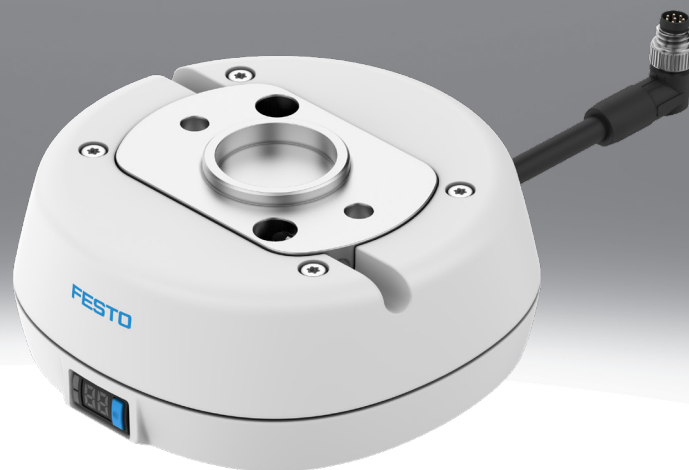


Vacuum generator OVEH

FESTO



Characteristics

At a glance

- Vacuum generator for Human-Robot Collaboration (HRC) applications, where the basic functionalities such as vacuum generator, sensors, display and operation are integrated in a compact housing.
- Can be used with many different cobots and robots thanks to the mechanical robot interface according to ISO 9409-1-50-4-M6
 - Preset ejector pulse
 - With integrated pressure sensor with various switching outputs as well as LCD display, IO-Link® and teach function
 - Central connector plug M8 (8-pin) for supplying the solenoid valves as well as control and parameterisation of the sensor/switching output

Diagrams Link [oveh](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

Vacuum type

There are two vacuum generator versions for use in different applications.

[H] High vacuum

Vacuum generators for high vacuum are optimised to generate a high vacuum. Application examples include dense materials such as sheet metal.

[L] High suction rate

Vacuum generators for high suction volume flows can achieve very short evacuation times due to the high suction volume flow. Application examples include air-permeable materials such as cardboard packaging where external air needs to be levelled out.

Exhaust connection

[UA] Open silencer UO

Open silencer to reduce contamination of the suction nozzle.

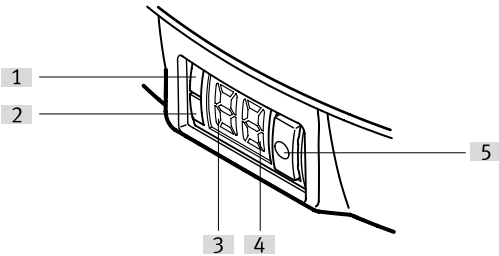
Vacuum valve

[C] Normally closed

Solenoid valve for control of the compressed air supply in the switching function
NC - normally closed, i.e. no vacuum generation in the initial position of the solenoid valve.

Output signal vacuum sensor

[PNLK] PNP or NPN or IO-Link®



- Control components and displays:
- [1] Switching status display / LED1
 - [2] Switching status display / LED2
 - [3] Number segment LED display / segment 1
 - [4] Number segment LED display / segment 2
 - [5] Key

Characteristics

Robot connection

[HRC] Human-robot collaboration ISO 9409-1-50-4-M6

The mechanical interface of the vacuum ejector is designed in accordance with ISO 9409-1-50-4-M6 so that it can be mounted on the most commonly used co-bots/robots.

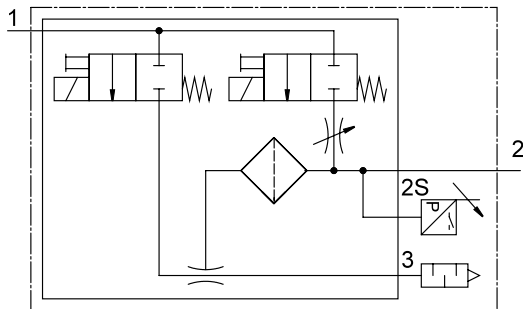
Type code

001	Series	
OVEH	Vacuum generator	
002	Vacuum generation	
7	Laval nozzle 0.7 mm	
10	Laval nozzle 0.95 mm	
003	Vacuum type	
H	High vacuum	
L	High suction rate	
004	Supply air connection	
Q6	Push-in connector 6 mm	
005	Vacuum connection	
G18	Female thread G1/8	

006	Exhaust connection	
UA	Open silencer U0	
007	Vacuum valve	
C	Normally closed	
008	Output signal vacuum sensor	
PNLK	PNP or NPN or IO-Link®	
009	Electrical connection	
R12	M8 individual plug, 8-pin	
SR12	M8 single socket, 8-pin	
010	Robot connection	
HRC	Human-robot collaboration ISO 9409-1-50-4-M6	

Datasheet

General technical data



Ejector characteristic	High suction rate, Standard	High vacuum, Standard	
Nominal size, Laval nozzle	0.95 mm	0.7 mm	0.95 mm
Type of mounting	Via mounting kit, To ISO 9409		
Mounting position	optional		
Integrated function	Electric ejector pulse Pressure sensor Electric on-off valve Filter Silencer closed		
Valve function	Closed		
Design	Human-robot collaboration (HRC)		
Measurement method	Piezoresistive pressure sensor with display		
Measuring principle	Piezoresistive		
Measured variable	Pressure		
Pneumatic connection, port 1	For tubing outside diameter of 6 mm		
Pneumatic connection, port 3	Open silencer		
Vacuum connection	G1/8		
Note on vacuum connection	Additional accessories possible		
Grade of filtration	40 µm		
Switching function	Freely programmable		
Switching element function	N/C or N/O contact, switchable		
Setting options	IO-Link® Teach-in Via display and keys		
Protocol	IO-Link®		
Silencer design	Open		
Manual override	None		
Protection against tampering	PIN code		
Product weight	415 g		

Pressure measuring range

Display type	LED indicator, 2-digit
Pressure measuring range	-0.1 ... 0 MPa
Pressure measuring range	-1 ... 0 bar
Pressure measuring range	-14.5 ... 0 psi
Accuracy in ± % FS	1.5 %FS
Reproducibility of switching values FS	0.3%

Datasheet

Technical data – IO-Link®

IO-Link, Protocol version	Device V 1.1
IO-Link, Profile	Smart sensor profile
IO-Link, Function classes	Binary data channel (BDC) Process data variable (PDV) Identification Diagnostics Teach channel
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	0 bytes
IO-Link, Process data length IN	2 bytes
IO-Link, Process data content IN	14 bit PDV (pressure measurement value) 2 bit BDC (pressure monitoring)
IO-Link, Min. cycle time	3 ms
IO-Link, Data storage required	0.5 Byte

Operating and environmental conditions

Operating pressure	0.2 ... 0.7 MPa
Operating pressure	2 ... 7 bar
Operating pressure	29 ... 101.5 psi
Nominal operating pressure	0.4 MPa
Nominal operating pressure	4 bar
Nominal operating pressure	58 psi
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating and pilot medium	Lubricated operation not possible
Ambient temperature	0 ... 50°C
Media temperature	0 ... 50°C
Relative air humidity	Max. 93% at 40 °C
Degree of protection	IP40
CE mark (see declaration of conformity)	To EU EMC Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Recommended cleaning/purification	Soapy water

1) More information www.festo.com/x/topic/crc

Datasheet

Performance data – High vacuum

Nominal size, Laval nozzle	0.7 mm	0.95 mm
Operating pressure for max. suction flow rate	0.4 MPa	
Operating pressure for max. suction flow rate	4 bar	
Operating pressure for max. suction flow rate	58 psi	
Operating pressure for max. vacuum	0.45 MPa	0.41 MPa
Operating pressure for max. vacuum	4.5 bar	4.1 bar
Operating pressure for max. vacuum	65.25 psi	59.45 psi
Max. vacuum	92%	
Max. suction flow rate against atmosphere	15 l/min	18 l/min
Air supply time at nominal operating pressure with ejector pulse	1.2 s	1 s
Sound pressure level at nominal operating pressure	48 dB(A)	55 dB(A)
Sound level at nominal operating pressure	60 dB(A)	66 dB(A)

Performance data – High suction rate

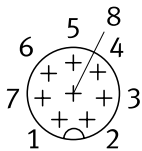
Operating pressure for max. suction flow rate	0.6 MPa
Operating pressure for max. suction flow rate	6 bar
Operating pressure for max. suction flow rate	87 psi
Max. vacuum	85%
Max. suction flow rate against atmosphere	30 l/min
Air supply time at nominal operating pressure with ejector pulse	0.4 s
Sound pressure level at nominal operating pressure	55 dB(A)
Sound level at nominal operating pressure	66 dB(A)

Datasheet

Electrical data

Electrical connection 1, cable outlet	Angled
Electrical connection 1, design	Round
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	8
Electrical connection 1, used connections/cores	5
Electrical connection 1, tightening torque	0.2 Nm
Electrical connection input, function	Ejector pulse, Power supply, Vacuum generation
Electrical connection output, function	Digital output
Cable characteristic	Suitable for robot applications
Cable diameter	5 mm
Cable diameter tolerance	± 1 mm
Cable length	0.3 m
Reverse polarity protection	yes
Switching status indication	Yellow LED
Short circuit current rating	yes
Operational voltage range DC	21.6 ... 26.4 V
Duty cycle	100%
Max. output current	100 mA
Switching output	PNP/NPN, switchable
Characteristic coil data	24 V DC: 1.0 W

Pin allocation plug

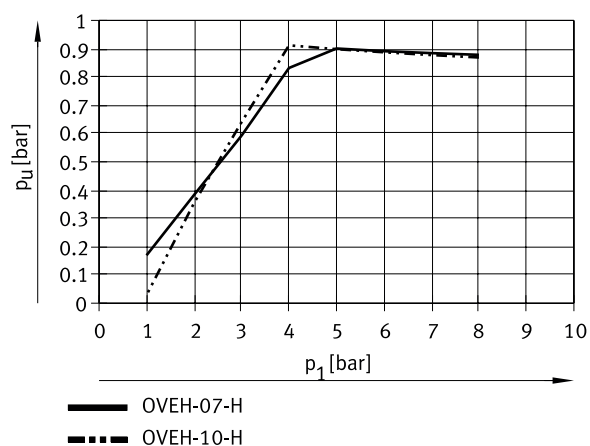
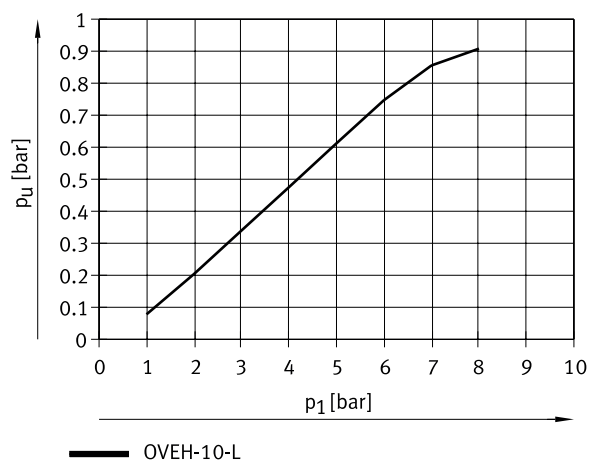
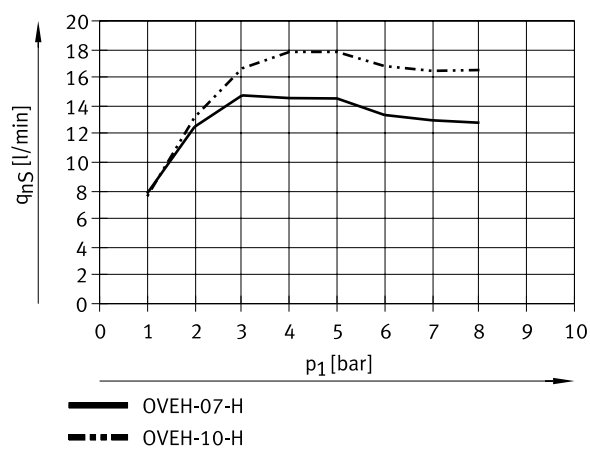


- [1] Not assigned
- [2] Not assigned
- [3] Not assigned
- [4] Digital output 2 (NPN/PNP, freely programmable via IO-Link® or display buttons)
- [5] Supply voltage +24 V DC
- [6] Digital switching input 2 (ejector pulse “off” = 0V / “on” = 24V)
- [7] Digital switching input 1 (vacuum “off” = 0V / “on” = 24V)
- [8] 0 V DC

Materials

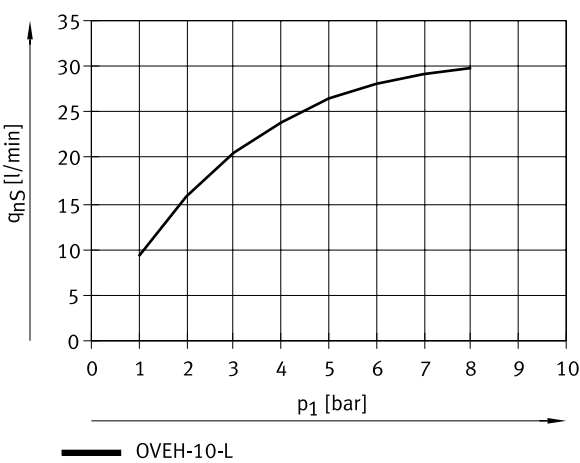
Material housing	PA-reinforced
Material receiver nozzle	POM
Material transmitter nozzle	Wrought aluminium alloy
Material adjusting screw	Steel
Material hollow bolt	Wrought aluminium alloy
Material screws	Steel
Material connecting thread	Anodised wrought aluminium alloy
Material seals	NBR
Material filter	POM
Material silencer	PA-reinforced, PE
Material cable sheath	PVC
Cable sheath colour	Black
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Datasheet

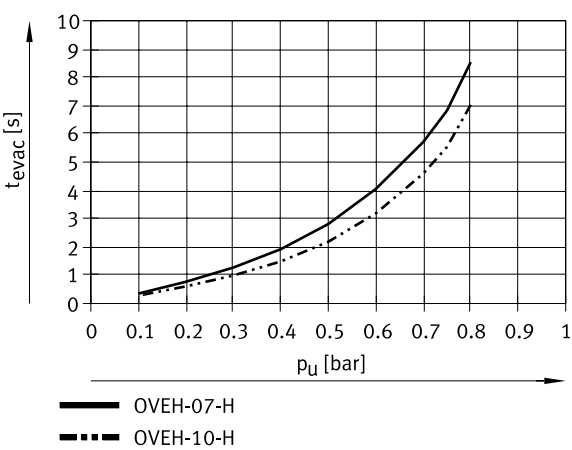
Vacuum p_u as a function of operating pressure p_1 (high vacuum)Vacuum p_u as a function of operating pressure p_1 (high suction volume flow)Suction volume flow q_{nS} in relation to atmosphere as a function of operating pressure p_1 (high vacuum)

Datasheet

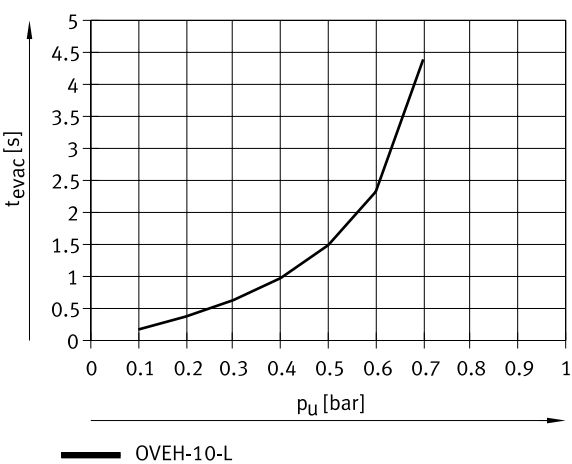
Suction volume flow q_{nS} in relation to atmosphere as a function of operating pressure p_1 (high suction volume flow)



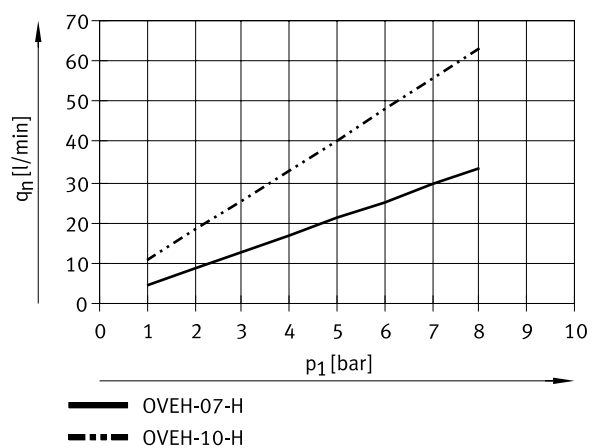
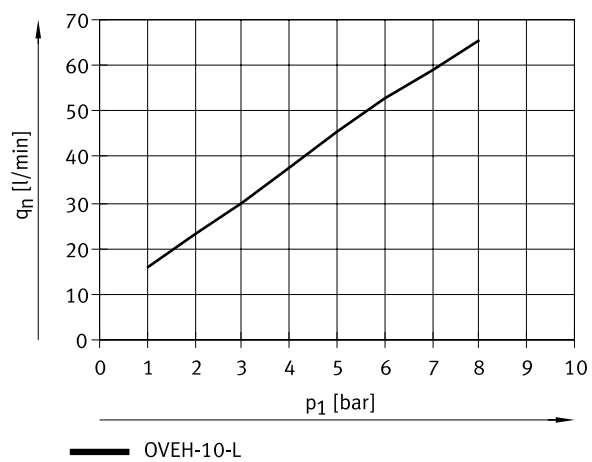
Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure (high vacuum)



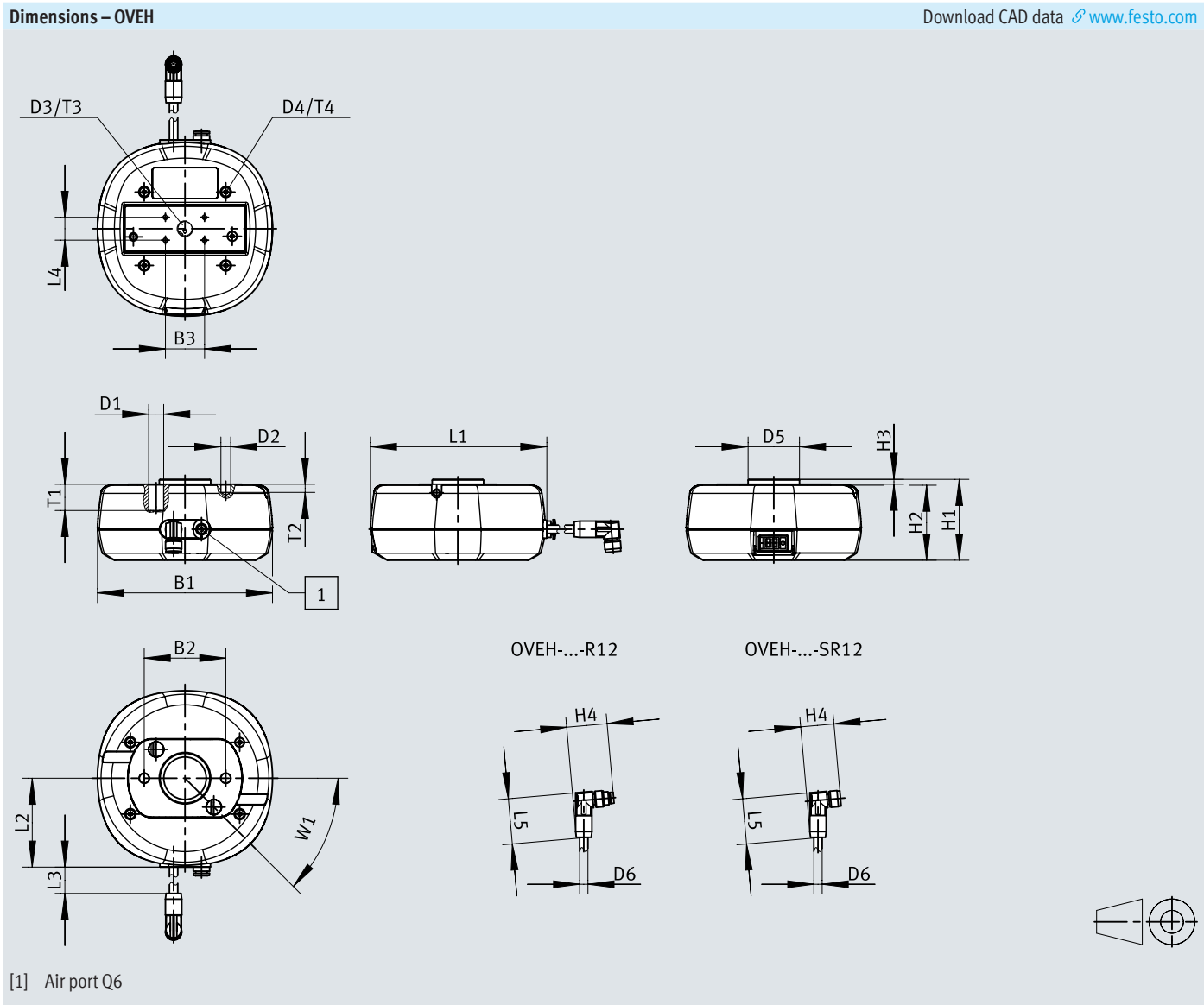
Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure (high suction volume flow)



Datasheet

Air consumption q_n as a function of operating pressure p_1 (high vacuum)Air consumption q_n as a function of operating pressure p_1 (high suction volume rate)

Dimensions



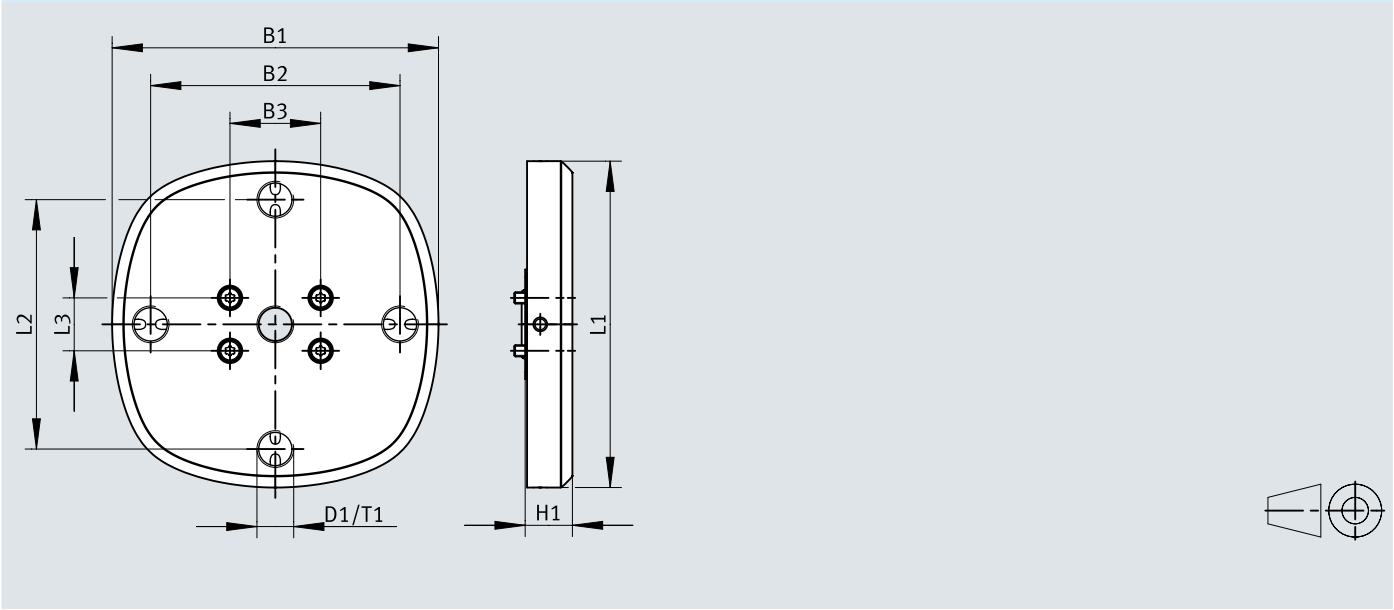
	B1	B2	B3	D1 ø H12	D2 ø H7	D3	D4	D5 ø h7	D6 ø	H1	H2
OVEH-10-H-Q6-G18-UA-C-PNLK-R12-HRC	107,3	50	24	9,2	6	G1/8	M3	31,5	5,1	49,6	46
OVEH-10-H-Q6-G18-UA-C-PNLK-SR12-HRC											
OVEH-7-H-Q6-G18-UA-C-PNLK-R12-HRC											
OVEH-7-H-Q6-G18-UA-C-PNLK-SR12-HRC											
OVEH-10-L-Q6-G18-UA-C-PNLK-R12-HRC											
OVEH-10-L-Q6-G18-UA-C-PNLK-SR12-HRC											

	H3	H4	L1	L2	L3	L4	L5	T1	T2	T3	T4
OVEH-10-H-Q6-G18-UA-C-PNLK-R12-HRC	3	25	108,1	54,5	302,7	14	28	16,1	5	7	7,5
OVEH-10-H-Q6-G18-UA-C-PNLK-SR12-HRC		20,5									
OVEH-7-H-Q6-G18-UA-C-PNLK-R12-HRC		25									
OVEH-7-H-Q6-G18-UA-C-PNLK-SR12-HRC		20,5									
OVEH-10-L-Q6-G18-UA-C-PNLK-R12-HRC		25									
OVEH-10-L-Q6-G18-UA-C-PNLK-SR12-HRC		20,5									

Dimensions

Dimensions – OAMC-PA-G18-5

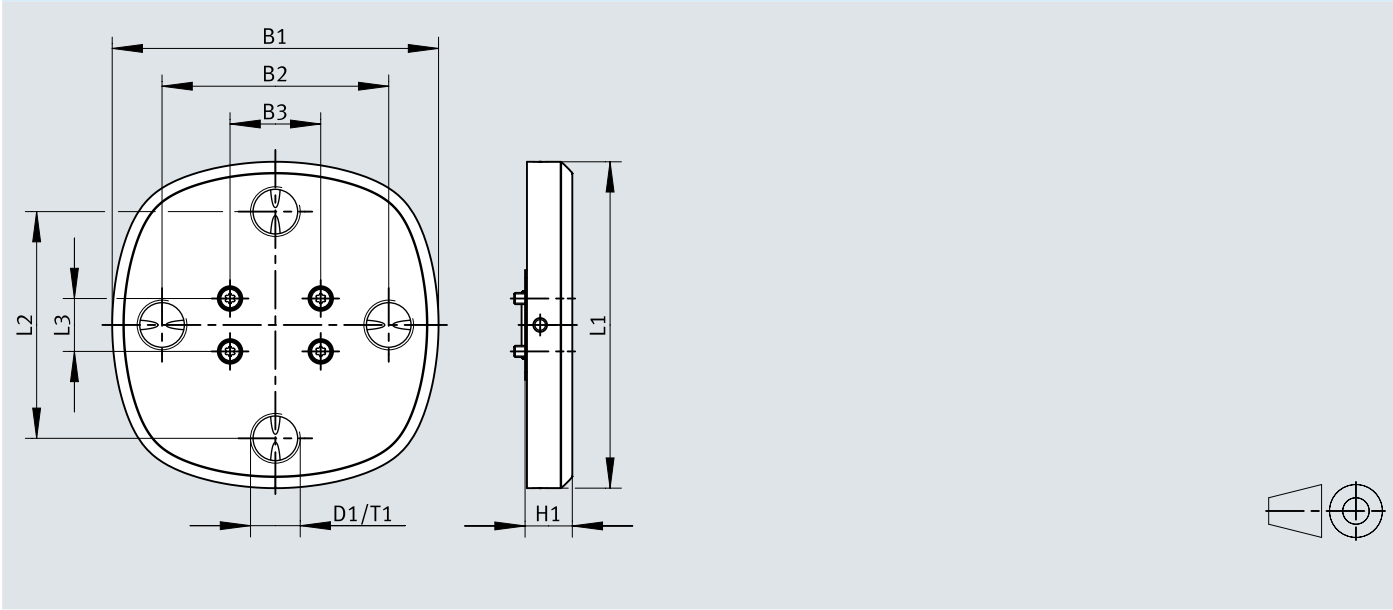
Download CAD data www.festo.com



	B1	B2	B3	D1	H1	L1	L2	L3	T1
OAMC-PA-G18-5	86,4	66	24	G1/8	12,5	86,4	66	14	5,9

Dimensions

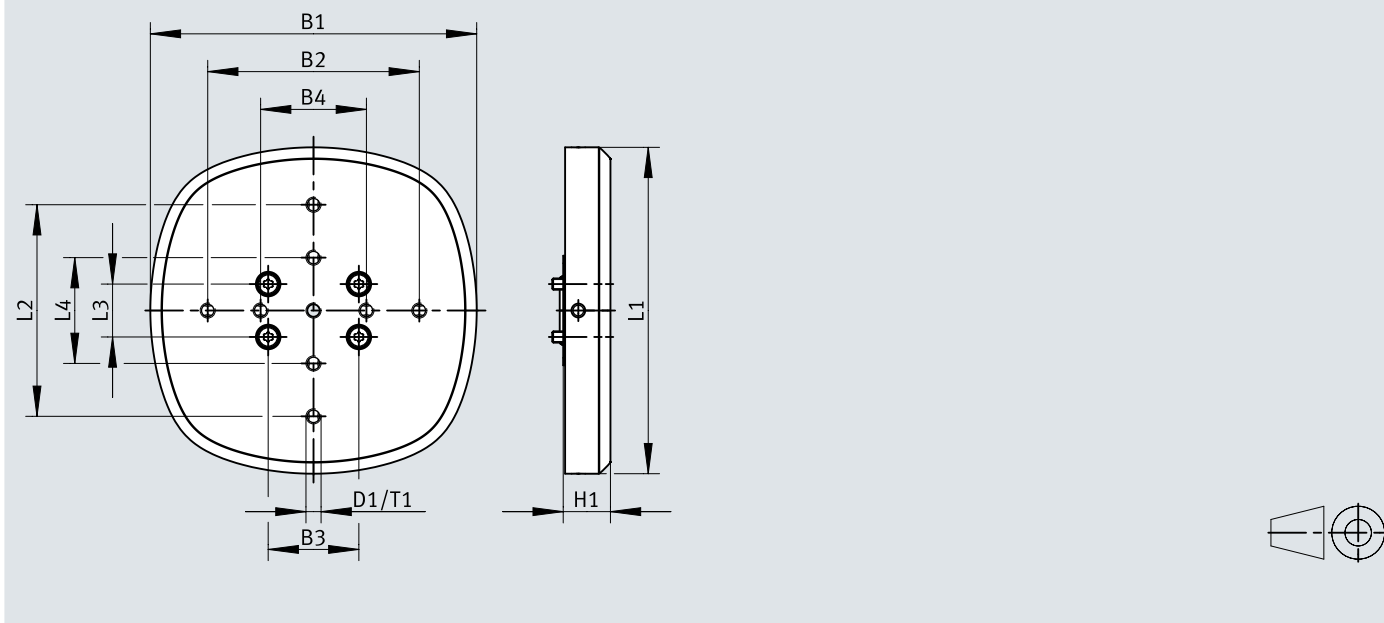
Dimensions – OAMC-PA-G14-4 Download CAD data www.festo.com



	B1	B2	B3	D1	H1	L1	L2	L3	T1
OAMC-PA-G14-4	86,4	60	24	G1/4	12,5	86,4	60	14	6,5

Dimensions

Dimensions – OAMC-PA-M4-9

[Download CAD data](#) www.festo.com


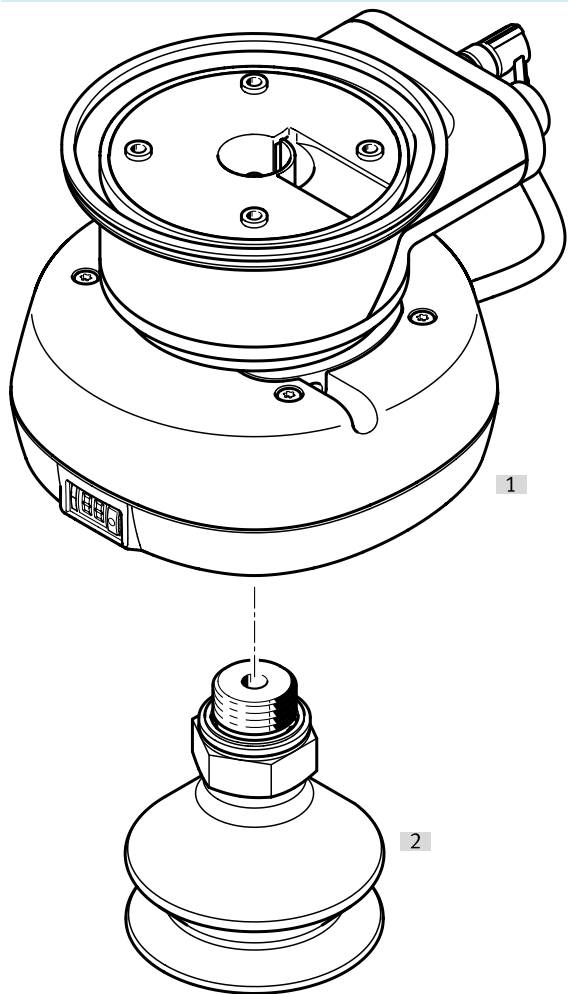
	B1	B2	B3	B4	D1	H1	L1	L2	L3	L4	T1
OAMC-PA-M4-9	86,4	56	24	28	M4	12,5	86,4	56	14	28	6

Ordering data

Ordering data						
	Ejector character- istic	Nominal size, Laval nozzle	Electrical connec- tion 1, connec- tion type	Product weight	Part no.	Type
	High suction rate, Standard	0.95 mm	Cable with socket	415 g	8205194	OVEH-10-L-Q6-G18-UA-C-PNLK-SR12-HRC
			Cable with plug		8205193	OVEH-10-L-Q6-G18-UA-C-PNLK-R12-HRC
	High vacuum, Standard	0.7 mm	Cable with socket		8205192	OVEH-7-H-Q6-G18-UA-C-PNLK-SR12-HRC
			Cable with plug		8205191	OVEH-7-H-Q6-G18-UA-C-PNLK-R12-HRC
		0.95 mm	Cable with socket		8205190	OVEH-10-H-Q6-G18-UA-C-PNLK-SR12-HRC
			Cable with plug		8205189	OVEH-10-H-Q6-G18-UA-C-PNLK-R12-HRC

Peripherals

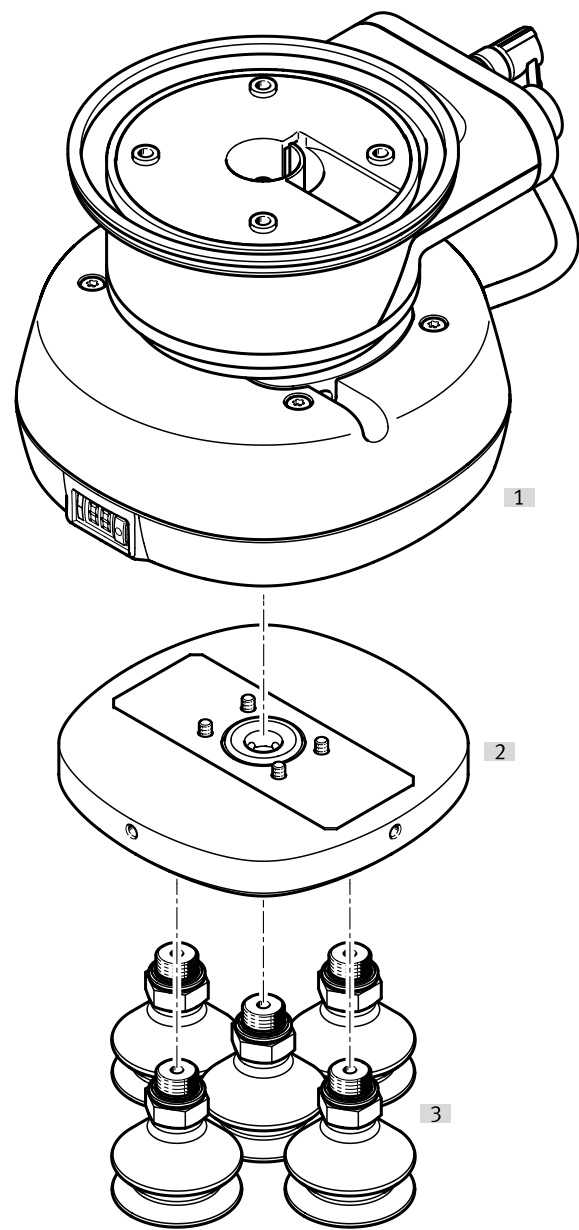
OVEH without adapter plate with 1 suction cup



Accessories		→ Link
Type/order code	Description	
[1] OVEH		oveh
[2] Suction cups with connector VAS, VASB, OGVN	Suction cup sizes 15; 20; 30; 35	21
[3] Vacuum security valve ISV	Optional, without illustration	21
[4] Double nipple NPFC	Optional, without image, for suction cup with connection OGVN-...-F with female thread	21

Peripherals

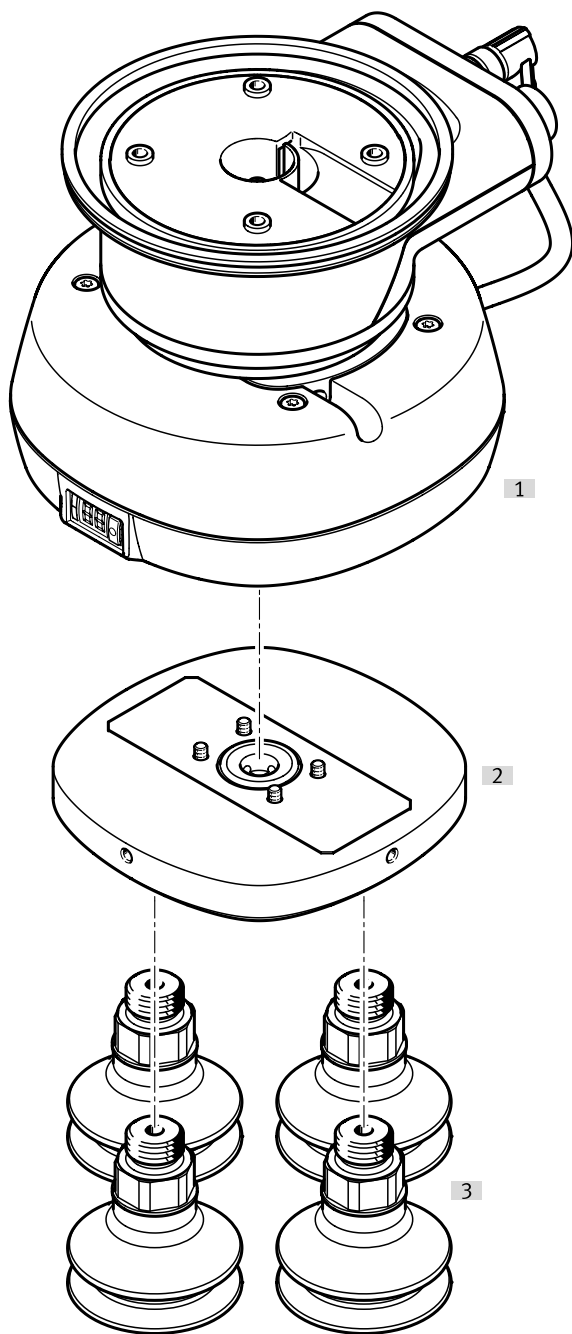
OVEH with adapter plate OAMC-PA-G18-5 with 5 suction cups



Accessories		→ Link
Type/order code	Description	
[1] OVEH		oveh
[2] Adapter plate OAMC-PA-G18-5	Suction cup sizes 15; 20; 30; 35	21
[3] Suction cups with connector VAS, VASB, OGVN	Suction cup sizes 15; 20; 30; 35	21
[4] Vacuum security valve ISV	Optional, without illustration	21
[5] Double nipple NPFC	Optional, without image, for suction cup with connection OGVN-...-F with female thread	21

Peripherals

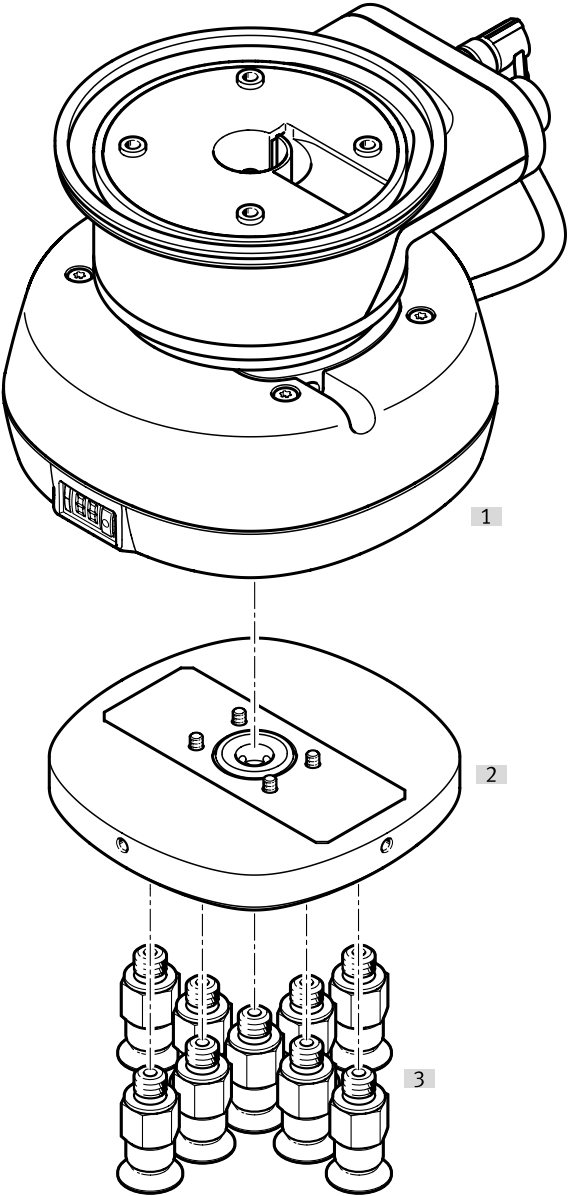
OVEH with adapter plate OAMC-PA-G14-4 with 4 suction cups



Accessories		→ Link
Type/order code	Description	
[1] OVEH		oveh
[2] Adapter plate OAMC-PA-G14-4	Suction cup sizes 15; 20; 30; 35	21
[3] Suction cups with connector VAS, VASB, OGVN, OGVM	Suction cup sizes 20; 30; 35; 40	22
[4] Vacuum security valve ISV	Optional, without illustration	22
[5] Double nipple NPFC	Optional, without image, for suction cup with connection OGVN-...-F with female thread	21

Peripherals

OVEH with adapter plate OAMC-PA-M4-9 with 9 suction cups



Accessories		→ Link
Type/order code	Description	
[1] OVEH		oveh
[2] Adapter plate OAMC-PA-M4-9	Suction cup sizes 15; 20; 30; 35	21
[3] Suction cup with connector ESS	Suction cup sizes 10; 15	22
[4] Vacuum security valve ISV	Optional, without illustration	22

Accessories

Adapter plate OAMC

	Suction cup mounting	Suction cup mounting, quantity	Material plate	Product weight	Part no.	Type
	Female thread G1/8	5	Anodised wrought aluminium alloy	215 g	8205195	OAMC-PA-G18-5
	Female thread G1/4	4			8205196	OAMC-PA-G14-4
	Female thread M4	9			8205197	OAMC-PA-M4-9

Accessories without adapter plate ¹⁾

Series	Short type code	Suction cup diameter	Material suction cup	Product weight	Part no.	Type
Suction cup complete	VAS	15 mm	NBR	11 g	36142	VAS-15-1/8-NBR
			PUR		1396087	VAS-15-1/8-PUR-B
			VMQ (silicone)		1376604	VAS-15-1/8-SI-B
		30 mm	NBR	13 g	34587	VAS-30-1/8-NBR
			PUR	12 g	1396090	VAS-30-1/8-PUR-B
			VMQ (silicone)	5 g	1377752	VAS-30-1/8-SI-B
Suction cups with connection, protective bellows	VASB	15 mm	NBR	11 g	35411	VASB-15-1/8-NBR
			PUR		1395671	VASB-15-1/8-PUR-B
			VMQ (silicone)		1377689	VASB-15-1/8-SI-B
		30 mm	NBR	15 g	35412	VASB-30-1/8-NBR
			PUR	14 g	1395690	VASB-30-1/8-PUR-B
			VMQ (silicone)	7 g	1377637	VASB-30-1/8-SI-B
Vacuum security valve	ISV			9 g	33969	ISV-1/8
Fitting	NPFC			10 g	8133311	NPFC-D-2G18-M-F1A
Suction cup with connection	OGVN	20 mm	PUR	4.1 g	8204816	OGVN-20-A-U-G18
		35 mm		11 g	8204818	OGVN-35-A-U-G18-F
		52 mm		27.3 g	8204832	OGVN-52-A-U-G18-F

1) Double nipple NPFC: for suction cup with connection OGVN-....-F with internal thread

Accessories with adapter plate OAMC-PA-G18-5 (5 suction cup connections, max. diameter per suction cup = 30 mm) ¹⁾

Series	Short type code	Suction cup diameter	Material suction cup	Product weight	Part no.	Type
Suction cup complete	VAS	15 mm	NBR	11 g	36142	VAS-15-1/8-NBR
			PUR		1396087	VAS-15-1/8-PUR-B
			VMQ (silicone)		1376604	VAS-15-1/8-SI-B
		30 mm	NBR	13 g	34587	VAS-30-1/8-NBR
			PUR	12 g	1396090	VAS-30-1/8-PUR-B
			VMQ (silicone)	5 g	1377752	VAS-30-1/8-SI-B
Suction cups with connection, protective bellows	VASB	15 mm	NBR	11 g	35411	VASB-15-1/8-NBR
			PUR		1395671	VASB-15-1/8-PUR-B
			VMQ (silicone)		1377689	VASB-15-1/8-SI-B
		30 mm	NBR	15 g	35412	VASB-30-1/8-NBR
			PUR	14 g	1395690	VASB-30-1/8-PUR-B
			VMQ (silicone)	7 g	1377637	VASB-30-1/8-SI-B
Vacuum security valve	ISV			9 g	33969	ISV-1/8
Fitting	NPFC			10 g	8133311	NPFC-D-2G18-M-F1A
Suction cup with connection	OGVN	20 mm	PUR	4.1 g	8204816	OGVN-20-A-U-G18
		35 mm		11 g	8204818	OGVN-35-A-U-G18-F

1) Double nipple NPFC: for suction cup with connection OGVN-....-F with internal thread

Accessories with adapter plate OAMC-PA-G14-4 (4 suction cup connections, max. diameter per suction cup = 40 mm) ¹⁾

Series	Short type code	Suction cup diameter	Material suction cup	Product weight	Part no.	Type
Suction cup complete	VAS	40 mm	NBR	26 g	36143	VAS-40-1/4-NBR
			PUR		1396092	VAS-40-1/4-PUR-B
			VMQ (silicone)		1379454	VAS-40-1/4-SI-B
Suction cups with connection, protective bellows	VASB		NBR	30 g	35413	VASB-40-1/4-NBR

Accessories

Accessories with adapter plate OAMC-PA-G14-4 (4 suction cup connections, max. diameter per suction cup = 40 mm) ¹⁾						
Series	Short type code	Suction cup diameter	Material suction cup	Product weight	Part no.	Type
Suction cups with connection, protective bellows	VASB	40 mm	PUR	30 g	1395691	VASB-40-1/4-PUR-B
			VMQ (silicone)	18 g	1372910	VASB-40-1/4-SI-B
Vacuum security valve	ISV			16 g	33970	ISV-1/4
Fitting	NPFC			17.2 g	8030272	NPFC-D-2G14-M
Suction cup complete	OGVM	20 mm	NBR	6 g	8073847	OGVM-20-G-N-G14F
				12 g	8073834	OGVM-20-A-N-G14F
		30 mm		7 g	8073848	OGVM-30-G-N-G14F
				8 g	8073816	OGVM-30-S-N-G14F
				15 g	8073835	OGVM-30-A-N-G14F
		40 mm		10 g	8073817	OGVM-40-S-N-G14F
				17 g	8073836	OGVM-40-A-N-G14F
Suction cup with con- nection	OGVN	35 mm	PUR	13 g	8204819	OGVN-35-A-U-G14

1) Double nipple NPFC: for suction cup with connection OGVM-...-F with male thread

Accessories with adapter plate OAMC-PA-M4-9 (9 suction connections, max. diameter per suction cup = 10 mm)							
Series	Short type code	Suction cup diameter	Material suction cup	Product weight	Part no.	Type	
Suction cup complete	ESS	10 mm	FPM	1.5 g	189287	ESS-10-SF	
			NBR		189288	ESS-10-SNA	
					189284	ESS-10-SN	
			PUR		1.6 g	189398	ESS-10-CN
					1.8 g	189374	ESS-10-BN
					1.5 g	189285	ESS-10-SU
					1.8 g	189375	ESS-10-BU
			VMQ (silicone)		1.5 g	189286	ESS-10-SS
					1.6 g	189399	ESS-10-CS
					1.8 g	189376	ESS-10-BS
		15 mm	FPM	1.9 g	189337	ESS-15-EF	
			NBR		189292	ESS-15-SF	
					189289	ESS-15-SN	
					189334	ESS-15-EN	
					189293	ESS-15-SNA	
			PUR		189290	ESS-15-SU	
					189335	ESS-15-EU	
			VMQ (silicone)		189291	ESS-15-SS	
					189336	ESS-15-ES	
Vacuum security valve	ISV			1.5 g	545996	ISV-M4	