

Suction of Various large workpieces

Vacuum Grippers

NEW

VRG



Rectangular ring type



Whole surface sponge

VMG



VLG



General-purpose type

General-purpose bar type

Aligned vacuum pads

VMG



VLG



General-purpose type

General-purpose bar type

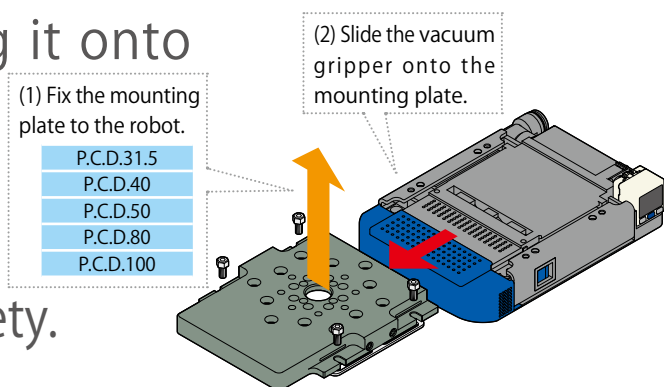
Characteristics of Rectangular ring type (VRG) and general-purpose type (VMG)

- Three types of suction surfaces:
Two sponge types (rectangular ring and whole surface) and aligned vacuum pads type.
- Built-in high flow Vacuum Generator
When 0.5 MPa (rated supply pressure) is applied, max. suction flow is 760 ℓ /min. (*)
*Value for 3 built-in ejectors specification.
Relative to suction flow, air consumption is **reduced** by up to **62%**.
Capable of lifting even porous workpieces.



Rated supply pressure	0.5MPa					
Final vacuum	-94kPa					
Suction flow	290ℓ	Approx. 62% reduction	550ℓ	Approx. 60% reduction	760ℓ	Approx. 57% reduction
Air consumption	110ℓ		220ℓ		330ℓ	
Vacuum Generator spec. code	161		162		163	
No. of nozzles	1		2		3	

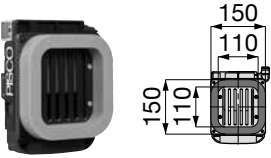
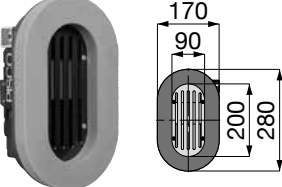
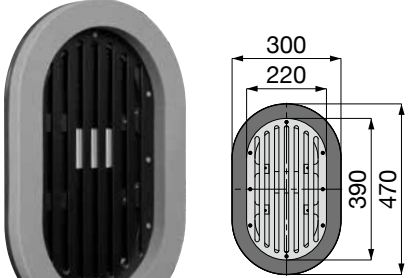
- External Vacuum Pump compatible type is also available.
- Easy installation by sliding it onto the flange mounting plate after the plate has been fixed to the robot.
Improved operability and safety.

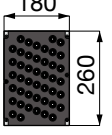
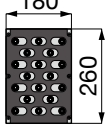
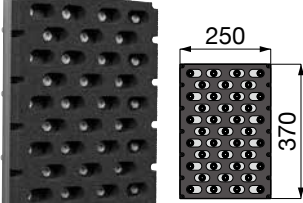
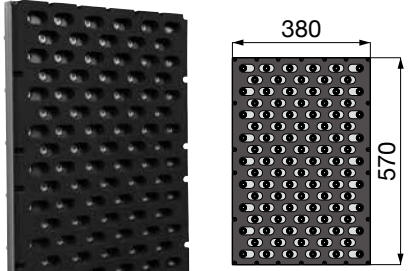


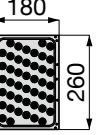
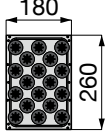
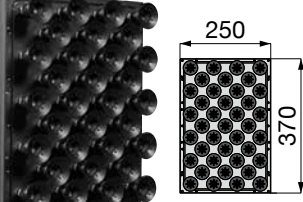
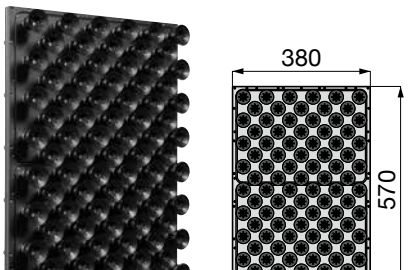
	Rectangular ring type VRG	General-purpose type VMG	
Type	Sponge (Rectangular ring)  Theoretical max. suction force 1512.7 N (*1)	Sponge (Whole surface)  Theoretical max. suction force 1546.4 N (*1)	Aligned vacuum pads  Theoretical max. suction force 2369.5 N (*1)
Recommended workpieces	Large multiwall paper bags. Shrink-wrapped plastic bottles.  Supple sponge pad conforms to and lifts uneven or deformed surfaces of workpieces.	Uneven workpieces such as wood and exterior walls. 	Cardboard boxes and bagged items. 
Pad replacement	Replaceable by replacing the VRG sponge plate.	Replaceable by replacing the VMG sponge plate.	Vacuum pad + pad screw set (pad connection configuration code: M6) can be mounted. *2
Accessories	Spacer (included) The stroke can be adjusted to suit the workpiece by changing the height of the adjusting plate on the inside of the pad. Four suction strokes in total: 10, 15, 20 & 25 mm (factory setting: 25 mm). Adjustable in 5 mm increments. *For VRG1515: 8, 13, 18, and 23 mm (factory setting: 23 mm).	Fixed orifice (optional) Capable of lifting even if there are non-adsorbed areas. No dropping. Suppresses vacuum degradation due to leakage from non-adsorbed areas by attaching an orifice to regulate the flow rate. The orifice coupling type makes it easy to attach/detach the vacuum pads. The vacuum pads unnecessary for suction can be removed thanks to the socket's built-in shutoff valve.  Non-adsorbed areas	Fixed orifice or orifice coupling (optional)

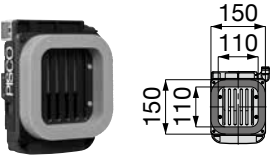
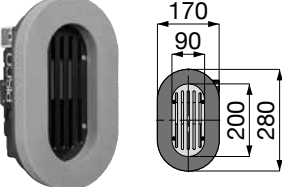
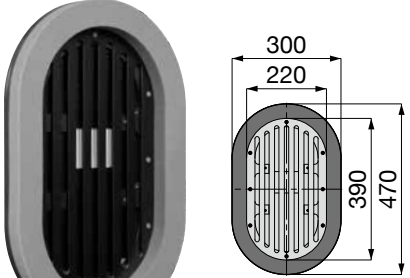
*1. Safety factor 1/4 considered.
*2. Bellows vacuum pads are provided as standard. If other pads are to be installed, order "No pad". (Vacuum pads are sold separately.)

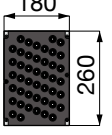
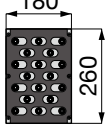
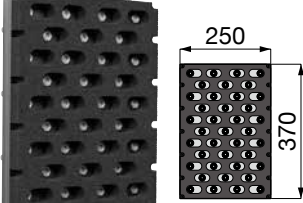
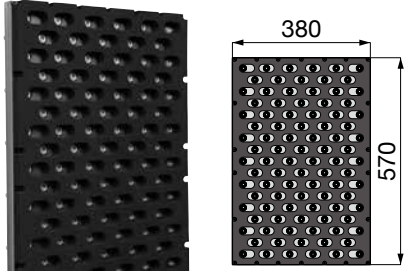
Sizes of Rectangular ring type (VRG) and General-purpose type (VMG)

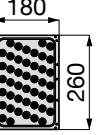
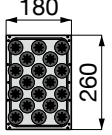
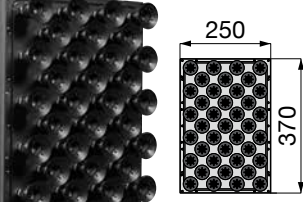
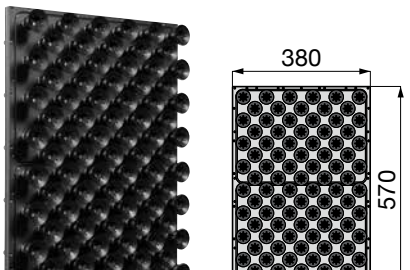
Type	Rectangular ring type/VRG		
Page number	P.18	P.19	P.20
Pad O.D. size code	1515	2817	4730
			
Sponge material (Hardness)	Silicone (5° or 10°)		

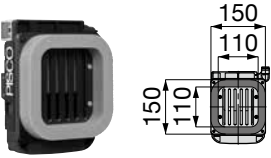
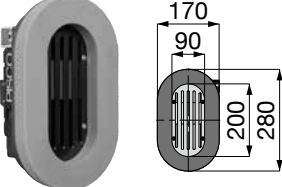
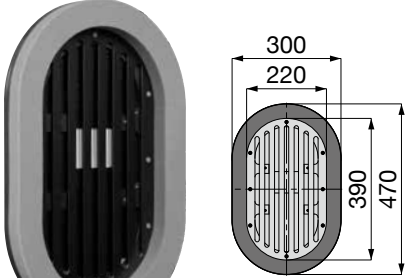
Type	General-purpose type/VMG			
	Whole surface sponge			
Page number	P.21	P.22	P.23	P.24
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	EPDM			

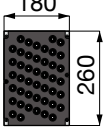
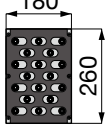
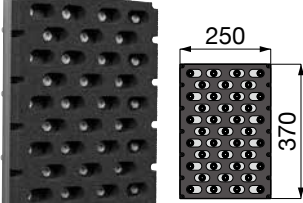
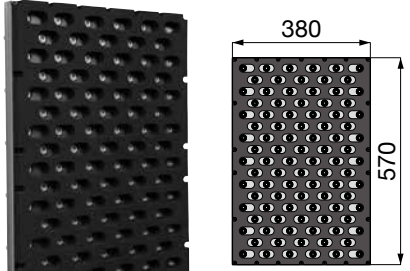
Type	General-purpose type/VMG			
	Aligned vacuum pads			
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Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	Nitrile rubber or Silicone rubber			

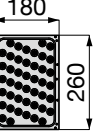
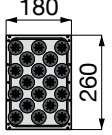
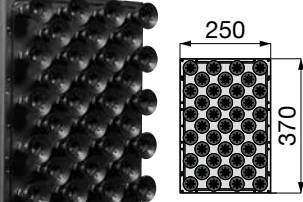
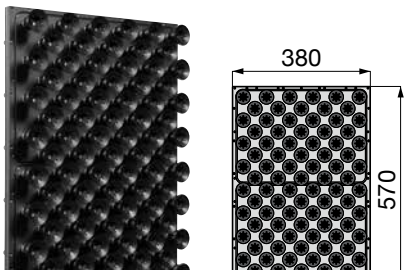
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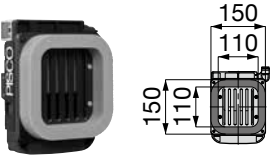
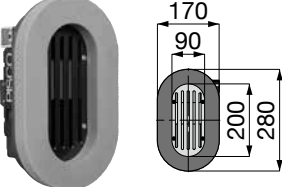
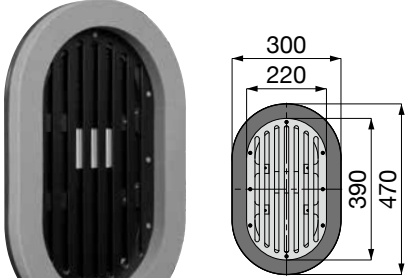
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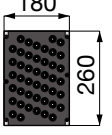
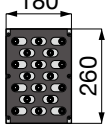
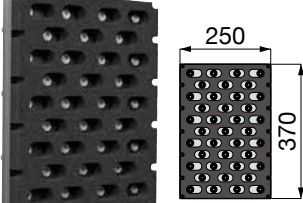
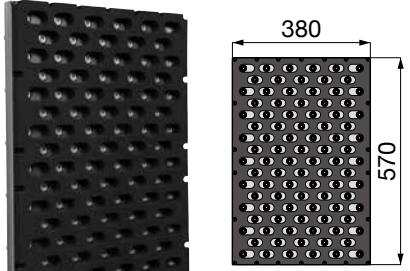
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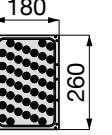
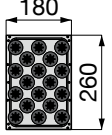
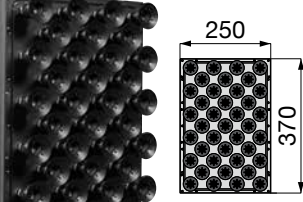
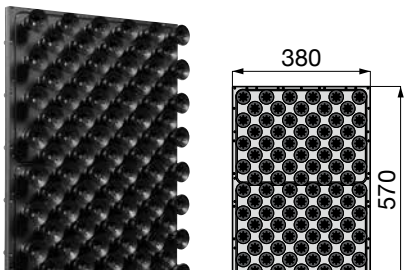
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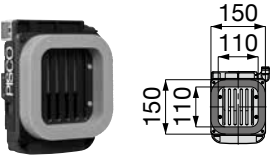
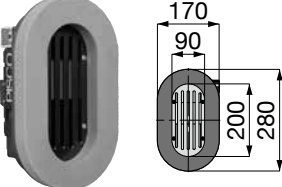
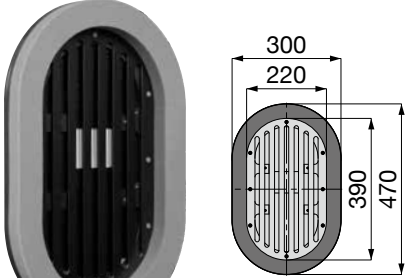
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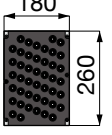
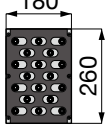
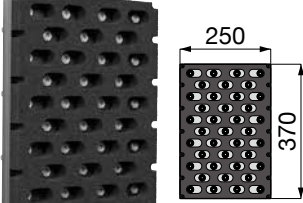
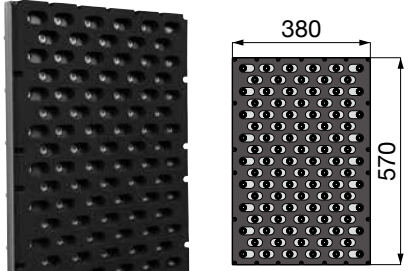
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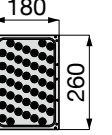
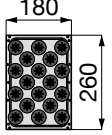
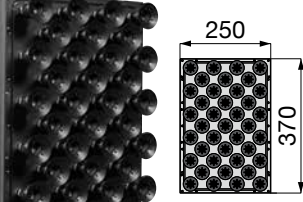
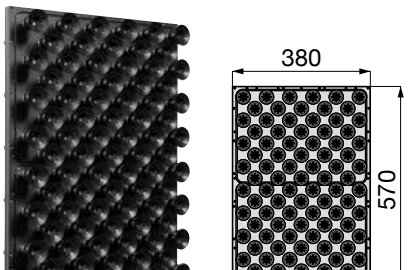
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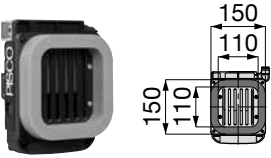
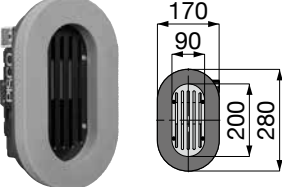
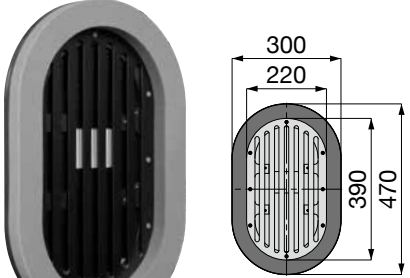
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Suction surface material	EPDM			

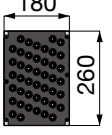
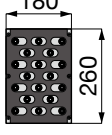
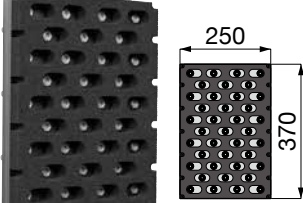
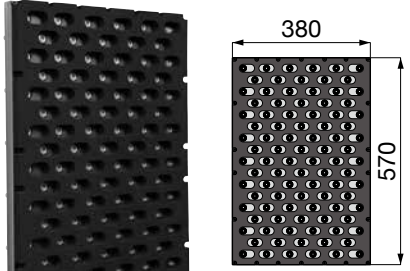
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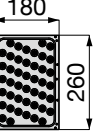
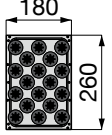
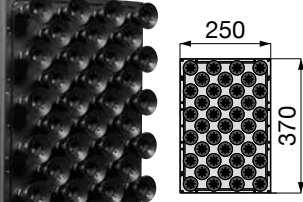
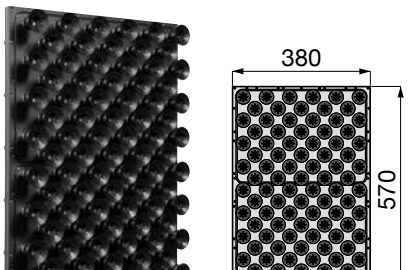
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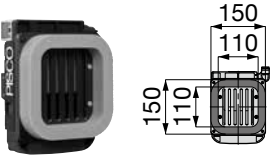
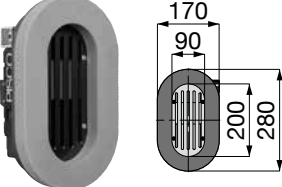
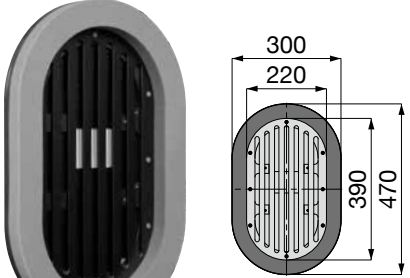
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Suction surface material	EPDM			

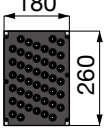
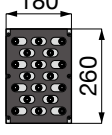
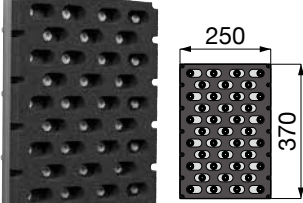
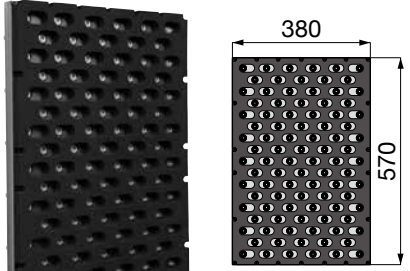
Type	General-purpose type/VMG			
	Aligned vacuum pads			
Page number	P.26 to P.29	P.30 to P.33	P.34 to P.37	P.38 to P.41
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	Nitrile rubber or Silicone rubber			

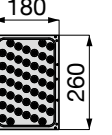
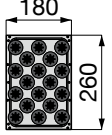
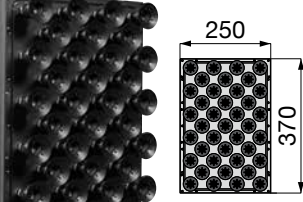
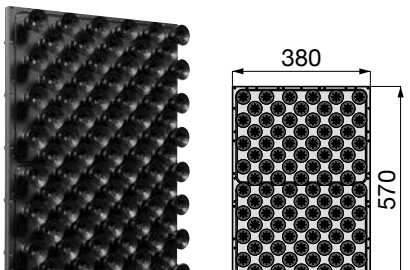
Type	Rectangular ring type/VRG		
Page number	P.18	P.19	P.20
Pad O.D. size code	1515	2817	4730
			
Sponge material (Hardness)	Silicone (5° or 10°)		

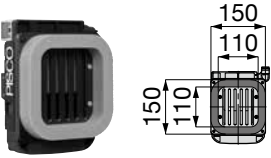
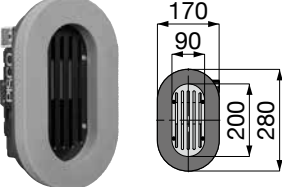
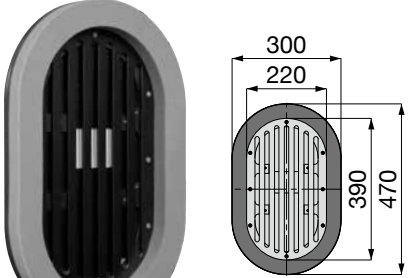
Type	General-purpose type/VMG			
	Whole surface sponge			
Page number	P.21	P.22	P.23	P.24
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	EPDM			

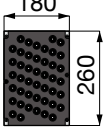
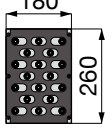
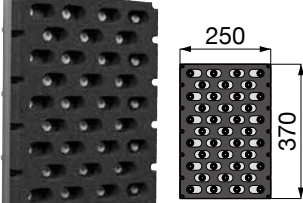
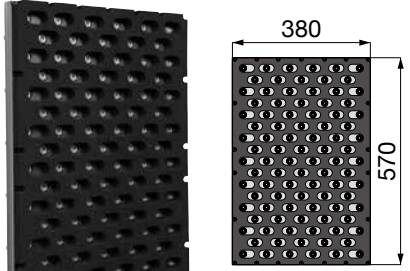
Type	General-purpose type/VMG			
	Aligned vacuum pads			
Page number	P.26 to P.29	P.30 to P.33	P.34 to P.37	P.38 to P.41
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	Nitrile rubber or Silicone rubber			

Type	Rectangular ring type/VRG		
Page number	P.18	P.19	P.20
Pad O.D. size code	1515	2817	4730
			
Sponge material (Hardness)	Silicone (5° or 10°)		

Type	General-purpose type/VMG			
	Whole surface sponge			
Page number	P.21	P.22	P.23	P.24
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	EPDM			

Type	General-purpose type/VMG			
	Aligned vacuum pads			
Page number	P.26 to P.29	P.30 to P.33	P.34 to P.37	P.38 to P.41
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	Nitrile rubber or Silicone rubber			

Type	Rectangular ring type/VRG		
Page number	P.18	P.19	P.20
Pad O.D. size code	1515	2817	4730
			
Sponge material (Hardness)	Silicone (5° or 10°)		

Type	General-purpose type/VMG			
	Whole surface sponge			
Page number	P.21	P.22	P.23	P.24
Plate size code	2618	3725	5738	
	 			
No. of rows	7	5	7	11
Suction surface material	EPDM			

Type

Characteristics of General-purpose bar type VLG

Two types of suction surfaces:

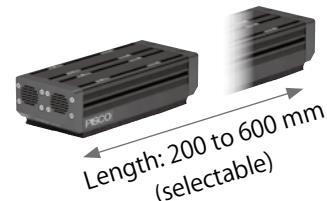
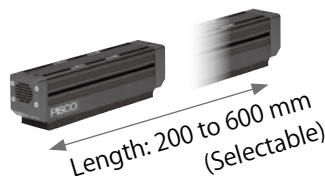
Whole surface sponge type and aligned vacuum pads type.

Two body widths.

5 lengths are available.

Single type (width: 50 mm)

Dual type (width: 100 mm)

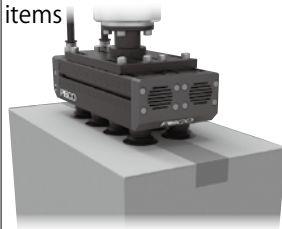


Built-in high flow Vacuum Generator.

Max. suction flow: 890 ℓ /min. *Value for 4 built-in ejectors specification.

Capable of lifting even with non-adsorbed areas if fall prevention valves or check valves are attached.

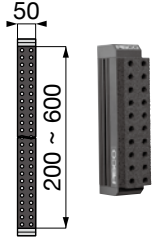
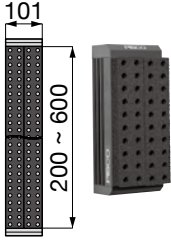
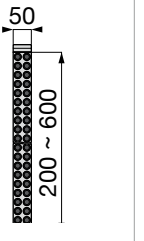
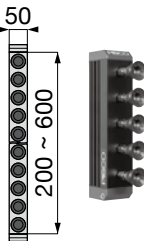
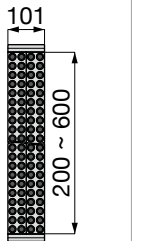
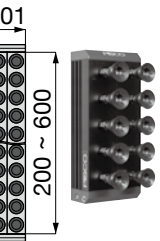
Mounting plates available for connection to robots with P.C.D. 31.5. (Sold separately) *Available for 200 to 400 mm lengths.

General-purpose type/VLG				
Type	Whole surface sponge Theoretical max. suction force 189.0 N (*1) 	Recommended workpieces Uneven workpieces such as wood and exterior walls 	Aligned vacuum pads Theoretical max. suction force 604.7 N (*1) 	Recommended workpieces Cardboard boxes & bagged items 
		Vacuum pad + pad screw set [pad connection configuration code: M4 (ø15 mm pad type only) or M6] can be mounted. *2		
Pad replacement				
Accessories	Check valve (optional) Built-in check valve suppresses vacuum degradation due to leakage from non-adsorbed areas.		Fall prevention valve (optional) Even if some vacuum pads are not operated, the vacuum drop of the active vacuum pads with normal suction level can be reduced, and falling of workpieces can be prevented.	

*1 Safety factor 1/4 considered.

*2 Bellows-type vacuum pads are provided as standard. If other pads are to be installed, order "No pad". (Vacuum pads are sold separately.)

Sizes of General-purpose bar type (VLG)

Type	General-purpose bar type/VLG					
	Whole surface sponge		Aligned vacuum pads			
Page number	P.44 to P.45	P.46 to P.47	P.48 to P.67			
Suction surface size	Single (width: 50 mm) 	Dual (width: 100 mm) 	Single (width: 50 mm) 		Dual (width: 100 mm) 	
No. of rows	2	4	2	1	4	2
Dia. (cell shape)(mm)	ø10 circular hole		ø15, ø20, ø25	ø30, ø40	ø15, ø20, ø25	ø30, ø40
Suction surface material	EPDM			Nitrile rubber or Silicone rubber		

Model designation of VRG Rectangular ring type (Example)



(1) Vacuum Gripper
Rectangular ring type

(6) Pressure sensor specifications

Code	V4N	V4P
Specification	With 3-color dual digital display	
	NPN open collector 2 switch outputs + 1 analog output	PNP open collector 2 switch outputs + 1 analog output
Pressure sensor model code	VUS-32-NV-01	VUS-32-PV-01

(5) Vacuum Generator specifications

Code	161	162	163	P
No. of nozzles (pcs)	1	2	3	Without Vacuum Generator (External Vacuum Pump compatible type)
Suction flow (ℓ /min)	290	550	760	
Air consumption (ℓ /min)	110	220	330	
Final vacuum (kPa)	-94			
Nozzle dia. (mm)	ø1.6			

*Values when rated supply pressure (0.5MPa) is applied.

(4) Sponge material

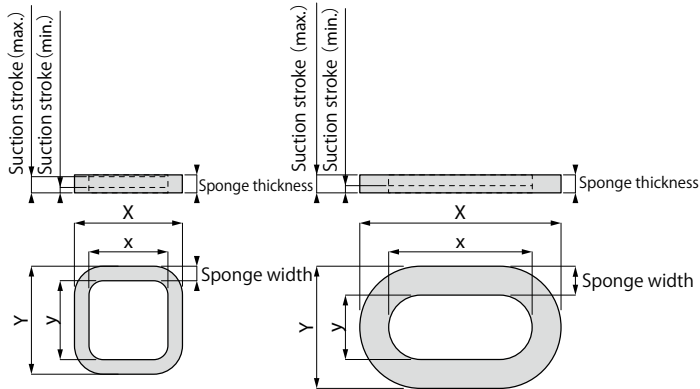
Code	SS05	SS10
Rubber material	Silicone	
Hardness (°)	5	10
Sponge color	Grey	Orange

(3) Sponge width

Code	20	40
Width (mm)	20	40
Applicable size code	1515	2817 4730

(2) Sponge pad diameter size

Code	1515	2817	4730
Outer size (mm)	X: 150, Y: 150	X: 280, Y: 170	X: 470, Y: 300
Inside size (mm)	x: 110, y: 110	x: 200, y: 90	x: 390, y: 220
Sponge thickness (mm)	25		
Stroke (mm)	min. 8	10	
	max. 23	25	



For VRG1515

For VRG2817, 4730

Model designation of VRG type replacement sponges (Example)



(1) Vacuum Gripper
Rectangular ring type

(2) Sponge
plate set

(4) Sponge width

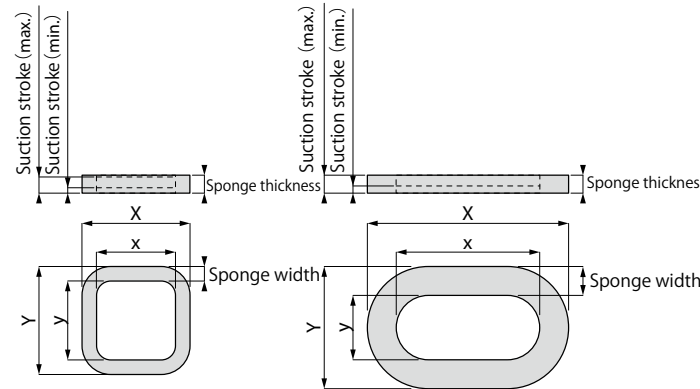
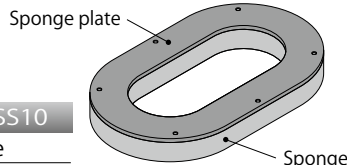
Code	20	40
Width (mm)	20	40
Applicable size code	1515	2817 4730

(3) Pad size

Code	1515	2817	4730
Outer size (mm)	X: 150, Y: 150	X: 280, Y: 170	X: 470, Y: 300
Inner size (mm)	x: 110, y: 110	x: 200, y: 90	x: 390, y: 220
Sponge thickness (mm)	25		
Stroke (mm)	min. 8	10	
	max. 23	25	

(5) Sponge material

Code	SS05	SS10
Rubber material	Silicone	
Hardness (°)	5	10
Sponge color	Gray	Orange



For VRG1515

For VRG2817, 4730

Rectangular ring type / VRG

Whole surface sponge

General-purpose type / VMG

Aligned vacuum pads

Whole surface sponge

Aligned vacuum pads

Vacuum Grippers

Model designation of General-purpose types (Aligned vacuum pads and Whole surface sponge)



(1) Vacuum Gripper
General-purpose type

(7) Sensor specifications

Code	V4N	V4P
Specifications	With 3-color dual digital display	
	NPN open collector	PNP open collector
	2 switch outputs + 1 analog output	2 switch outputs + 1 analog output
Pressure sensor code	VUS-32-NV-01	VUS-32-PV-01

(6) Vacuum generator specifications

Code	161	162	163	P
No. of nozzles (pcs)	1	2	3	Without vacuum generator (External Vacuum Pump compatible type)
Suction flow (ℓ /mm)	290	550	760	
Air consumption (ℓ /mm)	110	220	330	
Final vacuum (kPa)	-94			
Nozzle diameter (mm)	ø1.6			

(5) Holder specifications

Code	Specifications	Orifice dia. (mm)	Compatible pad spec.
No code	Without orifice (direct mounting of vacuum pads)	—	All types
-0.5	Orifice coupling (*)	ø0.5	Aligned vacuum pads type only
-0.8		ø0.8	
-1.5		ø1.5	
-2.0		ø2.0	
-K0.5	Fixed orifice	ø0.5	All types
-K0.8		ø0.8	
-K1.5		ø1.5	
-K2.0		ø2.0	

*When selecting orifice couplings , please check "Common Safety Instructions for Products Listed" on page 16.

(4) Pad (sponge) specifications

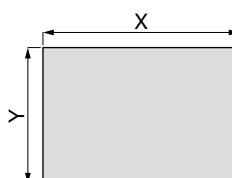
Code	Specifications	Material	Compatible pad row number code
No code	Aligned vacuum pad type	—	P5L, P7L, P11L
-20BN		Nitrile	P7L (Only for 2618)
-20BS		Silicone	
-40BN		Nitrile	P5L, P7L, P11L
-40BS		Silicone	
-EP20S	Whole surface sponge type	EPDM	SE5L, S7L, SE7L, SE11L

(3) No. of Pad (Sponge) rows

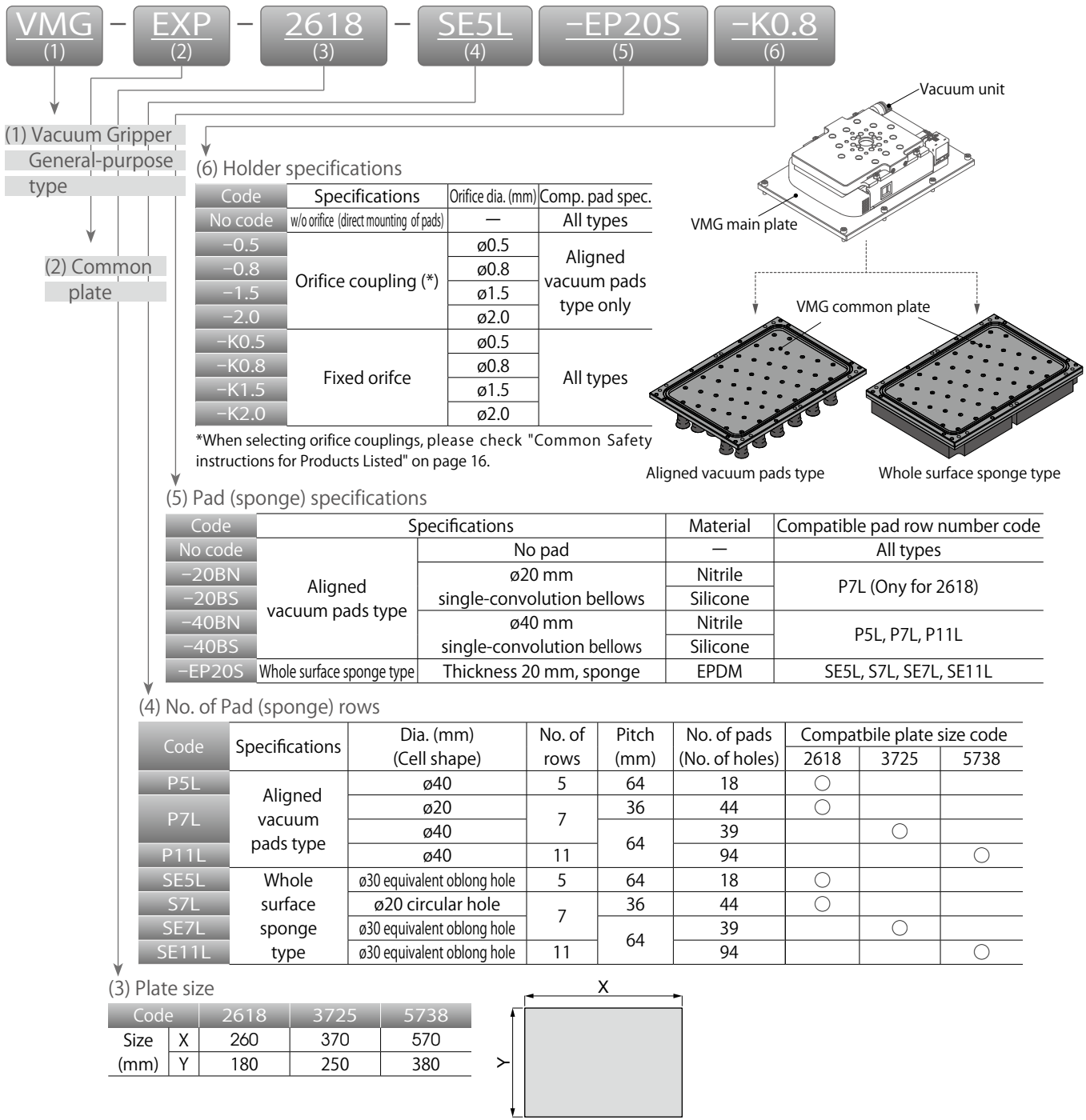
Code	Specifications	Dia. (mm) (Cell shape)	No. of rows	Pitch (mm)	No. of pads (No. of holes)	Compatible plate size code		
P5L	Aligned vacuum pads type	ø40	5	64	18	○		
P7L		ø20	7	36	44	○		
P11L		ø40		64	39		○	
SE5L		ø40	11		94			○
S7L	Whole surface sponge type	ø30 equiv. oblong hole	5	64	18	○		
SE7L		ø20 circular hole	7	36	44	○		
SE7L		ø30 equiv. oblong hole		64	39		○	
SE11L		ø30 equiv. oblong hole	11		94			○

(2) Plate size

Code		2618	3725	5738
Size	X	260	370	570
(mm)	Y	180	250	380



Model designation of VMG type common plate (Example)

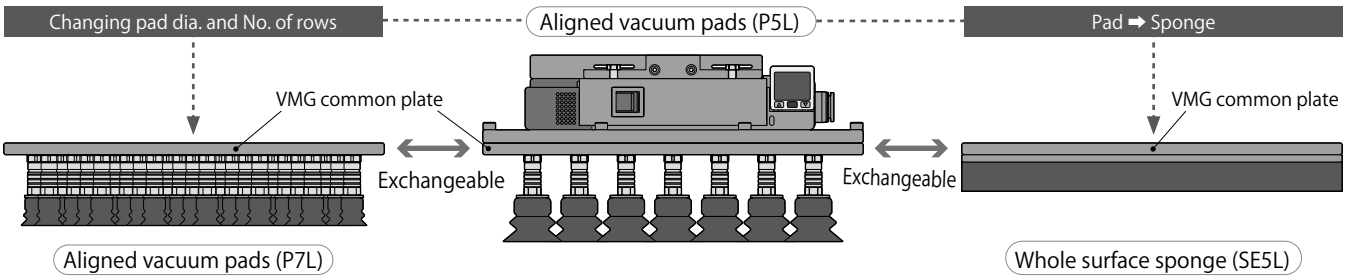


Changes to the pad (sponge) specifications of VMG types

For VMG types, the pad/sponge specification can be easily swapped by replacing the VMG common plate.

*Plates are not interchangeable between specifications with different plate sizes.

(Example) For plate size 2618



$\frac{\text{VMG}}{(1)} - \frac{\text{VP}}{(2)} - \frac{2618}{(3)} - \frac{\text{SE5L}}{(4)} - \frac{\text{EP20S}}{(5)}$

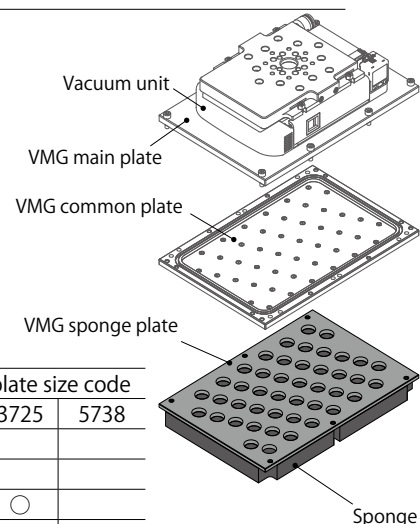


Code	Spec.	Material
EP20S	Thickness 20 mm, sponge	EPDM

(4) No. of pad (sponge) rows

Code	Spec.	Dia. (mm) (Cell shape)	No. of rows	Pitch (mm)	No. of pads (No. of holes)	Comp. plate size code		
						2618	3725	5738
SE5L	Whole surface sponge type	ø30 equiv. oblong hole	5	64	18	○		
S7L		ø20 circular hole	7	36	44	○		
SE7L		ø30 equiv. oblong hole		64	39		○	
SE11L		ø30 equiv. oblong hole	11		94			○

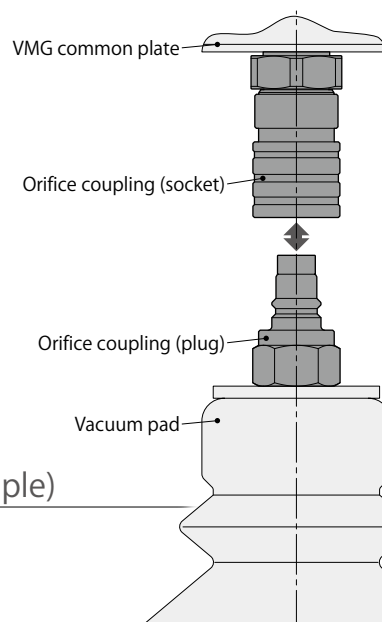
Code		2618	3725	5738
Size (mm)	X	260	370	570
	Y	180	250	380



Pad connection configuration code: M6 pad & screw set can be installed. For more information, please check our website.

$$\frac{\text{VMG}}{(1)} - \frac{\text{CPSE7}}{(2)} - \text{M6}$$

(2) Coupling socket
only

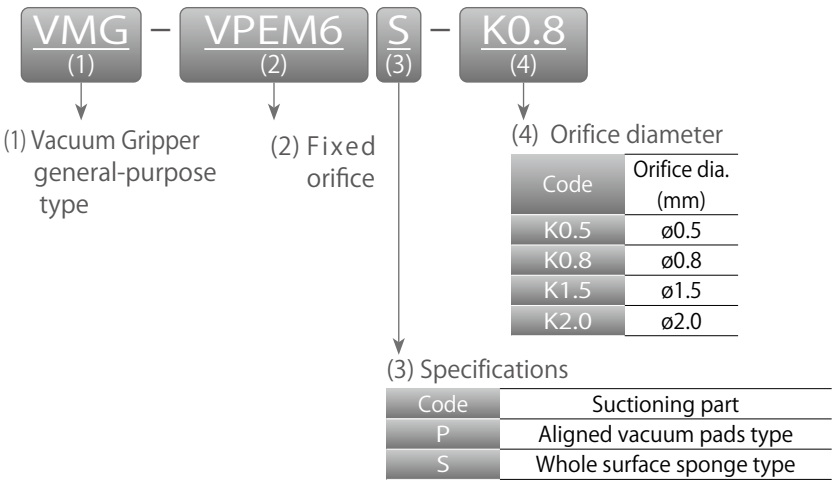


$\frac{\text{VMG}}{(1)}$ – $\frac{\text{CPPE7}}{(2)}$ – FM6 – $\frac{0.8}{(3)}$

(2) Coupling
plug only

Code	Orifice dia. (mm)
0.5	ø0.5
0.8	ø0.8
1.5	ø1.5
2.0	ø2.0

Model designation of Fixed orifice (Example)



Rectangular ring type/VRG	Whole surface sponge	Aligned vacuum pads	Whole surface sponge	Aligned vacuum pads
	General-purpose type / VMG		General-purpose type / VLG	

Vacuum Grippers

Model designation of VLG type (Aligned vacuum pads and Whole surface sponge) (Example)



(1) Vacuum Gripper
general-purpose
bar type

(5) Holder specifications

Code	Specifications	Compatible pad specification
No code	Without orifice (direct mounting of pads)	All types
-ECV	Fall prevention valve	Aligned vacuum pads type only
-CV	Check valve	Whole surface sponge type only

(4) Pad (sponge) specifications

Code	Specifications		Material	Mounting screw size
15	No pad ※	ø15 mm, Pitch 20 mm	—	M4 x 0.7 [Vacuum pad + pad screw set (pad conn. config. code: M4) can be mounted.]
20		ø20 mm, Pitch 25 mm		
25		ø25 mm, Pitch 30 mm		
30		ø30 mm, Pitch 40 mm		
40		ø40 mm, Pitch 50 mm		
15BN		15 mm, Single-convolution Bellows	Nitrile	
15BS	Aligned vacuum pads type	20 mm, Single-convolution Bellows	Silicone	M6 x 1 [Vacuum pad + pad screw set (pad connection configuration code: M6) can be mounted.]
20BN		25 mm, Single-convolution Bellows	Nitrile	
20BS		30 mm, Single-convolution Bellows	Silicone	
25BN		40 mm, Single-convolution Bellows	Nitrile	
25BS			Silicone	
30BN			Nitrile	
30BS			Silicone	
40BN			Nitrile	
40BS			Silicone	
EP20S	Whole surface sponge type	Thickness 20 mm, Sponge	EPDM	—

*For "no pad" spec., enter the code for pad dia. to specify the pitch.

(3) No. of pad (sponge) rows

■ Single type

Code	Specifications	Dia. (mm) (Cell shape)	No. of rows	Pitch (mm)	No. of pads (No. of holes)				
					200	300	400	500	600
P2L	Aligned vacuum pads type	ø15	2	20	20	30	40	50	60
		ø20		25	16	24	32	40	48
		ø25		30	12	19	25	32	39
P1L		ø30	1	40	5	7	10	12	15
		ø40		50	4	6	8	10	12
S2L	Whole surface sponge type	ø10 circular hole	2	20	20	30	40	50	60

■ Dual type

Code	Specifications	Dia. (mm) (Cell shape)	No. of rows	Pitch (mm)	No. of pads (No. of holes)				
					200	300	400	500	600
P4L	Aligned vacuum pads type	ø15	4	20	40	60	80	100	120
		ø20		25	32	48	64	80	96
		ø25		30	24	38	50	64	78
P2L		ø30	2	40	10	14	20	24	30
		ø40		50	8	12	16	20	24
S4L	Whole surface sponge type	ø10 circular hole	4	20	40	60	80	100	120

(2) Size

Code	Single (Width 50 mm)	20S	30S	40S	50S	60S
	Dual (width 100 mm)	20D	30D	40D	50D	60D
Length (mm)		200	300	400	500	600

(6) Vacuum Generator specifications

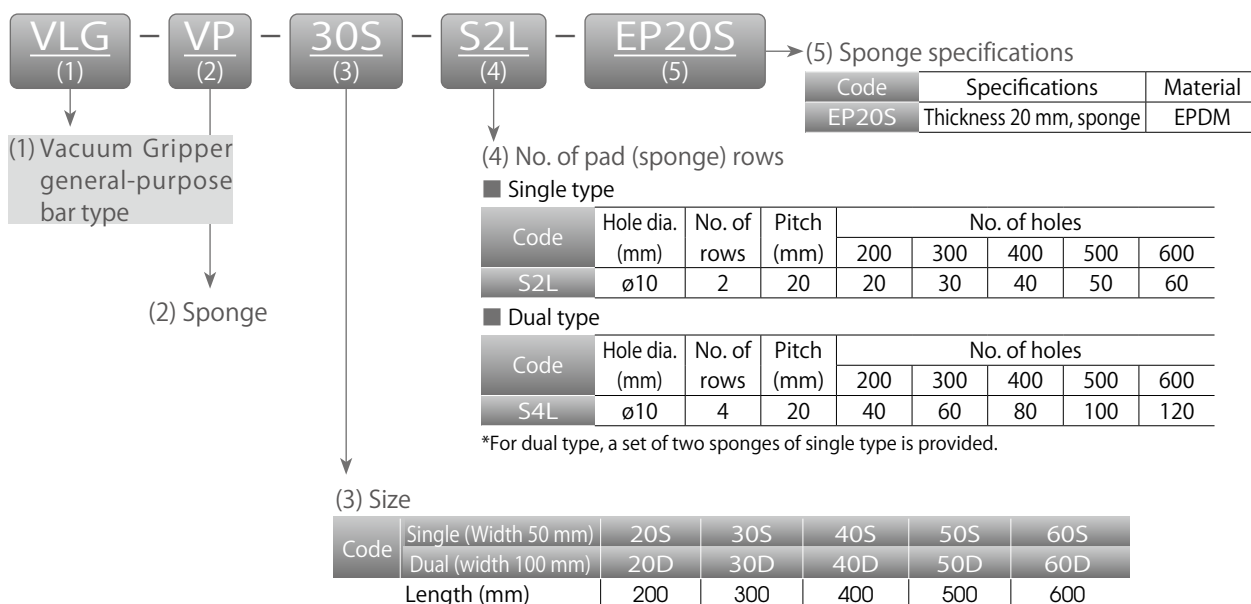
Code	161	162	164
No. of nozzles (pcs)	1	2	4
Suction flow (ℓ /mm)	290	550	890
Air consumption (ℓ /mm)	110	220	440
Final vacuum (kPa)	-94		
Nozzle diameter (mm)	ø1.6		
Applicable size	Single	20S to 40S	50S to —
	Dual	—	20D to 40D 50D to

*Values when rated supply pressure (0.5MPa) is applied.

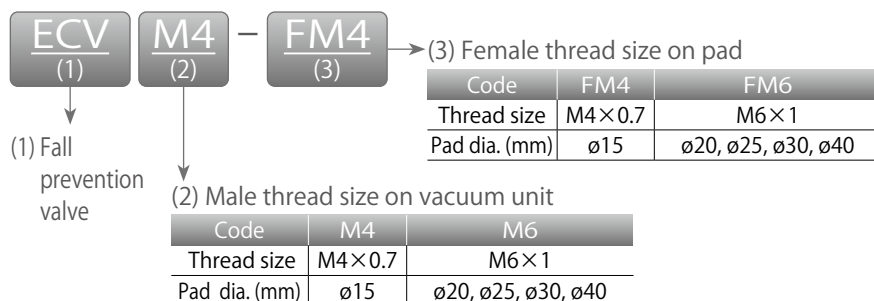
(7) Sensor specifications

Code	-V4N	-V4P	No code
Spec.	With 3-color Dual digital display		No sensor
	NPN open collector 2 switch outputs + 1 analog output	PNP open collector 2 switch outputs + 1 analog output	
Press. sensor code	VUS-32-NV-01	VUS-32-PV-01	

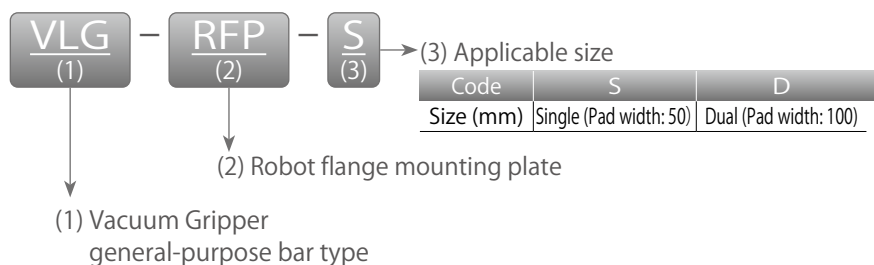
Model designation of VLG type pad alone (whole surface sponge type) (Example)



Model designation of Fall Prevention Valve (Example) *Only for Aligned vacuum pads type



Model designation of robot flange mounting plate (Example)



*Robot flange mounting plate is not available for 500 mm and 600 mm length types (size code: 50S, 50D, 60S, 60D).

The above size types have the exhaust hole on the center top of the product. When installing, keep the minimum of 30 mm space from each other so that the exhaust hole is not blocked.

Vacuum Grippers

Specifications

■ Rectangular ring type (VRG)

Size code		1515	2817	4730
Suction surface size (mm)		150×150	280×170	470×300
Fluid medium		Air, Vacuum (*1)		
Operating press. range (MPa)	Vacuum Generator type only	0.3 to 0.7		
Rated supply pressure (MPa)		0.5		
Noise level [dB (A)]		70		
Operating vacuum pressure (kPa)	External Vacuum Pump compatible type only	-100 to 0		
Operating temperature range (°C)		5 to 50 (No freezing)		
Theoretical suction force (N) (*2, *3)	FoS 1/4 (Horizontal lifting)	235.8	326.2	1512.7
	FoS 1/8 (Vertical lifting)	117.9	163.1	756.4
Weight		See the outline drawings		

*1. "Fluid medium: vacuum" is only for external vacuum pump compatible type spec.

*2. Theoretical suction force at a vacuum of -80 kPa.

*3. Do not exceed the maximum load capacity of 980 N of the main body mounting section, including the weight of the gripper body and inertia forces during transport.

■ General-purpose type (VMG)

Type		Whole surface sponge				Aligned vacuum pads					
Size code		2618-SE5L	2618-S7L	3725-SE7L	5738-SE11L	2618-P5L	2618-P7L	3725-P7L	5738-P11L		
Suction surface size (mm)		260×180	260×180	370×250	570×380	260×180	260×180	370×250	570×380		
No. of rows		5	7		11	5	7		11		
Fluid medium		Air, Vacuum (*1)									
Operating press. range (MPa)		Vacuum Generator type only									
Rated supply pressure (MPa)											
Noise level [dB (A)]											
Operating vacuum press. (kPa)		-100 to 0									
Operating temperature range (°C)		5 to 50 (No freezing)									
Theoretical suction force (N) (*2, *3)		FoS 1/4 (Horizontal lifting)		296.1	277.3	641.6	1546.4	453.7	277.3	983.1	2369.5
		FoS 1/8 (Vertical lifting)		148.1	138.6	320.8	773.2	226.9	138.6	491.5	1184.7
Weight		See the outline drawings.									

*1. "Fluid medium: vacuum" is only for external vacuum pump compatible type spec.

*2. Theoretical suction force at a vacuum of -80 kPa.

*3. Do not exceed the maximum load capacity of 980 N of the main body mounting section, including the weight of the gripper body and inertia forces during transport.

■ General-purpose bar type (VLG) [Aligned vacuum pads single type (width 50 mm)]

Length (mm)		200					300					400					500					600				
Pad dia. (mm)		ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40
No. of rows		2		1			2		1			2		1			2		1			2		1		
Fluid medium		Air																								
Operating pressure range (MPa)		0.3 to 0.7																								
Rated supply pressure (MPa)		0.5																								
Noise level [dB (A)]		With 1 nozzle: 76, With 2 nozzles: 80																								
Operating temperature range (°C)		5 to 50 (No freezing)																								
Theoretical suction force (N) (*)	FoS 1/4 (Horizontal lifting)	70.9	100.8	118.1	70.9	100.8	106.3	151.2	187.0	99.2	151.2	141.7	201.6	246.0	141.7	201.6	177.1	252.0	314.9	170.1	252.0	212.6	302.3	383.8	212.6	302.3
	FoS 1/8 (Vertical lifting)	35.4	50.4	59.1	35.4	50.4	53.1	75.6	93.5	49.6	75.6	70.9	100.8	123.0	70.9	100.8	88.6	126.0	157.5	85.0	126.0	106.3	151.2	191.9	106.3	151.2
Weight		See the outline drawings																								

*Theoretical suction force at a vacuum of -80 kPa.

■ General-purpose bar type (VLG) [Aligned vacuum pads dual type (width 100 mm)]

Length (mm)		200					300					400					500					600				
Pad dia. (mm)		ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40	ø15	ø20	ø25	ø30	ø40
No. of rows		4		2		4		2		4		2		4		2		4		2		4		2		
Fluid medium		Air																								
Operating pressure range (MPa)		0.3 to 0.7																								
Rated supply pressure (MPa)		0.5																								
Noise level [dB (A)]		80																								
Operating temperature range (°C)		5 to 50 (No freezing)																								
Theoretical suction force (N) (*)	FoS 1/4 (Horizontal lifting)	141.7	201.6	236.2	141.7	201.6	212.6	302.3	374.0	198.4	302.3	283.4	403.1	492.1	283.4	403.1	354.3	503.9	629.8	340.1	503.9	425.1	604.7	767.6	425.2	604.7
	FoS 1/8 (Vertical lifting)	70.9	100.8	118.1	70.9	100.8	106.3	151.2	187.0	99.2	151.2	141.7	201.6	246.0	141.7	201.6	177.1	252.0	314.9	170.1	252.0	212.6	302.3	383.8	212.6	302.3
Weight		See the outline drawings																								

*Theoretical suction force at a vacuum of -80 kPa.

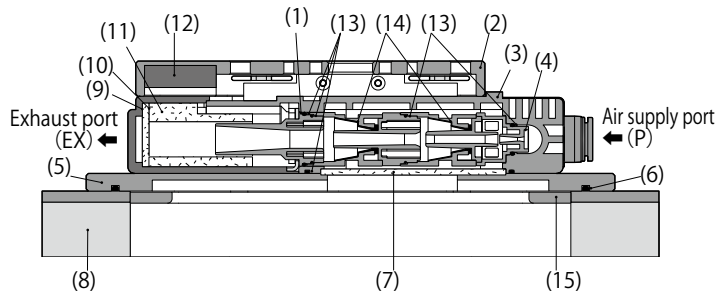
■ General-purpose bar type (VLG) [Whole surface sponge type]

Size		Single					Dual				
Length (mm)		200	300	400	500	600	200	300	400	500	600
Hole dia. (mm)		ø10 Circular hole									
No. of rows		2					4				
Fluid medium		Air									
Operating pressure range (MPa)		0.3 to 0.7									
Rated supply pressure (MPa)		0.5									
Noise level [dB (A)]		With 1 nozzle: 76 With 2 nozzles: 80					80				
Operating temperature range (°C)		5 to 50 (No freezing)									
Theoretical suction force (N) (*)	FoS 1/4 (Horizontal lifting)	31.5	47.2	63.0	78.7	94.5	63.0	94.5	126.0	157.5	189.0
	FoS 1/8 (Vertical lifting)	15.8	23.6	31.5	39.4	47.2	31.5	47.2	63.0	78.7	94.5
Weight		See the outline drawings									

*Theoretical suction force at a vacuum of -80 kPa.

Sectional drawings

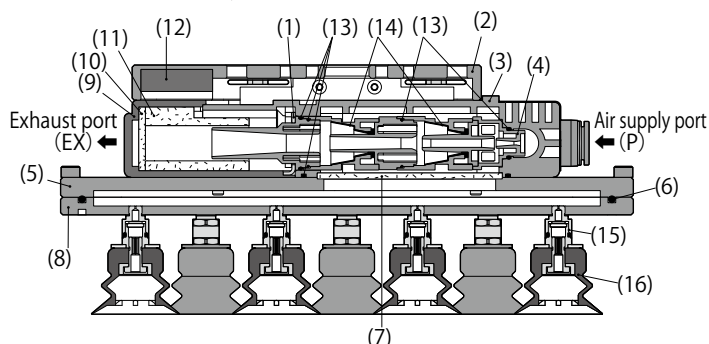
Rectangular ring type: VRG (Vacuum Generator type)



No.	Parts	Material (Treatment)
(1)	Nozzle set fixing plate	Nickel-plated SPCC
(2)	Robot flange mounting plate	Aluminum
(3)	Body of vacuum unit	PBT
(4)	Nozzle set	PA
(5)	VRG main plate	Aluminum
(6)	O-ring	NBR
(7)	Filter element	PVFM
(8)	Sponge & mounting plate	Silicone, Aluminum
(9)	Exhaust cover	ABS
(10)	Silencer element 2	PVFM
(11)	Silencer element 1	PVFM
(12)	Sound-absorbing sponge	Urethane
(13)	O-ring	HNBR
(14)	One-way rubber seal	HNBR
(15)	Adjusting plate	Aluminum

General-purpose type: VMG (Aligned vacuum pads type)

(Vacuum Generator type)

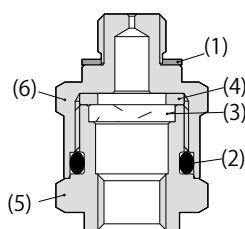


No.	Parts	Material (Treatment)
(1)	Nozzle set fixing plate	Nickel-plated SPCC
(2)	Robot flange mounting plate	Aluminum
(3)	Body of vacuum unit	PBT
(4)	Nozzle set	PA
(5)	VMG main plate	Aluminum
(6)	O-ring	NBR
(7)	Filter element	PVFM
(8)	Common plate	Aluminum
(9)	Exhaust cover	ABS
(10)	Silencer element 2	PVFM
(11)	Silencer element 1	PVFM
(12)	Sound-absorbing sponge	Urethane
(13)	O-ring	HNBR
(14)	One-way rubber seal	HNBR
(15)	Fixed orifice (*)	—
(16)	Vacuum pad & screw set	NBR, Silicone, Nickel-plated brass

*For the structure of fixed orifice, see the sectional drawings of fixed orifice and orifice coupling below.

General-purpose type: Fixed orifice for VMG

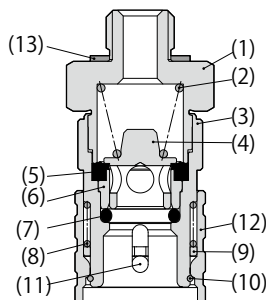
(Aligned vacuum pads type)



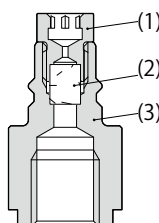
No.	Parts	Material (Treatment)
(1)	Gasket	SUS304 + NBR
(2)	O-ring	NBR
(3)	Filter	PVFM
(4)	Stopper	Nickel-plated brass
(5)	Metallic body B	Aluminum (Nickel-plated)
(6)	Metallic body A	Aluminum

General-purpose type: Orifice coupling for VMG (Aligned vacuum pads type)

Orifice coupling (socket)



Orifice coupling (plug)

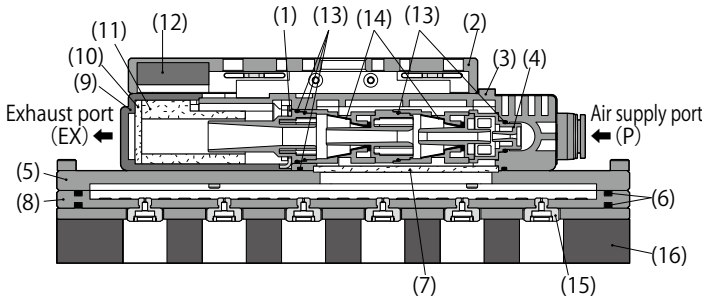


No.	Parts	Material (Treatment)
(1)	Metallic body 2	Nickel-plated brass
(2)	Valve spring	Stainless steel
(3)	Metallic body 1	Nickel-plated brass
(4)	Valve element	Nickel-plated brass
(5)	Valve seal	NBR
(6)	Valve guide	Nickel-plated brass
(7)	O-ring	NBR
(8)	Sleeve spring	Stainless steel
(9)	Ball holder	POM
(10)	Retaining ring	Stainless steel
(11)	Lock ball	Stainless steel
(12)	Sleeve	Nickel-plated brass
(13)	Gasket	SUS304 + NBR

No.	Parts	Material (Treatment)
(1)	Metallic body 1	Nickel-plated brass
(2)	Metallic body 2	Nickel-plated brass
(3)	Filter element	PVFM

■ General-purpose type: VMG (Whole surface sponge type)

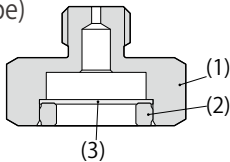
(Vacuum Generator type)



No.	Parts	Material (Treatment)
(1)	Nozzle set fixing plate	Nickel-plated SPCC
(2)	Robot flange mounting plate	Aluminum
(3)	Body of vacuum unit	PBT
(4)	Nozzle set	PA
(5)	VMG main plate	Aluminum
(6)	O-ring	NBR
(7)	Filter element	PVFM
(8)	Common plate	Aluminum
(9)	Exhaust cover	ABS
(10)	Silencer element 2	PVFM
(11)	Silencer element 1	PVFM
(12)	Sound-absorbing sponge	Urethane
(13)	O-ring	HNBR
(14)	One-way rubber seal	HNBR
(15)	Fixed orifice (*)	—
(16)	Sponge & mounting plate set	EPDM, Aluminum

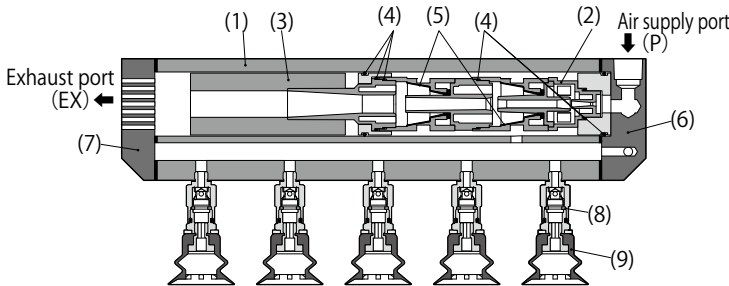
*For the fixed orifice structure, please refer to the sectional drawings of fixed orifice below.

■ General-purpose type: Fixed orifice for VMG (Whole surface sponge type)



No.	Parts	Material (Treatment)
(1)	Metallic body	Aluminum
(2)	Press fitted ring	Aluminum
(3)	Stainless steel mesh	Stainless steel

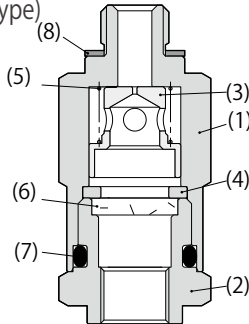
■ General-purpose bar type: VLG (Aligned vacuum pads type)



No.	Parts	Material (Treatment)
(1)	Body of vacuum unit	Aluminum
(2)	Nozzle set	PA
(3)	Silencer element	Polyurethane
(4)	O-ring	HNBR
(5)	One-way rubber seal	HNBR
(6)	Air supply block	Aluminum
(7)	Exhaust block	Aluminum
(8)	Fall prevention valve (*)	—
(9)	Vacuum pad & screw set	NBR, Silicone, Nickel-plated brass

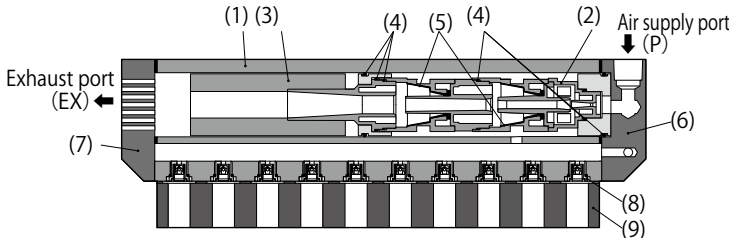
*For the structure of fall prevention valve, see the sectional drawing of fall prevention valve below.

■ General-purpose bar type: Fall prevention valve for VLG (Aligned Vacuum pads type)



No.	Parts	ECVM4-FM4	ECVM6-FM6
		Material (Treatment)	
(1)	Metallic body A	Stainless steel	Nickel-plated brass
(2)	Metallic body B	Nickel-plated brass	Aluminum (Nickel-plated)
(3)	Valve	Aluminum	
(4)	Stopper	Nickel-plated brass	
(5)	Spring	Stainless steel	
(6)	Filter	PVFM	
(7)	O-ring	NBR	
(8)	Gasket	SUS304 + NBR	

■ General-purpose bar type: VLG (Whole surface sponge type)



No.	Parts	Material (Treatment)
(1)	Body of vacuum unit	Aluminum
(2)	Nozzle set	PA
(3)	Silencer element	Polyurethane
(4)	O-ring	HNBR
(5)	One-way rubber seal	HNBR
(6)	Air supply block	Aluminum
(7)	Exhaust block	Aluminum
(8)	Check valve	Stainless steel
(9)	Sponge	EPDM

Rectangular ring type/VRG

Whole surface sponge

Aligned vacuum pads

Whole surface sponge

Aligned vacuum pads

△ Common Safety instructions for Products Listed

- △ Warning
1. The maximum load capacity of the gripper body frame including inertia force during transport is 980 N for VRG and VMG, 350 N for VLG single type and 700 N for dual type. Do not overload the body frame with the weight of gripper and inertia force during transport and such.
 2. When tightening replacement parts, use a proper tool with reference to the appropriate tightening torque. Also, temporarily tighten the fasteners in a diagonal sequence, then fully tighten them.
 3. Install the products with no loosening of connection parts. Looseness may cause trouble.
 4. When installing, do not hold the products in a way that tugs an air piping system or pressure sensor cables, or in a way that applies load onto the products. Otherwise, malfunction due to disconnection of or damage to the products may occur.
 5. Take safety measures in advance including fall prevention when a workpiece may fall and be dangerous.
 6. Do not constantly apply pressure of 0.1 MPa or more to the vacuum circuit. Since vacuum grippers are not explosion-proof, there is a risk of damaging the products.
 7. Pay attention to the drop of vacuum pressure due to troubles with the supply air or power supply. Take safety measures to prevent workpieces from falling due to reduced suction force.
 8. Do not block the exhaust port of the product or use it in such a way that increases the exhaust resistance. Otherwise there is a risk of no vacuum generation or a drop in vacuum pressure.
 9. Be sure to perform maintenance and inspection regularly. There is a risk of troubles such as leakage and clogging in the vacuum circuit, as well as wear, cracks and deterioration of the vacuum pads, galling of the sliding part of the vacuum pad holder, and loosening in joints.
 10. Take acceleration, impact, and wind pressure into account when using vacuum pads to transport workpieces. Otherwise, the workpieces may detach during transport.
 11. It is recommended to use the fixed orifice with coupling application in accordance with all of the following conditions. Evaluate the products with the actual system before use.
 - (1) It should be used only for horizontal lifting.
 - (2) The workpiece should be lifted with multiple vacuum pads attached to the vacuum gripper during transport.
 - (3) The workpiece should be such that the load on the vacuum pads is evenly distributed.
 - (4) The workpiece should be such that the load per vacuum pad is 5.4 N or less.
 - (5) Acceleration during transport should be 3m/s^2 or less, and transport speed should be 500 mm/sec or less.
 12. Be sure to turn off the power before connecting the pressure sensor.
 13. Wrong wiring would cause the sensor to break, fail and malfunction.
 14. Pressure sensor is not explosion-proof. Never use it in an atmosphere with flammable or explosive gases or in dusty environments.
- △ Caution
1. Periodically perform maintenance and inspection of the silencer element and the filter element. Clogged element may result in poor performance or cause problems.
 2. Before replacing the element, thoroughly read and understand the "how-to" guide of element replacement in this catalog.
 3. Do not use in areas exposed to water, oil or dust. Using it in such circumstances may cause malfunction since it is neither drip-proof nor explosion-proof. Take appropriate protective measures when using.
 4. Refer to the "Common Safety Instructions for Fittings" for the handling of fitting parts.
 5. Refer to "Common Safety Instructions for Pressure Sensor & Switch" and individual "Detailed Safety Instructions" of each series for the handling of the Digital Pressure Sensor 32 Series with 3-color dual display.
 6. Abnormal noise (buzzing noise) may be produced at the supply pressure just before the vacuum reaches its peak. In this abnormal noise state, the vacuum characteristics are unstable and the noise becomes louder. Reset the supply pressure as this may affect the sensor and cause trouble.
*Pressure range in which abnormal noise (buzzing noise) occurs is affected by atmospheric pressure.
 7. The effective cross-sectional area of the supply pressure side of the vacuum generator should be three times the size of the nozzle cross-sectional area, and use it as a guide for piping design and equipment selection. Insufficient supply flow rate may cause poor performance.
 8. Do not use a lubricator on products.
 9. Piping
 - (1) Compressed air contains a large amount of condensate/drain (water, oxidized oil, tar, and foreign substances). Dehumidify the compressed air by using an after-cooler or a dryer to improve the air quality, since drain significantly deteriorates product performance.
 - (2) Rust and foreign substances in a piping may cause product failure, malfunction, or performance degradation. Place a $5\mu\text{m}$ or less air filter right before the compressed air supply section. It is also recommended to flush inside of the piping before use and at appropriate intervals.
 - (3) Remove dust and drain inside before piping. Remained dust and drain in the piping may get into the peripheral devices/machines and cause malfunction.
 - (4) Arrange piping in such a way that fittings and tubes are not subjected to twisting, tension, moment loads, vibration, or physical impact. Otherwise, fittings may be damaged, and tubes may be deformed, burst or come off.
 - (5) Provide protective covers on the products when they are exposed to sunlight.
 - (6) For Vacuum Pump specifications, piping should be as short as possible with a wider bore at the vacuum side. Longer piping with a narrower internal diameters may result in slow response time during suctioning and releasing of workpieces, and failure to secure the required suction flow.

10. When storing the vacuum grippers, load should not be applied on the sponge surfaces and vacuum pads. If load is applied, the sponges and vacuum pads could deform and cause suction failure.
11. When piping, make sure that the robots have a full range of motion and do not get tangled up.
12. When setting the pad diameter, the number of pads, and the pickup position, read and understand the theoretical suction force in this catalog thoroughly and allow enough margin for the setting.
13. Products using NBR rubber material for vacuum pads may crack under the influence of ozone, which may cause failure. Ozone exists in higher than normal concentrations near static elimination air, clean-room, and the high-voltage motors, etc. As a countermeasure, material change from NBR to HNBR or FKM is necessary.
14. The appropriate pad rubber material and pad shape will vary depending on the application, use environment and the shape of the workpiece. Select a vacuum pad by referring to our official website and the features described in our catalogs.
15. To replace the vacuum pads, check the vacuum pad configuration drawing, tighten the fasteners with reference to the tightening torque in the following table and with the appropriate tool, and make sure that there is no loosening.

●Tightening torque table

Pad screw size	Tightening torque (N·m)
M4 × 0.7	0.5 to 1.0
M6 × 1	2 to 2.7

16. When replacing the adapters of Soft, Soft bellows or Flat Series, check the vacuum pad configuration drawing, tighten the fasteners with the appropriate tool and with reference to the tightening torque in the following table, and make sure that there is no loosening.

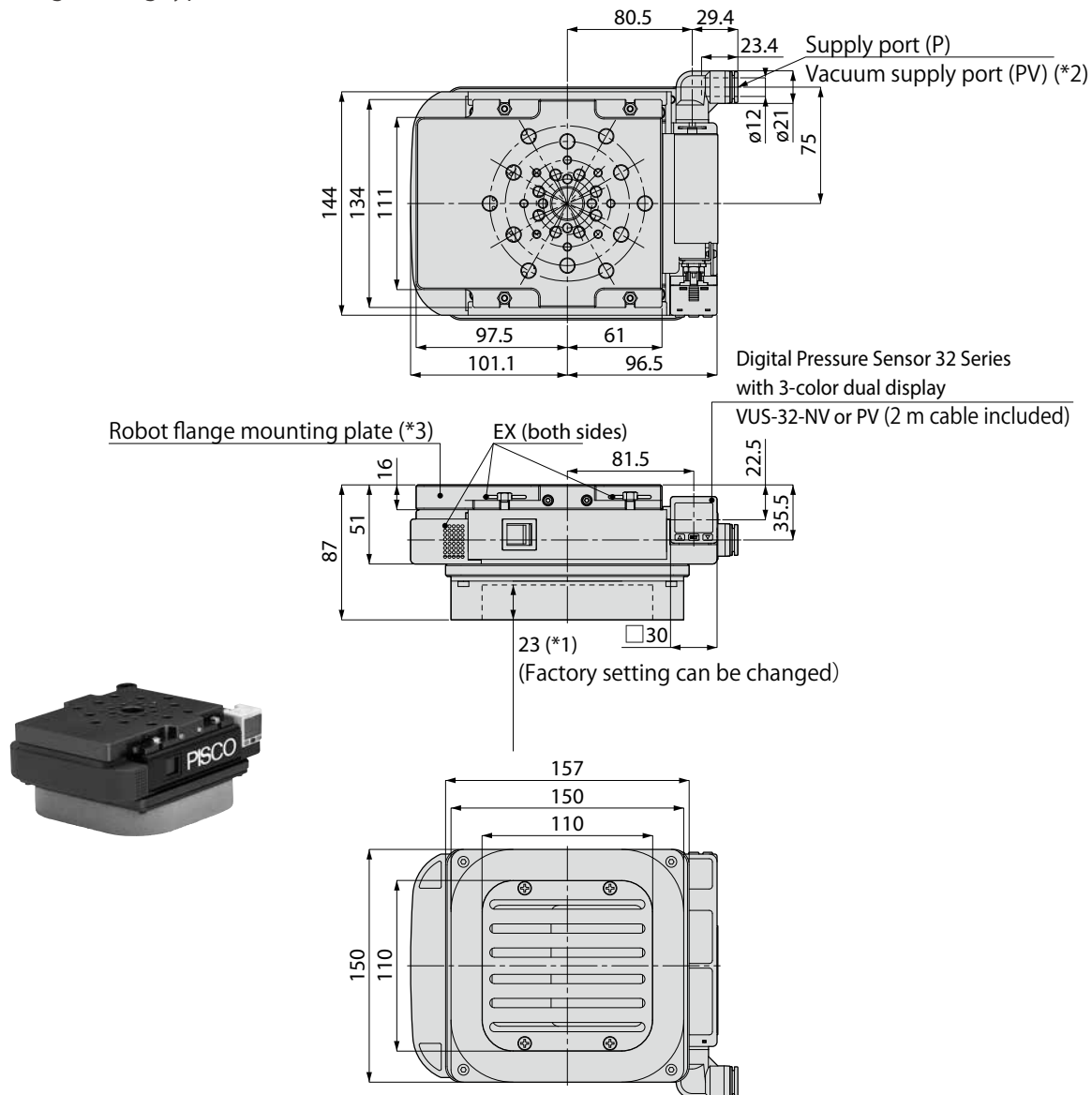
●Tightening torque table

Pad screw size	Tightening torque (N·m)
M4 × 0.7	0.7 to 0.8
M6 × 1	1.5 to 2.0

17. Due to the characteristics of the rubber, the additives contained in the rubber of the vacuum pad may rise to the surface in the form of powder over time, but this is not abnormal. Take the possibility of the powder adhesion to workpieces and equipment into account before using the product.
18. To lock the coupling, push the plug into the socket until it stops. The plug may come off if it is inserted incompletely. After inserting the plug, pull the plug toward oneself moderately to make sure that it is locked.
19. If the pressure sensor is used in the same wiring path as the high voltage wires or power cables, it may cause malfunction due to noise. Use separate wiring paths.
20. When using the inner hexagonal part of the pad screw to tighten a fixed orifice, be careful not to insert the tool too far. (When the tool is inserted approx. 9 mm or more, its tip will reach the filter element and may cause damage to the filter element.)

Outline drawings of Rectangular ring type (VRG)

■ Rectangular ring type (VRG) Pad O.D.: 150 mm × 150 mm



*1. Suction stroke can be changed in 5 mm increments. (8, 13, 18, 23 mm)

*2. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

*3. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

Unit: mm

■ Theoretical suction force

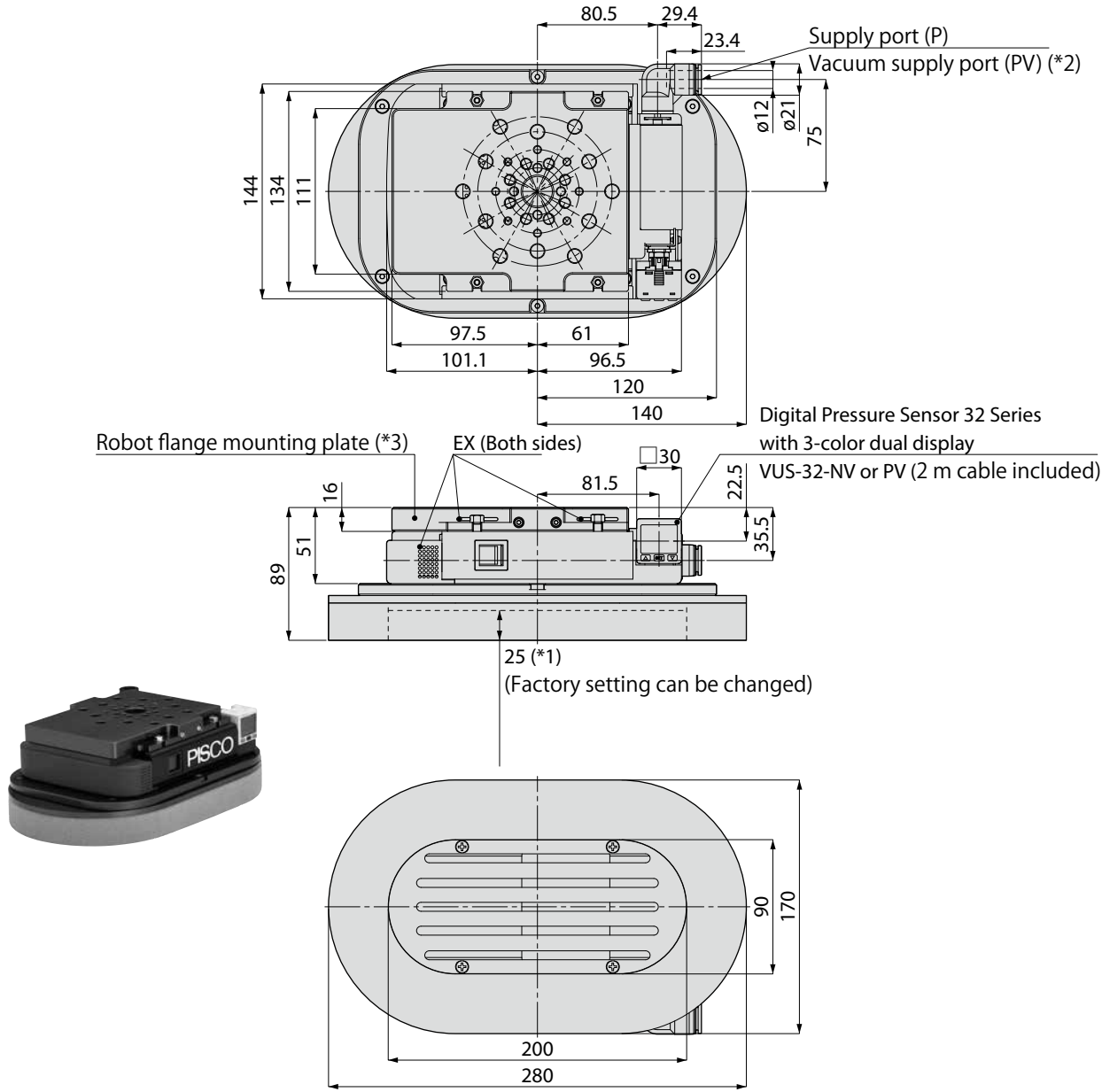
Vacuum level (kPa)	-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)								
FoS 1/4 (*1)	29.5	59.0	88.4	117.9	147.4	176.9	206.4	235.8
FoS 1/8 (*2)	14.7	29.5	44.2	59.0	73.7	88.4	103.2	117.9

*1. Horizontal lifting

*2. Vertical lifting

Model code	Weight (kg)
VRG1515-20- 4 -161- 6	1.8
VRG1515-20- 4 -162- 6	1.8
VRG1515-20- 4 -163- 6	1.8
VRG1515-20- 4 -P- 6	1.7

■ Rectangular ring type (VRG) Pad O.D.: 280 mm × 170 mm



*1. Suction stroke is adjustable in 5 mm increments. (10, 15, 20, 25 mm)

*2. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

*3. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Theoretical suction force

Vacuum level (kPa)	-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)								
FoS 1/4 (*1)	40.8	81.6	122.3	163.1	203.9	244.7	285.4	326.2
FoS 1/8 (*2)	20.4	40.8	61.2	81.6	101.9	122.3	142.7	163.1

*1. Horizontal lifting

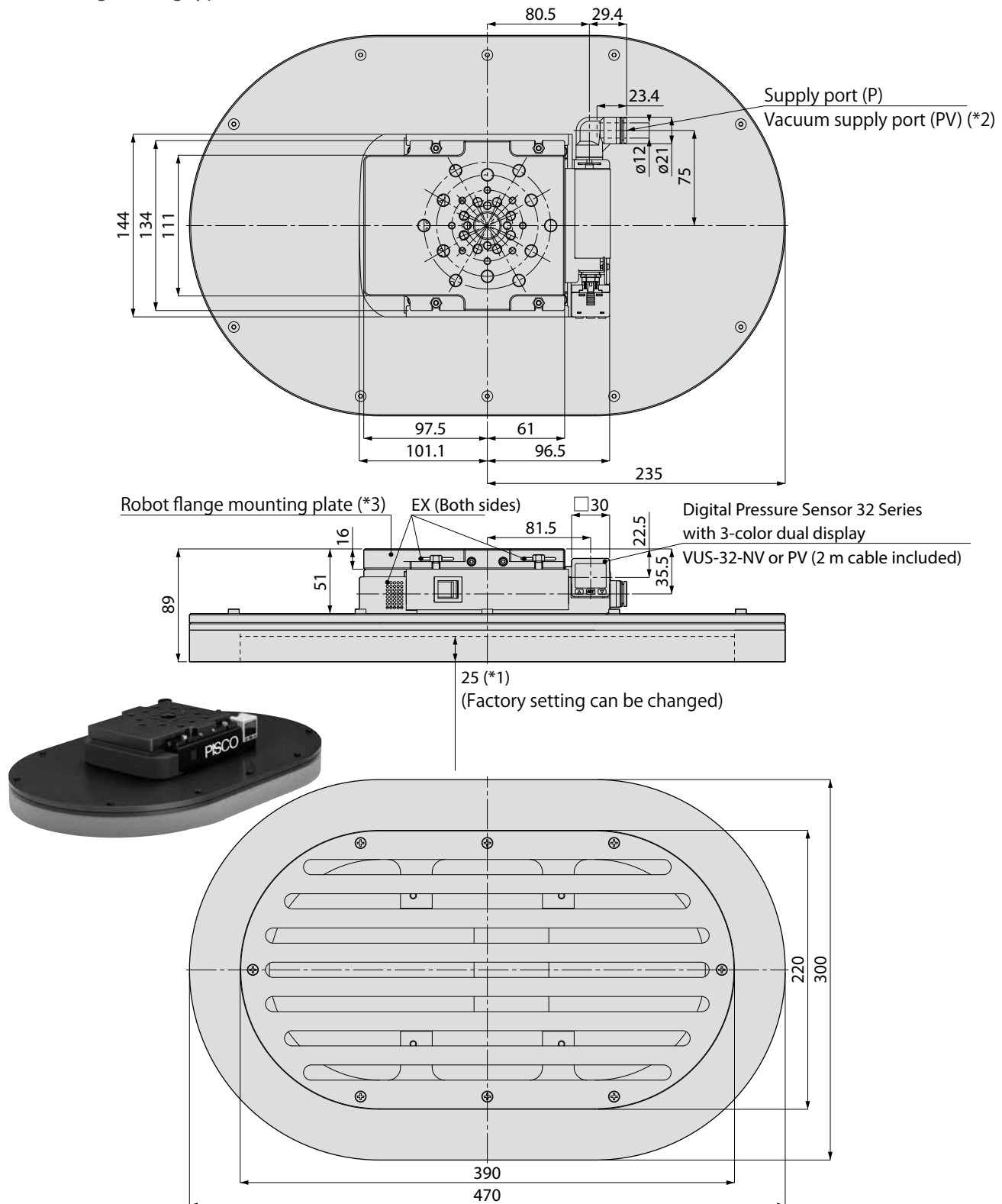
*2. Vertical lifting

Unit: mm

Model code	Weight (kg)
VRG2817-40- 4 -161- 6	2.6
VRG2817-40- 4 -162- 6	2.6
VRG2817-40- 4 -163- 6	2.6
VRG2817-40-SS05-P- 6	2.4
VRG2817-40-SS10-P- 6	2.5

Outline drawings of Rectangular ring type (VRG)

■ Rectangular ring type (VRG) Pad O.D.: 470 mm × 300 mm



*1. Suction stroke is adjustable in 5 mm increments. (10, 15, 20, 25 mm)

*2. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

*3. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	189.1	378.2	567.3	756.4	945.5	1134.6	1323.7	1512.8
	FoS 1/8 (*2)	94.6	189.1	283.6	378.2	472.7	567.3	661.8	756.4

*1. Horizontal lifting

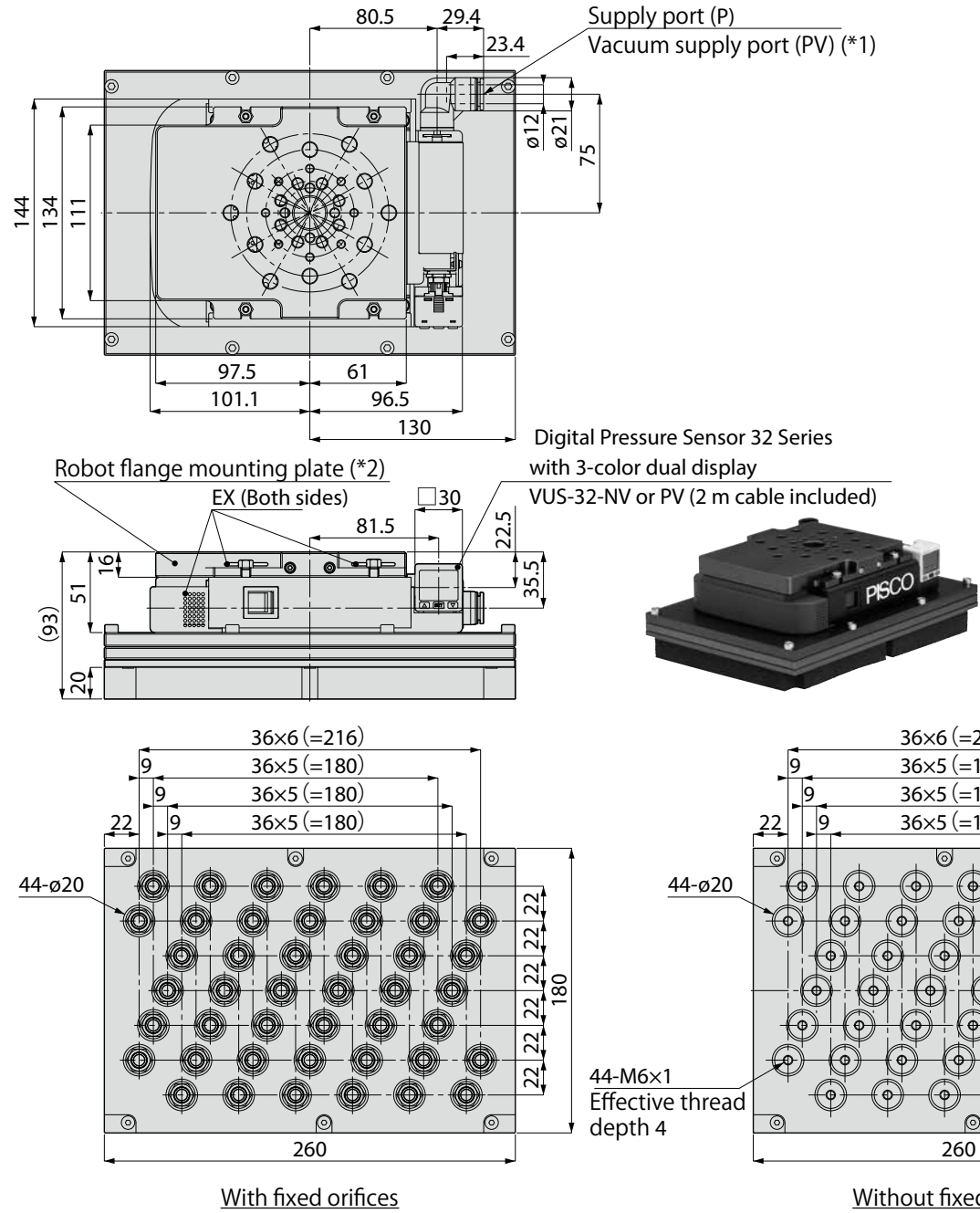
*2. Vertical lifting

Unit: mm

Model code	Weight (kg)
VRG4730-40-4-161-6	4.9
VRG4730-40-4-162-6	4.9
VRG4730-40-4-163-6	4.9
VRG4730-40-4-P-6	4.7

Outline drawings of General-purpose type (VMG) Whole surface sponge

■ No. of holes: 7 rows (ø20 mm circular hole) Plate size: 260 mm × 180 mm with or without fixed orifices



- *1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.
- *2. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

Theoretical suction force

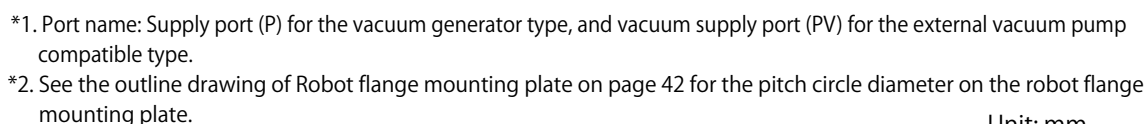
Vacuum level (kPa)	-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)								
FoS 1/4 (*1)	34.7	69.3	104.0	138.6	173.3	208.0	242.6	277.3
FoS 1/8 (*2)	17.3	34.7	52.0	69.3	86.7	104.0	121.3	138.6

- *1. Horizontal lifting
- *2. Vertical lifting

Unit: mm

Model code	Weight (kg)
VMG2618-S7L-EP20S-161- 7	3.1
VMG2618-S7L-EP20S-162- 7	3.1
VMG2618-S7L-EP20S-163- 7	3.1
VMG2618-S7L-EP20S-P- 7	3.0
VMG2618-S7L-EP20S- 5 -161- 7	3.2
VMG2618-S7L-EP20S- 5 -162- 7	3.2
VMG2618-S7L-EP20S- 5 -163- 7	3.2
VMG2618-S7L-EP20S- 5 -P- 7	3.1

■ No. of holes: 5 rows (ø30 mm equiv. oblong hole) Plate size: 260 mm × 180 mm with or without Fixed orifices



Model code	Weight (kg)
VMG2618-SE5L-EP20S-161- 	3.2
VMG2618-SE5L-EP20S-162- 	3.2
VMG2618-SE5L-EP20S-163- 	3.2
VMG2618-SE5L-EP20S-P- 	3.0
VMG2618-SE5L-EP20S-  -161- 	3.2
VMG2618-SE5L-EP20S-  -162- 	3.2
VMG2618-SE5L-EP20S-  -163- 	3.2
VMG2618-SE5L-EP20S-  -P- 	3.1

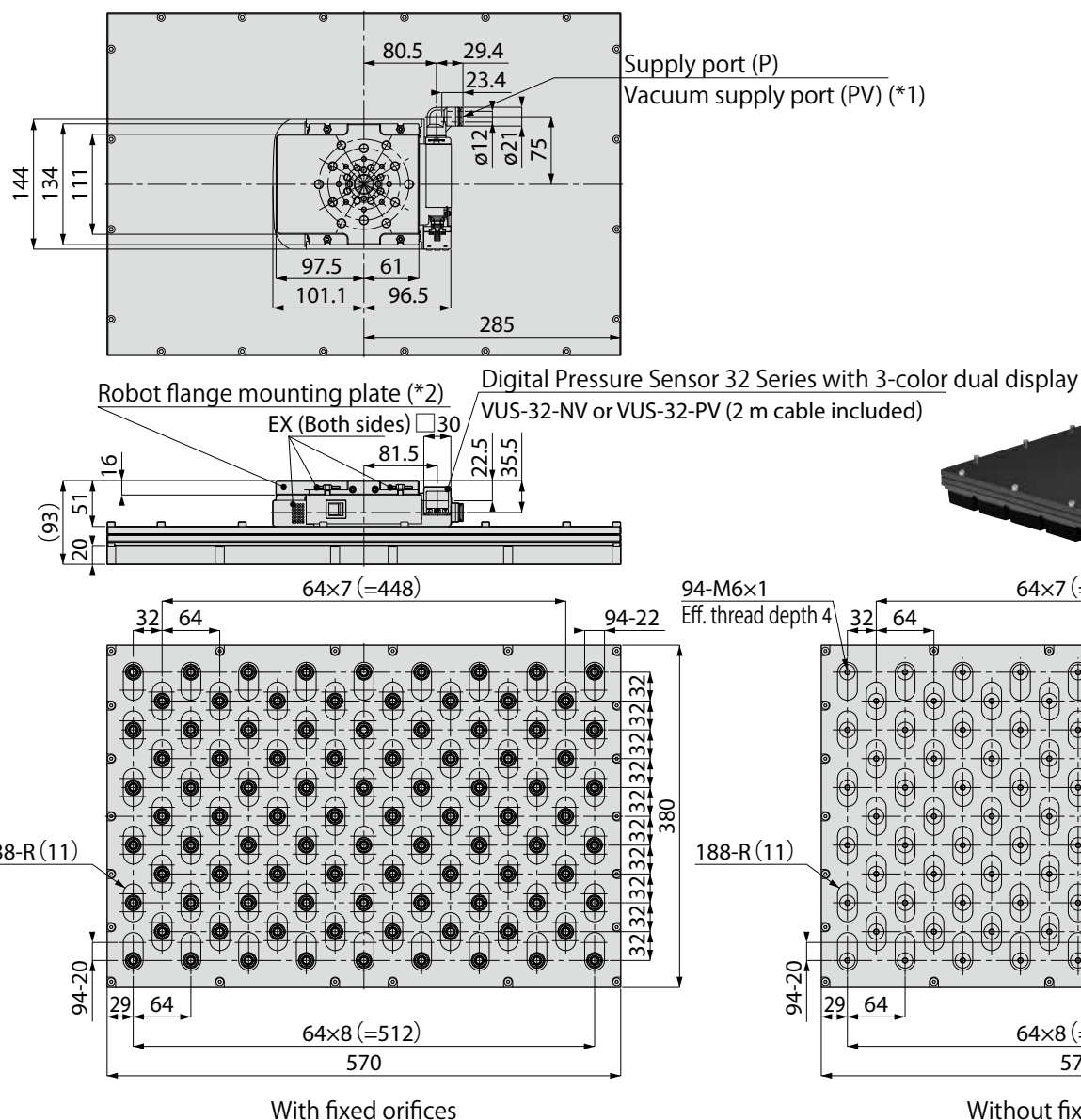
22

Aligned vacuum pads

23

Outline drawings of General-purpose type (VMG) Whole surface sponge

■ No. of holes: 11 rows (ø30 mm equiv. oblong hole) Plate size: 570 mm × 380 mm with or without Fixed orifices



*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

*2. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

Unit: mm

Model mode	Weight (kg)
VMG5738-SE11L-EP20S-161-	10.6
VMG5738-SE11L-EP20S-162-	10.6
VMG5738-SE11L-EP20S-163-	10.6
VMG5738-SE11L-EP20S-P-	10.5
VMG5738-SE11L-EP20S--161-	10.8
VMG5738-SE11L-EP20S--162-	10.8
VMG5738-SE11L-EP20S--163-	10.8
VMG5738-SE11L-EP20S--P-	10.7

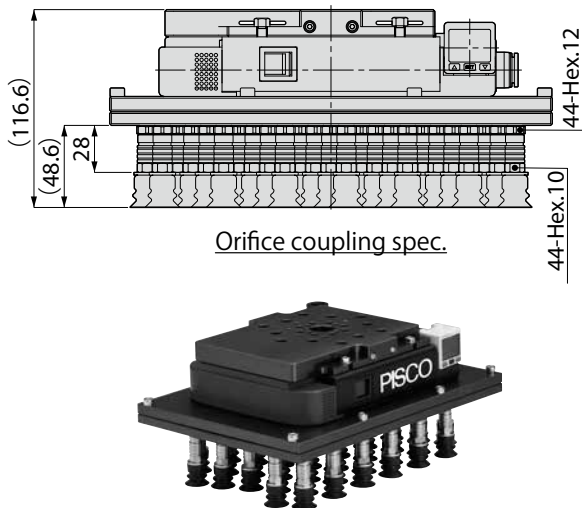
Theoretical suction force

Vacuum level (kPa)	-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)								
FoS 1/4 (*1)	193.3	386.6	579.9	773.2	966.5	1159.8	1353.1	1546.4
FoS 1/8 (*2)	96.7	193.3	290.0	386.6	483.3	579.9	676.6	773.2

*1. Horizontal lifting

*2. Vertical lifting

Rectangular ring type/VRG	Whole surface sponge		Aligned vacuum pads	
	General-purpose type/MMG		Whole surface sponge	Aligned vacuum pads
			General-purpose bar type/VLG	



Orifice coupling spec.

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	34.7	69.3	104.0	138.6	173.3	208.0	242.6	277.3
	FoS 1/8 (*2)	17.3	34.7	52.0	69.3	86.7	104.0	121.3	138.6

*1. Horizontal lifting

*2. Vertical lifting

■ Orifice coupling spec.

Unit: mm

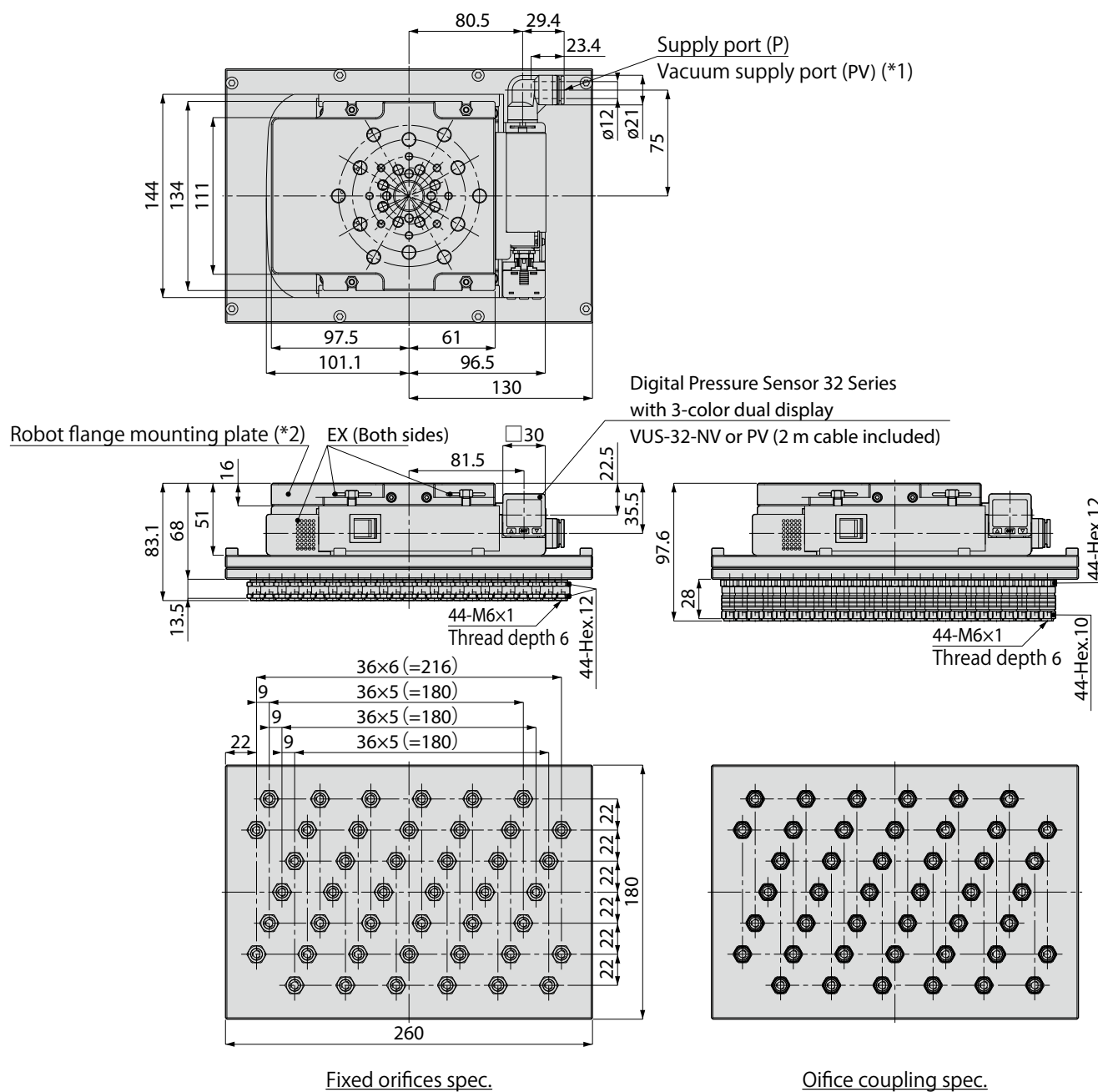
Model code	Weight (kg)
VMG2618-P7L-20B□-5-161-7	3.6
VMG2618-P7L-20B□-5-162-7	3.0
VMG2618-P7L-20B□-5-163-7	3.6
VMG2618-P7L-20B□-5-P-7	3.0

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows: 7 rows (No vacuum pads) Plate size: 260 mm × 180 mm



*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

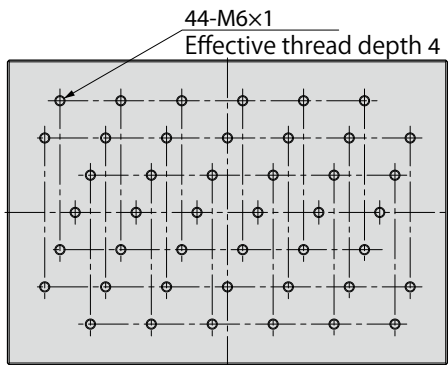
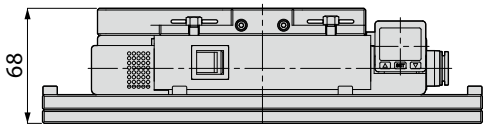
*2. Please refer to the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Fixed orifices spec.

Model code	Weight (kg)
VMG2618-P7L ^⑤ -161- ^⑦	2.7
VMG2618-P7L ^⑤ -162- ^⑦	2.7
VMG2618-P7L ^⑤ -163- ^⑦	2.7
VMG2618-P7L ^⑤ -P- ^⑦	2.6

■ Orifice coupling spec.

Model code	Weight (kg)
VMG2618-P7L ^⑤ -161- ^⑦	3.4
VMG2618-P7L ^⑤ -162- ^⑦	3.4
VMG2618-P7L ^⑤ -163- ^⑦	3.4
VMG2618-P7L ^⑤ -P- ^⑦	3.2



No orifices spec.

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	34.7	69.3	104.0	138.6	173.3	208.0	242.6	277.3
	FoS 1/8 (*2)	17.3	34.7	52.0	69.3	86.7	104.0	121.3	138.6

*1. Horizontal lifting

*2. Vertical lifting

■ No orifices spec.

Unit: mm

Model code	Weight (kg)
VMG2618-P7L-161-	2.6
VMG2618-P7L-162-	2.6
VMG2618-P7L-163-	2.6
VMG2618-P7L-P-	2.4

■ No. of rows: 5 rows (ø40mm Single-convolution Bellows) Plate size: 260 mm × 180 mm

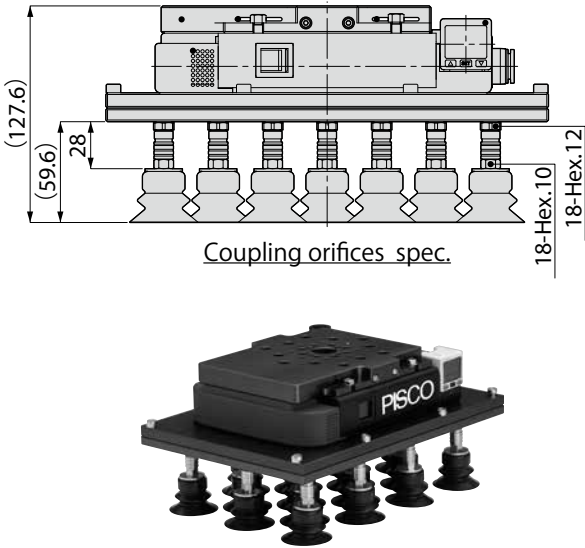


*2. Please refer to the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

- Fixed orifices spec.

Model code	Weight (kg)
VMG2618-P5L-40B□-5-161-7	3.0
VMG2618-P5L-40B□-5-162-7	3.0
VMG2618-P5L-40B□-5-163-7	3.0
VMG2618-P5L-40B□-5-P-7	2.8

Code for Nitrile rubber: N, for Silicone rubber: S



Coupling orifices spec.

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	56.7	113.4	170.2	226.9	283.6	340.3	397.0	453.7
	FoS 1/8 (*2)	28.4	56.7	85.1	113.4	141.8	170.2	198.5	226.9

*1. Horizontal lifting

*2. Vertical lifting

■ Orifice coupling spec.

Unit: mm

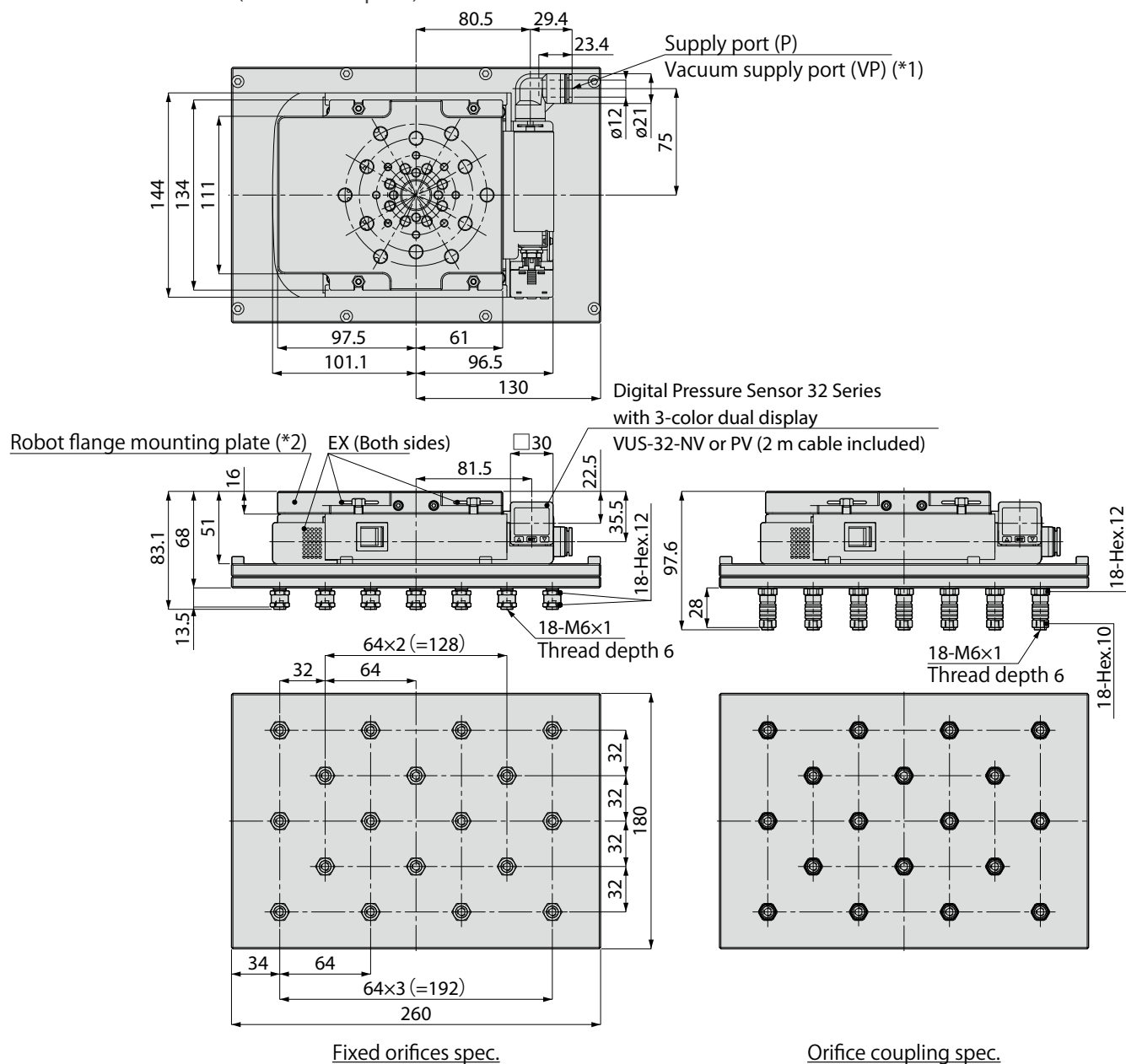
Model code	Weight (kg)
VMG2618-P5L-40B□-5-161-7	3.2
VMG2618-P5L-40B□-5-162-7	3.2
VMG2618-P5L-40B□-5-163-7	3.2
VMG2618-P5L-40B□-5-P-7	3.1

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows: 5 rows (No vacuum pads) Plate size: 260 mm × 180 mm



*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

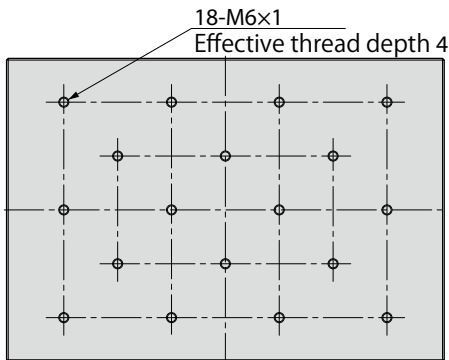
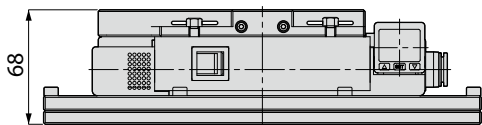
*2. Please refer to the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Fixed orifices spec.

Model code	Weight (kg)
VMG2618-P5L[5]-161-[7]	2.6
VMG2618-P5L[5]-162-[7]	2.6
VMG2618-P5L[5]-163-[7]	2.6
VMG2618-P5L[5]-P-[7]	2.5

■ Orifice coupling spec.

Model code	Weight (kg)
VMG2618-P5L[5]-161-[7]	2.9
VMG2618-P5L[5]-162-[7]	2.9
VMG2618-P5L[5]-163-[7]	2.9
VMG2618-P5L[5]-P-[7]	2.7



■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	56.7	113.4	170.2	226.9	283.6	340.3	397.0	453.7
	FoS 1/8 (*2)	28.4	56.7	85.1	113.4	141.8	170.2	198.5	226.9

*1. Horizontal lifting

*2. Vertical lifting

No orifices spec.

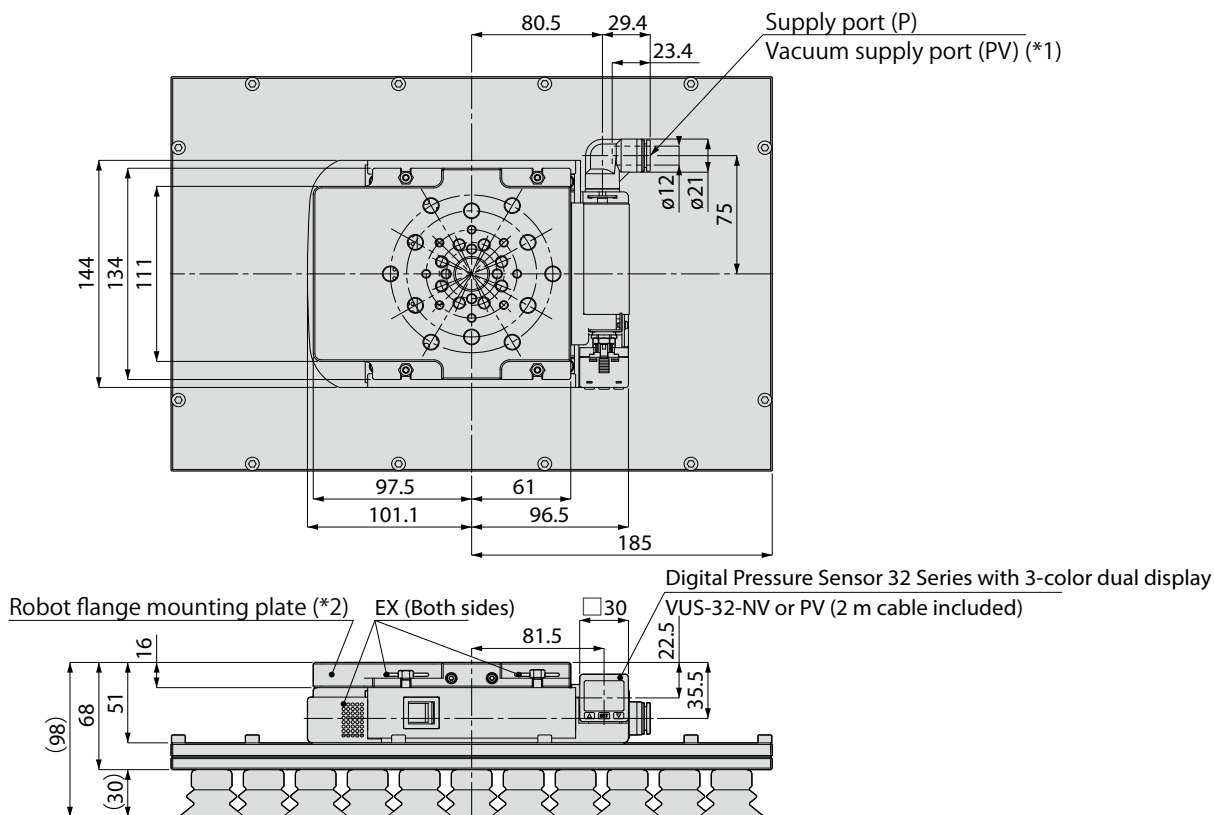
■ No orifices spec.

Unit: mm

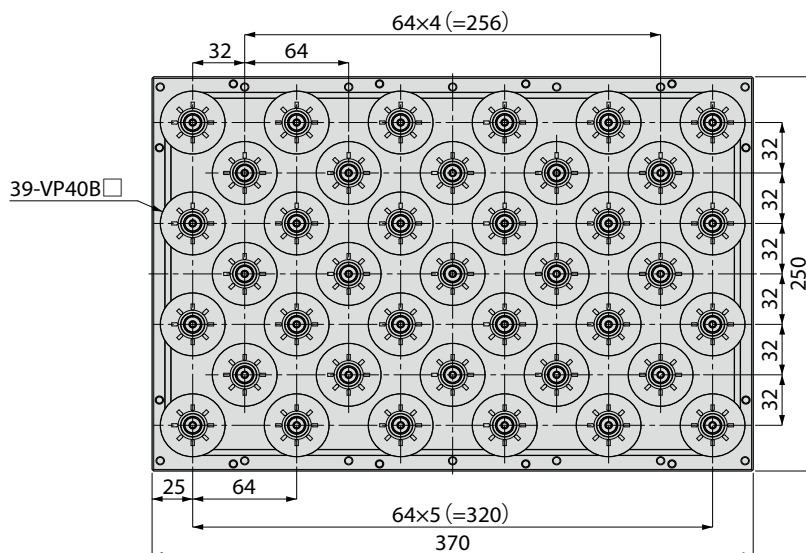
Model code	Weight (kg)
VMG2618-P5L-161-	2.6
VMG2618-P5L-162-	2.6
VMG2618-P5L-163-	2.6
VMG2618-P5L-P-	2.4

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows: 7 rows (ø40 mm Single-convolution Bellows) Plate size: 370 mm × 250 mm



No orifices spec. (Direct mounting of vacuum pads)



■ No orifices spec. (Direct mounting of vacuum pads)

Unit: mm	
Model code	Weight (kg)
VMG3725-P7L-40B□-161-7	4.6
VMG3725-P7L-40B□-162-7	4.6
VMG3725-P7L-40B□-163-7	4.6
VMG3725-P7L-40B□-P-7	4.4

*Select a pad material code from the list below and fill out the blank □ in the model code.

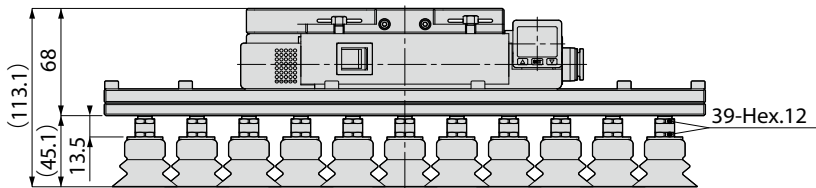
Code for Nitrile rubber: N, for Silicone rubber: S

■ Fixed orifices spec.

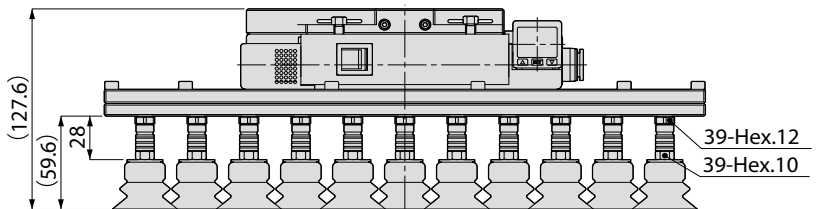
Unit: mm	
Model code	Weight (kg)
VMG3725-P7L-40B□-5-161-7	4.7
VMG3725-P7L-40B□-5-162-7	4.7
VMG3725-P7L-40B□-5-163-7	4.7
VMG3725-P7L-40B□-5-P-7	4.6

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S



Fixed orifice spec.



Orifice coupling spec.



■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	122.9	245.8	368.7	491.5	614.4	737.3	860.2	983.1
	FoS 1/8 (*2)	14.7	29.5	44.2	59.0	73.7	88.4	103.2	117.9

*1. Horizontal lifting

*2. Vertical lifting

*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

*2. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Orifice coupling spec.

Unit: mm

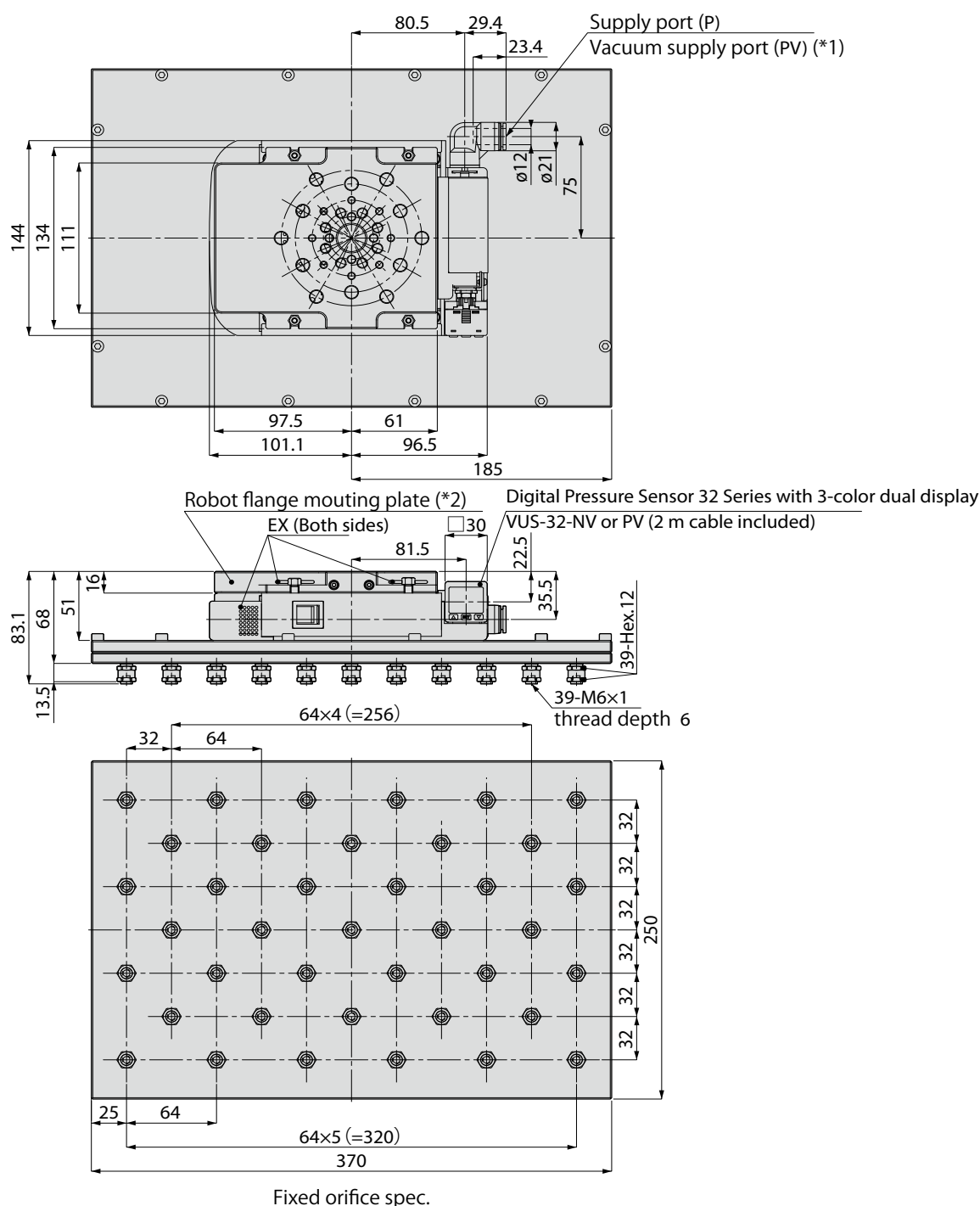
Model code	Weight (kg)
VMG3725-P7L-40B□-5-161-7	5.3
VMG3725-P7L-40B□-5-162-7	5.3
VMG3725-P7L-40B□-5-163-7	5.3
VMG3725-P7L-40B□-5-P-7	5.0

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows : 7 rows (No vacuum pads) Plate size: 370 mm × 250 mm



*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for External vacuum pump compatible type.

*2. Please refer to the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Fixed orifice spec.

Model code	Unit: mm Weight (kg)
VMG3725-P7L[5]-161-[7]	4.0
VMG3725-P7L[5]-162-[7]	4.0
VMG3725-P7L[5]-163-[7]	4.0
VMG3725-P7L[5]-P-[7]	3.9

■ Orifice coupling spec.

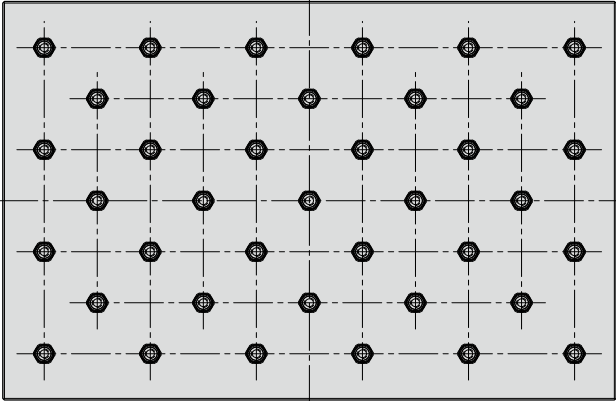
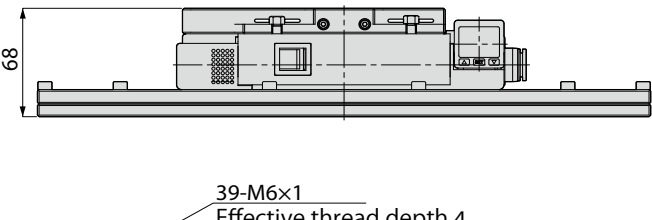
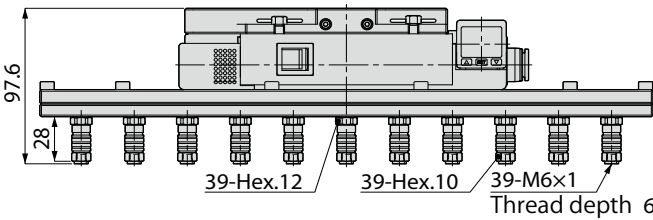
Model code	Unit: mm Weight (kg)
VMG3725-P7L[5]-161-[7]	4.6
VMG3725-P7L[5]-162-[7]	4.6
VMG3725-P7L[5]-163-[7]	4.6
VMG3725-P7L[5]-P-[7]	4.4

■ Theoretical suction force

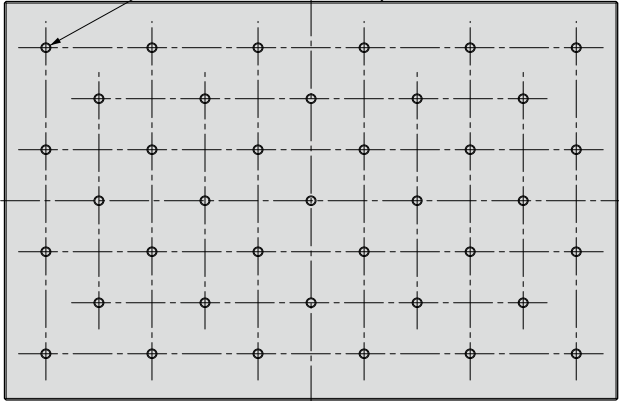
Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	122.9	245.8	368.7	491.5	614.4	737.3	860.2	983.1
	FoS 1/8 (*2)	14.7	29.5	44.2	59.0	73.7	88.4	103.2	117.9

*1. Horizontal lifting

*2. Vertical lifting



Orifice coupling spec.



No orifice spec.

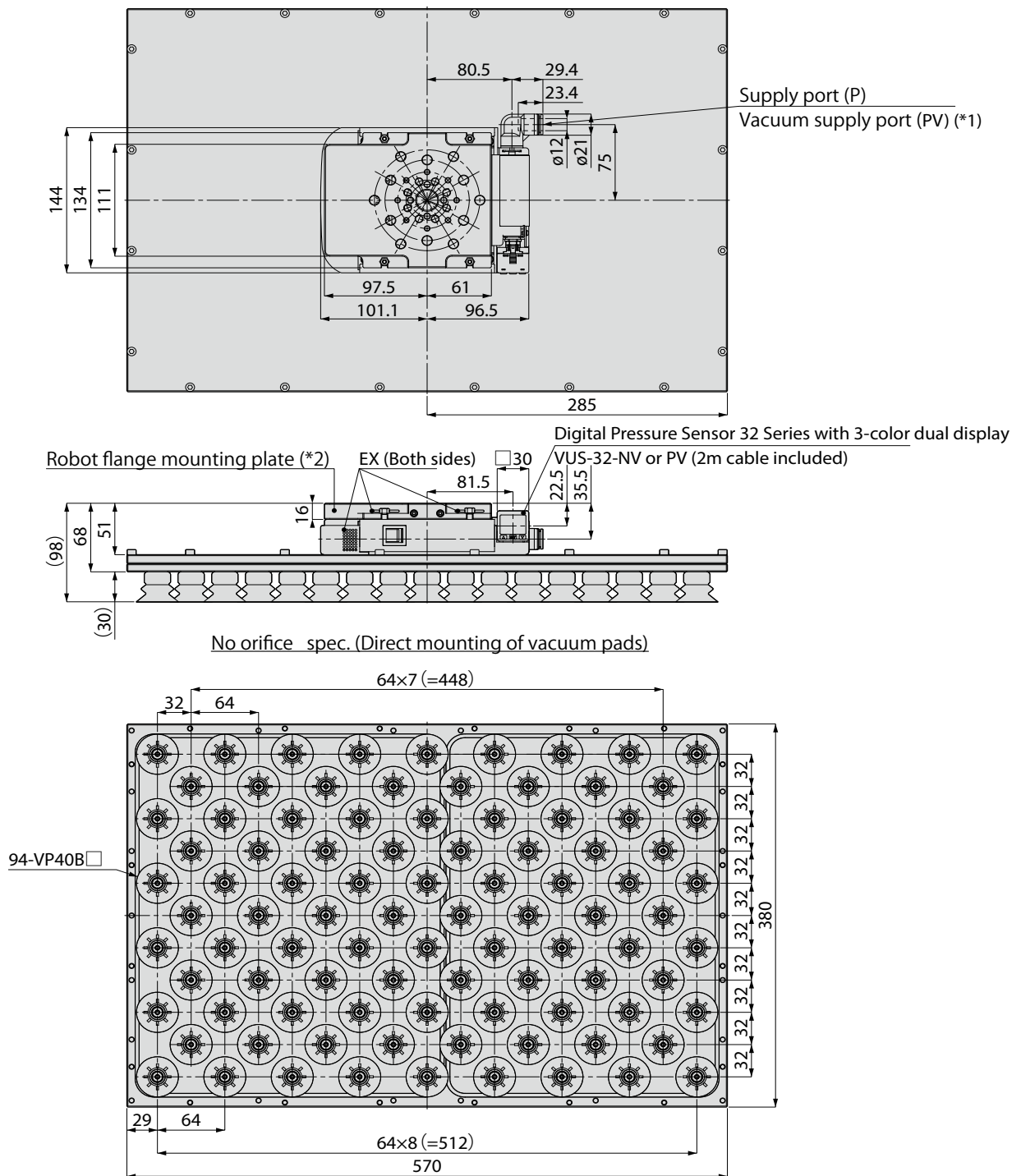
■ No orifice spec.

Unit: mm

Model code	Weight (kg)
VMG3725-P7L-161- 7	3.9
VMG3725-P7L-162- 7	3.9
VMG3725-P7L-163- 7	3.9
VMG3725-P7L-P- 7	3.7

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows: 11 rows (ø40 mm Single-convolution Bellows) Plate size: 570 mm × 380 mm



■ No orifice spec. (Direct mounting of vacuum pads)

Unit: mm

Model code	Weight (kg)
VMG5738-P11L-40B□-161-7	9.4
VMG5738-P11L-40B□-162-7	9.4
VMG5738-P11L-40B□-163-7	9.4
VMG5738-P11L-40B□-P-7	9.2

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

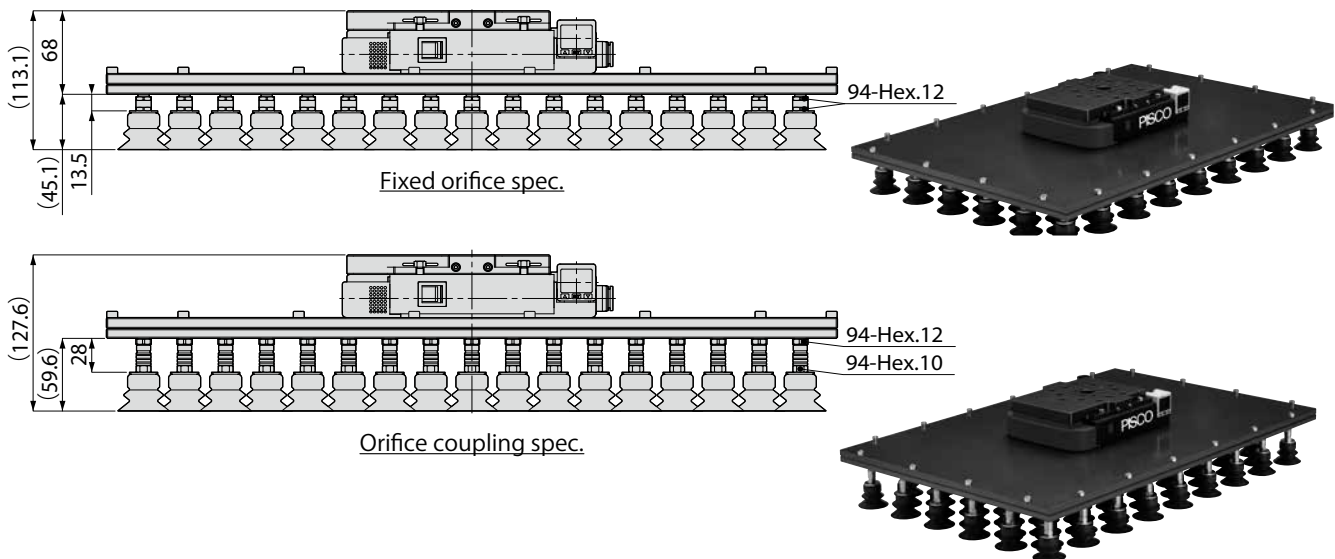
■ Fixed orifice spec.

Unit: mm

Model code	Weight (kg)
VMG5738-P11L-40B□-5-161-7	9.7
VMG5738-P11L-40B□-5-162-7	9.7
VMG5738-P11L-40B□-5-163-7	9.7
VMG5738-P11L-40B□-5-P-7	9.6

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S



- *1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.
 *2. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical	FoS 1/4 (*1)	296.2	592.4	888.6	1184.8	1480.9	1777.1	2073.3	2369.5
suction force (N)	FoS 1/8 (*2)	148.1	296.2	444.3	592.4	740.5	888.6	1036.7	1184.8

*1. Horizontal lifting

*2. Vertical lifting

■ Orifice coupling spec.

Unit: mm

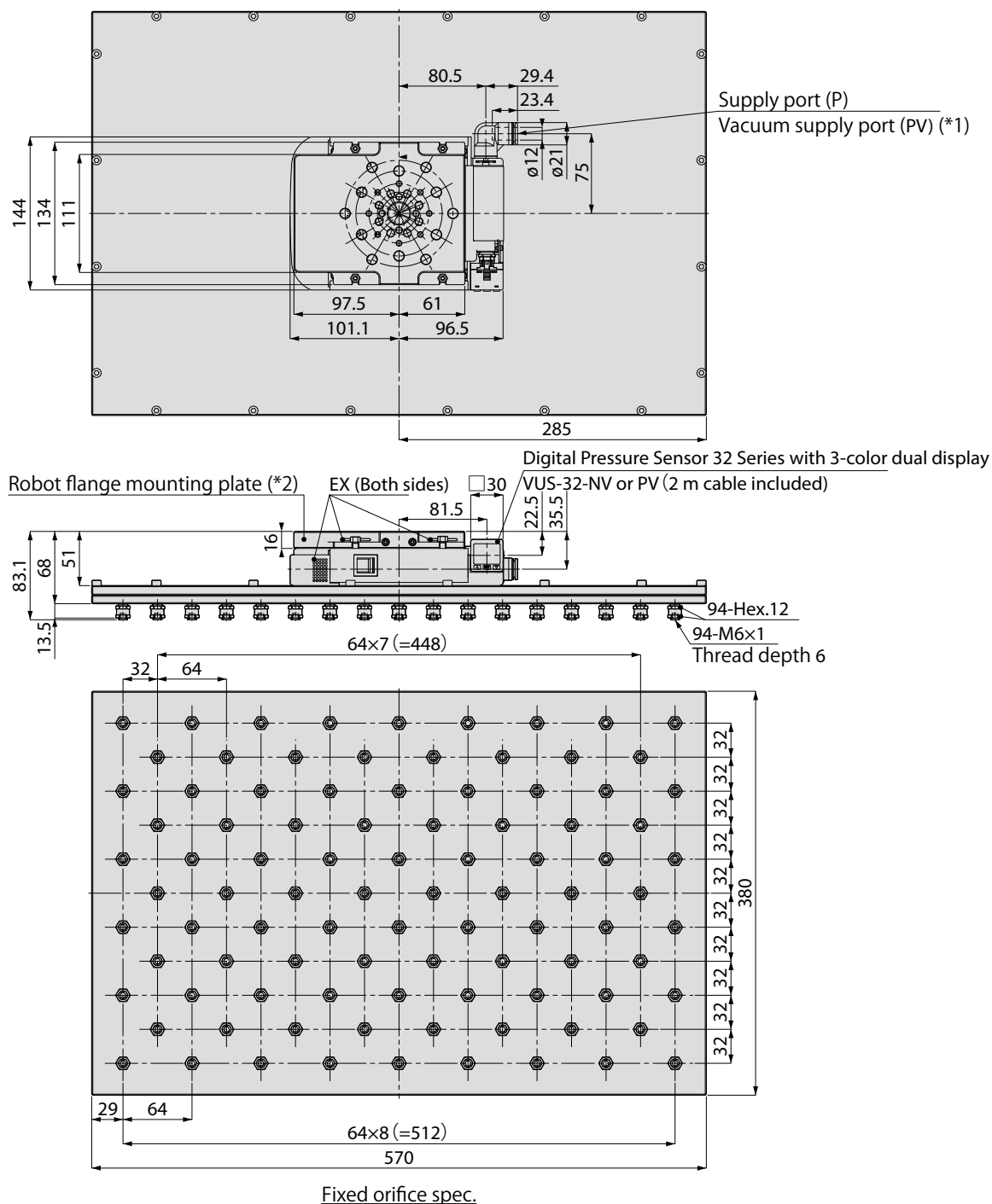
Model code	Weight (kg)
VMG5738-P11L-40B□-5-161-7	11.1
VMG5738-P11L-40B□-5-162-7	11.1
VMG5738-P11L-40B□-5-163-7	11.1
VMG5738-P11L-40B□-5-P-7	10.9

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

Outline drawings of General-purpose type (VMG) Aligned vacuum pads

■ No. of rows: 11 rows (No vacuum pads) Plate size: 570 mm × 380 mm



*1. Port name: Supply port (P) for the vacuum generator type, and vacuum supply port (PV) for the external vacuum pump compatible type.

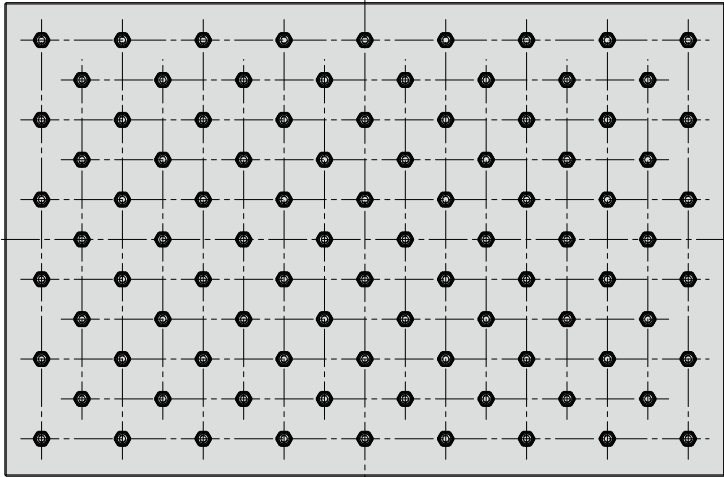
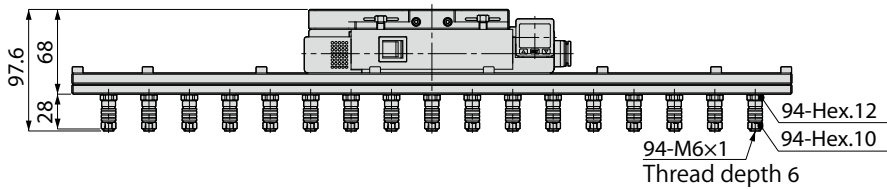
*2. See the outline drawing of Robot flange mounting plate on page 42 for the pitch circle diameter on the robot flange mounting plate.

■ Fixed orifice spec.

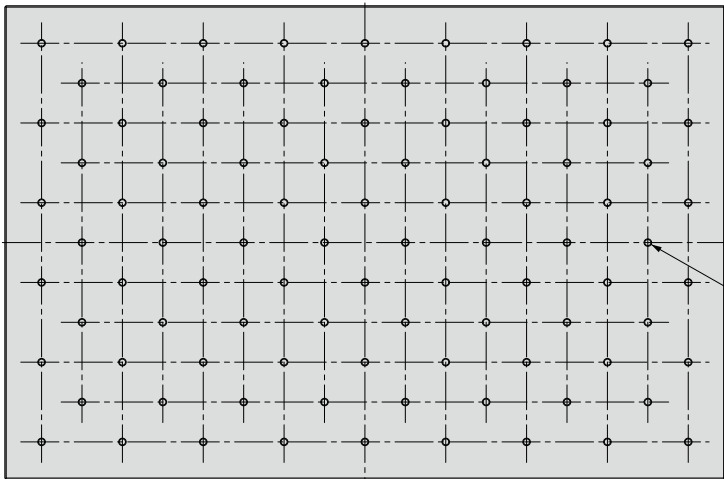
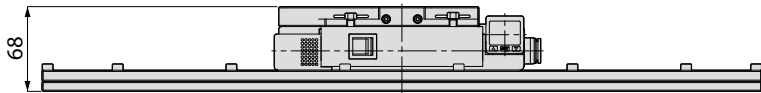
Model code	Unit: mm Weight (kg)
VMG5738-P11L[5]-161-[7]	8.0
VMG5738-P11L[5]-162-[7]	8.0
VMG5738-P11L[5]-163-[7]	8.0
VMG5738-P11L[5]-P-[7]	7.9

■ Orifice coupling spec.

Model code	Unit: mm Weight (kg)
VMG5738-P11L[5]-161-[7]	9.4
VMG5738-P11L[5]-162-[7]	9.4
VMG5738-P11L[5]-163-[7]	9.4
VMG5738-P11L[5] -P-[7]	9.2



Coupling orifice spec.



94-M6x1
Effective thread depth 4

No orifice spec.

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	FoS 1/4 (*1)	296.2	592.4	888.6	1184.8	1480.9	1777.1	2073.3	2369.5
	FoS 1/8 (*2)	148.1	296.2	444.3	592.4	740.5	888.6	1036.7	1184.8

*1. Horizontal lifting

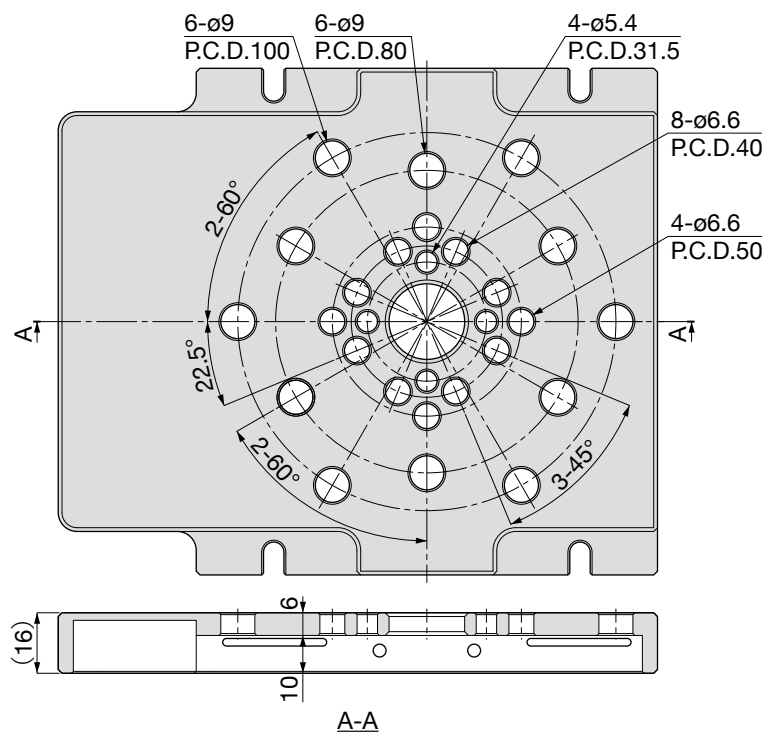
*2. Vertical lifting

■ No orifice spec.

Unit: mm

Model code	Weight (kg)
VMG5738-P11L-161- 7	7.7
VMG5738-P11L-162- 7	7.7
VMG5738-P11L-163- 7	7.7
VMG5738-P11L-P- 7	7.5

Outline drawing of Robot flange mounting plate (Common to VRG and VMG)



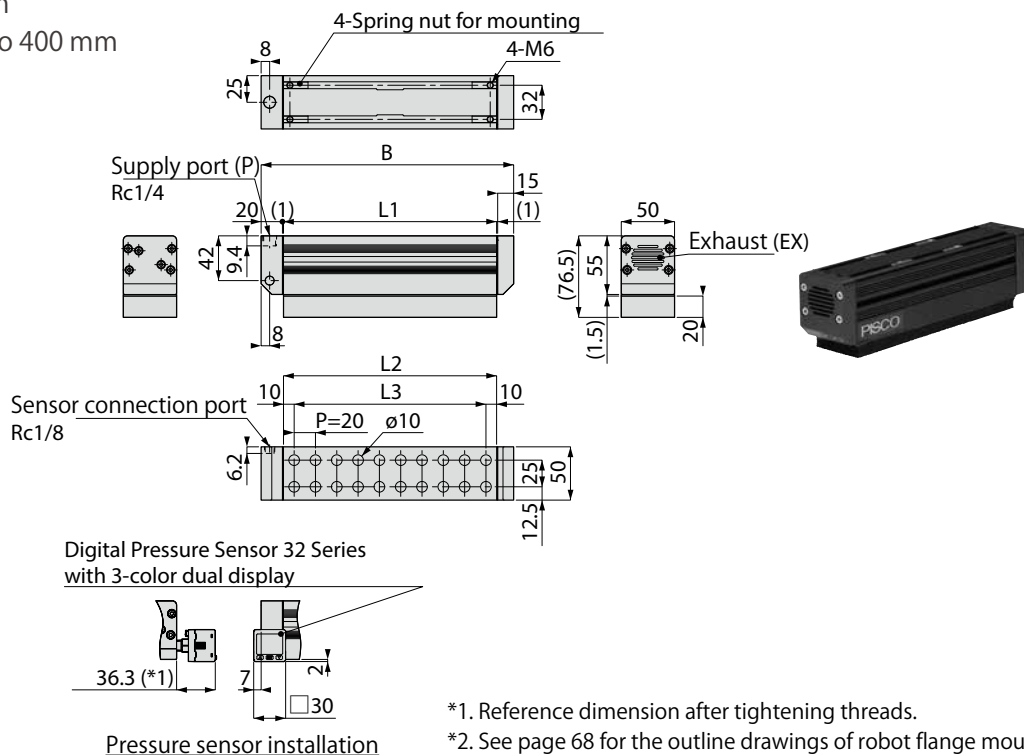
Rectangular ring type/VRG	Whole surface sponge		Aligned vacuum pads	
	General-purpose type/MMG		General-purpose bar type/VLG	

Outline drawings of General-purpose bar type (VLG) Whole surface sponge

Single type with or without check valve

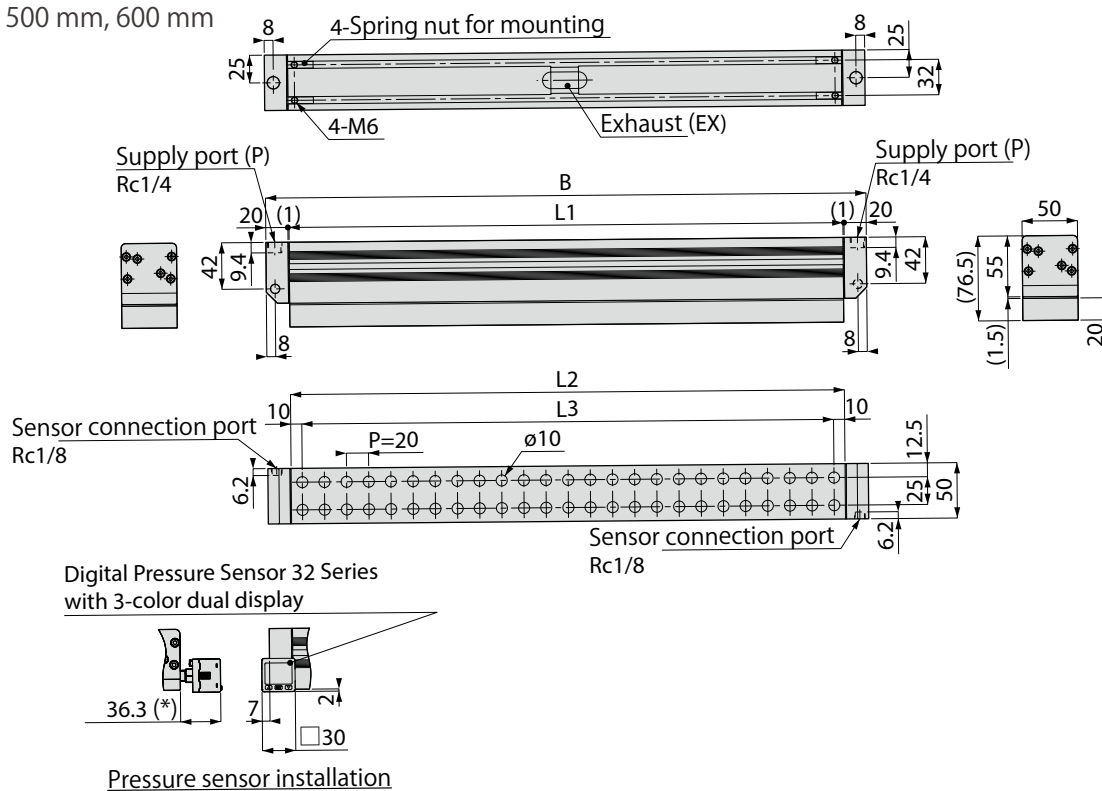
Hole dia.: $\varnothing 10$ mm

Length: 200 mm to 400 mm



Hole dia.: $\varnothing 10$ mm

Length: 500 mm, 600 mm



Unit: mm							Spec.
Model code	B	L1	L2	L3	Weight (kg)	No. of holes (pcs)	
VLG20S-S2L-EP20S-161	237	200	200	180	1.0	20	—
VLG30S-S2L-EP20S-161	337	300	300	280	1.3	30	
VLG40S-S2L-EP20S-161	437	400	400	380	1.7	40	
VLG50S-S2L-EP20S-162	542	500	500	480	2.1	50	
VLG60S-S2L-EP20S-162	642	600	600	580	2.5	60	
VLG20S-S2L-EP20S-CV-161	237	200	200	180	1.1	20	Check valve
VLG30S-S2L-EP20S-CV-161	337	300	300	280	1.4	30	
VLG40S-S2L-EP20S-CV-161	437	400	400	380	1.8	40	
VLG50S-S2L-EP20S-CV-162	542	500	500	480	2.3	50	
VLG60S-S2L-EP20S-CV-162	642	600	600	580	2.6	60	

■ Theoretical suction force

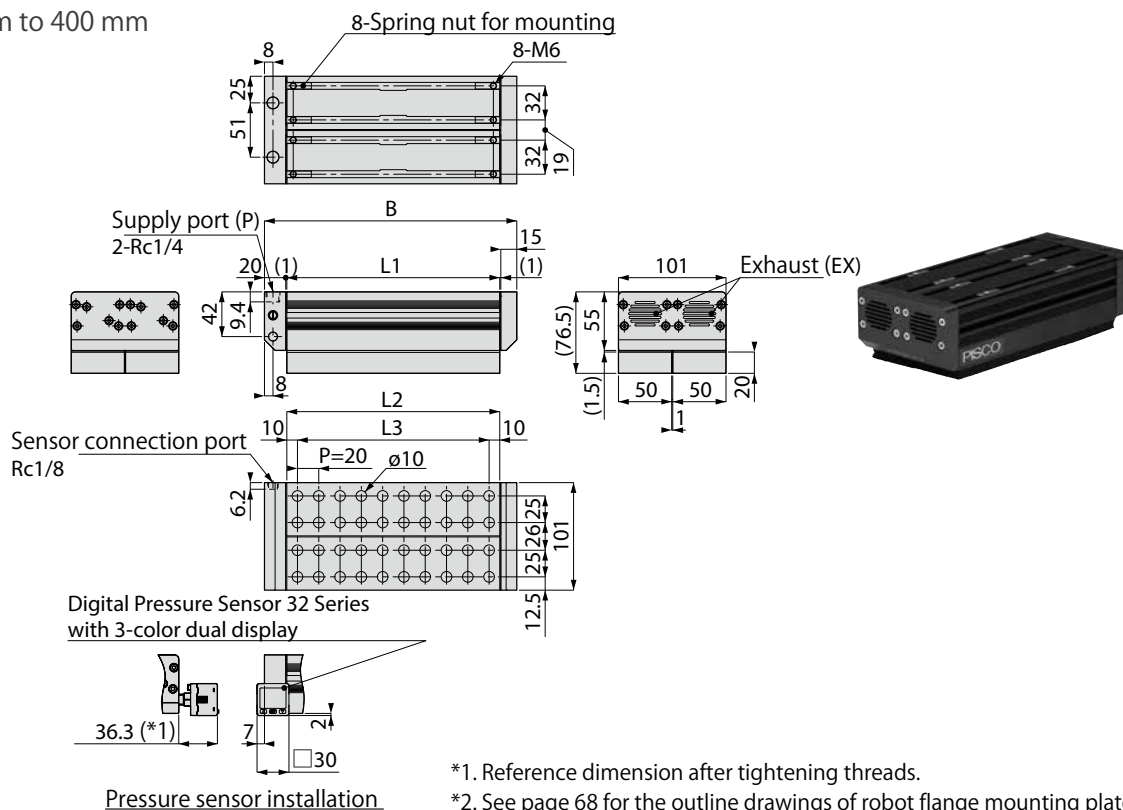
Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force(N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5
		FoS 1/8 (Vertical lifting)	2.0	3.9	5.9	7.9	9.8	11.8	13.8	15.8
	Length 300 mm	FoS 1/4 (Horizontal lifting)	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.2
		FoS 1/8 (Vertical lifting)	3.0	5.9	8.9	11.8	14.8	17.7	20.7	23.6
	Length 400 mm	FoS 1/4 (Horizontal lifting)	7.9	15.8	23.6	31.5	39.4	47.2	55.1	63.0
		FoS 1/8 (Vertical lifting)	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5
	Length 500 mm	FoS 1/4 (Horizontal lifting)	9.8	19.7	29.5	39.4	49.2	59.1	68.9	78.7
		FoS 1/8 (Vertical lifting)	4.9	9.8	14.8	19.7	24.6	29.5	34.5	39.4
	Length 600 mm	FoS 1/4 (Horizontal lifting)	11.8	23.6	35.4	47.2	59.1	70.9	82.7	94.5
		FoS 1/8 (Vertical lifting)	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.2

Outline drawings of General-purpose bar type (VLG) Whole surface sponge

■ Dual type with or without check valve

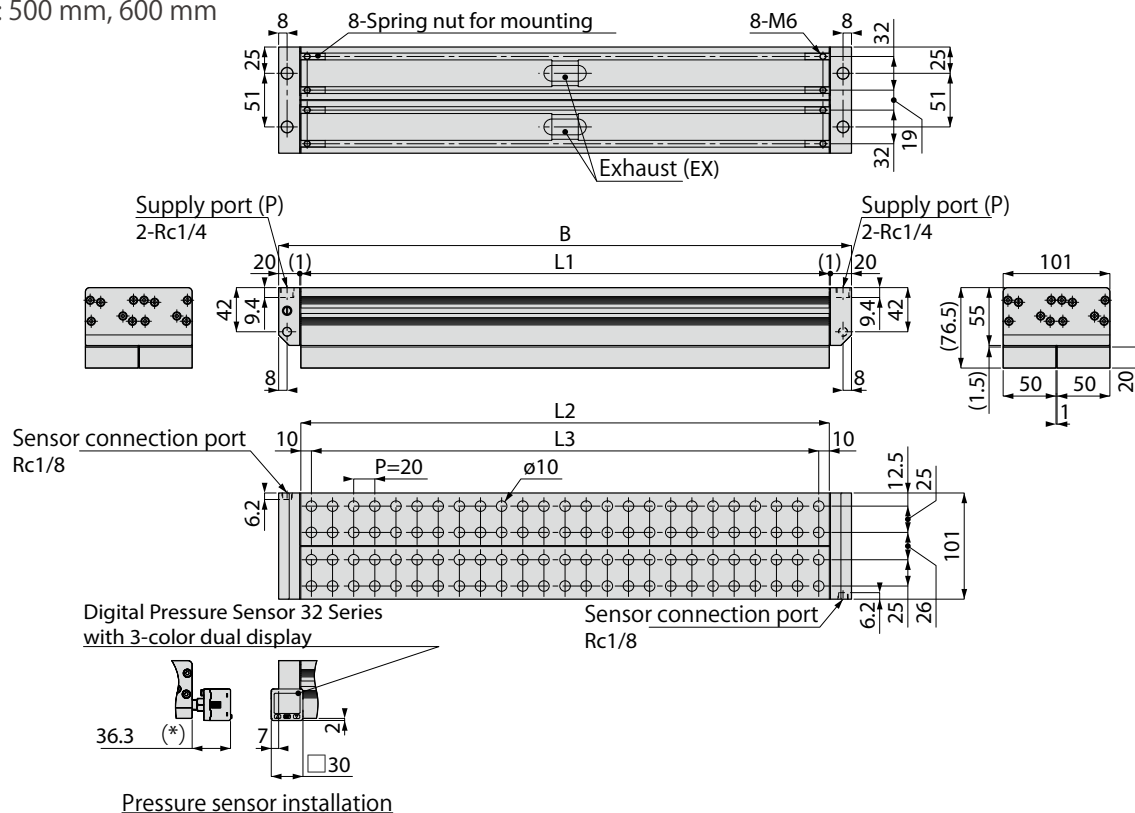
Hole dia.: $\varnothing 10$ mm

Length: 200 mm to 400 mm



Hole dia.: $\varnothing 10$ mm

Length: 500 mm, 600 mm



Rectangular ring type/VRG

Whole surface sponge

Aligned vacuum pads

Whole surface sponge

Aligned vacuum pads

General-purpose type/VMG

General-purpose bar type/VLG

Unit: mm

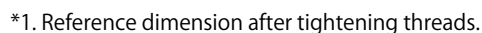
Model code	B	L1	L2	L3	Weight (kg)	No. of holes (pcs)	Holder spec.
VLG20D-S4L-EP20S-162	237	200	200	180	2.0	40	—
VLG30D-S4L-EP20S-162	337	300	300	280	2.7	60	
VLG40D-S4L-EP20S-162	437	400	400	380	3.4	80	
VLG50D-S4L-EP20S-164	542	500	500	480	4.3	100	
VLG60D-S4L-EP20S-164	642	600	600	580	5.1	120	
VLG20D-S4L-EP20S-CV-162	237	200	200	180	2.1	40	Check valve
VLG30D-S4L-EP20S-CV-162	337	300	300	280	2.8	60	
VLG40D-S4L-EP20S-CV-162	437	400	400	380	3.5	80	
VLG50D-S4L-EP20S-CV-164	542	500	500	480	4.5	100	
VLG60D-S4L-EP20S-CV-164	642	600	600	580	5.2	120	

■ Theoretical suction force

Vacuum level (kPa)		-10	-20	-30	-40	-50	-60	-70	-80	
Theoretical suction force (N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	7.9	15.8	23.6	31.5	39.4	47.2	55.1	63.0
		FoS 1/8 (Vertical lifting)	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5
	Length 300 mm	FoS 1/4 (Horizontal lifting)	11.8	23.6	35.4	47.2	59.1	70.9	82.7	94.5
		FoS 1/8 (Vertical lifting)	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.2
	Length 400 mm	FoS 1/4 (Horizontal lifting)	15.8	31.5	47.2	63.0	78.7	94.5	110.2	126.0
		FoS 1/8 (Vertical lifting)	7.9	15.8	23.6	31.5	39.4	47.2	55.1	63.0
	Length 500 mm	FoS 1/4 (Horizontal lifting)	19.7	39.4	59.1	78.7	98.4	118.1	137.8	157.5
		FoS 1/8 (Vertical lifting)	9.8	19.7	29.5	39.4	49.2	59.1	68.9	78.7
	Length 600 mm	FoS 1/4 (Horizontal lifting)	23.6	47.2	70.9	94.5	118.1	141.7	165.3	189.0
		FoS 1/8 (Vertical lifting)	11.8	23.6	35.4	47.2	59.1	70.9	82.7	94.5

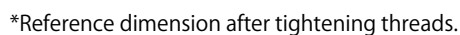
- Single type

Length: 200 mm to 400 mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



i Please refer to our official website for the details of pressure sensor.

Unit: mm

Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20S-P2L-15-161 ⁷	237	200	180	1.0	20	No pads
VLG30S-P2L-15-161 ⁷	337	300	280	1.3	30	
VLG40S-P2L-15-161 ⁷	437	400	380	1.6	40	
VLG50S-P2L-15-162 ⁷	542	500	480	2.0	50	
VLG60S-P2L-15-162 ⁷	642	600	580	2.4	60	
VLG20S-P2L-15B [□] -161 ⁷	237	200	180	1.0	20	Direct mouting of pads
VLG30S-P2L-15B [□] -161 ⁷	337	300	280	1.3	30	
VLG40S-P2L-15B [□] -161 ⁷	437	400	380	1.7	40	
VLG50S-P2L-15B [□] -162 ⁷	542	500	480	2.2	50	
VLG60S-P2L-15B [□] -162 ⁷	642	600	580	2.5	60	
VLG20S-P2L-15B [□] -ECV-161 ⁷	237	200	180	1.2	20	Fall prevention valve
VLG30S-P2L-15B [□] -ECV-161 ⁷	337	300	280	1.6	30	
VLG40S-P2L-15B [□] -ECV-161 ⁷	437	400	380	2.0	40	
VLG50S-P2L-15B [□] -ECV-162 ⁷	542	500	480	2.6	50	
VLG60S-P2L-15B [□] -ECV-162 ⁷	642	600	580	3.0	60	

*Select a pad material code from the list below and fill out the blank [□] in the model code.

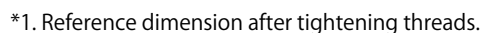
Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 15 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	8.9	17.7	26.6	35.4	44.3	53.1	62.0	70.9
		FoS 1/8 (Vertical lifting)	4.4	8.9	13.3	17.7	22.1	26.6	31.0	35.4
	Length 300 mm	FoS 1/4 (Horizontal lifting)	13.3	26.6	39.9	53.1	66.4	79.7	93.0	106.3
		FoS 1/8 (Vertical lifting)	6.6	13.3	19.9	26.6	33.2	39.9	46.5	53.1
	Length 400 mm	FoS 1/4 (Horizontal lifting)	17.7	35.4	53.1	70.9	88.6	106.3	124.0	141.7
		FoS 1/8 (Vertical lifting)	8.9	17.7	26.6	35.4	44.3	53.1	62.0	70.9
	Length 500 mm	FoS 1/4 (Horizontal lifting)	22.1	44.3	66.4	88.6	110.7	132.8	155.0	177.1
		FoS 1/8 (Vertical lifting)	11.0	22.1	33.2	44.3	55.4	66.4	77.5	88.6
	Length 600 mm	FoS 1/4 (Horizontal lifting)	26.6	53.1	79.7	106.3	132.8	159.4	186.0	212.6
		FoS 1/8 (Vertical lifting)	13.3	26.6	39.9	53.1	66.4	79.7	93.0	106.3

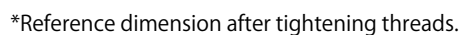
- Dual type

Length: 200 mm to 400 mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



Unit: mm

Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Pad spec.
VLG20D-P4L-15-162 ⁷	237	200	180	2.0	40	No pads
VLG30D-P4L-15-162 ⁷	337	300	280	2.5	60	
VLG40D-P4L-15-162 ⁷	437	400	380	3.2	80	
VLG50D-P4L-15-164 ⁷	542	500	480	4.2	100	
VLG60D-P4L-15-164 ⁷	642	600	580	4.8	120	
VLG20D-P4L-15B□-162 ⁷	237	200	180	2.0	40	Direct mounting of pads
VLG30D-P4L-15B□-162 ⁷	337	300	280	2.7	60	
VLG40D-P4L-15B□-162 ⁷	437	400	380	3.4	80	
VLG50D-P4L-15B□-164 ⁷	542	500	480	4.4	100	
VLG60D-P4L-15B□-164 ⁷	642	600	580	5.0	120	
VLG20D-P4L-15B□-ECV-162 ⁷	237	200	180	2.4	40	Fall prevention valve
VLG30D-P4L-15B□-ECV-162 ⁷	337	300	280	3.1	60	
VLG40D-P4L-15B□-ECV-162 ⁷	437	400	380	4.0	80	
VLG50D-P4L-15B□-ECV-164 ⁷	542	500	480	5.1	100	
VLG60D-P4L-15B□-ECV-164 ⁷	642	600	580	6.0	120	

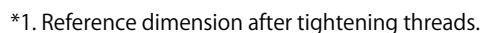
*Select a pad material code from the list below and fill out the blank □ in the model code.
Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 15 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	17.7	35.4	53.1	70.9	88.6	106.3	124.0	141.7
	200 mm	FoS 1/8 (Vertical lifting)	8.9	17.7	26.6	35.4	44.3	53.1	62.0	70.9
	Length	FoS 1/4 (Horizontal lifting)	26.6	53.1	79.7	106.3	132.8	159.4	186.0	212.6
	300 mm	FoS 1/8 (Vertical lifting)	13.3	26.6	39.9	53.1	66.4	79.7	93.0	106.3
	Length	FoS 1/4 (Horizontal lifting)	35.4	70.9	106.3	141.7	177.1	212.6	248.0	283.4
	400 mm	FoS 1/8 (Vertical lifting)	17.7	35.4	53.1	70.9	88.6	106.3	124.0	141.7
	Length	FoS 1/4 (Horizontal lifting)	44.3	88.6	132.8	177.1	221.4	265.7	310.0	354.2
	500 mm	FoS 1/8 (Vertical lifting)	22.1	44.3	66.4	88.6	110.7	132.8	155.0	177.1
	Length	FoS 1/4 (Horizontal lifting)	53.1	106.3	159.4	212.6	265.7	318.8	372.0	425.1
	600 mm	FoS 1/8 (Vertical lifting)	26.6	53.1	79.7	106.3	132.8	159.4	186.0	212.6

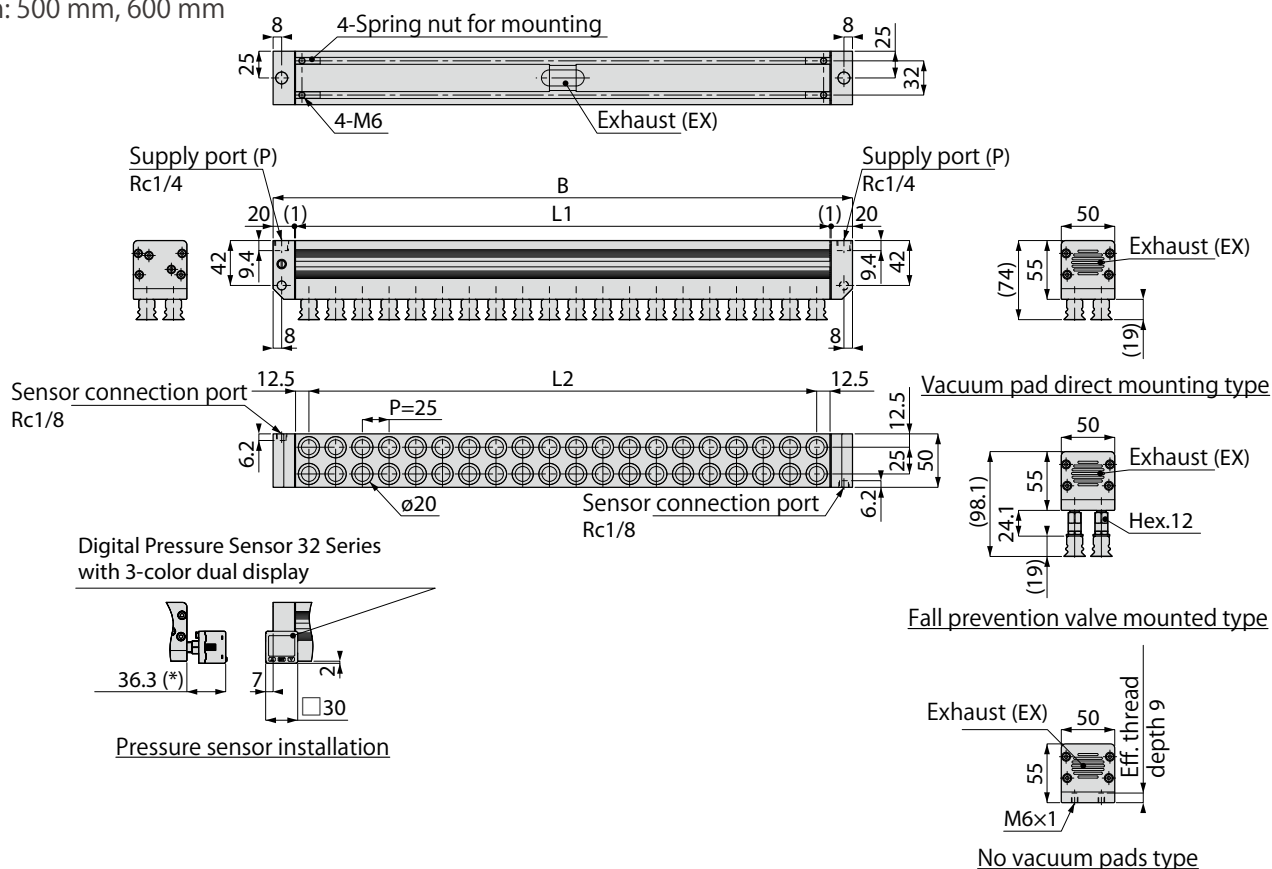
- Single type

Length: 200 mm to 400 mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



*Reference dimension after tightening theads.

i Please refer to our official website for the details of pressure sensor.

Unit: mm						
Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20S-P2L-20-161	237	200	175	1.0	16	No pads
VLG30S-P2L-20-161	337	300	275	1.3	24	
VLG40S-P2L-20-161	437	400	375	1.6	32	
VLG50S-P2L-20-162	542	500	475	2.0	40	
VLG60S-P2L-20-162	642	600	575	2.4	48	
VLG20S-P2L-20B-161	237	200	175	1.1	16	Direct mounting of pads
VLG30S-P2L-20B-161	337	300	275	1.4	24	
VLG40S-P2L-20B-161	437	400	375	1.8	32	
VLG50S-P2L-20B-162	542	500	475	2.3	40	
VLG60S-P2L-20B-162	642	600	575	2.6	48	
VLG20S-P2L-20B-ECV-161	237	200	175	1.3	16	Fall prevention valve
VLG30S-P2L-20B-ECV-161	337	300	275	1.7	24	
VLG40S-P2L-20B-ECV-161	437	400	375	2.2	32	
VLG50S-P2L-20B-ECV-162	542	500	475	2.8	40	
VLG60S-P2L-20B-ECV-162	642	600	575	3.2	48	

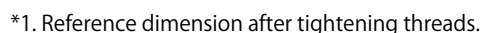
*Select a pad material code from the list below and fill out the blank ☐ in the model code.
Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 20 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
		FoS 1/8 (Vertical lifting)	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4
	Length 300 mm	FoS 1/4 (Horizontal lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2
		FoS 1/8 (Vertical lifting)	9.5	18.9	28.3	37.8	47.2	56.7	66.1	75.6
	Length 400 mm	FoS 1/4 (Horizontal lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
		FoS 1/8 (Vertical lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
	Length 500 mm	FoS 1/4 (Horizontal lifting)	31.5	63.0	94.5	126.0	157.5	189.0	220.5	252.0
		FoS 1/8 (Vertical lifting)	15.8	31.5	47.2	63.0	78.7	94.5	110.2	126.0
	Length 600 mm	FoS 1/4 (Horizontal lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3
		FoS 1/8 (Vertical lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2

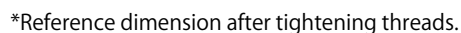
- Dual type

Length: 200 mm to 400mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



						Unit: mm
Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20D-P4L-20-162 ⁷	237	200	175	2.0	32	No pads
VLG30D-P4L-20-162 ⁷	337	300	275	2.5	48	
VLG40D-P4L-20-162 ⁷	437	400	375	3.2	64	
VLG50D-P4L-20-164 ⁷	542	500	475	4.2	80	
VLG60D-P4L-20-164 ⁷	642	600	575	4.8	96	
VLG20D-P4L-20B [□] -162 ⁷	237	200	175	2.1	32	Direct mounting of pads
VLG30D-P4L-20B [□] -162 ⁷	337	300	275	2.8	48	
VLG40D-P4L-20B [□] -162 ⁷	437	400	375	3.5	64	
VLG50D-P4L-20B [□] -164 ⁷	542	500	475	4.5	80	
VLG60D-P4L-20B [□] -164 ⁷	642	600	575	5.2	96	
VLG20D-P4L-20B [□] -ECV-162 ⁷	237	200	175	2.5	32	Fall prevention valve
VLG30D-P4L-20B [□] -ECV-162 ⁷	337	300	275	3.4	48	
VLG40D-P4L-20B [□] -ECV-162 ⁷	437	400	375	4.4	64	
VLG50D-P4L-20B [□] -ECV-164 ⁷	542	500	475	5.6	80	
VLG60D-P4L-20B [□] -ECV-164 ⁷	642	600	575	6.5	96	

*Select a pad material code from the list below and fill out the blank [□] in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 20 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
	200 mm	FoS 1/8 (Vertical lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
	Length	FoS 1/4 (Horizontal lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3
	300 mm	FoS 1/8 (Vertical lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2
	Length	FoS 1/4 (Horizontal lifting)	50.4	100.8	151.2	201.6	252.0	302.3	352.7	403.1
	400 mm	FoS 1/8 (Vertical lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
	Length	FoS 1/4 (Horizontal lifting)	63.0	126.0	189.0	252.0	314.9	377.9	440.9	503.9
	500 mm	FoS 1/8 (Vertical lifting)	31.5	63.0	94.5	126.0	157.4	189.0	220.5	252.0
	Length	FoS 1/4 (Horizontal lifting)	75.6	151.2	226.8	302.3	377.9	453.5	529.1	604.7
	600 mm	FoS 1/8 (Vertical lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3

Rectangular ring type/VRG

Whole surface sponge

General-purpose type/VMG

Aligned vacuum pads

Whole surface sponge

General-purpose bar type/VLG

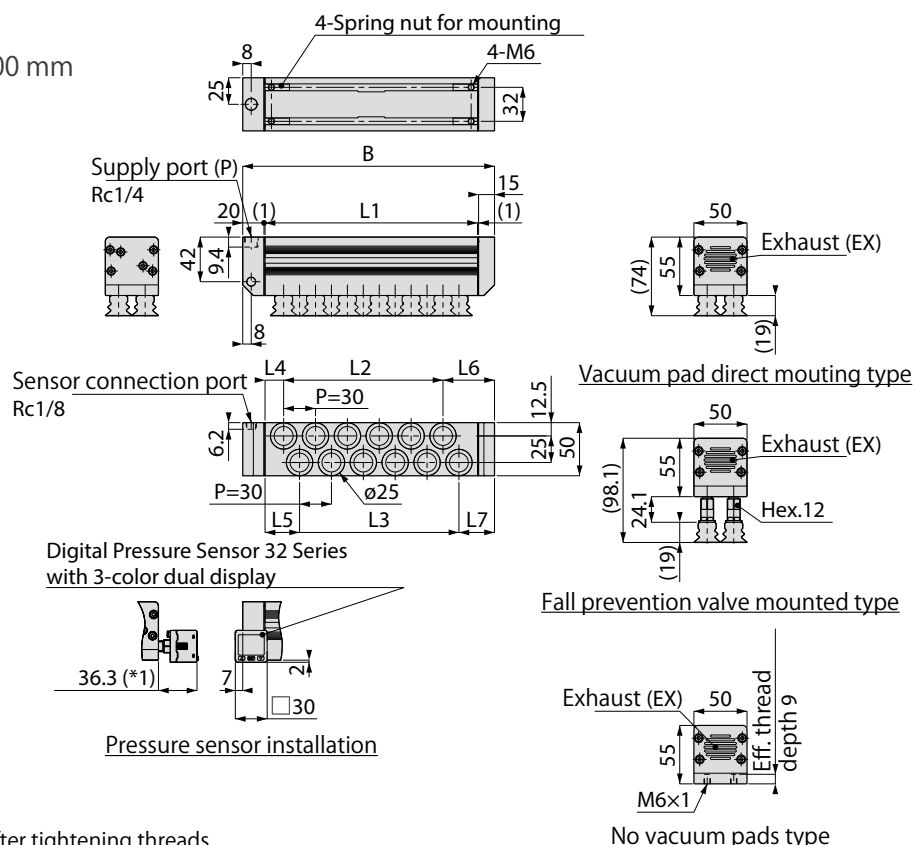
Aligned vacuum pads

Outline drawings of General-purpose bar type (VLG) Aligned vacuum pads

Single type

Pad size: $\varnothing 25$ mm

Length: 200 mm to 400 mm



*1. Reference dimension after tightening threads.

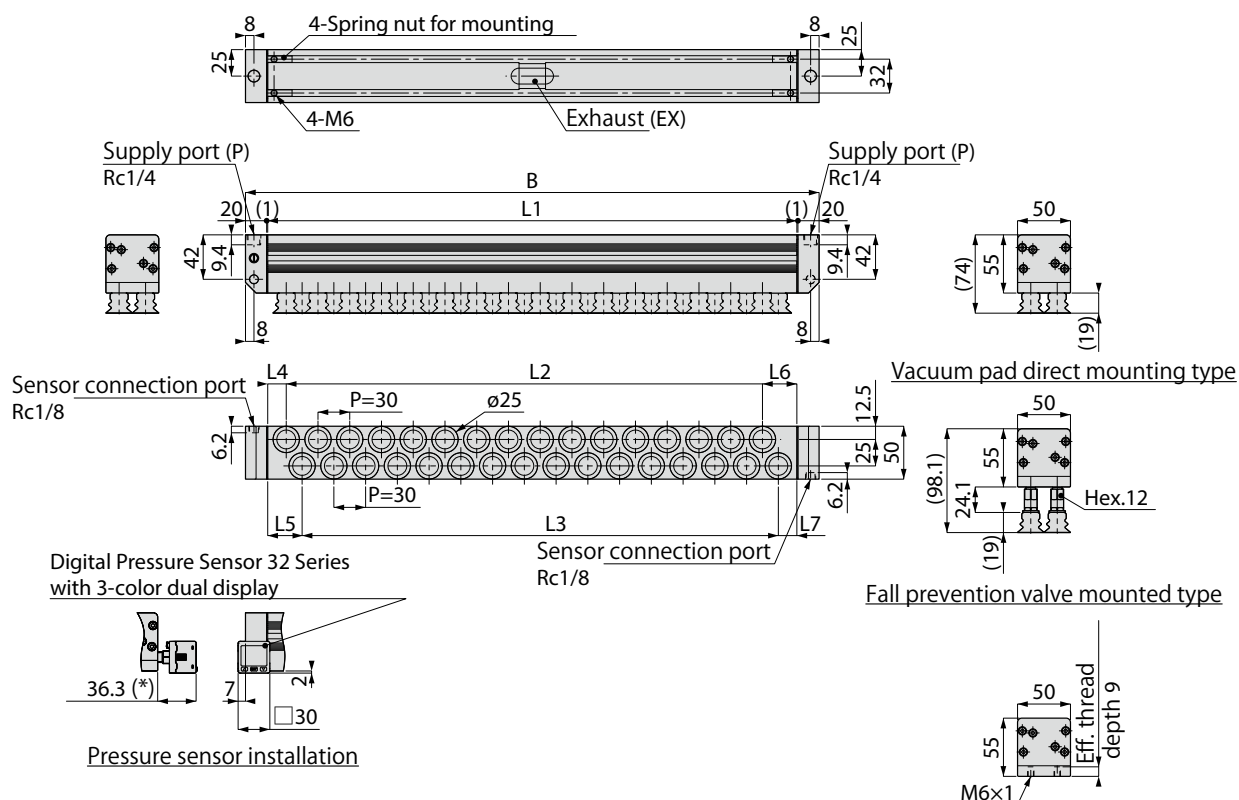
*2. The above outline drawings are for the 200-mm length.

Alignment of the vacuum pads for the 300-mm length and for the 400-mm length is different.

*3. See page 68 for the outline drawings of robot flange mounting plate.

Pad size: $\varnothing 25$ mm

Length: 500mm, 600mm



*Reference dimension after tightening threads.

No vacuum pads type

Unit: mm

Model code	B	L1	L2	L3	L4	L5	L6	L7	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20S-P2L-25-161 ⁷	237	200	150	150	17.5	32.5	32.5	17.5	1.0	12	No pads
VLG30S-P2L-25-161 ⁷	337	300	270	240	15	30	15	30	1.3	19	
VLG40S-P2L-25-161 ⁷	437	400	360	330	20	35	20	35	1.6	25	
VLG50S-P2L-25-162 ⁷	542	500	450	450	17.5	32.5	32.5	17.5	2.0	32	
VLG60S-P2L-25-162 ⁷	642	600	570	540	15	30	15	30	2.4	39	
VLG20S-P2L-25B□-161 ⁷	237	200	150	150	17.5	32.5	32.5	17.5	1.0	12	Direct mounting of pads
VLG30S-P2L-25B□-161 ⁷	337	300	270	240	15	30	15	30	1.4	19	
VLG40S-P2L-25B□-161 ⁷	437	400	360	330	20	35	20	35	1.8	25	
VLG50S-P2L-25B□-162 ⁷	542	500	450	450	17.5	32.5	32.5	17.5	2.3	32	
VLG60S-P2L-25B□-162 ⁷	642	600	570	540	15	30	15	30	2.6	39	
VLG20S-P2L-25B□-ECV-161 ⁷	237	200	150	150	17.5	32.5	32.5	17.5	1.2	12	Fall prevention valve
VLG30S-P2L-25B□-ECV-161 ⁷	337	300	270	240	15	30	15	30	1.6	19	
VLG40S-P2L-25B□-ECV-161 ⁷	437	400	360	330	20	35	20	35	2.1	25	
VLG50S-P2L-25B□-ECV-162 ⁷	542	500	450	450	17.5	32.5	32.5	17.5	2.7	32	
VLG60S-P2L-25B□-ECV-162 ⁷	642	600	570	540	15	30	15	30	3.1	39	

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 25 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	14.8	29.5	44.3	59.1	73.8	88.6	103.3	118.1
		FoS 1/8 (Vertical lifting)	7.4	14.8	22.1	29.5	36.9	44.3	51.6	59.1
	Length 300 mm	FoS 1/4 (Horizontal lifting)	23.4	46.8	70.1	93.5	116.9	140.2	163.7	187.0
		FoS 1/8 (Vertical lifting)	11.7	23.4	35.1	46.8	58.4	70.1	81.8	93.5
	Length 400 mm	FoS 1/4 (Horizontal lifting)	30.8	61.5	92.3	123.0	153.8	184.5	215.3	246.0
		FoS 1/8 (Vertical lifting)	15.4	30.8	46.1	61.5	76.9	92.3	107.6	123.0
	Length 500 mm	FoS 1/4 (Horizontal lifting)	39.4	78.7	118.1	157.5	196.8	236.2	275.6	314.9
		FoS 1/8 (Vertical lifting)	19.7	39.4	59.1	78.7	98.4	118.1	137.8	157.5
	Length 600 mm	FoS 1/4 (Horizontal lifting)	48.0	96.0	143.9	191.9	240.0	287.6	335.8	383.8
		FoS 1/8 (Vertical lifting)	24.0	48.0	72.0	96.0	119.9	143.9	167.9	191.9

Rectangular ring type/VRG

Whole surface sponge

General-purpose type/VMG

Aligned vacuum pads

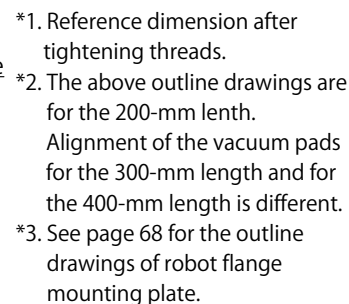
Whole surface sponge

General-purpose bar type/VLG

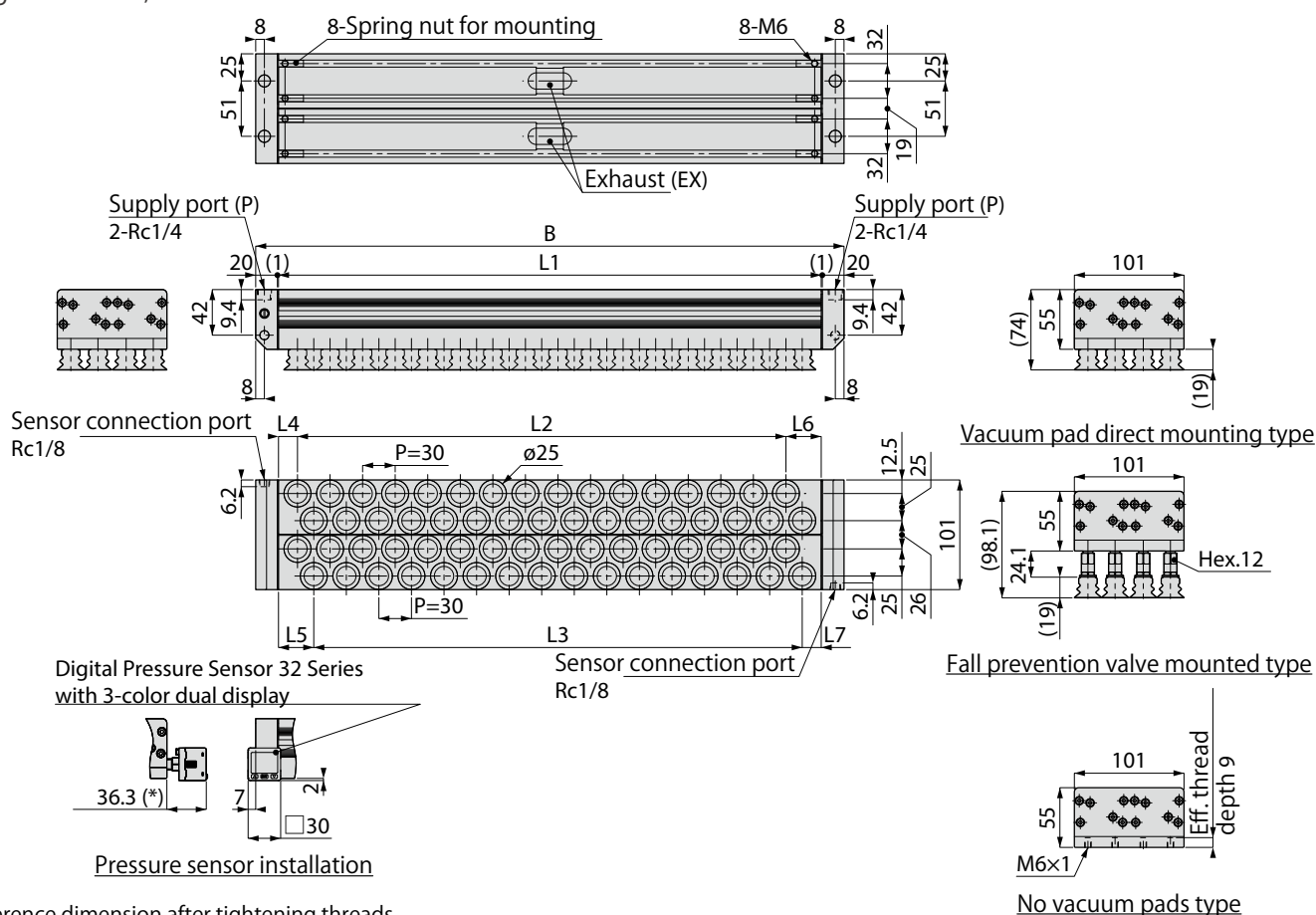
Aligned vacuum pads

- Dual type

Length: 200 mm to 400 mm



Length: 500 mm, 600 mm



Unit: mm

Model code	B	L1	L2	L3	L4	L5	L6	L7	Weight (kg)	No. of pads (No. of mount. threads)	Pad spec.
VLG20D-P4L-25-162	237	200	150	150	17.5	32.5	32.5	17.5	2.0	24	No pads
VLG30D-P4L-25-162	337	300	250	250	15	30	15	30	2.5	38	
VLG40D-P4L-25-162	437	400	350	350	20	35	20	35	3.2	50	
VLG50D-P4L-25-164	542	500	450	450	17.5	32.5	32.5	17.5	4.2	64	
VLG60D-P4L-25-164	642	600	550	550	15	30	15	30	4.8	78	
VLG20D-P4L-25B-162	237	200	150	150	17.5	32.5	32.5	17.5	2.1	24	Direct mounting of pads
VLG30D-P4L-25B-162	337	300	250	250	15	30	15	30	2.7	38	
VLG40D-P4L-25B-162	437	400	350	350	20	35	20	35	3.5	50	
VLG50D-P4L-25B-164	542	500	450	450	17.5	32.5	32.5	17.5	4.5	64	
VLG60D-P4L-25B-164	642	600	550	550	15	30	15	30	5.2	78	
VLG20D-P4L-25B-ECV-162	237	200	150	150	17.5	32.5	32.5	17.5	2.4	24	Fall prevention valve
VLG30D-P4L-25B-ECV-162	337	300	250	250	15	30	15	30	3.2	38	
VLG40D-P4L-25B-ECV-162	437	400	350	350	20	35	20	35	4.1	50	
VLG50D-P4L-25B-ECV-164	542	500	450	450	17.5	32.5	32.5	17.5	5.3	64	
VLG60D-P4L-25B-ECV-164	642	600	550	550	15	30	15	30	6.2	78	

*Select a pad material code from the list below and fill out the blank ☐ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 25 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length 200 mm	FoS 1/4 (Horizontal lifting)	29.5	59.1	88.6	118.1	147.6	177.1	206.7	236.2
		FoS 1/8 (Vertical lifting)	14.8	29.5	44.3	59.1	73.8	88.6	103.3	118.1
	Length 300 mm	FoS 1/4 (Horizontal lifting)	46.8	93.5	140.2	187.0	233.7	280.5	327.2	374.0
		FoS 1/8 (Vertical lifting)	23.4	46.8	70.1	93.5	116.9	140.2	163.6	187.0
	Length 400 mm	FoS 1/4 (Horizontal lifting)	61.5	123.0	184.5	246.0	307.5	369.0	430.6	492.1
		FoS 1/8 (Vertical lifting)	30.8	61.5	92.3	123.0	153.8	184.5	215.3	246.0
	Length 500 mm	FoS 1/4 (Horizontal lifting)	78.7	157.5	236.2	314.9	393.7	472.4	551.1	629.8
		FoS 1/8 (Vertical lifting)	39.4	78.7	118.1	157.5	196.8	236.2	275.6	314.9
	Length 600 mm	FoS 1/4 (Horizontal lifting)	96.0	191.9	287.9	383.8	479.8	575.7	671.7	767.6
		FoS 1/8 (Vertical lifting)	48.0	96.0	143.9	191.9	239.9	287.9	335.8	383.8

Rectangular ring type/VRG

Whole surface sponge

General-purpose type/VMG

Aligned vacuum pads

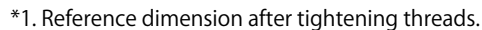
Whole surface sponge

General-purpose bar type/VLG

Aligned vacuum pads

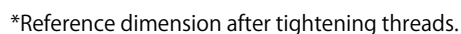
- Single type

Length: 200 mm to 400 mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



i Please refer to our official website for the details of pressure sensor.

Unit: mm

Model code	B	L1	L2	L3	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20S-P1L-30-161	237	200	160	20	1.0	5	No pads
VLG30S-P1L-30-161	337	300	240	30	1.3	7	
VLG40S-P1L-30-161	437	400	360	20	1.6	10	
VLG50S-P1L-30-162	542	500	440	30	2.0	12	
VLG60S-P1L-30-162	642	600	560	20	2.4	15	
VLG20S-P1L-30B-161	237	200	160	20	1.0	5	Direct mounting of pads
VLG30S-P1L-30B-161	337	300	240	30	1.3	7	
VLG40S-P1L-30B-161	437	400	360	20	1.7	10	
VLG50S-P1L-30B-162	542	500	440	30	2.2	12	
VLG60S-P1L-30B-162	642	600	560	20	2.5	15	
VLG20S-P1L-30B-ECV-161	237	200	160	20	1.1	5	Fall prevention valve
VLG30S-P1L-30B-ECV-161	337	300	240	30	1.4	7	
VLG40S-P1L-30B-ECV-161	437	400	360	20	1.8	10	
VLG50S-P1L-30B-ECV-162	542	500	440	30	2.3	12	
VLG60S-P1L-30B-ECV-162	642	600	560	20	2.7	15	

*Select a pad material code from the list below and fill out the blank ☐ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 30 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	8.9	17.7	26.6	35.4	44.3	53.1	62.0	70.9
	200 mm	FoS 1/8 (Vertical lifting)	4.4	8.9	13.3	17.7	22.1	26.6	31.0	35.4
	Length	FoS 1/4 (Horizontal lifting)	12.4	24.8	37.2	49.6	62.0	74.4	86.8	99.2
	300 mm	FoS 1/8 (Vertical lifting)	6.2	12.4	18.6	24.8	31.0	37.2	43.4	49.6
	Length	FoS 1/4 (Horizontal lifting)	17.7	35.4	53.1	70.9	88.6	106.3	124.0	141.7
	400 mm	FoS 1/8 (Vertical lifting)	8.9	17.7	26.6	35.4	44.3	53.1	62.0	70.9
	Length	FoS 1/4 (Horizontal lifting)	21.3	42.5	63.8	85.0	106.3	127.6	148.8	170.1
	500 mm	FoS 1/8 (Vertical lifting)	10.6	21.3	31.9	42.5	53.1	63.8	74.4	85.0
	Length	FoS 1/4 (Horizontal lifting)	26.6	53.1	79.7	106.2	132.9	159.4	186.0	212.6
	600 mm	FoS 1/8 (Vertical lifting)	13.3	26.6	39.9	53.1	66.4	79.7	93.0	106.3

Rectangular ring type/VRG

Whole surface sponge

General-purpose type/VMG

Aligned vacuum pads

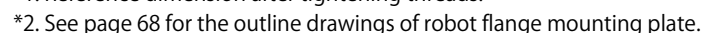
Whole surface sponge

General-purpose bar type/VLG

Aligned vacuum pads

- Dual type

Length: 200 mm to 400 mm



Length: 500 mm, 600 mm



Unit: mm

Model code	B	L1	L2	L3	Weight (kg)	No. of pads (No. of mount. holes)	Spec.
VLG20D-P2L-30-162	237	200	160	20	2.0	10	No pads
VLG30D-P2L-30-162	337	300	240	30	2.5	14	
VLG40D-P2L-30-162	437	400	360	20	3.2	20	
VLG50D-P2L-30-164	542	500	440	30	4.2	24	
VLG60D-P2L-30-164	642	600	560	20	4.8	30	
VLG20D-P2L-30B-162	237	200	160	20	2.0	10	Direct mounting of pads
VLG30D-P2L-30B-162	337	300	240	30	2.6	14	
VLG40D-P2L-30B-162	437	400	360	20	3.4	20	
VLG50D-P2L-30B-164	542	500	440	30	4.3	24	
VLG60D-P2L-30B-164	642	600	560	20	5.0	30	
VLG20D-P2L-30B-ECV-162	237	200	160	20	2.2	10	Fall prevention valve
VLG30D-P2L-30B-ECV-162	337	300	240	30	2.8	14	
VLG40D-P2L-30B-ECV-162	437	400	360	20	3.6	20	
VLG50D-P2L-30B-ECV-164	542	500	440	30	4.7	24	
VLG60D-P2L-30B-ECV-164	642	600	560	20	5.4	30	

*Select a pad material code from the list below and fill out the blank ☐ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 30 mm)

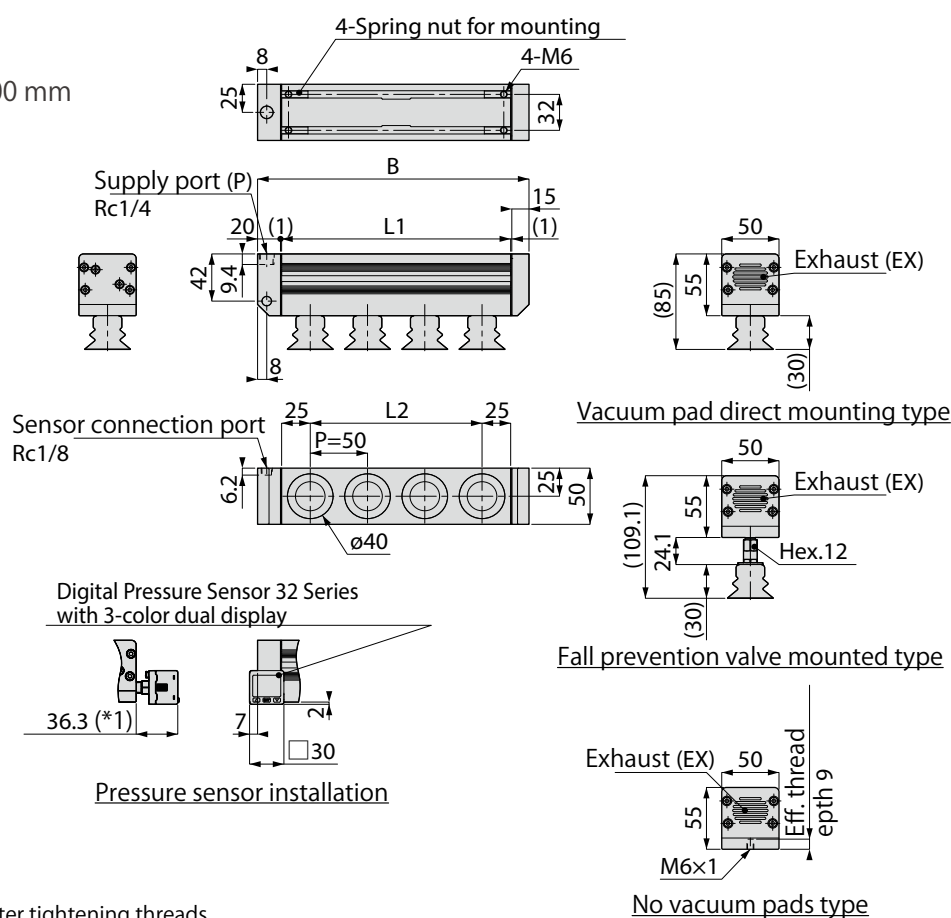
Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	17.7	35.4	53.1	70.9	147.6	106.3	124.0	141.7
	200 mm	FoS 1/8 (Vertical lifting)	8.9	17.7	26.6	59.1	35.4	53.1	62.0	70.9
	Length	FoS 1/4 (Horizontal lifting)	24.8	49.6	74.4	187.0	99.2	148.8	173.6	198.4
	300 mm	FoS 1/8 (Vertical lifting)	12.4	24.8	37.2	93.5	49.6	74.4	86.8	99.2
	Length	FoS 1/4 (Horizontal lifting)	35.4	70.9	106.3	246.0	141.7	212.6	248.0	283.4
	400 mm	FoS 1/8 (Vertical lifting)	17.7	35.4	53.1	123.0	70.9	106.3	124.0	141.7
	Length	FoS 1/4 (Horizontal lifting)	42.5	85.0	127.6	170.1	212.6	255.1	297.6	340.1
	500 mm	FoS 1/8 (Vertical lifting)	21.3	42.5	63.8	85.0	106.3	127.6	148.8	170.1
	Length	FoS 1/4 (Horizontal lifting)	53.1	106.3	159.4	212.6	265.7	318.9	372.0	425.2
	600 mm	FoS 1/8 (Vertical lifting)	26.5	53.1	79.7	106.3	132.9	159.4	186.0	212.6

Outline drawings of General-purpose bar type (VLG) Aligned vacuum pads

Single type

Pad size: $\varnothing 40$ mm

Length: 200 mm to 400 mm

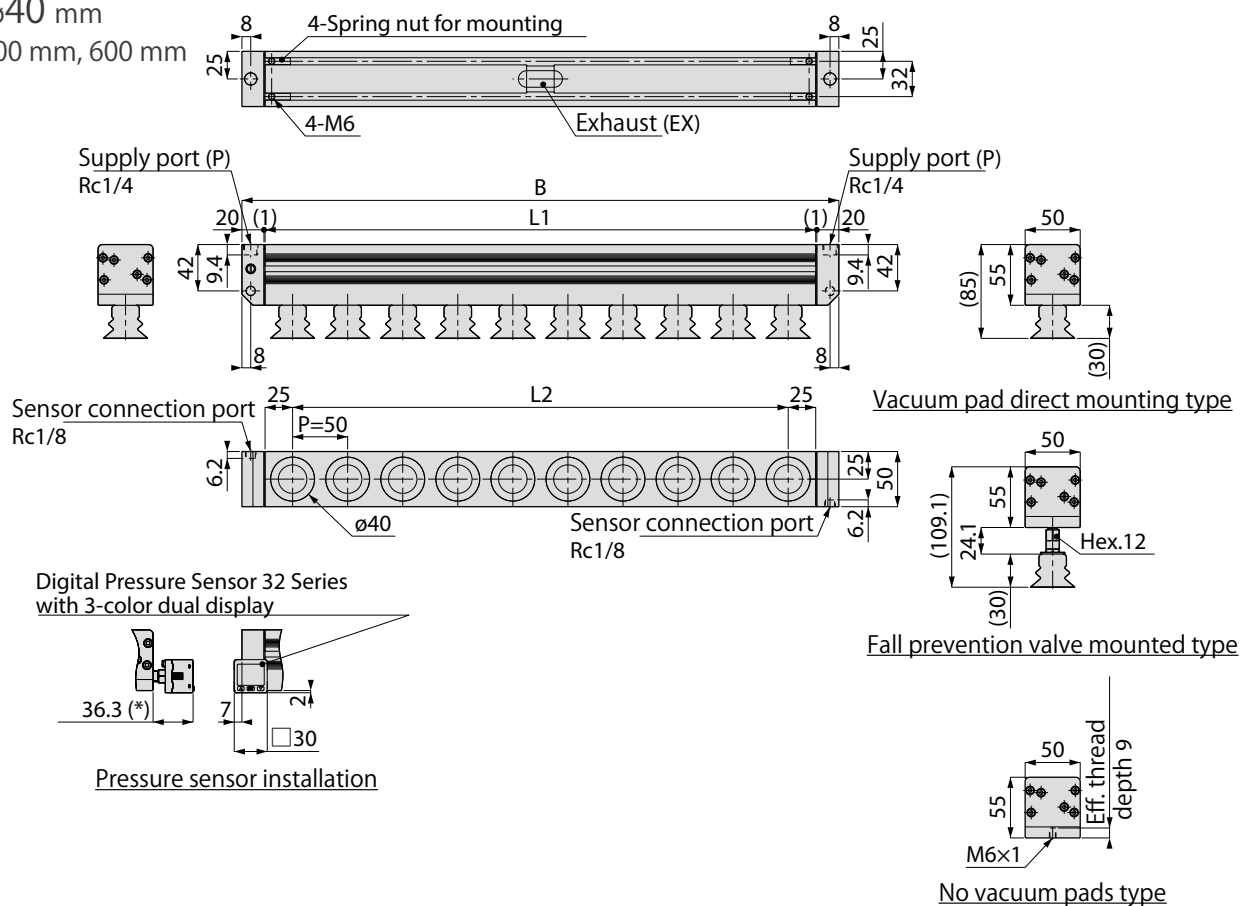


*1. Reference dimension after tightening threads.

*2. See page 68 for the outline drawings of robot flange mounting plate.

Pad size: $\varnothing 40$ mm

Length: 500 mm, 600 mm



*Reference dimension after tightening threads.

Please refer to our official website for the details of pressuresensor.

						Unit: mm
Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20S-P1L-40-161 ⁷	237	200	150	1.0	4	No pads
VLG30S-P1L-40-161 ⁷	337	300	250	1.3	6	
VLG40S-P1L-40-161 ⁷	437	400	350	1.6	8	
VLG50S-P1L-40-162 ⁷	542	500	450	2.0	10	
VLG60S-P1L-40-162 ⁷	642	600	550	2.4	12	
VLG20S-P1L-40B□-161 ⁷	237	200	150	1.0	4	Direct mounting of pads
VLG30S-P1L-40B□-161 ⁷	337	300	250	1.3	6	
VLG40S-P1L-40B□-161 ⁷	437	400	350	1.7	8	
VLG50S-P1L-40B□-162 ⁷	542	500	450	2.1	10	
VLG60S-P1L-40B□-162 ⁷	642	600	550	2.5	12	
VLG20S-P1L-40B□-ECV-161 ⁷	237	200	150	1.1	4	Fall prevention valve
VLG30S-P1L-40B□-ECV-161 ⁷	337	300	250	1.4	6	
VLG40S-P1L-40B□-ECV-161 ⁷	437	400	350	1.8	8	
VLG50S-P1L-40B□-ECV-162 ⁷	542	500	450	2.3	10	
VLG60S-P1L-40B□-ECV-162 ⁷	642	600	550	2.7	12	

*Select a pad material code from the list below and fill out the blank □ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 40 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
	200 mm	FoS 1/8 (Vertical lifting)	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4
	Length	FoS 1/4 (Horizontal lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2
	300 mm	FoS 1/8 (Vertical lifting)	9.5	18.9	28.3	37.8	47.2	56.7	66.1	75.6
	Length	FoS 1/4 (Horizontal lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
	400 mm	FoS 1/8 (Vertical lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
	Length	FoS 1/4 (Horizontal lifting)	31.5	63.0	94.5	126.0	157.5	189.0	220.5	252.0
	500 mm	FoS 1/8 (Vertical lifting)	15.8	31.5	47.2	63.0	78.7	94.5	110.2	126.0
	Length	FoS 1/4 (Horizontal lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3
	600 mm	FoS 1/8 (Vertical lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2

Rectangular ring type/VRG

Whole surface sponge

General-purpose type/VMG

Aligned vacuum pads

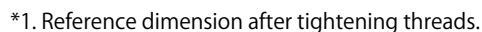
Whole surface sponge

General-purpose bar type/VLG

Aligned vacuum pads

- Dual type

Length: 200 mm to 400 mm



*2. See page 68 for the outline drawings of robot flange mounting plate.

Length: 500 mm, 600 mm



*Reference dimension after tightening threads.

						Unit: mm
Model code	B	L1	L2	Weight (kg)	No. of pads (No. of mount. threads)	Spec.
VLG20D-P2L-40-162	237	200	150	2.0	8	No pads
VLG30D-P2L-40-162	337	300	250	2.5	12	
VLG40D-P2L-40-162	437	400	350	3.2	16	
VLG50D-P2L-40-164	542	500	450	4.2	20	
VLG60D-P2L-40-164	642	600	550	4.8	24	
VLG20D-P2L-40B-162	237	200	150	2.0	8	Direct mounting of pads
VLG30D-P2L-40B-162	337	300	250	2.6	12	
VLG40D-P2L-40B-162	437	400	350	3.4	16	
VLG50D-P2L-40B-164	542	500	450	4.3	20	
VLG60D-P2L-40B-164	642	600	550	5.0	24	
VLG20D-P2L-40B-ECV-162	237	200	150	2.1	8	Fall prevention valve
VLG30D-P2L-40B-ECV-162	337	300	250	2.8	12	
VLG40D-P2L-40B-ECV-162	437	400	350	3.6	16	
VLG50D-P2L-40B-ECV-164	542	500	450	4.6	20	
VLG60D-P2L-40B-ECV-164	642	600	550	5.3	24	

*Select a pad material code from the list below and fill out the blank ☐ in the model code.

Code for Nitrile rubber: N, for Silicone rubber: S

■ Theoretical suction force (for Pad dia. 40 mm)

Vacuum level (kPa)			-10	-20	-30	-40	-50	-60	-70	-80
Theoretical suction force (N)	Length	FoS 1/4 (Horizontal lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
	200 mm	FoS 1/8 (Vertical lifting)	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8
	Length	FoS 1/4 (Horizontal lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3
	300 mm	FoS 1/8 (Vertical lifting)	18.9	37.8	56.7	75.6	94.5	113.4	132.3	151.2
	Length	FoS 1/4 (Horizontal lifting)	50.4	100.8	151.2	201.6	252.0	302.3	352.7	403.1
	400 mm	FoS 1/8 (Vertical lifting)	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6
	Length	FoS 1/4 (Horizontal lifting)	63.0	126.0	189.0	252.0	314.9	377.9	440.9	503.9
	500 mm	FoS 1/8 (Vertical lifting)	31.5	63.0	94.5	126.0	157.5	189.0	220.5	252.0
	Length	FoS 1/4 (Horizontal lifting)	75.6	151.2	226.8	302.3	377.9	453.5	529.1	604.7
	600 mm	FoS 1/8 (Vertical lifting)	37.8	75.6	113.4	151.2	189.0	226.8	264.5	302.3

Rectangular ring type/VRG

Whole surface sponge
General-purpose type/VMG

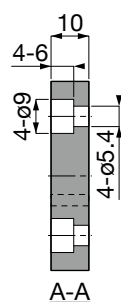
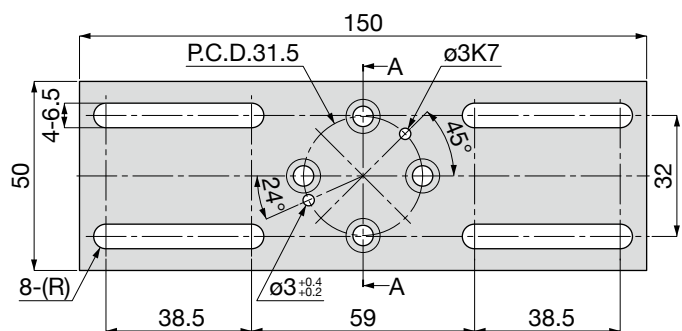
Aligned vacuum pads

Whole surface sponge
General-purpose bar type/VLG

Aligned vacuum pads

Outline drawings of Robot flange mounting plate for General-purpose bar type (VLG)

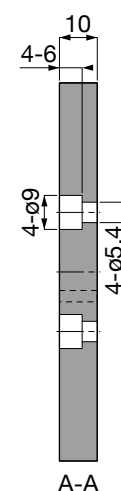
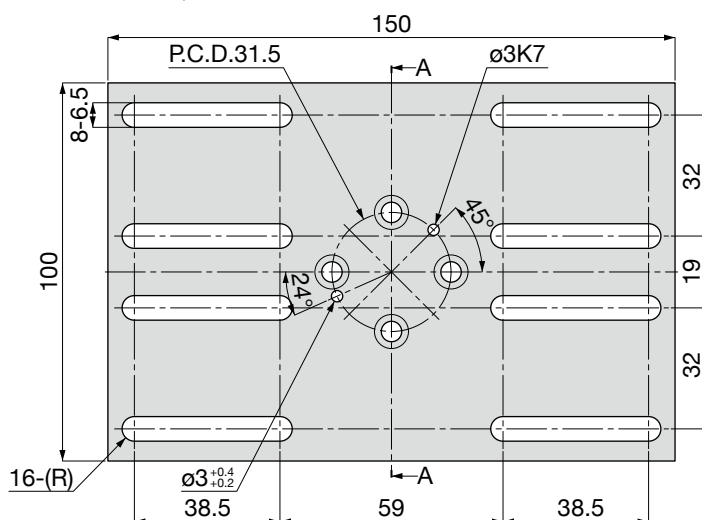
For single type



Unit: mm

Model code	Wt. (g)	Applicable gripper length
VLG-RFP-S	170	200, 300, 400

For dual type



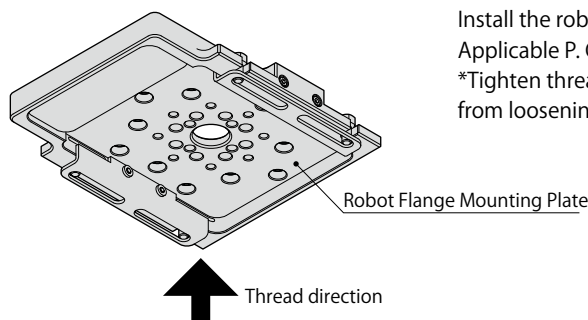
Unit: mm

Model code	Wt. (g)	Applicable gripper length
VLG-RFP-D	340	200, 300, 400

Rectangular ring type/VRG	Whole surface sponge	Aligned vacuum pads
	General-purpose type/VMG	
	Whole surface sponge	Aligned vacuum pads
	General - purpose bar type/VLG	

Installation and maintenance of Vacuum Grippers VRG/VMG

How to install the Robot Flange Mounting Plate



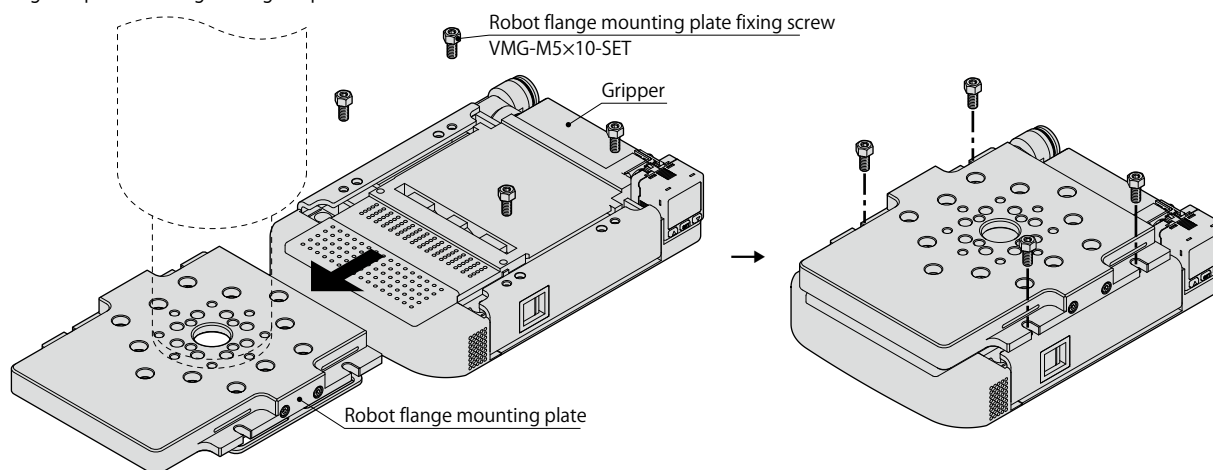
Install the robot flange mounting plate onto a robot as shown in the figure.
Applicable P. C. D.: 31.5, 40, 50, 80, 100

*Tighten threads with proper tightening torque to prevent the fixed part from loosening.

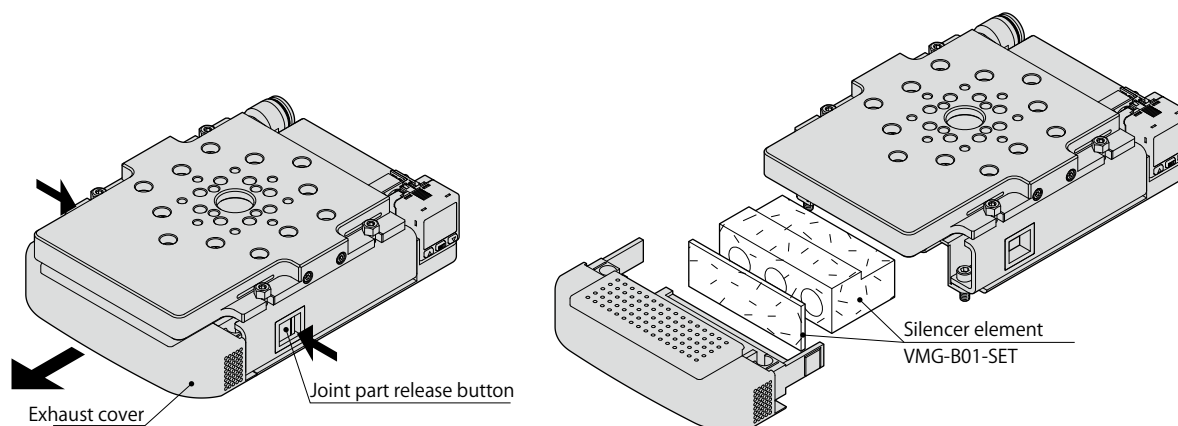
Slide the gripper into the robot flange mounting plate attached to the robot in the direction shown in the figure until it hits the stopper, then fix the gripper with the robot flange mounting plate fixing screws.

*1. If the gripper is installed in the opposite direction, the robot flange mounting plate cannot be fixed.

*2. Be sure to attach the supplied washers to the robot flange mounting plate fixing screws and tighten them using the hexagonal hole or external hexagonal part with a tightening torque of 2.8 to 3.2 Nm.

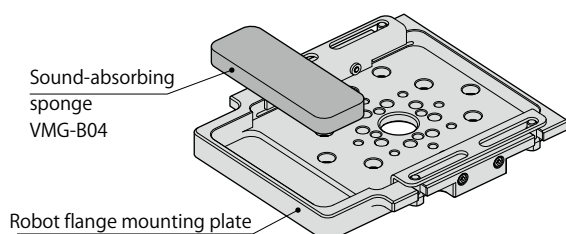


How to replace the silencer element



While pressing the joint part release buttons (both sides), pull the exhaust cover in the direction of the arrow to remove it. After replacing the silencer element, push the exhaust cover all the way until the joint part release buttons (both sides) click into place. (No tools required.)

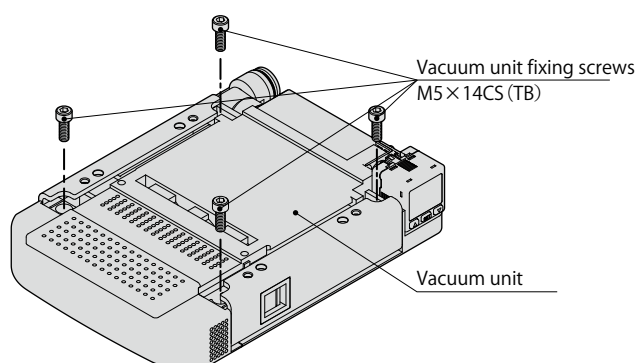
How to replace the sound-absorbing sponge



As the sound-absorbing sponge is fixed with double-sided tape, slowly peel off the double-sided tape in such a way that the tape and the sound-absorbing sponge come off at the same time. If there are any residues of the double-sided tape or dust on the metal surface, remove them cleanly. Remove the liner from the double-sided tape of new sound-absorbing sponge, and affix it in line with the groove.

How to replace the nozzle set

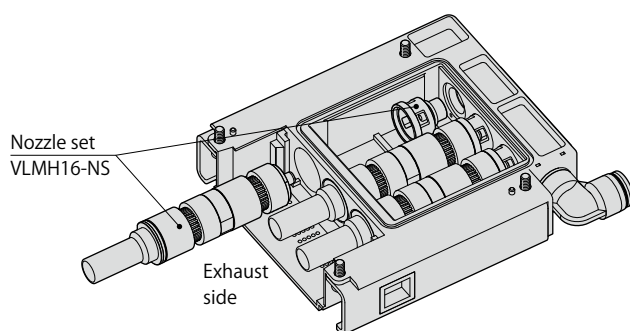
(1) Removing the vacuum unit



Remove the 4 fixing screws [M5 x 14CS (TB)] from the main plate.

*Replace the nozzle set while the vacuum unit is removed from the robot flange mounting plate.

(3) How to remove/install the nozzle set



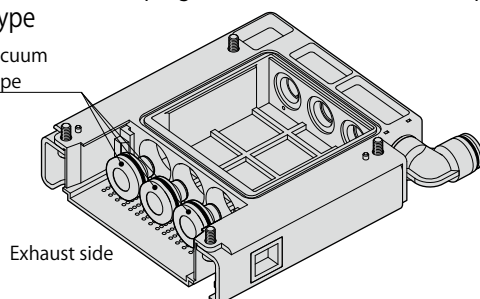
Separate the nozzle set into two parts as shown in the figure and remove them from the exhaust side.

Same for installation, the nozzle set should be inserted from the exhaust side while separated into two parts as shown in the figure.

- *1. While removing the nozzle set, the O-ring may get stuck on the unit side. Be sure to remove the O-ring.
- *2. When installing the nozzle set, be careful not to bite the O-ring.
- *3. Insert the nozzle set into the position where the O-ring becomes invisible, and make sure that the mounting surface does not protrude from the guide groove.

(5) How to remove/install the plugs for External Vacuum Pump compatible type

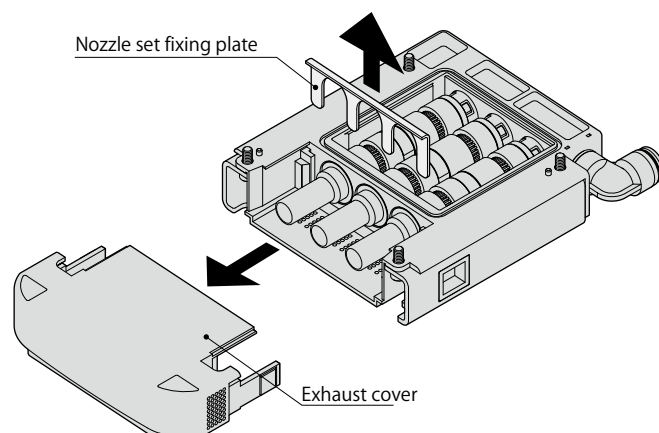
Plugs for External Vacuum Pump compatible type
VMG-D



When installing the plugs for External Vacuum Pump compatible type, insert the plugs from the exhaust side. Also for removal, remove the plugs from the exhaust side.

- *1. When installing, be careful not to bite the O-ring.
- *2. Insert the nozzle set into the position where the O-ring becomes invisible, and make sure that the mounting surface does not protrude from the guide groove.

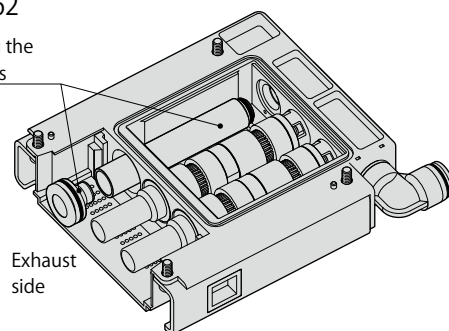
(2) Removing the nozzle set fixing plate



Remove the exhaust cover in the same manner of replacing the silencer element, and remove the nozzle set fixing plate in the direction shown in the figure.

(4) How to remove/install the plugs for Vacuum Generator type 161 & 162

Plug for changing the number of nozzles
VMG-DP
(with O-ring)

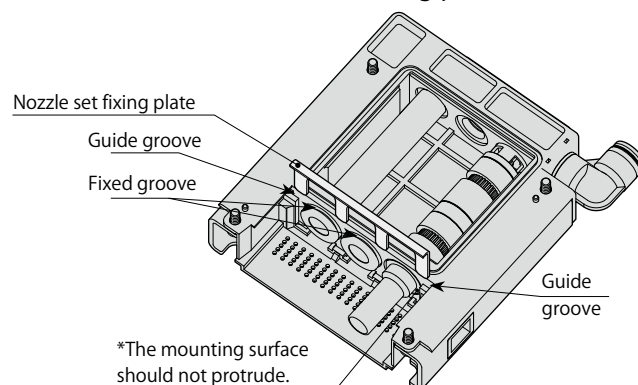


For removal, remove the plug(s) from the exhaust side.

Also for installation, insert the plug(s) from the exhaust side.

- *1. While removing the nozzle set, the O-ring may get stuck on the unit side. Be sure to remove the O-ring.
- *2. When installing the nozzle set, be careful not to bite the O-ring.
- *3. Insert the nozzle set into the position where the O-ring becomes invisible, and make sure that the mounting surface does not protrude from the guide groove.

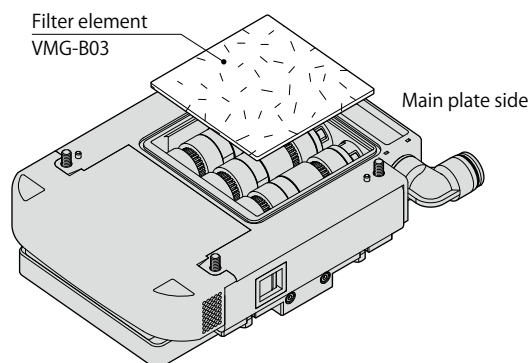
(6) How to install the nozzle set fixing plate



After replacing the ejectors, fix them with the nozzle set fixing plate.

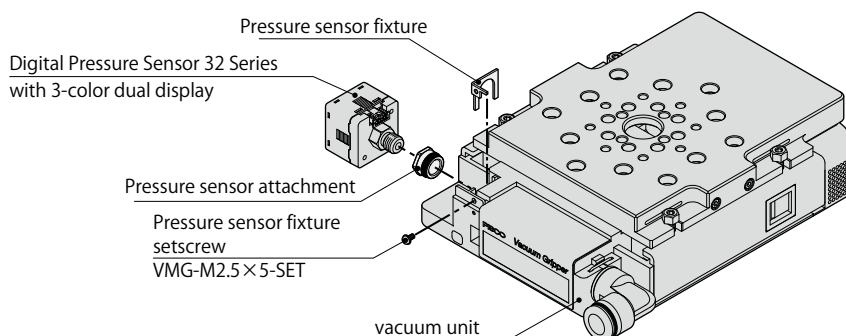
- *1. Install the nozzle set fixing plate along the guide groove on the side.
- *2. The plug for changing the number of nozzles and the plug for External Vacuum Pump compatible type each has a groove where the nozzle set fixing plate can be inserted. Be sure to insert each plug into the right position where the O-ring becomes invisible. Failure to do so may cause a vacuum drop or equipment damage.

How to replace the filter element



Remove the filter element on the main plate side and install a new filter element. (No specified mounting direction)
Insert the filter element all the way to prevent it from falling off.

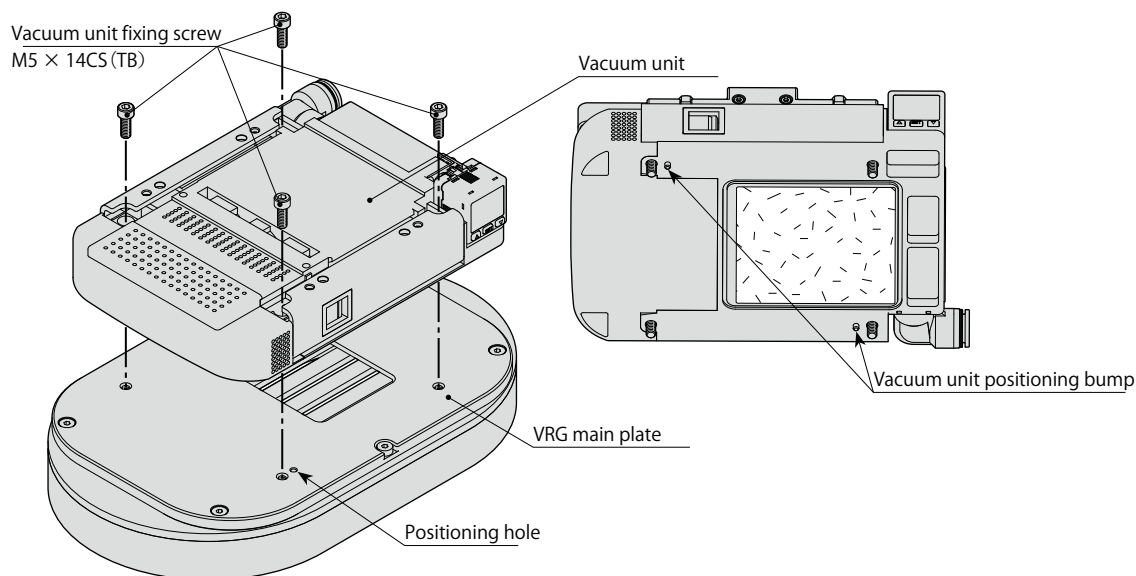
How to replace the Digital Pressure Sensor 32 Series with 3-color dual display



To remove the Digital Pressure Sensor 32 Series with 3-color dual display, first remove the pressure sensor fixture setscrews, and pull out the pressure sensor fixture upward. Next, pull and remove the Digital Pressure Sensor 32 Series with 3-color dual display combined with the pressure sensor attachment. Then, use a wrench to loosen the external hexagonal part of each of pressure sensor and pressure sensor attachment to separate the two. For installation, follow the steps in reverse order of removal.

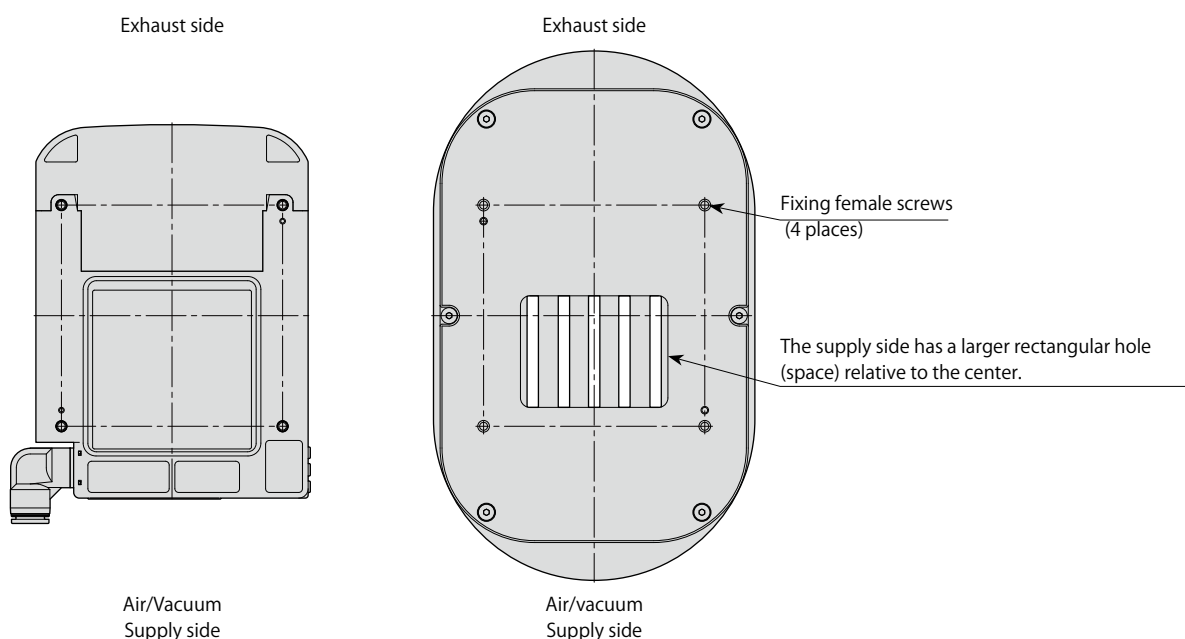
- *1. Be careful not to bite the O-ring.
- *2. Insert the pressure sensor fixture after making sure that the pressure sensor attachment is inserted all the way into the vacuum unit. If it is difficult to install, insert the fixture while pressing the pressure sensor against the resin body of the unit. (Do not press the sensor display area.)
- *3. Be sure to attach the included spring washer to the pressure sensor fixture setscrew, and tighten the setscrew with a tightening torque of 0.33 to 0.39 N·m. If the spring washer is not attached, the setscrew may loosen and the Digital Pressure Sensor 32 Series with 3-color dual display may come off.
- *4. Tighten and secure the pressure sensor attachment to the Digital Pressure Sensor 32 Series with 3-color dual display with a tightening torque of 5.9 to 6.1 N·m before inserting the pressure sensor into the vacuum unit.

How to install the vacuum unit onto the main plate (Eg. Rectangular ring type: VRG)

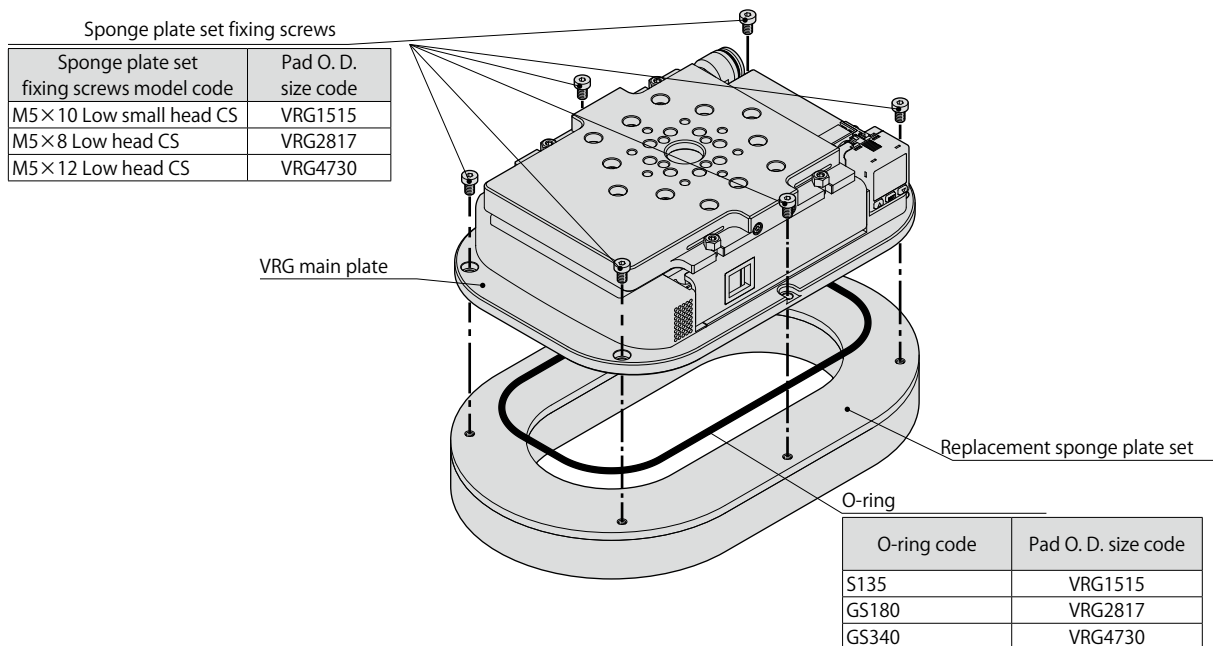


To mount on the main plate, align the positioning bump on the vacuum unit side with the positioning hole on the main plate side. Tighten the vacuum unit fixing screws (4 places) securely with a tightening torque of 4.0 to 4.2 N·m.

- *1. If the vacuum unit is removed from the main plate, make sure that the O-ring is not dislodged from the groove before reinstalling. The dislodged O-ring may cause a vacuum drop.
- *2. The vacuum unit fixing screws [M5 x 14CS (TB)] are coated with an anti-loosening agent. Use new screws for reassembling.
- *3. As the vacuum unit fixing screws are coated with an anti-loosening agent, debris from the anti-loosening agent may remain on the main plate. Blow air into the screw holes before reinstalling.
- *4. The vacuum unit has a designated mounting direction. Refer to the figures below to check the mounting position before installation. (Common to VMG and VRG.)



How to replace the sponge plate set of Rectangular ring type (VRG)



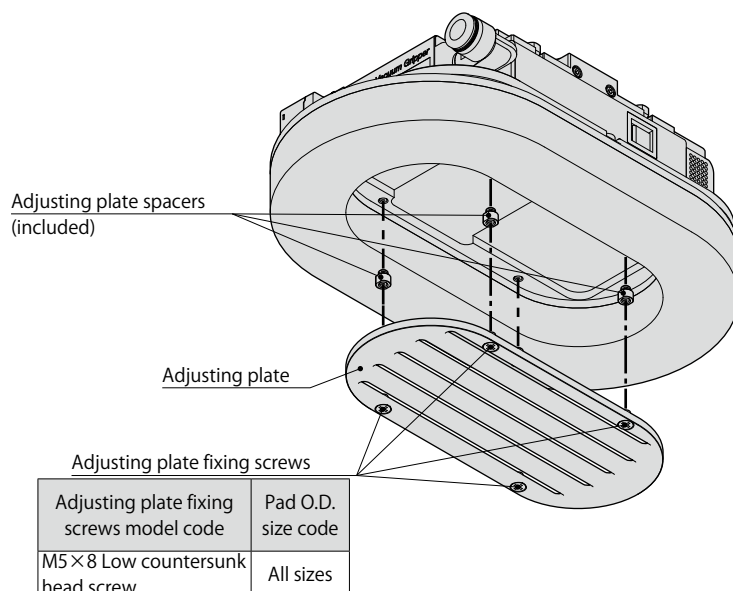
Unscrew the sponge plate set fixing screws and remove the sponge plate set. Then secure the replacement sponge plate set by tightening the sponge plate set fixing screws (6 places) with a tightening torque of 2.8 to 3.2 N·m.

*1. Be sure to install the O-ring. Otherwise, a vacuum drop may occur.

*2. If the O-ring is dislodged, a gap will form between the VRG main plate and the replacement sponge plate set that may cause leakage and prevent the vacuum level from increasing. Make sure that the O-ring is placed in the seal groove before installing.

*3. The direction of the screws for VRG1515 is reversed. (Refer to the outline drawings of VRG1515.)

How to change the height of adjusting plate for Rectangular ring type (VRG)



(1) Remove the adjusting plate fixing screws. (M5 x 8 Low countersunk head screws)

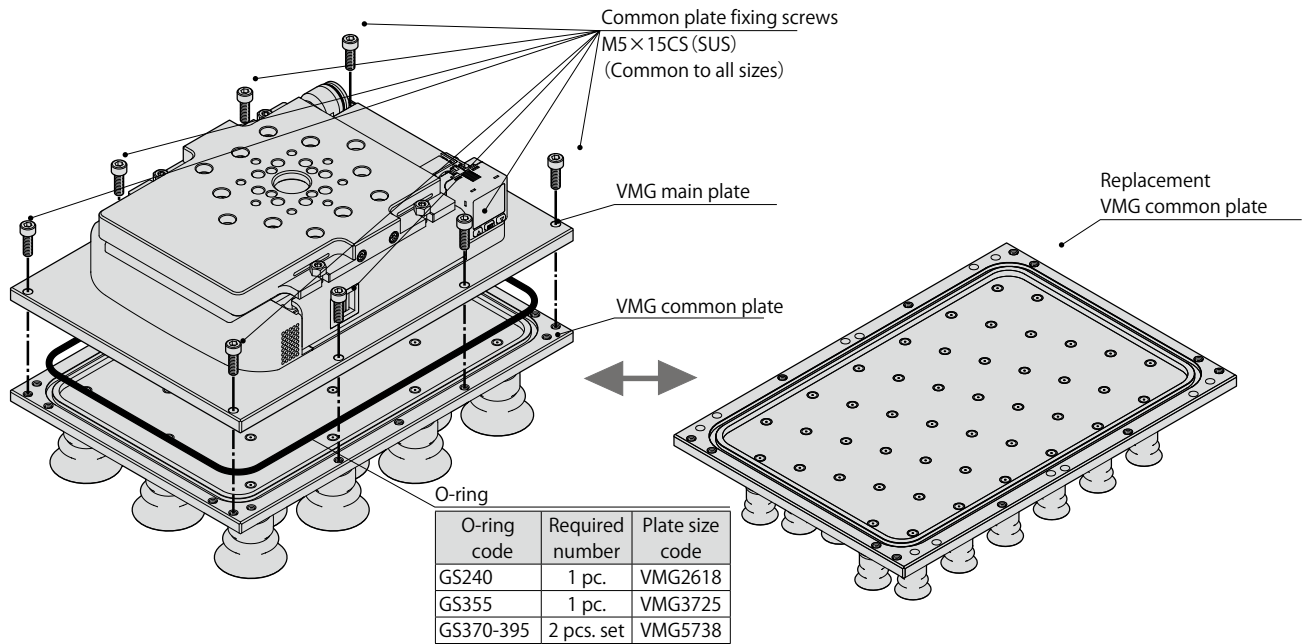
(2) Install the supplied adjusting plate spacer on the VRG main plate. [For installation, use a hexagonal hole or an external H cut (width: 7 mm) and tighten the spacers with a tightening torque of 2.8 to 3.2 N·m.]

(3) After installing the adjusting plate spacers, secure the adjusting plate by tightening the adjusting plate fixing screws with a tightening torque of 2.8 to 3.2 N·m.

(4) Follow the same steps for removal.

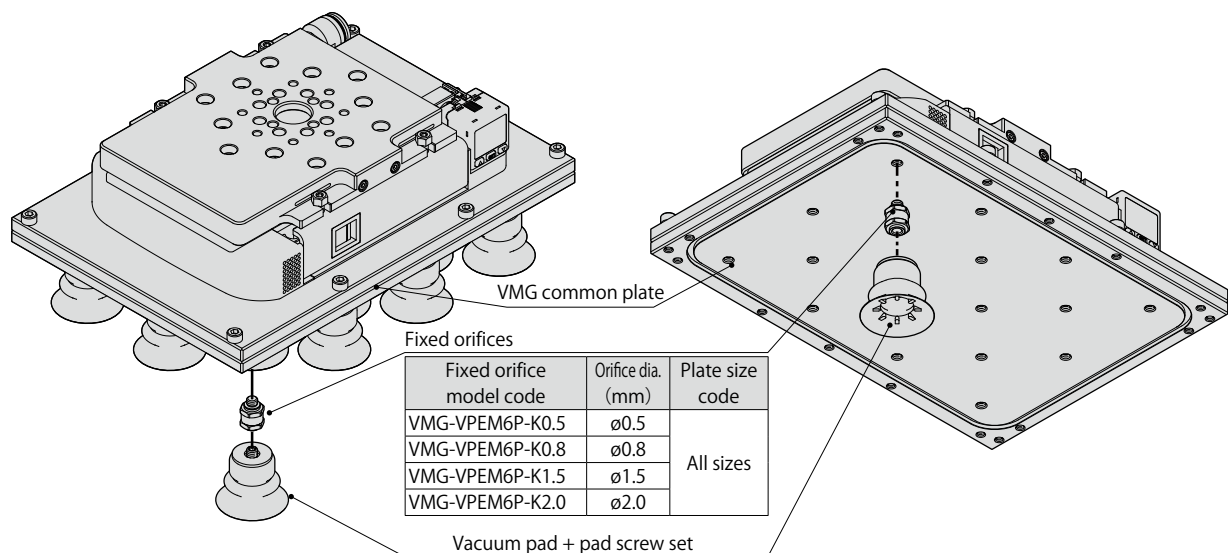
*Install the same number of adjusting plate spacers for each location so that the adjusting plate is level. (A maximum of 3 spacers can be mounted per screw hole.)

How to replace the VMG type common plate (common to Aligned vacuum pads and Whole surface sponge types)



- (1) Unscrew the common plate fixing screws and remove the VMG common plate.
 - (2) Remove the O-ring and install the O-ring in the groove of the replacement common plate.
 - (3) Attach the VMG main plate to the replacement common plate by tightening the common plate fixing screws with a tightening torque of 2.8 to 3.2 N·m.
- *1. Be careful when mounting the common plate of VMG5738 size since it has a designated mounting direction.
- *2. Be sure to install the O-ring. Otherwise, a vacuum drop may occur.
- *3. If the O-ring is dislodged, a gap will form between the VMG main plate and the replacement sponge plate set that may cause leakage and prevent the vacuum level from increasing. Make sure that the O-ring is placed in the seal groove before installing.

How to install/remove the fixed orifices of General-purpose (VMG) Aligned vacuum pads type



- Removing: (1) Loosen and remove the vacuum pads with a hex wrench using the hexagonal hole of the pad screws.
- (2) Loosen and remove the fixed orifices from the common plate with a box wrench or similar tool using the outer hexagonal part of the screws.
- Installing: (1) Tighten and install the fixed orifices to the common plate with a box wrench or similar tool using the external hexagonal part and with a tightening torque of 1.9 to 2.3 N·m.
- (2) Tighten and install the vacuum pads with a hex wrench using the hexagonal hole of the pad screws with reference to the tightening torque table below.

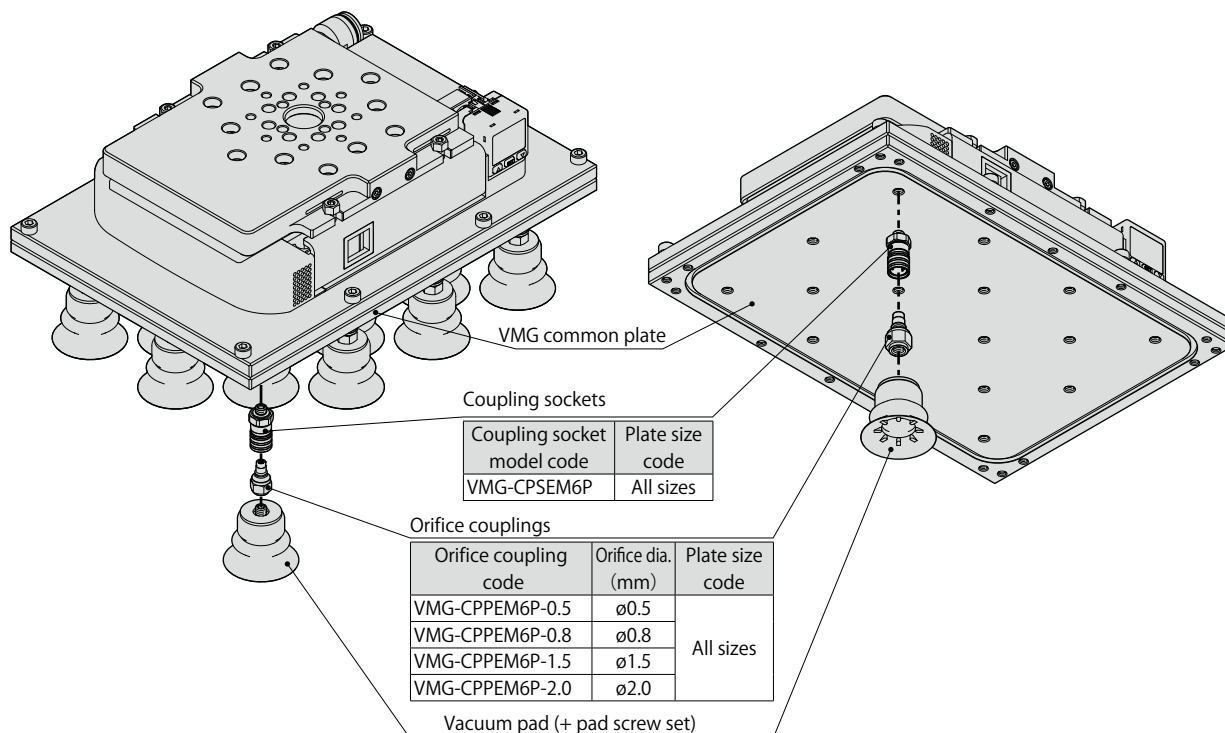
●Tightening torque table

Tightening torque (N·m)	Vacuum pad types
2 to 2.7	Vacuum pads except Soft, Soft bellows, Flat (Large suction flow) types
1.5 to 2.0	Soft, Soft bellows, Flat (Large suction flow) types

*Be careful not to insert the tool too far when using the hexagonal part of the pad screw.

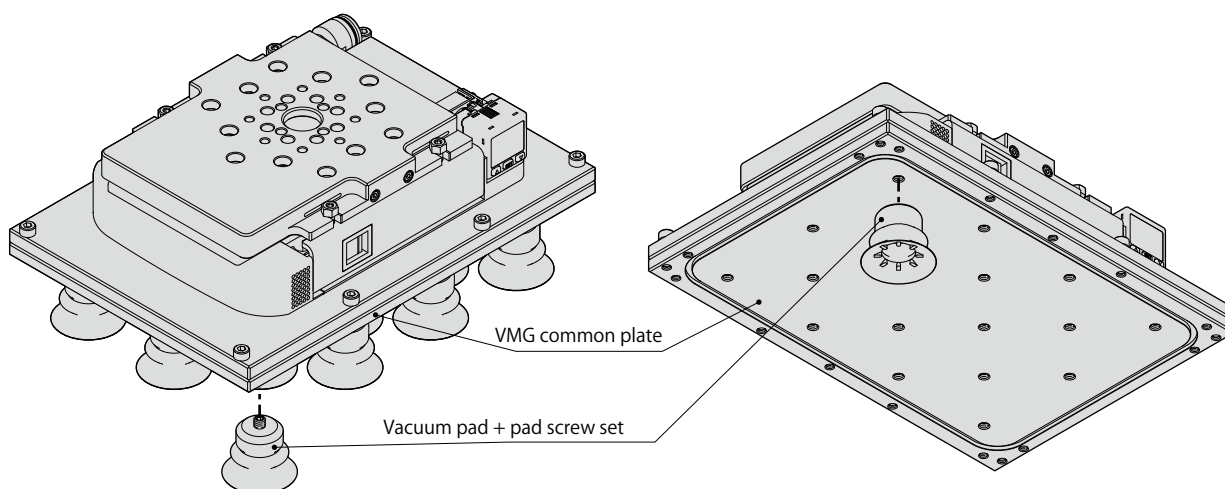
(When the tool is inserted approx. 9 mm or more, its tip will reach the filter element and may cause damage to the filter element.)

How to install/remove the orifice couplings of General-purpose (VMG) Aligned vacuum pads type



- Removing:**
- (1) Remove the orifice coupling and vacuum pad + pad screw set while pressing down on the sleeve of the coupling socket.
 - (2) Loosen and remove the coupling sockets from the common plate with a proper tool using the external hexagonal part of the sockets.
 - (3) Remove the vacuum pads using the hexagonal hole of the pad screws and external hexagonal part of the orifice coupling.
- Installing:**
- (1) Tighten and secure the vacuum pads using the hexagonal hole of the pad screws and the external hexagonal part of the orifice coupling with a tightening torque of 2.4 to 2.8 N·m.
 - (2) Tighten and secure the coupling sockets with a proper tool using the external hexagonal part and with a tightening torque of 2.4 to 2.8 N·m.
 - (3) Insert the orifice coupling and vacuum pad + pad screw set into the coupling socket.

How to install/remove the vacuum pad + pad screw set of General-purpose (VMG) Aligned vacuum pads type



- Removing:** Loosen and remove the vacuum pads with a hex wrench using the hexagonal hole of the pad screws.
- Installing:** Tighten and install the vacuum pads with a hex wrench using the hexagonal hole of the pad screws with reference to the tightening torque table below.

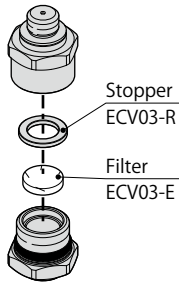
● Tightening torque table

Tightening torque (N·m)	Vacuum pad types
2 to 2.7	Vacuum pads except Soft, Soft bellows, Flat (Large suction flow) types
1.5 to 2.0	Soft, Soft bellows, Flat (Large suction flow) types

How to maintain the fixed orifices of General-purpose (VMG) Aligned vacuum pad type

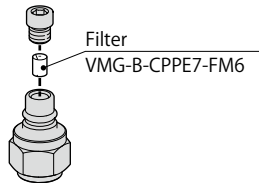
■ For fixed orifices

- (1) Use appropriate tools for installing and removing.
- (2) Tighten the orifices with a tightening torque of 2.8 to 3.2 N·m to install.

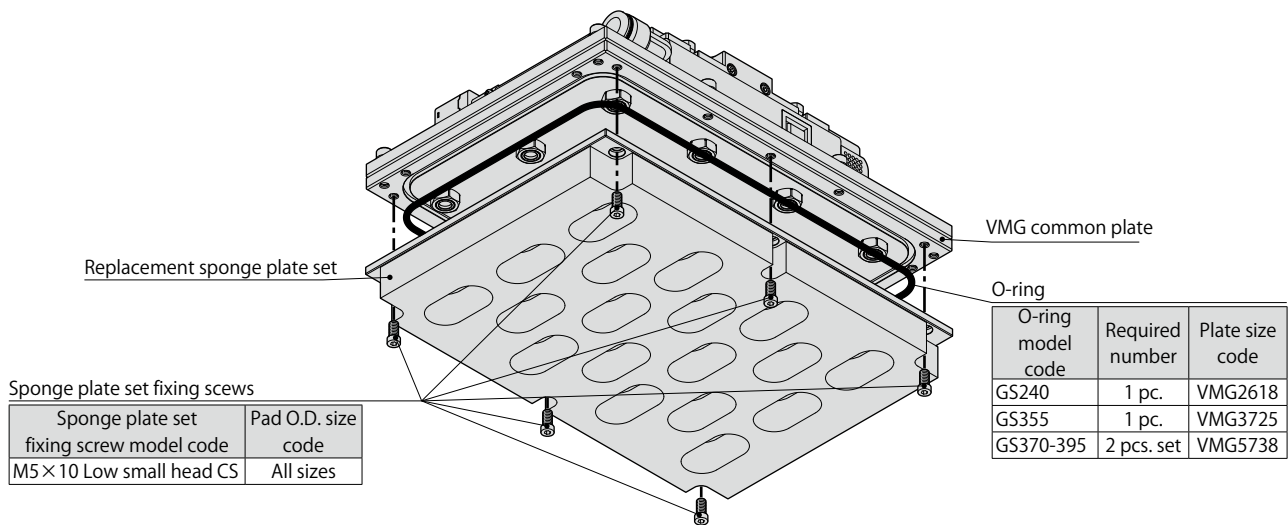


■ For orifice couplings

- (1) Use appropriate tools for installing and removing.
- (2) Tighten the orifices with a tightening torque of 0.72 to 0.78 N·m to install.



How to replace the sponge plate set of General-purpose (VMG) Whole surface sponge type



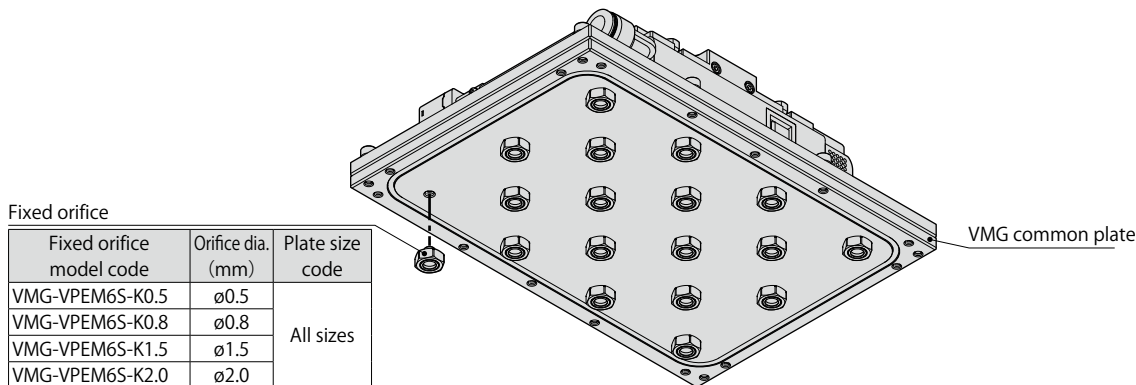
Unscrew the sponge plate set fixing screws and remove the sponge plate set. Then tighten the sponge plate set fixing screws using the hexagonal hole with a tightening torque of 2.9 to 3.1 N·m to secure the replacement sponge plate set.

*1. Be sure to install the O-ring. Otherwise, a vacuum drop may occur.

*2. If the O-ring is dislodged, a gap will form between the common plate and the replacement sponge plate set that may cause leakage and prevent the vacuum level from increasing. Make sure that the o-ring is in the seal groove before securing the replacement sponge plate set.

*3. Be careful not to have the tools touch the sponge pad. Otherwise, cracks or chips may occur on the sponge pad.

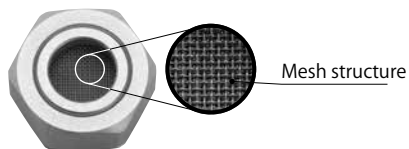
How to replace the fixed orifices of General-purpose (VMG) whole surface sponge type



Tighten and install the fixed orifices to the VMG common plate with a box wrench or similar tool using the external hexagonal part of the orifices with a tightening torque of 1.9 to 2.3 N·m. To remove the orifices, follow the steps in reverse order.

*Be sure to replace or remove the fixed orifices while the sponge plate set has been removed.

How to maintain the fixed orifices of General-purpose (VMG) Whole surface sponge type



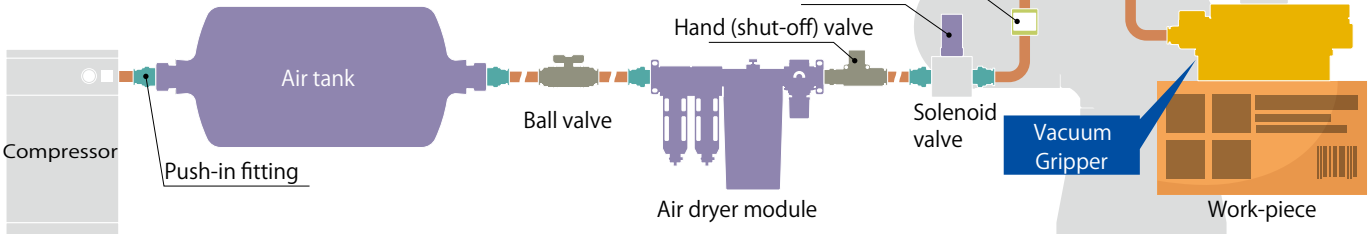
The fixed orifice for the whole surface sponge type has a mesh structure.

When dust adheres to the mesh, remove it with air blow.

Info. on vacuum carrier system (example) with Vacuum Generator type

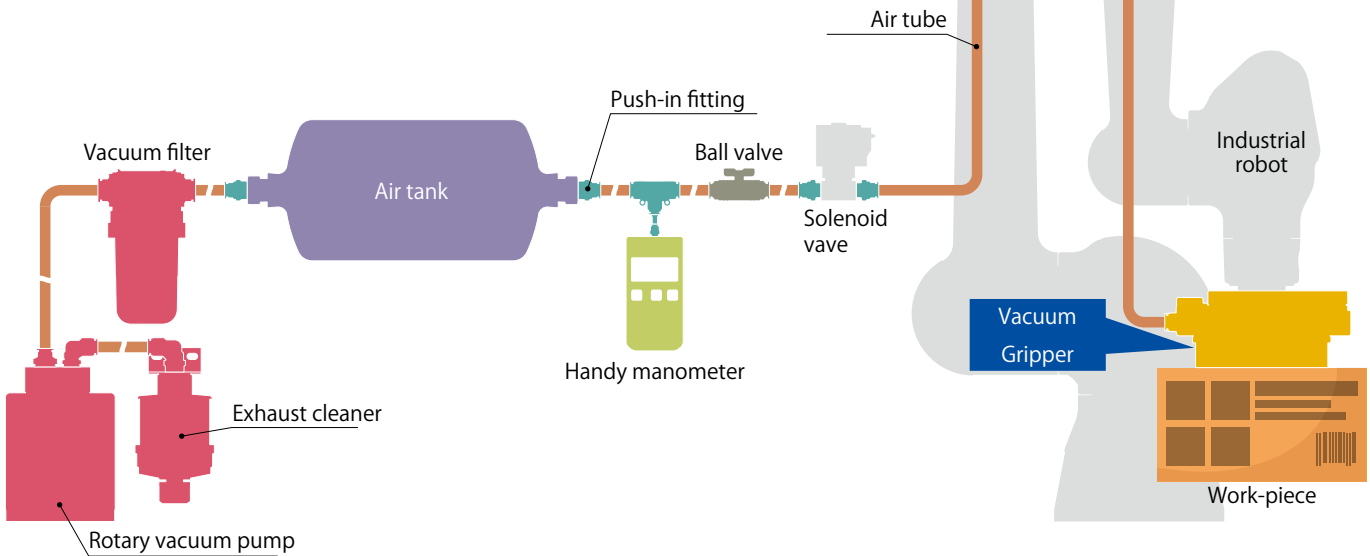
We also offer a wide range of equipment required for suction with Vacuum Gripper Vacuum Generator type [such as Air tanks, Ball valves, Air dryer modules, Hand (shut-off) valves, Silencers, Pressure sensors, Push-in fittings to connect compressed air source to the end device (Vacuum Gripper) and Air tubes].

	Air tank	Ball valve	Air dryer module	Hand valve
				
Model code ▶	ATS-5	BVU60-1212	FMDR301-03-03-AD	HV03-12
	Silencer	Press. sensor	Push-in fitting	Air tube
				
Model code ▶	SR03	SEU-32-NV-01	PC12-03	UB1208



Info. on vacuum carrier system (example) with External Vacuum Pump compatible type

We also offer a wide range of equipment required for suction by Vacuum Gripper External Vacuum Pump compatible type [such as Rotary vacuum pumps, Exhaust cleaners, Vacuum filters, Air tanks, Pressure gauges, Ball valves, Push-in fittings to connect compressed air source to the end device (Vacuum Grippers), and Air tubes].



	Rotary vacuum pump	Exhaust cleaner	Vacuum filter	Air tank	Handy manometer	Ball valve	Push-in fitting	Air tube
								
Model code ▶	RPV064-200V200-12-42	RPVF-04	VFL360-12-5M	ATS-5	GPH-V-6	BVU60-1212	PC12-03	UB1208



When considering the purchase of Vacuum Grippers, please ask us for further info. on these products also.

Information on Robot accessories

Flange type

for mounting one gripper

HSC

Recomm. usage

Pick and place

Packing

Palletizing

Easy mounting of
Pisco's grippers

Mountable grippers

Angular grippers

Closing
gripper

Opening
gripper

Parallel Grippers

Single-acting type

Multi-acting type

With 3-finger

Gripping

Flange type

for mounting one vacuum pad

HSP

Recomm. usage

Pick and place

Packing

Palletizing

Easy mounting of Pisco's

vacuum pads in various shapes

Spring plunger can be mounted to soften the impact of workpiece contact.

Suction

Mountable vacuum pad holders

Pad & screw set

Direct mounting type

Spring plunger

Direct mounting type

Spring plunger

Low dust emission type

Please refer to Pisco's website for mountable vacuum pads.

Aluminum bar type

for mounting 4 to 16 vacuum pads

HML

Recomm. usage

Pick and place

Packing

Palletizing

2 different lengths for both
main bar and pad bar

Bent-shaped, robust bar type is graduated for
easy positioning.

Please refer to Pisco's website for mountable pad holders and
vacuum pads.

Vacuum Pad Trial Kit

for initial suction testing of workpiece
transport to the actual installation on EOAT.

VPGFSKIT

Suction
testing
Done

Installed
on Robot

Recomm. usage

Pick and place

Packing

Palletizing

Five types of component sets required for suction testing (vacuum pads, aluminum frames, vacuum generators, fittings for air piping, etc) are available for different applications.

"Robot flange mounting plate" for connecting the Trial kit to the robot is available for various robot manufacturers' products. (Sold separately)

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