

### 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 for regulating the ejector pulse

Electrical connection via H3 plug

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

Supply port, secured with clamp strap

The compact vacuum generator

· Various performance levels and

Low-cost, compact vacuum

Short switching times with

integrated solenoid valves

• Simple installation with H3 plugs

Straightforward mounting with

OVEL → page 3

generator

Lightweight

vacuum types

- Vacuum on/off

and push-in fittings

retaining screws

- Ejector pulse

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

# Low-noise operation due to

- integrated silencerIntegrated filter
- Reduced contamination of the vacuum generator with 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.

#### OVTL → ovtl

The vacuum generator OVTL is a configurable module comprising vacuum generators OVEL, the common supply manifold OABM-P and connection accessories. All products are available from the factory fully assembled.

Pressure transmitter SPTE/pressure sensor SPAE to monitor the vacuum, optional, secured with clamp strap

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

Vacuum generator cartridge, secured with clamp strap

Vacuum port, secured with clamp strap

Housing with mounting holes

### Functional principle 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.

#### Ejector pulse, optional

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.

#### Vacuum sensor, optional

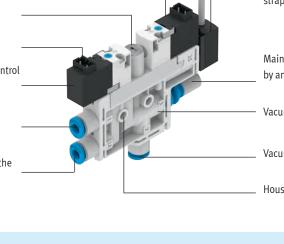
The set or taught-in setpoint value for the generated vacuum is monitored by a vacuum sensor. If the setpoint value is reached or if it is not reached due to malfunctions (e.g. leakages, dropped workpiece), the vacuum sensor emits an electrical signal.

#### OVEL-...-V1B/V1V/B2B/B2V:

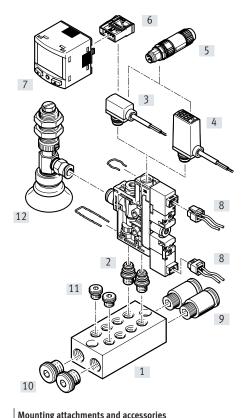
Pressure transmitter SPTE with an analogue output (a page 17). Detection of analogue signals and conversion into digital signals with downstream signal converter SCDN with LCD display (a page 22).

#### OVEL-...-V1PNLK/B2PNLK:

Pressure sensor SPAE with various switching outputs and LCD display, IO-Link<sup>®</sup> and teach-in function (a page 19).



# Peripherals overview



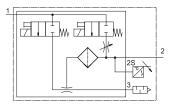
Moun	ting attachments and accessories			
		OVELPQ	OVELP	→ Page/Internet
[1]	Common supply manifold OABM-P	-	•	13
[2]	Mounting kit OABM-MK	-	•	15
[3]	Pressure transmitter SPTE	•	•	17
[4]	Pressure sensor SPAE	•	•	19
[5]	Plug NECU-S-M8G3/M12G3		•	22
[6]	Plug NECU-S-ECG4	•	•	22
[7]	Signal converter SCDN		•	22
[8]	Plug socket with cable NEBV	•	•	22
[9]	Push-in fitting QS	_	•	22
[10]	Blanking plug B-1/8	_	•	22
[11]	Blanking plug B-M7	-	•	22
[12]	Suction gripper ESG	•	•	esg
-	Holder for suction cup with connector ESH		•	esh
-	Suction cup with connection ESS		•	ess
-	Vacuum filter OAFF	•	•	16

# Type codes

001	Series	008	Ejector pulse connection	
OVEL	Vacuum suction nozzle, electropneumatic		Via supply air connection	
		Z	Additional connection	
002	Vacuum generation			
5	Laval nozzle 0.45 mm	009	Vacuum valve	
7	Laval nozzle 0.7 mm	С	Normally closed	
10	Laval nozzle 0.95 mm	010	Additional function	
003	Vacuum type	010	Without ejector pulse	
Н	High vacuum	A	Electric ejector pulse	
L	High suction rate			
-		011	Pressure measuring range vacuum sensor	
004	Size		Without vacuum sensor	
10	10	V1	01 bar	
15	15	B2	-1 1 bar	
005	Supply air connection	012	Output signal vacuum sensor	
Р	For P linking		Without vacuum sensor	
PQ	QS connections, metric	В	1 5 V	
		V	0 10 V	
006	Vacuum connection	PNLK	PNP or NPN or IO-Link®	
VM7	M7			· ·
VQ3	Push-in connector 3 mm	013	Electrical connection	
VQ4	Push-in connector 4 mm	H3	Connection pattern H, vertical plug	
VQ6	Push-in connector 6 mm	014	Robot connection	
007	Exhaust connection	014	None	
RQ	QS connections, metric	RA1	Universal robots	
UA	Open silencer UO			
UC	Closed silencer UC			

- 闄 - Note The ordering data include possible combinations.

# Datasheet



#### Function

N/C, normally closed:

- With/without ejector pulse
- Push-in connectors
- Open silencer
- With/without vacuum sensor
- Prepared for common supply manifold



#### General technical data

General Lecinical d	ala									
Туре			OVEL-5-H	OVEL-5-L	OVEL-7-H	OVEL-7-L	OVEL-10-H/L			
Nominal width of La	val nozzle	[mm]	0.45	-	0.7	-	0.95			
Grid dimension		[mm]	10		15		15			
Grade of filtration		[µm]	40							
Mounting position			Any							
Type of mounting			With through-hole							
			On manifold rail							
Pneumatic port 1	OVELP		Common line via mani	fold rail						
	OVELPQ-VQ3		For tubing O.D. 3 mm –		-		-			
	OVELPQ		For tubing O.D. 4 mm		For tubing O.D. 4 mm	For tubing O.D. 6 mm	For tubing O.D. 6 mm			
Vacuum port	OVELVQ3		For tubing O.D. 3 mm		-		-			
	OVELVQ4		For tubing O.D. 4 mm		For tubing O.D. 4 mm	-	-			
	OVELVQ6		-		-	For tubing O.D. 6 mm	For tubing O.D. 6 mm			
Pneumatic port 3	OVELUA		Open silencer							
	OVELRQ		For tubing O.D. 4 mm		For tubing O.D. 6 mm		For tubing O.D. 6 mm			
Connection for ejector pulse <sup>1)</sup>	OVELZ-A		Corresponds to the se	lected size of pneumati	c port 1					

1) If there is no ejector pulse or the ejector pulse is generated via pneumatic port 1, the additional port for the ejector pulse is sealed with a blanking plug.

### Technical data – design

Туре	-	OVELUA	OVELRQ
Design		T-shape	
Ejector	OVELH	High vacuum/standard	
characteristic	OVELL	High suction rate/standard	
Silencer design		Open	-
Integrated function		Electric on/off valve	
		Filters	
		Open silencer	-
	OVELA	Ejector pulse, electrical	
	OVELA	Flow control valve	
	OVELV1B/V1V/B2B/	Pressure transmitter	
	B2V		
	OVELV1PNLK/	Pressure sensor	
	B2PNLK		
Valve function		Closed	
Manual override		Non-detenting	

# Datasheet

### Operating and environmental conditions

Operating and environmental cond	itions	
Operating pressure	[bar]	27
Nominal operating pressure	[bar]	4
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium		Lubricated operation not possible
Ambient temperature	[°C]	0+50
Temperature of medium	[°C]	0+50
Corrosion resistance class CRC <sup>1)</sup>		2
CE marking (see declaration of conformity) <sup>2)</sup>		To EU EMC Directive
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 which 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 d 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 – high vacuum

Туре		OVEL-5-H	OVEL-7-H	OVEL-10-H
Max. vacuum	[%]	89	92	92
Operating pressure for max. vacuum	[bar]	4.2	4.5	3.8
Operating pressure for max. suction rate	[bar]	3	4	4
Max. suction rate with respect to atmosphere	[l/min]	4	17	21
Pressurisation time at nominal operating pressure 4 bar (for 1 l volume) <sup>1)</sup>	[s]	2	1.2	1
Sound pressure level at p1 = 4 bar	[db(A)]	64	61	68

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

#### Performance data – high suction rate

Туре		OVEL-5-L	OVEL-7-L	OVEL-10-L
Operating pressure for max. suction rate	[bar]	5	5	6
Max. suction rate with respect to atmosphere	[l/min]	11	33	45
Pressurisation time at nominal operating pressure 4 bar (for 1 l volume) <sup>1)</sup>	[S]	0.8	0.4	0.4
Sound pressure level at p1 = 4 bar	[db(A)]	52	64	67

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

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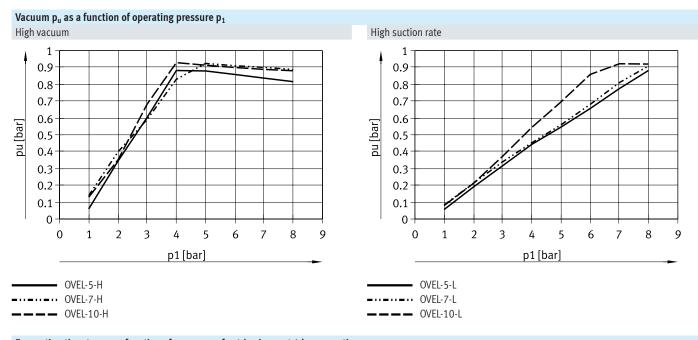
# Datasheet

Technical data – el	ectrical connect	tion												
Type			OVEL without ejec	tor pulse		OVEL	with ejector pulse							
Solenoid valve			,				, 1							
Electrical	Function		Vacuum generatio	n										
connection input,	Tunction					Fiecto	or pulse							
connection input,	Connection ty	ino.	Plug			2x plu								
	Connection te					Jg								
	Number of pir		+	Plug pattern H										
	Plug pattern	IS/WIES		2										
	i lug patterni													
			1 3											
	Type of mount	ting	Snap-locking											
Operating voltage ra	ange	[V DC]	21.6 26.4											
Duty cycle		[%]	100											
Characteristic coil d	lata, 24 V DC	[W]	1.0											
Meaning of the second														
Vacuum sensor	Function		Cancar											
Electrical	Function		Sensor											
connection output,			Cable											
	Connection te		Open end											
Cable diameter	Number of pir		3 2.9 ±0.1											
Cable diameter		[mm]												
Cable length Nominal conductor	avocc cc -1!	[m] [mm <sup>2</sup> ]	2.5 0.14											
Cable characteristic		[mm-]	1											
Cable characteristic	C		Suitable for energ	y chains										
Type Mechanical system			OVELV1B	OVELV1V	OVELB2B	OVELB2V	OVELV1PNLK	OVELB2PNLK						
Measurement meth		0.1	Piezoresistive pre	ssure sensor		Piezoresistive pressure sensor with display								
Pressure measuring	grange	[bar]	-1 0		-1 1			-10 -11						
Setting options			-				Teach-in IO-Link®							
Display type			_				LED display, 2-digit	Via display and buttons						
Display lype			-				LED display, 2-digit							
Electrical														
Operating voltage r	ange, sensor	[V DC]	10 30	18 30	10 30	18 30	18 30							
Switching output			-				PNP/NPN, switchable							
Switching element	function		-				N/C or N/O, switchable							
Switching function			-				Freely programmable							
Analogue output		[V]	1 5	010	1 5	0 10	-							
Materials														
Housing	<sup>1</sup>		PA-reinforced											
Silencer				PE										
Jet nozzle			Wrought aluminium alloy											
Female nozzle			POM											
Filters			POM											
Adjusting screw			Steel											
Connecting thread			POM											
Screws			Steel											
Cable sheath			PVC (colour: grey)											
Seals			NBR											
			1											

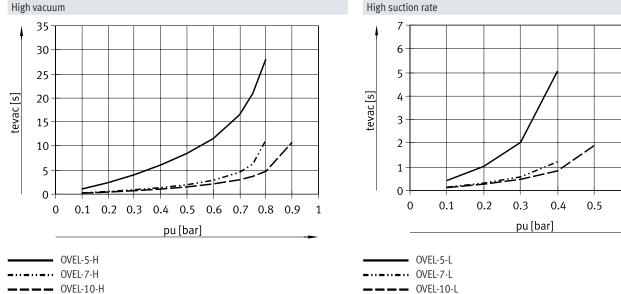
Note on materials

RoHS-compliant

## Datasheet

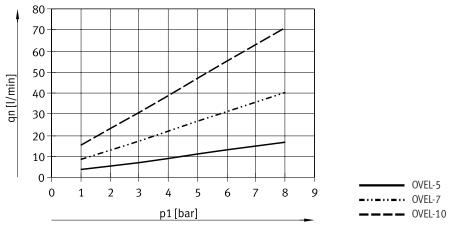


Evacuation time t<sub>evac</sub> as a function of vacuum p<sub>u</sub> for 1 l volume at 4 bar operating pressure High vacuum





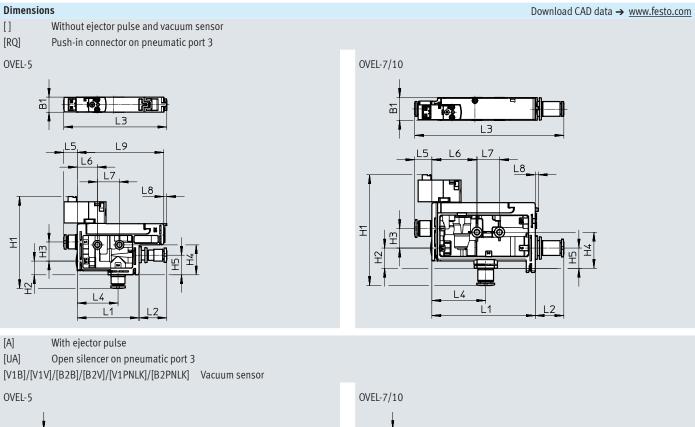
High vacuum/high suction rate

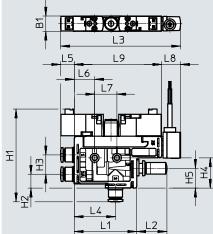


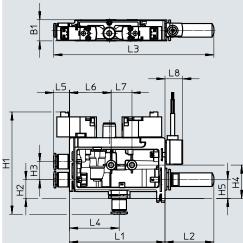
0.6

0.7

# Datasheet







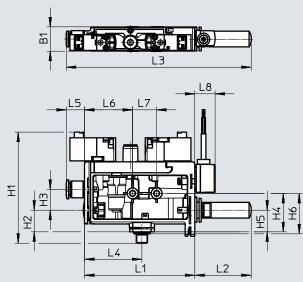
Туре	B1	H1	H2	H3	H4	H5	L1	-	.2		3	L4	L5	L6	L7	L8	L9
	±0.3	±0.8	±0.5	±0.5	±0.2	±0.5	±0.8	±(	-	±		±0.5	±0.5	±0.2	±0.2	±0.8	±0.8
								[RQ]	[UA]	[RQ]	[UA]						
OVEL-5										70	71					2	
OVEL-5V1B/V1V/B2B/B2V	10.3	62	9.4	13	20.4	13	42	19	20.2	81	81	27.7	9.4	13.7	15	13	59
OVEL-5V1PNLK/B2PNLK	1									99	99	1				31	1
OVEL-7-H										97	114					2	
OVEL-7-HV1B/V1V/B2B/B2V	15.2	72	13.5	13	24	13.5	68.8	19	35.5	97	114	35.8	9.4	30	15	13	-
OVEL-7-HV1PNLK/B2PNLK										109	114					31	
OVEL-7-L										99	116					2	
OVEL-7-LV1B/V1V/B2B/B2V	15.2	74	13.5	13	24	13.5	68.8	19	35.5	99	116	35.8	11.4	30	15	13	-
OVEL-7-LV1PNLK/B2PNLK										111	116					31	
OVEL-10										99	116					2	
OVEL-10V1B/V1V/B2B/B2V	15.2	74	13.5	13	24	13.5	68.8	19	35.5	99	116	35.8	11.4	30	15	13	-
OVEL-10V1PNLK/B2PLNK										111	116					31	

Vacuum generators for UR-Plus gripper

# Datasheet

### Dimensions

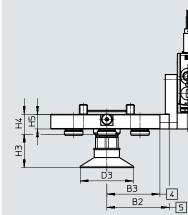
Download CAD data → <u>www.festo.com</u>

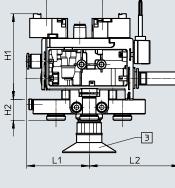


Туре	B1	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	L7	L8
	±0.3	±0.8	±0.5	±0.5	±0.2	±0.5	±0.2	±0.8	±0.8	±2	±0.5	±0.5	±0.2	±0.2	±0.8
OVEL-10VM7-UA-C-A-V1V-H3	15.2	62	13.5	13	24	13.5	25.3	68.8	35.5	116	35.8	11.4	30	15	13

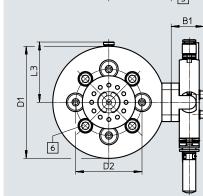
#### Dimensions

Suction gripper kit for robots

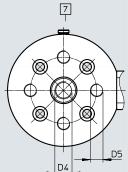




1



OVEL-10-...-VM7-UA-C-A-V1V-H3-RA1



B1

24.7

B2

47

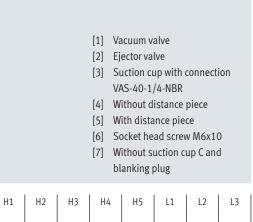
B3

40

D1

Ø

84.5



11

→ Internet: www.festo.com/catalogue/	

D2

Ø

50

D3

Ø

40

D4

G1/4

D5

G1/8

64.5

15.8

25.1

15

68.2

47.2

45.5

Туре

Download CAD data  $\rightarrow$  <u>www.festo.com</u>

# Datasheet

Pressure measuring	Vacuum sensor output signal	Exhaust port	Nominal	Weight	Part no.	Туре
range of vacuum	· · · · · · · · · · · · · · · · · · ·		width of Laval			.),
sensor			nozzle			
[bar]			[mm]	[g]		
Vacuum generators, f	or P-linkage				l.	
-10	PNP or NPN or IO-Link <sup>®</sup>	UC	0.45	75	8141086	OVEL-5-H-10-P-VQ4-UC-C-A-V1PNLK-H3
			0.7	92	8141087	OVEL-7-H-15-P-VQ4-UC-C-A-V1PNLK-H3
			0.95	93	8141089	OVEL-10-H-15-P-VQ6-UC-C-A-V1PNLK-H3
_	-	UC	0.45	40	8141094	OVEL-5-H-10-P-VQ4-UC-C-A-H3
			0.7	57	8141095	OVEL-7-H-15-P-VQ4-UC-C-A-H3
			0.95	58	8141097	OVEL-10-H-15-P-VQ6-UC-C-A-H3
Vacuum generators f	or metric QS connections					
-1 0	1 5 V	UA	0.45	71	8049046	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1B-H3
10	1	UA	0.7	88	8049047	0VEL-7-H-15-PQ-VQ4-UA-C-A-V1B-H3
			0.95	89	8049048	0VEL-10-H-15-PQ-VQ6-UA-C-A-V1B-H3
	0 10 V	UA	0.45	71	8049049	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1D-H3
	010 V	0/1	0.45	88	8049050	OVEL-5-H-10-1 Q-VQ4-UA-C-A-V1V-H3
			0.95	89	8049051	OVEL-10-H-15-PQ-VQ6-UA-C-A-V1V-H3
	PNP or NPN or IO-Link®	UA	0.45	74	8049051	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1PNLK-H3
		UA	0.7	91	8049053	OVEL-7-H-15-PQ-VQ4-UA-C-A-V1PNLK-H3
		UC	0.7	91	8141092	OVEL 7 H 15 PQ VQ4 UC C-A-V1PNLK-H3
		UA	0.95	92	8049054	OVEL-10-H-15-PQ-VQ6-UA-C-A-V1PNLK-H3
		UC	0.95	92	8141093	OVEL-10-H-15-PQ-VQ6-UC-C-A-V1PNLK-H3
-1 1	0 10 V	UA	0.45	71	8069567	OVEL-5-H-10-PQ-VQ4-UA-C-A-B2V-H3
			0.7	88	8069568	OVEL-7-H-15-PQ-VQ4-UA-C-A-B2V-H3
			0.95	88	8069569	OVEL-10-H-15-PQ-VQ6-UA-C-A-B2V-H3
	PNP or NPN or IO-Link®	UA	0.45	74	8069570	OVEL-5-H-10-PQ-VQ4-UA-C-A-B2PNLK-H3
			0.7	91	8069571	OVEL-7-H-15-PQ-VQ4-UA-C-A-B2PNLK-H3
			0.95	91	8069572	OVEL-10-H-15-PQ-VQ6-UA-C-A-B2PNLK-H3
_	-	UC	0.45	39	8141099	OVEL-5-H-10-PQ-VQ4-UC-C-A-H3
			0.7	56	8141100	OVEL-7-H-15-PQ-VQ4-UC-C-A-H3
			0.95	57	8142126	OVEL-10-H-15-PQ-VQ6-UC-C-A-H3
Vacuum ganaratara fa	r IIP Dluc grippor	I		<u>.</u>		
Vacuum generators fo	0 10 V	UA	0.95	88	8129122	OVEL-10-H-15-PQ-VM7-UA-C-A-V1V-H3
-1 0	010 V	UA	0.90	00	0129122	0vcl-10-f1-15-PQ-VM7-UA-C-A-V1V-H3
Suction gripper kit fo	r robots					
-1 0	0 10 V	UA	0.95	300	8121043	OVEL-10-H-15-PQ-VM7-UA-C-A-V1V-H3-RA1

# Ordering data - Modular product system

Туре	OVEL	Conditions	Code	Enter code
Module no.	8049045			
Vacuum generator	Vacuum generator, electropneumatic		OVEL	OVEL
Nominal width of Laval nozzle [mm]	0.45		-5	
	0.7		-	
	0.95		-5       -7       -10       -11       -10       -10       -11       -12       -13       -14       -10       -17       -10       -10       -11       -11       -11       -11       -12       -13       -14       -15       -15       -10 <td></td>	
Ejector characteristic	High vacuum		-H	
	High suction rate		-L	
Housing size/width [mm]	10	[1]	-10	
•	15	[2]	-15	
Pneumatic port 1	For pneumatic ports via manifold rail		-P	
	Push-in connectors, metric		-PQ	
Vacuum port	Push-in connector 3 mm	[3]	-VQ3	
	Push-in connector 4 mm	[4]	-VQ4	
	Push-in connector 6 mm	[5]	-VQ6	
Pneumatic port 3	Push-in connectors, metric		-RQ	
	Open silencer		-UA	
	Silencer closed	[8]	-UC	
Ejector pulse connection	Via pneumatic connection 1			
	Additional connection (as pneumatic connection 1)		-Z	
Vacuum valve	Normally closed		-C	-C
Additional function	Without ejector pulse			
	Ejector pulse, electrical	[6]	-A	
Pressure measuring range of vacuum	Without vacuum sensor			
sensor	-1 0 bar		-V1	
	-1 1 bar		-RQ           -UA           [8]         -UC           -UC	
Vacuum sensor output signal	Without vacuum sensor			
	1 5 V	[7]	В	
	0 10 V	[7]	V	
	PNP or NPN or IO-Link®	[7]	PNLK	
Electrical connection	Plug pattern H, vertical plug		-H3	-H3

Not with Laval nozzle nominal width 7, 10.

Not with Laval nozzle nominal width 5.

VQ3 Only with Laval nozzle nominal width 5.

Only with Laval nozzle nominal width 5 or Laval nozzle nominal width 7 in combination with ejector characteristic H. Only with Laval nozzle nominal width 10 or Laval nozzle nominal width 7 in combination with ejector characteristic L. Mandatory information in combination with ejector pulse port Z. Mandatory information in combination with vacuum sensor pressure measuring range B2, V1. VQ4

VQ6

A B, V, PNLK

 10
 15
 VQ3
 VQ4
 VQ4
 VQ6
 VQ6
 Q6
 A
 B, V
 UC Only with vacuum type H, high vacuum

# 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

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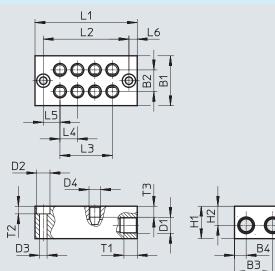
On the common supply manifold vacuum generators with an additional port for the ejector pulse (OVEL-...-Z-C-A) cannot be combined with vacuum generators without an additional port (OVEL-...-C-A).



G1/8	
With through-hole	

INIC	iteriats	
Su	b-base	Wrought aluminium alloy
No	te on materials	RoHS-compliant

#### Dimensions

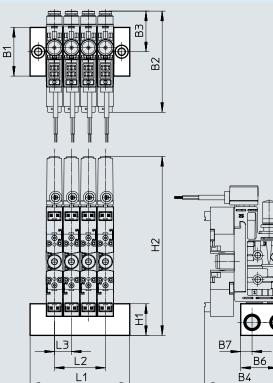


Download CAD data  $\rightarrow$  <u>www.festo.com</u>

Туре	B1	B2	B3	B4	D1	D2 Ø	D3 Ø	D4	H1	H2
OABM-P-G3-10-2 OABM-P-G3-10-4 OABM-P-G3-10-8	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5
OABM-P-G3-15-2 OABM-P-G3-15-4 OABM-P-G3-15-8	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5
Туре	L1	L2	L3	L4	1	.5	L6	T1	T2	T3
OABM-P-G3-10-2	40.5	30.5	10.5							
OABM-P-G3-10-4	61.5	51.5	31.5	10.	5   1	10	5	8	4.6	6.6
UADM-F-03-10-4		0.2 5	73.5							
OABM-P-G3-10-4	103.5	93.5	/ 2.5							
OABM-P-G3-10-8	103.5 51.5	41.5	15.5							
		_		15.5	5 1	13	5	8	4.6	6.6

## Accessories

### Dimensions



- 📲 - 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

Download CAD data → <u>www.festo.com</u>

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

Б

B5

Ordering data					
Common supply manifold	Number of device positions	CRC <sup>1)</sup>	Weight	Part no.	Туре
			[g]		
For OVEL-5	2	2	45.2	8049141	OABM-P-G3-10-2
	4	2	69.6	8049142	OABM-P-G3-10-4
	8	2	118.6	8049143	OABM-P-G3-10-8
For OVEL-5/7/10	2	2	59.6	8049144	OABM-P-G3-15-2
101 012 9/1/10	4	2	97.1	8049145	OABM-P-G3-15-4
	8	2	172	8049146	OABM-P-G3-15-8

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 which are in direct contact with a normal industrial environment.

|

# Accessories

#### Mounting kit OABM-MK

For common supply manifold OABM-P



#### General technical data

Type of mounting		Fixing clips
		Can be screwed onto manifold rail
Min. tightening torque	[Nm]	0.3
Max. tightening torque	[Nm]	3.3

#### Materials

Hollow bolt	Wrought aluminium alloy
Seals	NBR
Note on materials	RoHS-compliant

Ordering data				
	CRC <sup>1)</sup>		Part no.	Туре
		[g]		
For common supply manifold OABM-P	2	7	8065850	OABM-MK-G3

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 which are in direct contact with a normal industrial environment.

# Accessories

Vacuum filter OAFF



## General technical data

	Push-on
	Latching
[µm]	40
[bar]	≤7

Operating pressure	[bar]	-0.95			
Operating medium		Atmospheric air based on ISO 8573-1:2010 [7:-:-]			
Materials					
Туре		OAFF-G3-5	OAFF-G3-7		
Housing		POM			
Filters		Fabric, PA			
Seals		-	NBR		
Note on materials		RoHS-compliant			

ordering data				
	Weight [g]	Part no.	Туре	PU <sup>1)</sup>
For vacuum generator OVEL-5	1	8068944	OAFF-G3-5	10
For vacuum generator OVEL-7/10	1.5	8068945	OAFF-G3-7	10

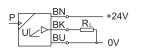
1) Packaging unit

# Accessories

### Pressure transmitter SPTE

(Order code in modular product system: OVEL-...-V1B/V1V/B2B/B2V, OVTL-...-V)

- Pressure measuring ranges
   -1 ... 0 bar or -1 ... 1 bar
- Analogue outputs 1 ... 5 V or 0 ... 10 V



Detection of analogue signals and conversion into digital signals with downstream signal converter SCDN with LCD display (a page 22).



#### General technical data

RCM	
c UL us - Recognized (OL)	
To EU EMC Directive	
RoHS-compliant	

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp d 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.

#### Input signal/measuring element

Туре		SPTE-V1R	SPTE-B2R
Measured variable		Relative pressure	
Measurement method		Piezoresistive pressure sensor	
Pressure measuring range start	[bar]	0	-1
value			
Pressure measuring range end	[bar]	-1	1
value			
Max. overload pressure	[bar]	5	5
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium		Lubricated operation possible	
Temperature of medium	[°C]	0 50	
Ambient temperature	[°C]	0 50	

	Output, general
--	-----------------

[%]	3 (at room temperature of approx. 23°C)
	4 (in ambient temperature range 0 50 °C)
[%]	0.3
[%]	0.05
	[%]

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

Analogue output			
Туре		SPTEV-2.5K	SPTEB-2.5K
Analogue output	[V]	010	15
Rise time	[ms]	1	
Min. load resistance of voltage	[kΩ]	15	
output	-		

# Accessories

Output, additional data					
Short circuit current rating	urrent rating For all electrical connections				
<b>Electronics</b> Type		SPTEV-2.5K	SPTEB-2.5K		
Operating voltage range DC Reverse polarity protection	[V]	18 30 For all electrical connections	10 30		
Electromechanical system					
Electrical connection Cable length	[m]	Cable, 3-wire, open end 2.5			

### Mechanical system

Type of mounting	Pin-type connection
Mounting position	Any
Pneumatic port	Cartridge 10 mm
Product weight [g]	35
Information on materials: Housing	PA-reinforced

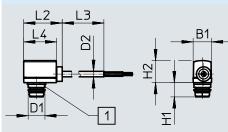
#### Immission/emission

Degree of protection	IP40
Corrosion resistance class CRC <sup>1)</sup>	2

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 which are in direct contact with a normal industrial environment.

#### Dimensions



Download CAD data → <u>www.festo.com</u>

[1] Supply port: pin-type cartridge 10 mm

Туре	B1	D1 Ø	D2 Ø	H1	H2	L2	L3	L4
SPTEPC10	9.8	8.9	2.9	7.6	11.7	20.5	2500	17.5

#### Ordering data

Pneumatic port	Electrical connection	Pressure measuring	Analogue output	Order code i	Order code in the		Туре
		range		modular pro	modular product system		
		[bar]	[V]	OVEL	OVTL		
Cartridge 10 mm	Cable, 3-wire, open	-1 0	0 10	V1V	V	8025974	SPTE-V1R-PC10-V-2.5K
	end		1 5	V1B	-	8025975	SPTE-V1R-PC10-B-2.5K
		-1 1	010	B2V	-	8025976	SPTE-B2R-PC10-V-2.5K
			1 5	B2B	-	8025977	SPTE-B2R-PC10-B-2.5K

# Accessories

### Pressure sensor SPAE

(Order code in the modular product system: OVEL-...-V1PNLK/B2PNLK, OVTL-...-PNLK)

- Pressure measuring ranges
- -1 ... 0 bar or -1 ... 1 bar
  Switching output PNP/NPN, switchable
- IO-Link<sup>®</sup>
- LCD display
- Teach-in function

#### General technical data

General technical data	
Certification	RCM
	c UL us - Recognized (OL)
CE mark (see declaration of conformity) <sup>1)</sup>	To EU EMC Directive
Note on materials	RoHS-compliant

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp d 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.

#### Input signal/measuring element

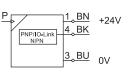
Туре	SPAE-V1R	SPAE-B2R	
Measured variable	Relative pressure		
Measurement method	Piezoresistive pressure sensor		
Pressure measuring range start [bar]	0	-1	
value			
Pressure measuring range end [bar]	-1	1	
value			
Max. overload pressure [bar]	5	5	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on the operating/pilot medium	Lubricated operation possible		
Temperature of medium [°C]	050		
Ambient temperature [°C]	050		

Signal processing	Signal processing		
Resolution ADC		10 bits	
Output, general			
Accuracy ±FS <sup>1)</sup> [%]		1.5 (at room temperature of approx. 23°C)	
	2.5 (in ambient temperature range 0 50 °C)		
Repetition accuracy ±FS <sup>1)</sup> [%] 0.3			
Temperature coefficient ±FS/K <sup>1)</sup>	[%]	0.05	

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

#### Switching output

Switching output		PNP/NPN, switchable	
Switching function		Freely programmable	
Switching element function		N/C or N/O, switchable	
Max. output current	[mA]	100	





# Accessories

Measured value display	
Display range start value [% FS]	0
Display range end value [% FS]	99
Output, additional data	
Short circuit current rating	For all electrical connections
Communication interface	
Protocol	IO-Link <sup>®</sup>
IO-Link <sup>®</sup> , protocol version	Device V 1.1
IO-Link <sup>®</sup> , profile	Smart sensor profile
IO-Link <sup>®</sup> , function classes	Binary data channel (BDC)
	Diagnostics
	Identification
	Process data variable (PDV)
	Teach channel
IO-Link <sup>®</sup> , communication mode	COM2 (38.4 kBd)
IO-Link <sup>®</sup> , SIO mode support	Yes
IO-Link <sup>®</sup> , port class	A
IO-Link <sup>®</sup> , process data width OUT	0 byte
IO-Link <sup>®</sup> , process data width IN	2 bytes
IO-Link <sup>®</sup> , process data contents IN	2 bit BDC (pressure monitoring)
	14 bit PDV (pressure measured value)
IO-Link <sup>®</sup> , minimum cycle time [ms]	3
IO-Link <sup>®</sup> , data memory required	0.5 KB
Electronics	
Operating voltage range DC [V]	18 30
Reverse polarity protection	For all electrical connections
Electromechanical system	
Electrical connection	Cable, 3-wire, open end
Cable length [m]	2.5
Mechanical system	
Type of mounting	Pin-type connection
Mounting position	Any
Pneumatic port	Cartridge 10 mm
Product weight [g]	40
Information on materials: Housing	PA-reinforced
Display/operation	
	LED display 2 digit
Display type LED display, 2-digit	
Displayable units	% FS
Switching status indication	yellow LED
Setting options	Via display and keys, teach-in, IO-Link <sup>®</sup>
Threshold value setting range [%]	198
Protection against tampering	PIN code

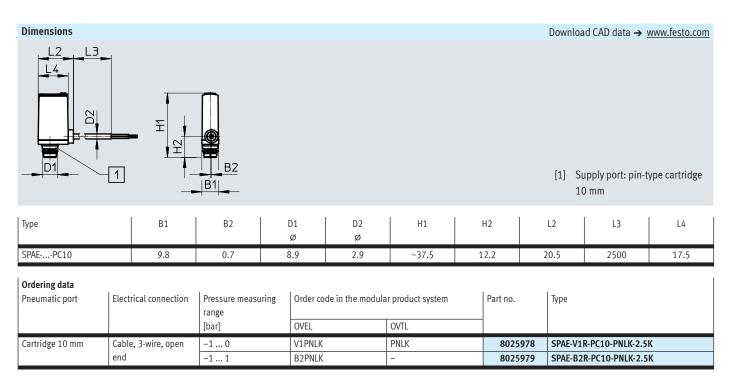
# Accessories

#### Immission/emission

Degree of protection	IP40
Corrosion resistance class CRC <sup>1)</sup>	2

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 which are in direct contact with a normal industrial environment.



# Accessories

Ordering data – Plug	Ordering data – Plug NECU-S-M8G3/M12G3 Datasheets Internet: n				
	Electrical connection P		Туре		
	Plug M8x1, 3-pin, straight, insulation displacement connector	562024	NECU-S-M8G3-HX		
a fille	Plug M12x1, A-coded, 3-pin, straight, insulation displacement connector	562027	NECU-S-M12G3-HX		

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

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

ata – Plug socket with ca	ble NEBV
---------------------------	----------

Ordering data – Plug socket with cable NEBV Datasheets Internet: nebv						
	Electrical connection		Cable length [m]	Part no.	Туре	
<u> </u>	Socket, 2-pin	Flying leads	0.5	566654	NEBV-H1G2-KN-0.5-N-LE2	
	Plug pattern H	Open end	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	
	Socket, 2-pin	Cable	0.5	566658	NEBV-H1G2-P-0.5-N-LE2	
	Plug pattern H	Open end	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

Ordering data – Blanking plug B				
	Pneumatic port	Part no.	Туре	PU <sup>1)</sup>
	M7	174309	B-M7	10
<b>I</b>	G1/8	3568	B-1/8	10

1) Packaging unit.

#### Ordering data – Push-in fitting QS

Ordering data – Push-in fitting QS							
	Pneumatic port	Pneumatic port f			PU <sup>1)</sup>		
	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.

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