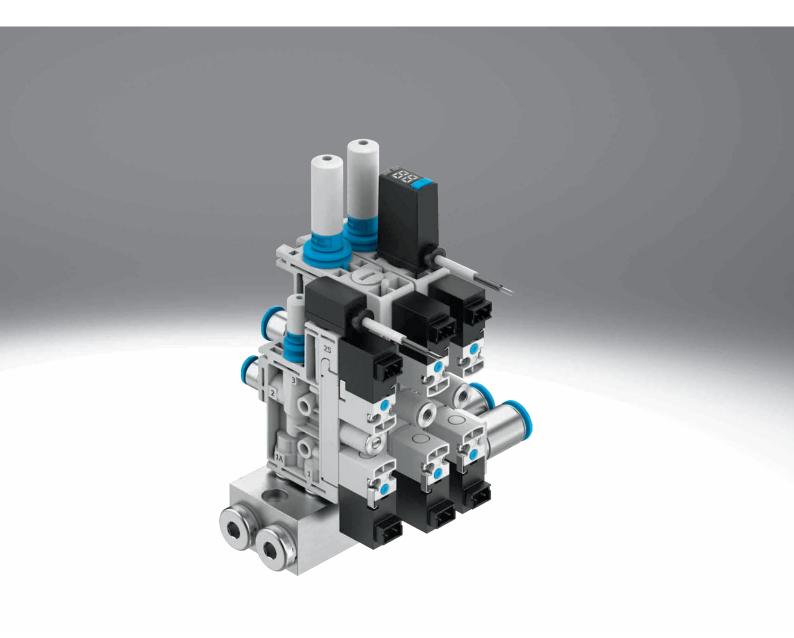
Vacuum generators OVTL

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

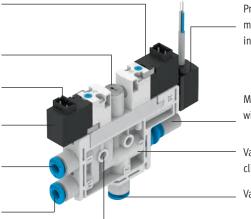
Flow control screw to adjust the ejector impulse

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 func-

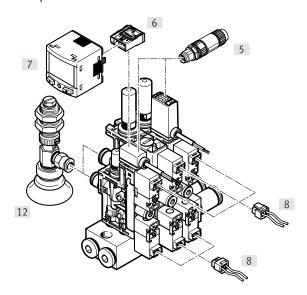
tion, i.e. the vacuum is not generated until the vacuum generator is pressurised with compressed air and the solenoid valve has been switched.

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



Moun	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			

Vacuum generators OVTL

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

ı		
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	

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

Laval nozzle 0.7 mm, for high vacuum, push-in connector 4 mm

Laval nozzle 0.95 mm, for high vacuum, push-in connector 6 mm

Laval nozzle 0.95 mm, for high suction rate, push-in connector 6 mm

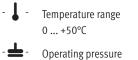
SC

SD

SE

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



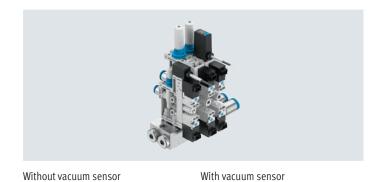
2 ... 7 bar

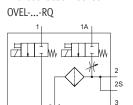
The vacuum generator OVTL is a module comprising vacuum generator OVEL, the common supply manifold OABM-P and connection accessories. All products are available from the factory fully assembled.

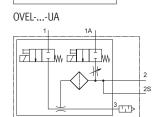
The vacuum generator OVTL can be ordered using the modular product system, which is a simpler and quicker alternative to ordering and assembling the various individual products.

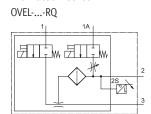
Every vacuum generator OVEL has

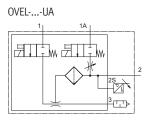
- a solenoid valve for controlling the ejector pulse
- a flow control screw for regulating the ejector pulse
- an additional supply port for the separate supply of the ejector pulse











General technical d	General technical data				
Туре			OVTL-10	OVTL-15	
Number of device po	sitions		28		
Grid dimension		[mm]	10	15	
Nominal width of	OVTLSA	[mm]	0.45		
Laval nozzle	OVTLSB/SC	[mm]	-	0.7	
	OVTLSD/SE	[mm]	-	0.95	
Grade of filtration		[µm]	40		
Mounting position			Any		
Type of mounting			With through-hole		
Pneumatic	OVTLQ6		For tubing O.D. 6 mm		
connection 1	OVTLQ8		For tubing O.D. 8 mm		
(common supply manifold)	OVTLG18		Female thread G1/8		
Vacuum connection	OVTLSA		For tubing O.D. 4 mm		
	OVTLSC		-	For tubing O.D. 4 mm	
	OVTLSB/SD/	SE	-	For tubing O.D. 6 mm	
Pneumatic	OVTLUA		Open silencer		
connection 3	OVTLRQS	A	For tubing O.D. 4 mm		
	OVTLRQS	B/SC/	-	For tubing O.D. 6 mm	
	SD/SE				
Product weight ¹⁾		[g]	118 890		

 $^{1) \}quad \ \ \text{Total weight calculated by adding the weight of the separate components.}$

Technical data – o	Technical data – design				
Туре		OVTLUA	OVTLRQ		
Design		Connection position on both sides			
	OVTLL/R	Connection position on the side			
Ejector	OVTLSA/SC/SE	High vacuum/standard			
characteristic	OVTLSB/SD	High suction rate/standard			
Silencer design		Open	-		
Integrated functio	on	On/off valve, electric			
		Filter			
		Open silencer	-		
		Electrical ejector pulse			
		Flow control valve			
	OVTLV	Pressure transmitter			
	OVTLPNLK	Pressure sensor			
Valve function		Closed			
Manual override		Non-detenting			

Operating and environmental conditions			
Operating pressure	[bar]	27	
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⁾		c UL 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.

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	Performance data			
Max. vacuum	[%]	89 92		
Operating pressure for max.	[bar]	3.8 4.5		
vacuum				
Operating pressure for max. suction	[bar]	36		
rate				
Max. suction rate with respect to	[l/min]	445		
atmosphere				
Pressurisation time at nominal	[s]	0.4 2		
operating pressure 4 bar (for 1 l				
volume) ¹⁾				
Sound pressure level at $p_1 = 4$ bar	[db(A)]	5268		

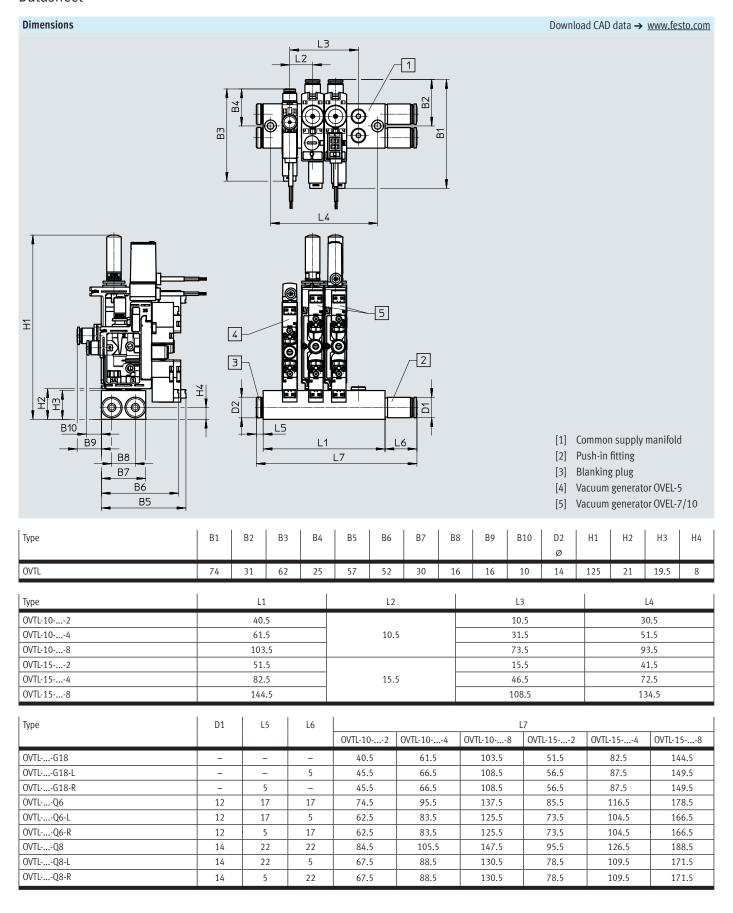
¹⁾ Time required to reduce the vacuum to a residual vacuum of –0.05 bar $\,$

²⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

Solenoid valve		
Electrical	Function	Ejector pulse
connection input,		Vacuum generation
	Connection type	2x plugs
	Connection technology	Plug pattern H
	Number of pins/wires	2
	Plug pattern	+++ 1 3
	Type of mounting	Snap-locking Snap-locking
Operating voltage ra	ange [V DC]	21.6 26.4
Duty cycle	[%]	100
Characteristic coil d	ata, 24 V DC [W]	1.0
Vacuum sensor		
Electrical	Function	Sensor
connection output,	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 [mm²]	0.14
Cable characteristic		Suitable for energy chains

Technical data – vacuum sensor	Technical data – vacuum sensor				
Туре		OVTLV	OVTLPNLK		
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	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]		010	-		

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



Ordering data – Modular product system

Ordering table				
Туре	OVTL	Conditions	Code	Enter code
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	Both sides			
position	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 [2] V, PNLK

Not with size 10.

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

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



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

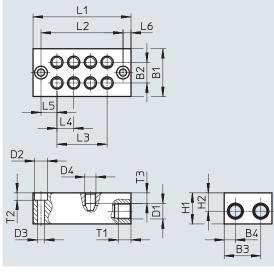
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with a normal industrial environment.

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

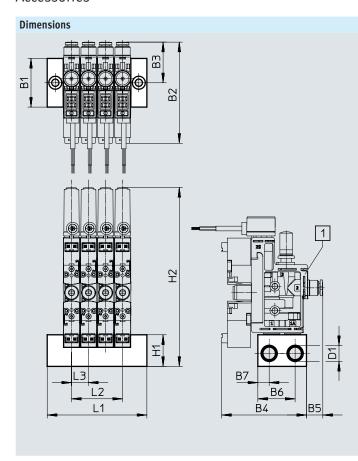
Dimensions

10

Download CAD data → www.festo.com



Туре	B1	B2	В3	B4	D1	D2 Ø	D3 Ø	D4	H1	H2	L1	L2	L3	L4	L5	L6	T1	T2	T3
OABM-P-G3-10-2											40.5	30.5	10.5						
OABM-P-G3-10-4	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5	61.5	51.5	31.5	10.5	10	5	8	4.6	6.6
OABM-P-G3-10-8											103.5	93.5	73.5						
OABM-P-G3-15-2											51.5	41.5	15.5						
OABM-P-G3-15-4	30	13	23	7	G1/8	8	4.5	M7	19.5	11.5	82.5	72.5	46.5	15.5	13	5	8	4.6	6.6
OABM-P-G3-15-8											144.5	134.5	108.5						



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.

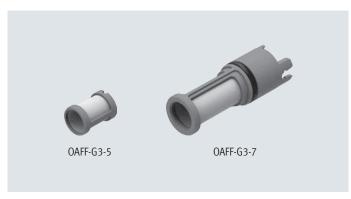
Min. tightening torque: 0.3 Nm Max. tightening torque: 3.3 Nm

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

Туре		B1	B2	В3	B4	B5	В6	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	

Ordering data				
Common supply manifold	Number of device positions	Weight	Part no.	Туре
		[g]		
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

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 environmenta	l 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		
Туре	OAFF-G3-5	OAFF-G3-7
Housing	РОМ	
Filter	Fabric, PA	
Seals	-	NBR
Note on materials	RoHS-compliant	

Ordering data				
	Weight	Part no.	Туре	PU ¹⁾
	[g]			
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

dering data –	lector of			1	1_	
	Electrical connection			Part no.	Туре	
	Plug M8x1, 3-pin, straight, in	sulation displacement connector		562024	NECU-S-M8G3-HX	
	Plug M12x1, A-coded, 3-pin,	straight, insulation displacement co	nnector	562027	NECU-S-M12G3-HX	
dering data –	Plug NECU-S-ECG4				Datasheets → Interne	et: n
	Electrical connection			Part no.	Туре	
	Plug, square design, 4-pin, st	raight, insulation displacement coni	nector	570922	NECU-S-ECG4-HX-Q3	
dering data –	Signal converter SCDN			Part no.	Datasheets → Interne	et:
	Measured variable					
	Voltage			8035555	SCDN-2V-EC4-PNLK-L1	
lering data –	Voltage Plug socket with cable NEBV		Cable laveth [m]	8035555	SCDN-2V-EC4-PNLK-L1 Datasheets → Internet	et:
ering data –	Voltage Plug socket with cable NEBV Electrical connection		Cable length [m]	8035555 Part no.	SCDN-2V-EC4-PNLK-L1 Datasheets → Internet Type	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket	Flying leads	0.5	8035555 Part no. 566654	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2	et:
ering data –	Voltage Plug socket with cable NEBV Electrical connection	Flying leads Open end	0.5	Part no. 566654 566655	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket	I	0.5 1 2.5	Part no. 566654 566655 566656	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end	0.5 1 2.5 5	Part no. 566654 566655 566656 566657	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end Cable	0.5 1 2.5 5 0.5	Part no. 566654 566655 566656 566657	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-FN-5-N-LE2	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end	0.5 1 2.5 5 0.5	Part no. 566654 566655 566656 566657 566658	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-0.5-N-LE2	et:
dering data –	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end Cable	0.5 1 2.5 5 0.5 1 2.5	Part no. 566654 566655 566656 566657 566658 566659	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2	et:
ering data –	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end Cable	0.5 1 2.5 5 0.5	Part no. 566654 566655 566656 566657 566658	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-0.5-N-LE2	et:
	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H	Open end Cable	0.5 1 2.5 5 0.5 1 2.5	Part no. 566654 566655 566656 566657 566658 566659 566660 566661	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-F-0.5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-5-N-LE2	
	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H 2-pin socket Plug pattern H	Open end Cable	0.5 1 2.5 5 0.5 1 2.5	Part no. 566654 566655 566656 566657 566658 566659	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-2.5-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2	
	Plug socket with cable NEBV Electrical connection 2-pin socket Plug pattern H 2-pin socket Plug pattern H Blanking plug B	Open end Cable	0.5 1 2.5 5 0.5 1 2.5	Part no. 566654 566655 566656 566657 566658 566659 566660 566661	Datasheets → Internet Type NEBV-H1G2-KN-0.5-N-LE2 NEBV-H1G2-KN-1-N-LE2 NEBV-H1G2-KN-5-N-LE2 NEBV-H1G2-F-0.5-N-LE2 NEBV-H1G2-P-0.5-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-1-N-LE2 NEBV-H1G2-P-5-N-LE2	et:

¹⁾ Packaging unit.

Ordering data – Push-in fitting QS					
	Pneumatic connection		Part no.	Туре	PU ¹⁾
	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.

Festo - Your Partner in Automation





1 Festo Inc.

5300 Explorer Drive Mississauga, ON L4W 5G4 Canada

Festo Customer Interaction Center

Tel: 1877 463 3786 Fax: 1877 393 3786



2 Festo Pneumatic

Av. Ceylán 3, Col. Tequesquináhuac 54020 Tlalnepantla, Estado de México

Multinational Contact Center

01 800 337 8669



3 Festo Corporation

1377 Motor Parkway Suite 310 Islandia, NY 11749



Regional Service Center

7777 Columbia Road Mason, OH 45040

Festo Customer Interaction Center

1 800 993 3786 1 800 963 3786 customer.service.us@festo.com

Connect with us







