 10 V	
PNLK	PNP or NPN or IO-Link®	

Datasheet

Vacuum generator OVTL:

- Vacuum generators OVEL
- Common supply manifold OABM-P with 2, 4 or 8 positions
- Mounting kits OABM-MK
- Push-in fittings QS
- Blanking plug B

-  - Temperature range
0 ... +50°C
-  - Operating pressure
2 ... 7 bar

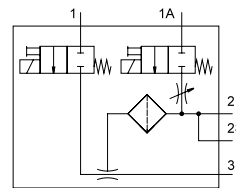


The vacuum generator OVTL is a module comprising vacuum generator OVEL, the common supply manifold OABM-P and connection accessories. All products are available from the factory fully assembled. The vacuum generator OVTL can be ordered using the modular product system, which is a simpler and quicker alternative to ordering and assembling the various individual products.

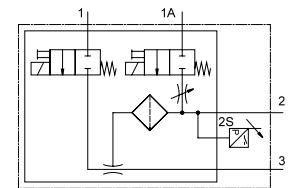
Every vacuum generator OVEL has

- a solenoid valve for controlling the ejector pulse
- a flow control screw for regulating the ejector pulse
- an additional supply port for the separate supply of the ejector pulse

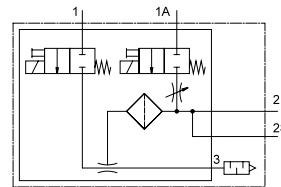
Without vacuum sensor
OVEL-...-RQ



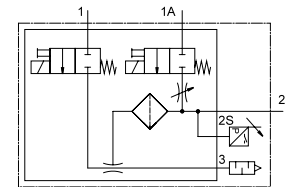
With vacuum sensor
OVEL-...-RQ



OVEL-...-UA



OVEL-...-UA



General technical data		OVTL-10	OVTL-15
Type		2 ... 8	
Number of device positions		2 ... 8	
Grid dimension	[mm]	10	15
Nominal width of Laval nozzle	OVTL-...-SA [mm]	0.45	
	OVTL-...-SB/SC [mm]	–	0.7
	OVTL-...-SD/SE [mm]	–	0.95
Grade of filtration	[µm]	40	
Mounting position		Any	
Type of mounting		With through-hole	
Pneumatic connection 1 (common supply manifold)	OVTL-...-Q6	For tubing O.D. 6 mm	
	OVTL-...-Q8	For tubing O.D. 8 mm	
	OVTL-...-G18	Female thread G1/8	
Vacuum connection	OVTL-...-SA	For tubing O.D. 4 mm	
	OVTL-...-SC	–	For tubing O.D. 4 mm
	OVTL-...-SB/SD/SE	–	For tubing O.D. 6 mm
Pneumatic connection 3	OVTL-...-UA	Open silencer	
	OVTL-...-RQ-...-SA	For tubing O.D. 4 mm	
	OVTL-...-RQ-...-SB/SC/SD/SE	–	For tubing O.D. 6 mm
Product weight ¹⁾	[g]	118 ... 890	

1) Total weight calculated by adding the weight of the separate components.

Datasheet

Technical data – design			
Type	OVTL-...-UA	OVTL-...-RQ	
Design		Connection position on both sides	
	OVTL-...-L/R	Connection position on the side	
Ejector characteristic	OVTL-...-SA/SC/SE	High vacuum/standard	
	OVTL-...-SB/SD	High suction rate/standard	
Silencer design	Open	–	
Integrated function		On/off valve, electric	
		Filter	
		Open silencer	–
		Electrical ejector pulse	
		Flow control valve	
	OVTL-...-V	Pressure transmitter	
	OVTL-...-PNLK	Pressure sensor	
Valve function	Closed		
Manual override	Non-detenting		


Operating and environmental conditions		
Operating pressure	[bar]	2 ... 7
Nominal operating pressure	[MPa]	0.4
	[bar]	4
	[psi]	58
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium	Lubricated operation not possible	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	
Ambient temperature	[°C]	0 ... +50
Temperature of medium	[°C]	0 ... +50
Corrosion resistance class CRC ¹⁾	2	
CE marking (see declaration of conformity ²⁾)	To EU EMC Directive	
Certification ²⁾	cUL us - Listed (OL)	
Degree of protection	IP40	

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with a normal industrial environment.
- 2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Performance data		
Max. vacuum	[%]	89 ... 92
Operating pressure for max. vacuum	[bar]	3.8 ... 4.5
Operating pressure for max. suction rate	[bar]	3 ... 6
Max. suction rate with respect to atmosphere	[l/min]	4 ... 45
Pressurisation time at nominal operating pressure 4 bar (for 1 l volume) ¹⁾	[s]	0.4 ... 2
Sound pressure level at p ₁ = 4 bar	[db(A)]	52 ... 68

- 1) Time required to reduce the vacuum to a residual vacuum of –0.05 bar

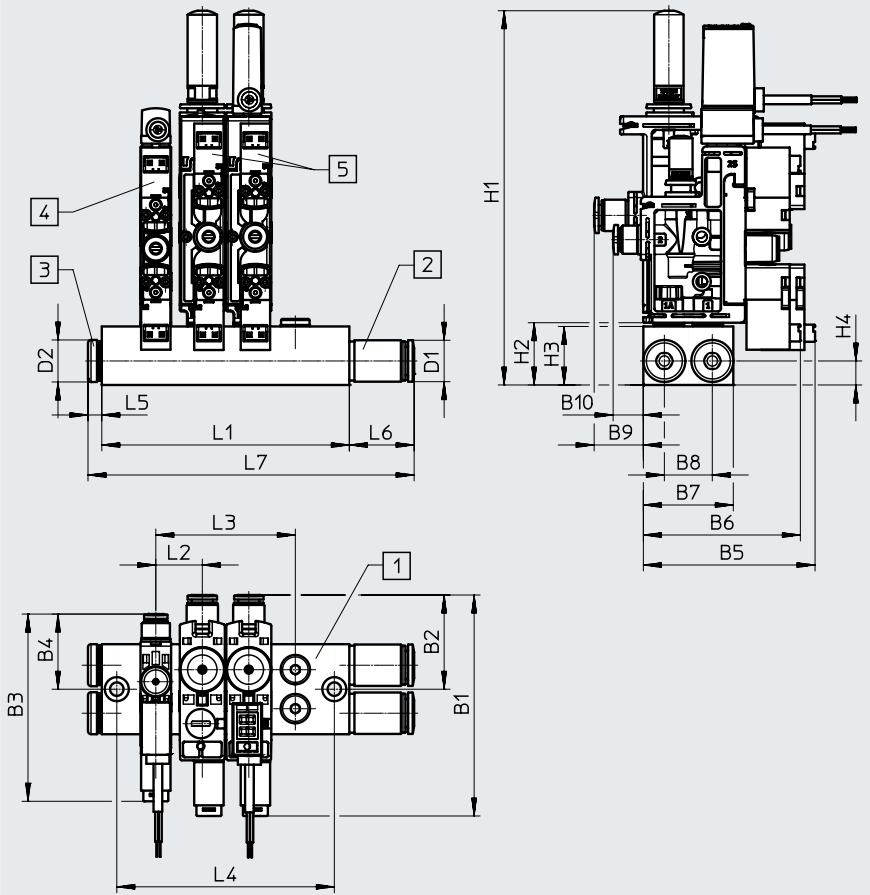
Datasheet

Technical data – electrical connection		
Solenoid valve		
Electrical connection input,	Function	Ejector pulse
		Vacuum generation
	Connection type	2x plugs
	Connection technology	Plug pattern H
	Number of pins/wires	2
	Plug pattern	
Type of mounting	Snap-locking	
Operating voltage range	[V DC]	21.6 ... 26.4
Duty cycle	[%]	100
Characteristic coil data, 24 V DC	[W]	1.0
Vacuum sensor		
Electrical connection output,	Function	Sensor
	Connection type	Cable
	Connection technology	Open end
	Number of pins/wires	3
Cable diameter	[mm]	2.9 ±0.1
Cable length	[m]	2.5
Nominal conductor cross section	[mm ²]	0.14
Cable characteristic	Suitable for energy chains	
Technical data – vacuum sensor		
Type	OVTL-...V	OVTL-...PNLK
Mechanical system		
Measurement method	Piezoresistive pressure sensor	Piezoresistive pressure sensor with display
Pressure measuring range	[MPa]	-0.1 ... 0
	[bar]	-1 ... 0
	[psi]	-14.5 ... 0
Setting options	-	Teach-in
	-	IO-Link®
	-	Via display and keys
Display type	-	LED display, 2-digit
Electrical system		
Operating voltage range, sensor	[V DC]	18 ... 30
Switching output	-	PNP/NPN switchable
Switching element function	-	N/C or N/O, switchable
Switching function	-	Freely programmable
Analogue output	[V]	0 ... 10
Materials		
Sub-base	Wrought aluminium alloy	
Hollow bolt	Wrought aluminium alloy	
Fitting	Nickel-plated brass	
Housing	Reinforced PA	
Silencer	PU	
Jet nozzle	Wrought aluminium alloy	
Female nozzle	POM	
Filter	POM	
Adjusting screw	Steel	
Connecting thread	POM	
Screws	Steel	
Cable sheath	PVC (colour: grey)	
Seals	NBR	
Note on materials	RoHS-compliant	

Datasheet

Dimensions

Download CAD data → www.festo.com



- [1] Common supply manifold
- [2] Push-in fitting
- [3] Blanking plug
- [4] Vacuum generator OVEL-5
- [5] Vacuum generator OVEL-7/10

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	D2 ∅	H1	H2	H3	H4
OVTL	74	31	62	25	57	52	30	16	16	10	14	125	21	19.5	8

Type	L1	L2	L3	L4
OVTL-10-...-2	40.5	10.5	10.5	30.5
OVTL-10-...-4	61.5		31.5	51.5
OVTL-10-...-8	103.5		73.5	93.5
OVTL-15-...-2	51.5	15.5	15.5	41.5
OVTL-15-...-4	82.5		46.5	72.5
OVTL-15-...-8	144.5		108.5	134.5

Type	D1	L5	L6	L7					
				OVTL-10-...-2	OVTL-10-...-4	OVTL-10-...-8	OVTL-15-...-2	OVTL-15-...-4	OVTL-15-...-8
OVTL-...-G18	-	-	-	40.5	61.5	103.5	51.5	82.5	144.5
OVTL-...-G18-L	-	-	5	45.5	66.5	108.5	56.5	87.5	149.5
OVTL-...-G18-R	-	5	-	45.5	66.5	108.5	56.5	87.5	149.5
OVTL-...-Q6	12	17	17	74.5	95.5	137.5	85.5	116.5	178.5
OVTL-...-Q6-L	12	17	5	62.5	83.5	125.5	73.5	104.5	166.5
OVTL-...-Q6-R	12	5	17	62.5	83.5	125.5	73.5	104.5	166.5
OVTL-...-Q8	14	22	22	84.5	105.5	147.5	95.5	126.5	188.5
OVTL-...-Q8-L	14	22	5	67.5	88.5	130.5	78.5	109.5	171.5
OVTL-...-Q8-R	14	5	22	67.5	88.5	130.5	78.5	109.5	171.5

Ordering data – Modular product system

Ordering table		Conditions	Code	Enter code
Type	OVTL			
Module no.	8103599			
Vacuum generator	Vacuum generator module, series L		OVTL	OVTL
Size	10 mm		-10	
	15 mm		-15	
Compressed air supply port	Push-in connector 6 mm		-Q6	
	Push-in connector 8 mm		-Q8	
	G1/8		-G18	
Compressed air supply connection position	Both sides			
	Left		-L	
	Right		-R	
Exhaust port	QS ports, metric		-RQ	
	Open silencer UO		-UA	
Number of vacuum generators	2 pieces		-2	
	4 pieces		-4	
	8 pieces		-8	
Position function	Spare position		-SL	
	Laval nozzle 0.45 mm, for high vacuum, push-in connector 4 mm		-SA	
	Laval nozzle 0.7 mm, for high suction rate, push-in connector 6 mm	[1]	-SB	
	Laval nozzle 0.7 mm, for high vacuum, push-in connector 4 mm	[1]	-SC	
	Laval nozzle 0.95 mm, for high suction rate, push-in connector 6 mm	[1]	-SD	
	Laval nozzle 0.95 mm, for high vacuum, push-in connector 6 mm	[1]	-SE	
Sensor signal	Without vacuum sensor			
	0 ... 10 V	[2]	V	
	PNP or NPN or IO-Link	[2]	PNLK	

- [1] SB, SC, SD, SE Not with size 10.
 [2] V, PNLK Not with position function SL.

 **Note**

The position function and sensor signal must be selected for every vacuum generator in accordance with the number of vacuum generators configured.

Example with 4:


- OVTL-10-Q8R-UA-4-SAVSESEPNLK-SL

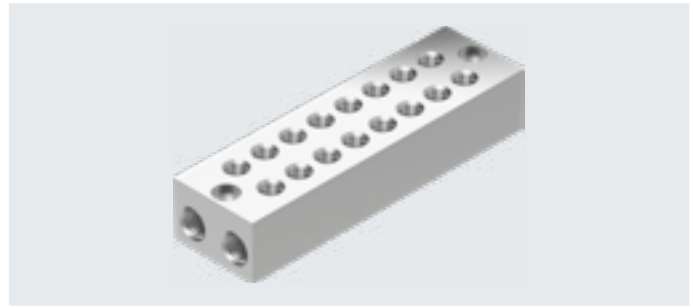
Accessories

Common supply manifold OABM-P

For vacuum generator
OVEL-...-P

- Up to 8 vacuum generators OVEL on a common supply manifold
- Common compressed air supply via common supply manifold

 **Note**
On the common supply manifold vacuum generators with an additional port for the ejector pulse (OVEL-...-Z-C-A) cannot be combined with vacuum generators without an additional port (OVEL-...-C-A).



General technical data

Pneumatic connection 1	G1/8
Type of mounting	With through-hole
Min. tightening torque [Nm]	0.3
Max. tightening torque [Nm]	3.3

Operating and environmental conditions

LABS (PWIS) conformity	VDMA24364-B1/B2-L
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

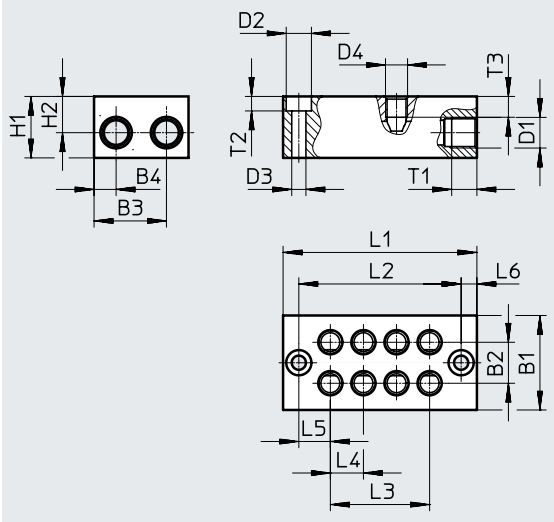
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with a normal industrial environment.

Materials

Sub-base	Wrought aluminium alloy
Note on materials	RoHS-compliant

Dimensions

Download CAD data → www.festo.com

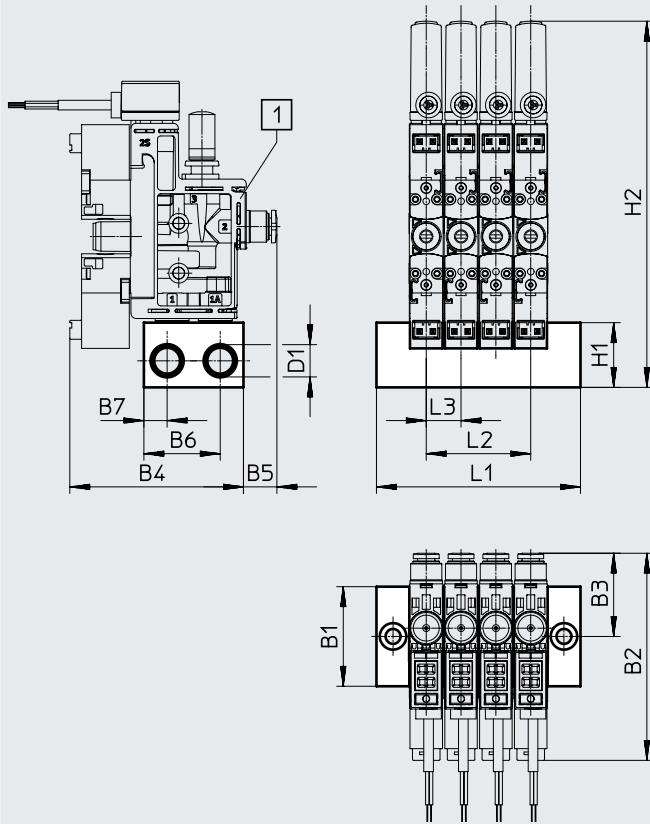


Type	B1	B2	B3	B4	D1	D2 ∅	D3 ∅	D4	H1	H2	L1	L2	L3	L4	L5	L6	T1	T2	T3
OABM-P-G3-10-2	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5	40.5	30.5	10.5	10.5	10	5	8	4.6	6.6
OABM-P-G3-10-4											61.5	51.5	31.5						
OABM-P-G3-10-8											103.5	93.5	73.5						
OABM-P-G3-15-2	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5	51.5	41.5	15.5	15.5	13	5	8	4.6	6.6
OABM-P-G3-15-4											82.5	72.5	46.5						
OABM-P-G3-15-8											144.5	134.5	108.5						

Accessories

Dimensions

Download CAD data → www.festo.com



Note

Combined allocation with OVEL-5 and OVEL-7/-10 is possible only with common supply manifolds OABM-...-15.

Use mounting kit OABM-MK for mounting the OVEL on the common supply manifold.

Min. tightening torque: 0.3 Nm
Max. tightening torque: 3.3 Nm

[1] Vacuum generator OVEL-5/7/10

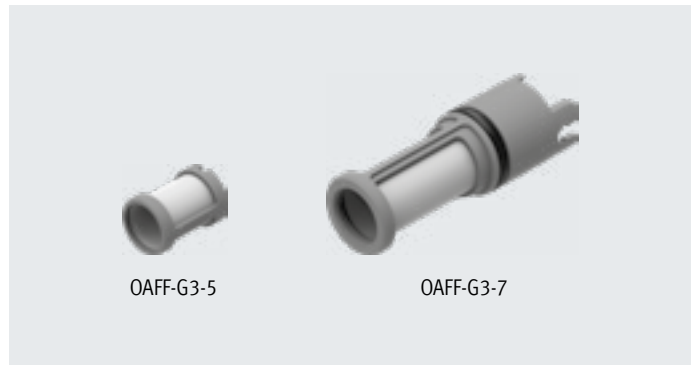
Type		B1	B2	B3	B4	B5	B6	B7	D1	H1	H2	L1	L2	L3
OABM-P-G3-10-2	with OVEL-5	30	62	25	52	10	23	7	G1/8	19.5	110	40.5	10.5	10.5
OABM-P-G3-10-4												61.5	31.5	
OABM-P-G3-10-8												103.5	73.5	
OABM-P-G3-15-2	with OVEL-7/10	30	74	31	57	16	23	7	G1/8	19.5	125	51.5	15.5	15.5
OABM-P-G3-15-4												82.5	46.5	
OABM-P-G3-15-8												144.5	108.5	

Ordering data

Common supply manifold	Number of device positions	Weight [g]	Part no.	Type
For OVEL-5	2	45.2	8049141	OABM-P-G3-10-2
	4	69.6	8049142	OABM-P-G3-10-4
	8	118.6	8049143	OABM-P-G3-10-8
For OVEL-5/7/10	2	59.6	8049144	OABM-P-G3-15-2
	4	97.1	8049145	OABM-P-G3-15-4
	8	172	8049146	OABM-P-G3-15-8

Accessories

Vacuum filter OAFF



General technical data		
Type of mounting		Push-on
		Snap-in
Grade of filtration	[µm]	40
Ejector pulse suitability	[bar]	≤7

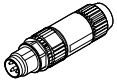
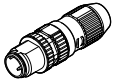
Operating and environmental conditions		
Operating pressure	[kPa]	−95 ... 0
	[bar]	−0.95 ... 0
	[psi]	−13.775 ... 0
Operating medium		Atmospheric air based on ISO 8573-1:2010 [7:--]
LABS (PWIS) conformity		VDMA24364-B1/B2-L
Ejector pulse suitability	[MPa]	0.7
	[bar]	7
	[psi]	101.5

Materials		
Type	OAFF-G3-5	OAFF-G3-7
Housing	POM	
Filter	Fabric, PA	
Seals	–	NBR
Note on materials	RoHS-compliant	


Ordering data				
	Weight [g]	Part no.	Type	PU ¹⁾
For vacuum generator OVEL-5	1	8068944	OAFF-G3-5	10
For vacuum generator OVEL-7/10	1.5	8068945	OAFF-G3-7	10

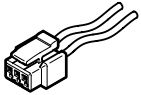
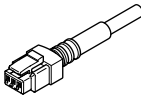
1) Packaging unit


Accessories

Ordering data – Plug NECU-S-M8G3/M12G3		Part no.		Type	Datasheets → Internet: necu
Electrical connection					
	Plug M8x1, 3-pin, straight, insulation displacement connector	562024		NECU-S-M8G3-HX	
	Plug M12x1, A-coded, 3-pin, straight, insulation displacement connector	562027		NECU-S-M12G3-HX	

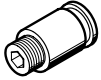
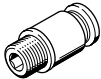
Ordering data – Plug NECU-S-ECG4		Part no.		Type	Datasheets → Internet: necu
Electrical connection					
	Plug, square design, 4-pin, straight, insulation displacement connector	570922		NECU-S-ECG4-HX-Q3	

Ordering data – Signal converter SCDN		Part no.		Type	Datasheets → Internet: scdn
Measured variable					
	Voltage	8035555		SCDN-2V-EC4-PNLK-L1	

Ordering data – Plug socket with cable NEBV			Part no.		Type	Datasheets → Internet: nebv
Electrical connection		Cable length [m]				
	2-pin socket Plug pattern H Flying leads Open end	0.5	566654		NEBV-H1G2-KN-0.5-N-LE2	
		1	566655		NEBV-H1G2-KN-1-N-LE2	
		2.5	566656		NEBV-H1G2-KN-2.5-N-LE2	
		5	566657		NEBV-H1G2-KN-5-N-LE2	
	2-pin socket Plug pattern H Cable Open end	0.5	566658		NEBV-H1G2-P-0.5-N-LE2	
		1	566659		NEBV-H1G2-P-1-N-LE2	
		2.5	566660		NEBV-H1G2-P-2.5-N-LE2	
		5	566661		NEBV-H1G2-P-5-N-LE2	

Ordering data – Blanking plug B		Part no.		Type	PJ ¹⁾
Pneumatic connection					
	M7	174309		B-M7	10
	G1/8	3568		B-1/8	10

1) Packaging unit.

Ordering data – Push-in fitting QS			Part no.		Type	PJ ¹⁾
Pneumatic connection		Tubing O.D. 8 mm				
	G1/8	Tubing O.D. 8 mm	186098		QS-G1/8-8	10
	G1/8	Tubing O.D. 8 mm	186109		QS-G1/8-8-I	10

1) Packaging unit.