PISCO

VACUUM GENERATOR SERIES

VL series

For more information
Please scan

INDEX

VLS Series

Large-flow Vacuum generator

Achieved miniaturization of products.

Easier maintenance due to simple structure

By replacing nozzle with the same body structure various suction flow is available

Order form (Example)

VLS - 20 - G

- VLS: Vacuum generator VLS Series
- 20: ① Nozzle diameter
- G: ② Pressure gauge

① Nozzle diameter

Symbol	20	25	30
Size	2.0	2.5	3.0
Suction flow rate	100 ℓ /min	150 ℓ /min	200 ℓ /min

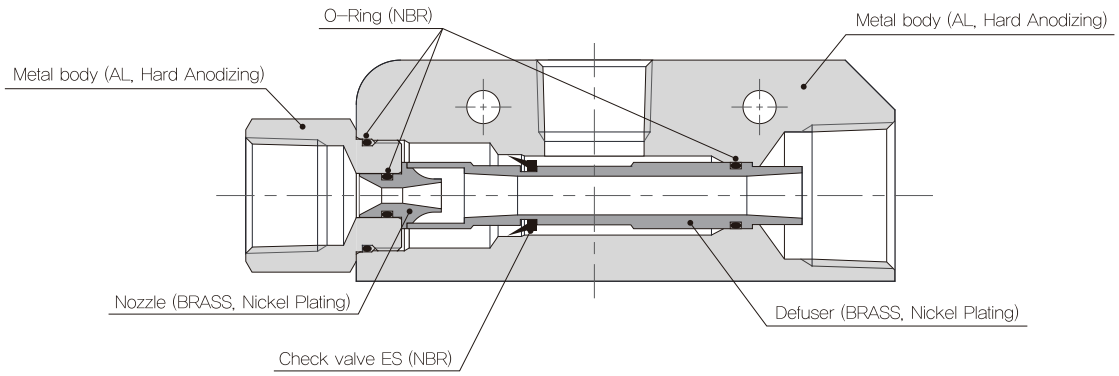
② Pressure gauge

Symbol	No option	A	G
Gauge type	None	Analog Gauge 	Digital Gauge GPD-V-01 
		NV	PV
		Digital Gauge VUS-32R (NPN) (SW2 + Analog) 	Digital Gauge VUS-32R (PNP) (SW2 +Analog) 

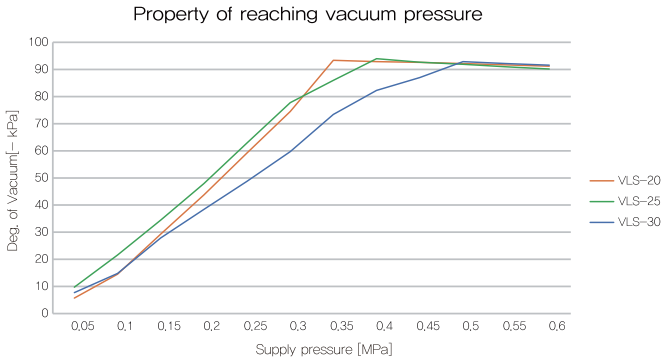
Specification

Type		VLS-20	VLS-25	VLS-30
Max Suction flow	L/min ANR	100	150	200
Consumption flow	L/min ANR	230	345	410
Max deg. Vacuum	-kPa (-mmHg)	-91 (-675)		
Fluid used		Compressed air		
Operating pressure range	MPa	0.3 ~ 0.6MPa		
Vacuum pressure	MPa	0.5MPa		
Operating temperature range		0 ~ 60℃		

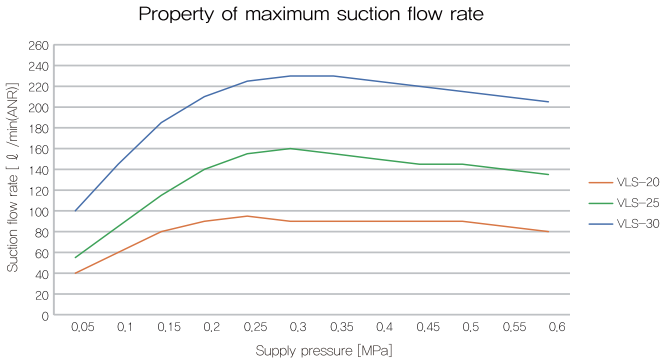
Structure diagram



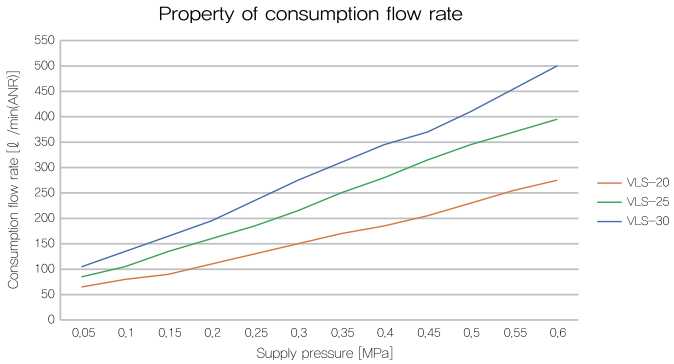
Reaching vacuum pressure



Maximum Suction flow rate



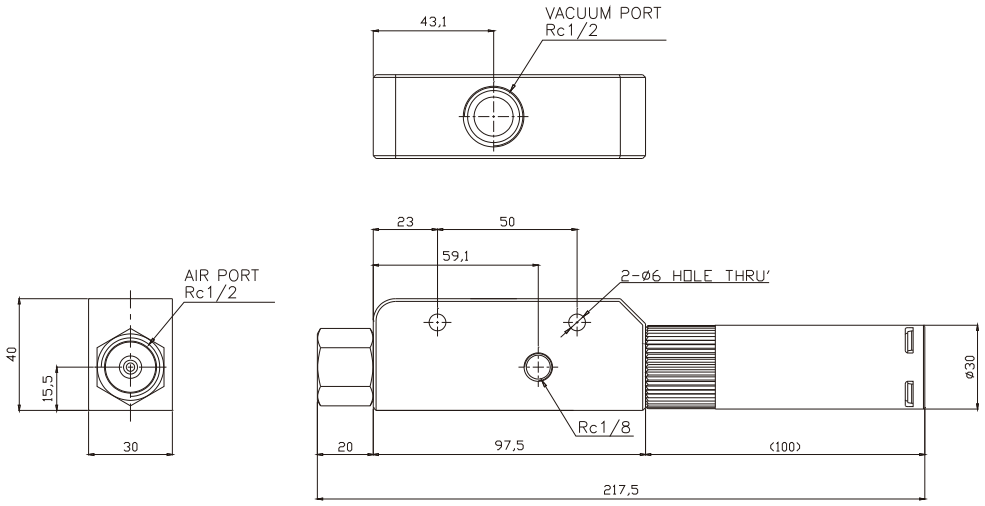
Consumption flow rate



※ The figures in the above graph are reference values. There may be differences depending on your environment.

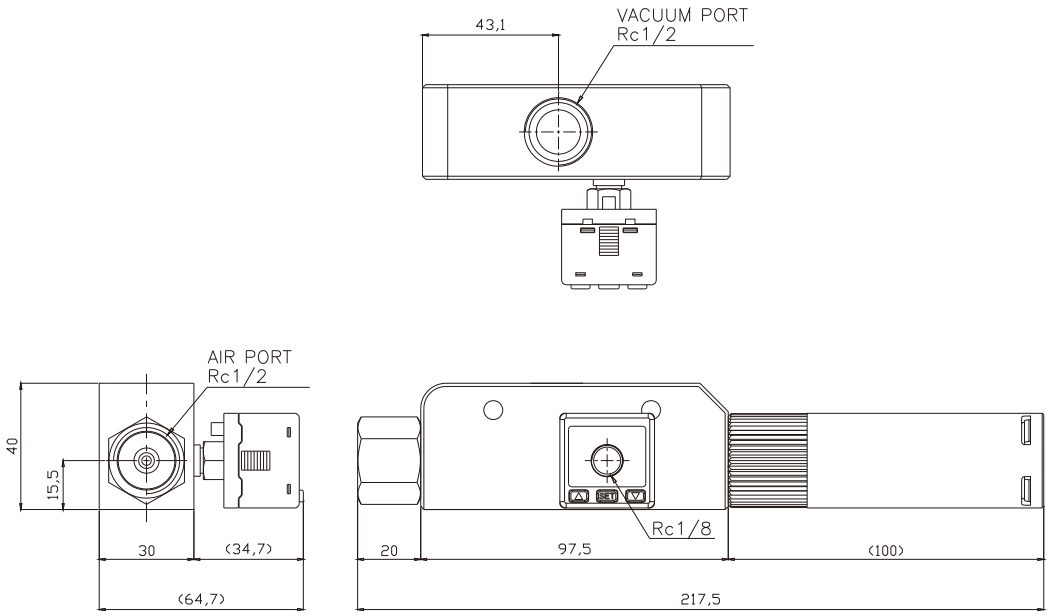
Dimensional drawing(mm)

– VLS–20, VLS–25, VLS–30



Type	VLS–20	VLS–25	VLS–30
Exhaust port thread size	Rc 3/4		

– VLS–20, VLS–25, VLS–30 Option



VLS Silencer / Individual order type

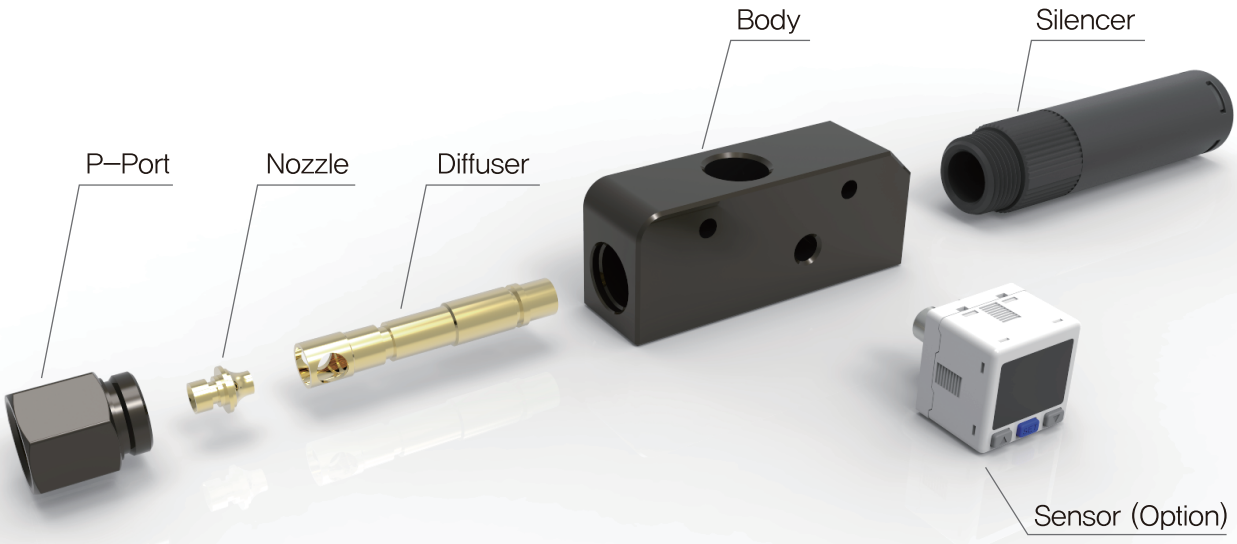
■ Product information

– Outstanding noise reduction
– VLS series standard silencer
– Replacement can be ordered separately
– No exhaust resistance due to through structure

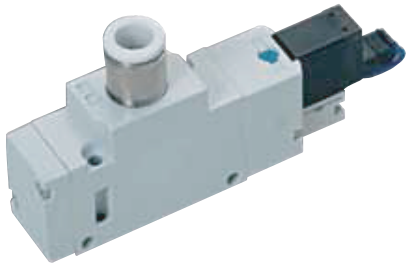
VLSR06

Silencer

Assembly



LCP Series



Flow Control

Control suction flow by control supply air pressure.

Cylindrical Structure

Suitable for transporting materials of
various shapes, films, chips and other particles.

Maintenance

Unnecessary maintenance.

High Efficiency

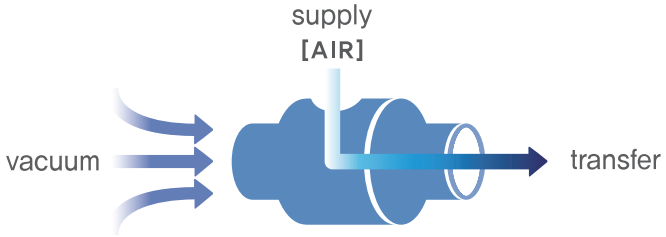
Powerfully increased suction flow rate compared to supply flow rate.

VLCP series
Large Flow Vacuum Generator

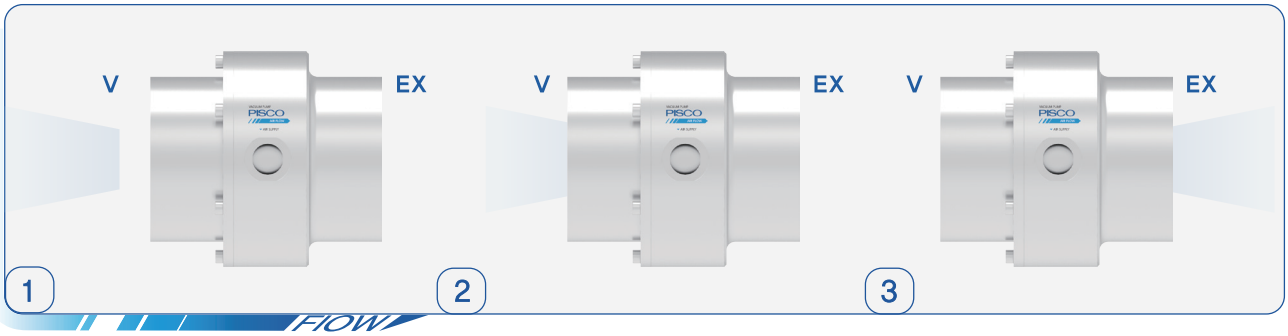
Principle of Operation

Principle of Operation

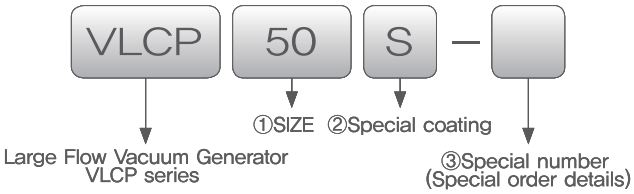
Compressed air is supplied inside the VLCP and discharged through a small hole.
The rapid flow of compressed air through the small hall creates internal and external differential pressure, which results in strong airflow. It can be used in a variety of ways.



Transfer process



Order Information



① SIZE

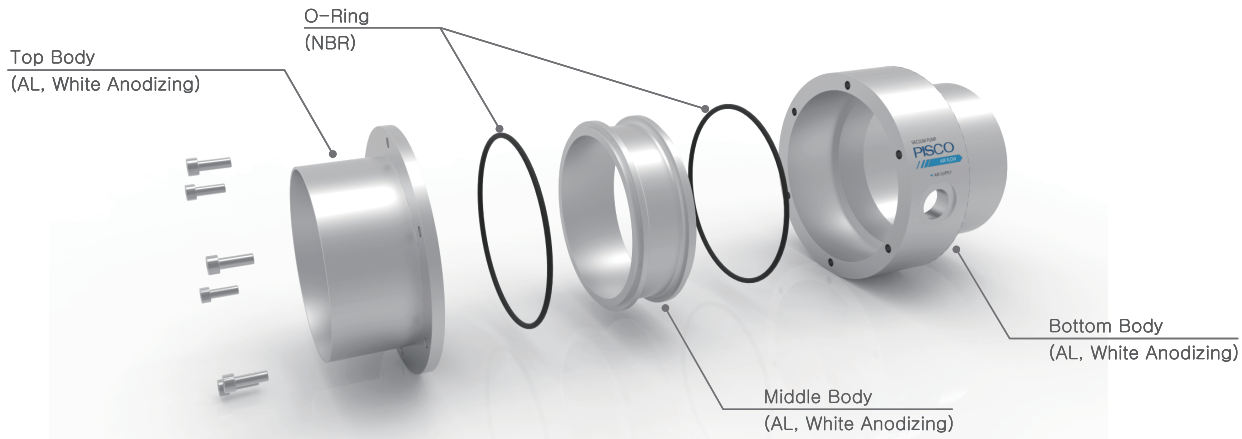
SIZE	50	100	135

② Special coating selection

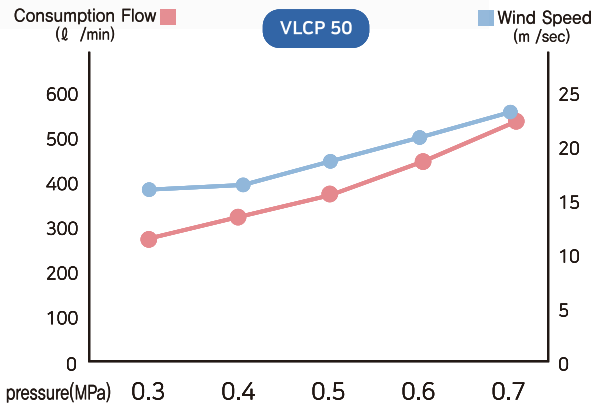
Blank	White Anodizing
S	Special coating (inside and outside)

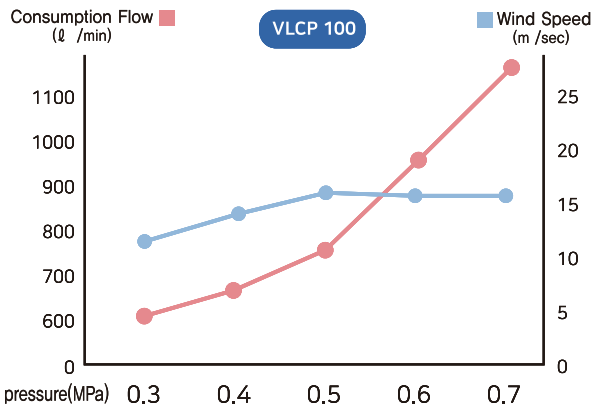
※Special coating is standard specification.

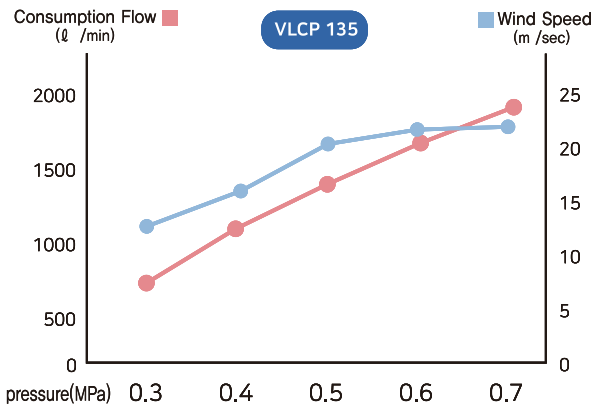
Construction



Consumption Flow / Wind Speed



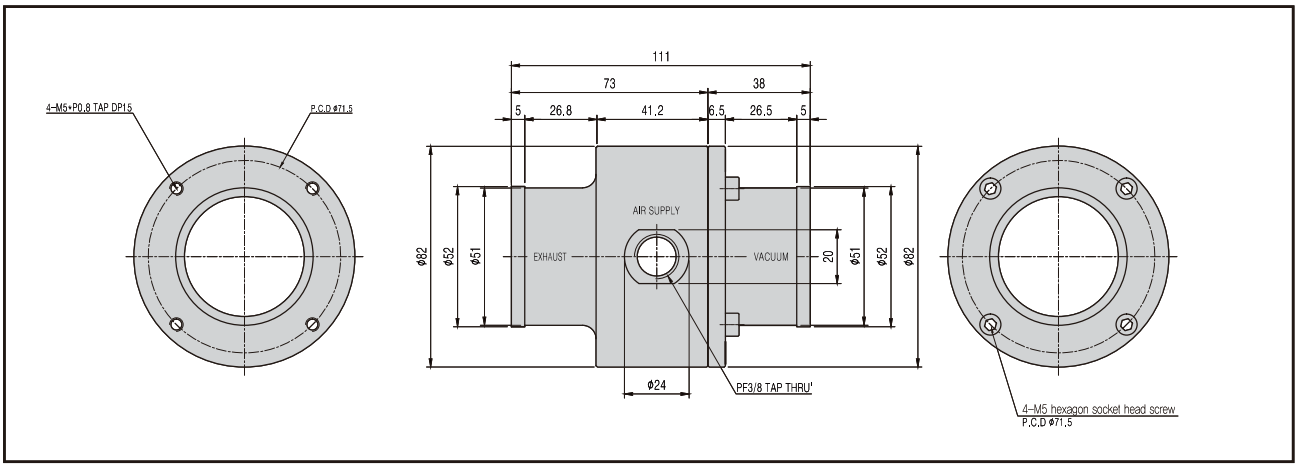




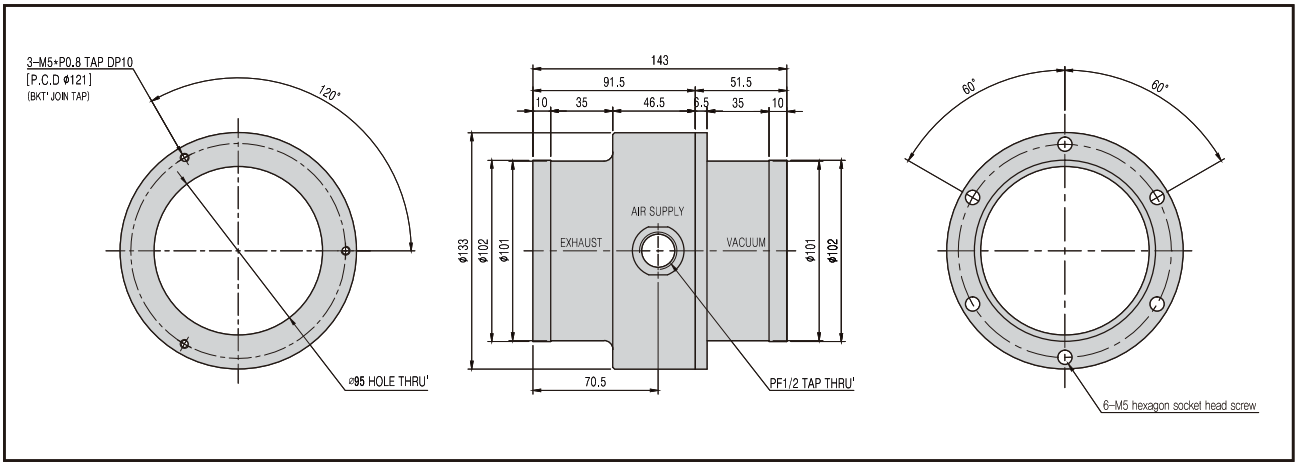
※ The above wind speed and consumption flow data are our measurement values.

Dimension (mm)

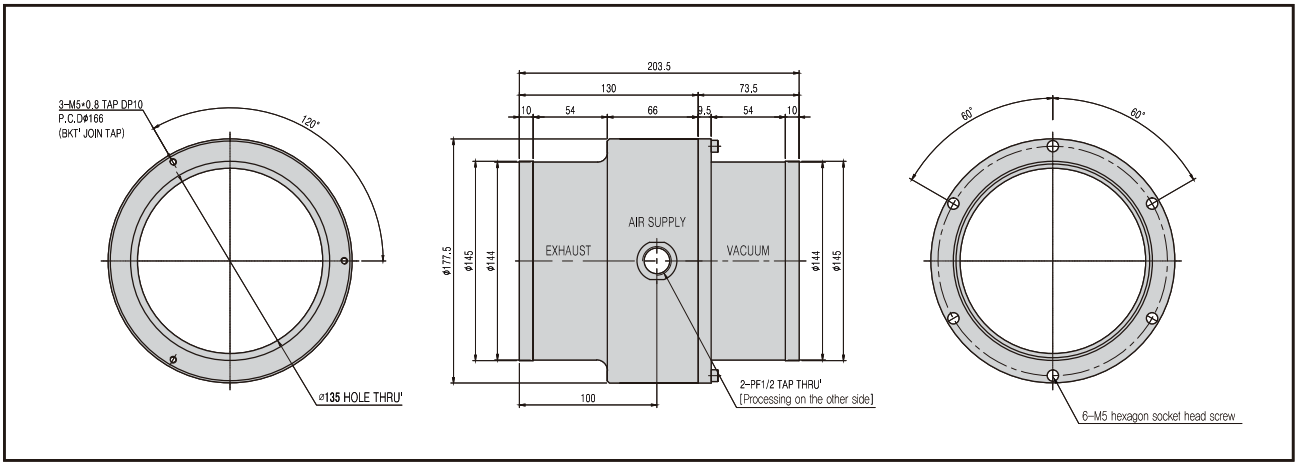
VLCP50



VLCP100



VLCP135

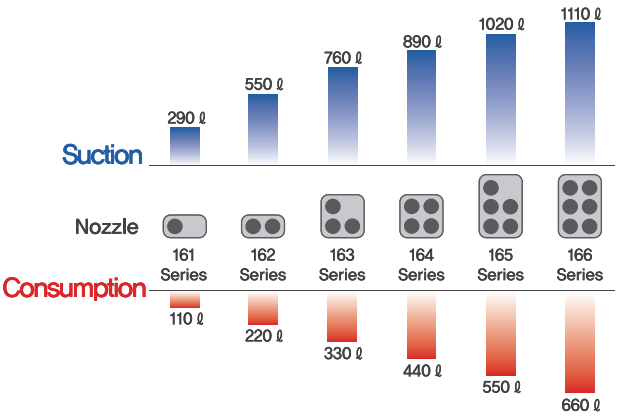


VLM Series

01

Large-flow Multi Nozzle structure

With the multi-stage nozzle structure,
high vacuum and large flow rate are ensured,
achieving suction flow twice as much
as the flow consumption rate.



02

Increase air tightness to minimize leaks

Our proprietary packing design technology made
Minimized leaking.

03

FKM material packing

FKM material packing adopted
for excellent ozone resistance.

04

Various mounting direction for silencer

Front, side and revolving type available for mounting silencer, thus providing space utilization

※ Depending on number of silencer and mounting position, difference in vacuum performance might occur.

Front Mounting

Side Mounting

Rotating exhausting socket mounting

05

Digital pressure gauge for vacuum (optional)

2LCD screen and 3–color display equipped with a digital gauge for vacuum can be used to check the degree of vacuum on a digital screen. Analog gauge and digital gauge GDP also line up.

Analog gauge

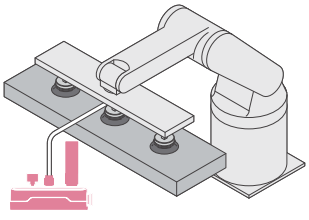
Digital pressure sensor VUS–32 series

Wireless digital gauge GDP series (Battery type)

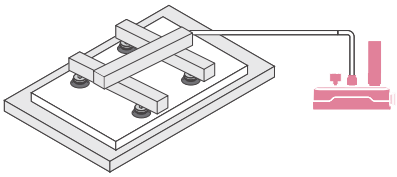
06

Can be used in various industries

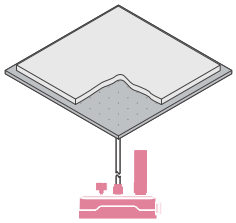
Can be applied to various industrial fields such as automobile, semiconductor, general industry, medical device.



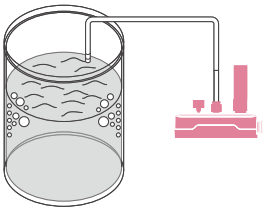
▶ When transporting large–sized workpieces such industry as packaging and automobile industry



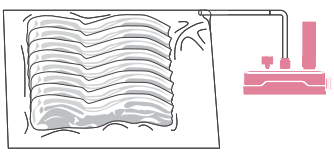
▶ For transporting large glass and workpieces with ventilation property



▶ For fixing processing workpieces.

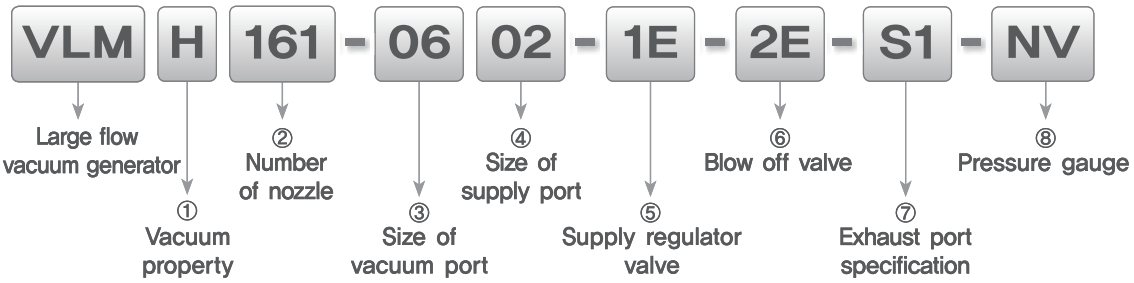


▶ De–foaming / Degassing



▶ Vacuum packaging

Full order format (Example)



①. Vacuum property

H : High vacuum

②. Number of nozzle

Symbol	161	162	163	164	165	166
body	1stage		2stage		3astage	
Nozzle quanity	1EA	2EA	3EA	4EA	5EA	6EA
Suction flow	290	550	760	890	1020	1110

③. Size of vacuum port (V)

Symbol	06	08
Size	Rc3/4	Rc1

④. Size of supply port

Symbol	02
Size	Rc1/4

⑤. Air supply regulator valve

Symbol	No entry			
Transition method	None			
Symbol	1A	1B	1C	1D
Transition method(N.O)	AC110V (N.O)	AC220V (N.O)	DC12V (N.O)	DC24V (N.O)
Symbol	1E	1F	1G	1H
Transition method(N.C)	AC110V (N.C)	AC220V (N.C)	DC12V (N.C)	DC24V (N.C)

⑥. Blow off valve

Symbol	No entry			
Transition method	None			
Symbol	2E	2F	2G	2H
Transition method(N.C)	AC110V (N.C)	AC220V (N.C)	DC12V (N.C)	DC24V (N.C)

⑦. Exhaust port specification (EX)

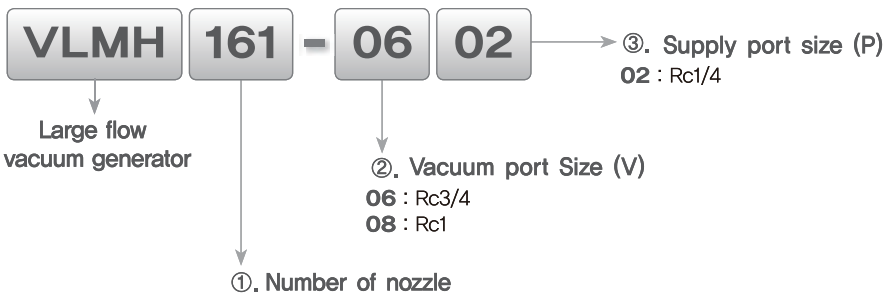
Symbol	161 · 162 (1 stage)	163 · 164 (2 stage)	165 · 166 (3 stage)
No entry	Vacuum generator body (1stage) End cap 1ea incl.	Vacuum generator body (2stage) End cap 1ea incl.	Vacuum generator body (3stage) End cap 1ea incl.
S1	Silencer 1ea End cap 1ea incl.	Silencer 2ea End cap 1ea incl.	Silencer 3ea End cap 1ea incl.
S2	Silencer 1ea Rotating exhaust socket 2ea End cap 2ea incl.	Silencer 2ea Rotating exhaust socket 3ea End cap 3ea incl.	Silencer 3ea Rotating exhaust socket 3ea End cap 4ea incl.

※Mounting bracket for vacuum generator included as standard

⑧. Pressure gauge

Symbol	No entry	A	G	NV	N2
Guage type	None	Analog Gauge	Wireless digital gauge GPD-V-01	Digital guage VUS32R (NPN) (SW2 + Analog)	Digital guage VUS32R (NPN) (SW2+copy function)
				PV	P2
				Digital guage VUS32R (PNP) (SW2 + Analog)	Digital guage VUS32R (PNP) (SW2+copy function)

Individual order format (Example) : VLM product body



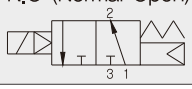
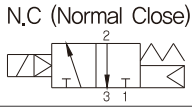
Symbol	161	162	163	164	165	166
Main body	1stage		2stage		3astage	
Number of nozzle	1EA	2EA	3EA	4EA	5EA	6EA

Individual order format (Example)

▪ Supply and blow off valve

PKV3 - 9 0 4 E - C4

① . Transition method

8	N.O (Normal Open) 
9	N.C (Normal Close) 

② . Rated voltage

1 : AC 110V
2 : AC 220V
3 : DC 12V
4 : DV 24V
6 : DC 6V
9 : Special voltage

③ . Connection method

P : P-Type plug connector method (with lead wire 300mm)
E : E-Type plug connector method (with lead wire 300mm)
L : Lead wire method(with lead wire 300mm)
PN : P-Type plug connector method (No connector)
EN : E-Type plug connector method (No connector)
LL : Lead wire method(with lead wire 600mm)

④ . Port size

Sign	Port Size	PKV 190	PKV 290	PKV 390
C4	One-touch fitting for Ø4	○	○	–
C6	One-touch fitting for Ø6	○	○	○
C8	One-touch fitting for Ø8	–	○	○
M5	M5 screw	○	–	–
01	Rc(PT)1/8	–	○	–
02	Rc(PT)1/4	–	–	○

▪ Cable Orde Information

CA2 - V4 - 6

① . Connector Ass'y

② . Rated voltage

V1 : AC 110
V2 : AC 220
V4 : DC Voltage

③ . Lead wire length

– : 300mm
6 : 600mm
10 : 1000mm
15 : 1500mm
20 : 2000mm
25 : 2500mm
30 : 3000mm
50 : 5000mm

▪ Accessories : Revolving exhaust, end cap, bracket, silencer

VLM - R

R : Rotating exhaust socket
E : Rotating exhaust socket
B : Mounting bracket
D : Dummy plug

VVVSR06

Silencer
(For installing revolving exhaust socket)


Rotating exhaust socket


End cap


Mounting bracket


Dummy plug

▪ Pressure gauge

VUS-32R - N V - 01

Digital pressure gauge
Ductile pressure type

③ . Connection type · Size
01 : Outer diameter: Taper thread for pipe

② . Output method
V : SW output 2points + Analog output
2 : SW output 2points + Copy function

① . Output method
N : NPN open collector
P : PNP open collector

Individual order format (Example)

▪ Pressure gauge

GPD - V - 01

- GPD: Wireless Digital pressure gauge
- V: ①. Output specification
  V : Negative Pressure (–100~0kPa)
- 01: ②. Connection type · Size
  01 : Outer diameter : Taper thread for pipe
  Inner diameter : Meter bolt M5X0.8

PG - 40 1

- PG: Analog gauge
- 40: ①. Output specification
  V : Output specification : 0~0.1MPa
- 1: ②. Connection type . Size
  01 : Outer diameter
  : Taper thread for pipe R1/8

▪ Pressure filter

VFL360 - 16 - 10M - S

- VFL360: Large Vacuum Filter
- 16: ①. Connection shape

	One–touch fitting(mm)			Taper thread for pipe			Parallel thread		
Sign	**10**	**12**	**16**	**03**	**04**	**06**	**G3**	**G4**	**G6**
Size	Ø10	Ø12	Ø16	Rc3/8	Rc1/2	Rc3/4	G3/8	G1/2	G3/4

- 10M: ②. Rated voltage

Sign	**1M**	**5M**	**10M**	**200M**
Filtration degree(㎛)	1	5	10	200

- S: ③. Connection method

Sign	**None**	**NB**
With and without bracket	Mounting	None

Large flow Vacuum generator VLM Specification

Nozzle type	1stage		2stage		3astage	
	161	162	163	164	165	166
Suction flow L/min ANR	290	550	760	890	1020	1110
Suction flow L/min ANR	110	220	330	440	550	660
Consumption flow rate	Air					
Fluid used MPa	0.2~0.7					
Rated pressure range MPa	0.5					
Operating temperature range ℃	5~50℃(不凍)					
Nozzle diameter	Ø1.6					
Seal material	FKM					

Supply and blow off valve Specification

Type	PVSP–220–3E1
Port size	Rc1/4
Fluid used	Pressured air
Pressure used MPa	0.2~0.8
Warranty pressure MPa	1
Fluid temperature ℃	–5~+50℃(不凍)
Effective cross–sectional area ㎟	18
Response time ms	≤ 30
Weight g	203
Rated voltage	AC110V, AC220V (50/60)Hz, DC12V, DC24V
Power consumption	AC=5VA, 5.5VA(220V), DC=0.95W
Allowable voltage fluctuation	Rated voltage ±10%

Analog pressure gauge specification

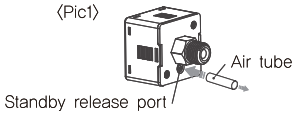
Type	PG-401
Pressure display range	0~0.1MPa
Pressure display accuracy	±3.0% Full Scale

Wireless digital gauge specification

Type	GPD-V-01
Rated pressure range	-101 ~ 0kPa
Pressure display range	-101 ~ 10kPa(※1)
Inner pressure	300kPa
Applicated fluid	Air, noncorrosive / non flammable gas
Battery	CR2032 Litium battery (※2)
Battery life	Approximately 3years (five times a day for display)
Battery lowest detection function	Available
Battery replacement	Possible
Display time	Lasts 60seconds after pressing button
Display count	2Hz (2times/second)
Repeatability	≦±1%F.S. ±1digit
LCD Display	7segments, 3.5digit
Display accuracy	±2%F.S. ±1digit Below (Surrounding temperature : 25 +/-3℃)
Protection structure	IP65(※3)
Temperature range	When operating: 0 ~ 50℃, When preserved: -10 ~ 60℃ (No condensation or icing)
Humidity range	When operating, preserved: 35 ~ 85%RH (No condensation)
Vibration resistance	Double amplitude 1.5mm or 100m/s2, 1min of 10Hz~55Hz~10Hz, X,Y,Z each direction for 2hours
Impact resistance	100m/s² X, Y, Z 3times in each direction
Temperature property	Sensing pressure ±2%F.S.(When 25℃)

※1. 0~10kPa is not within the guaranteed range of display accuracy
※2. Use of batteries other than those specified may cause fire or electric shock.
※3. To maintain IP65, insert the tube into the standby release port(Pic1) and use it

〈Pic1〉



Digital pressure gauge specification

Type		VUS-32R
Rated pressure range		-100.0~100.0kPa
Setting pressure range		-101.0~101.0kPa
Inner pressure		300kPa
Fluid used		Pressured ait, non corrosive / non flammable gas
Pressure display setting	kPa	0.1
	MPa	-
Power supply voltage		DC12~24V±10%, Ripple 10%Below
Current consumption		40mA Below (No load)
Switch Output		NPN open collector (Maximum load current : 125mA, Maximum supply current : DC30V, inner voltage drop : 1.5V below) PNP open collector (Maximum load current : 125mA, Maximum supply current : DC24V, inner voltage drop : 1.5V below)
Repeatability (Switch output)		±0.2% F.S. ±1 digit In between
Output mode	One point setting mode	Adjustable 3colors(Red, green, orange) display (display count : 5times/1sec)
	Hysteresis mode	
	Window comparator mode	
Response time		Below 2.5ms (Chattering prevention function : 25,100,250,500,1000,1500ms optional)
Short circuit protection		Available
7 segment LCD display		Hysteresis value can be adjusted 1~8 digits from one point set mode and comparate mode
Indicator accuracy		±2% F.S. ±1 digit in between (Temperature 25+/-3℃)
Operation confirmation lamp		Orange LED 1 & 2 Indicator
Analog output (Voltage output)		Output voltage : 1~5V +/- 2% F.S below (Within rated pressure range) Linearity : 1% F.S below, output resistance 1kΩ
Resistance environment	Protection structure	IP40
	Operation temperature	When operating : 0~50℃ When preserving : -10~60℃
	Operation humidity	When operating : 35~85%RH No condensation
	Voltage resistance	AC1000V During 1minute (Between lead wire and case)
	Insulation resistance	Over 50MΩ (DC500V) (BetwAeen lead wire and case)
	Vibration resistance	Total amplitude 1.5mm or 100m/s2, 1min of 10~150~10Hz, X,Y,Z each direction for 2hours
	Impact resistance	100m/s X,Y,Z each direction for 3times
Temperature property		+/-2.5% F.S below (Reference temperature : within 25℃ 0~+50℃
Lead wire		Oil resistance cable (0.15mm2)
Weight		Approximately 80g (Including lead wire 2m) Approximately 45g (Including M8, 4pin connector)

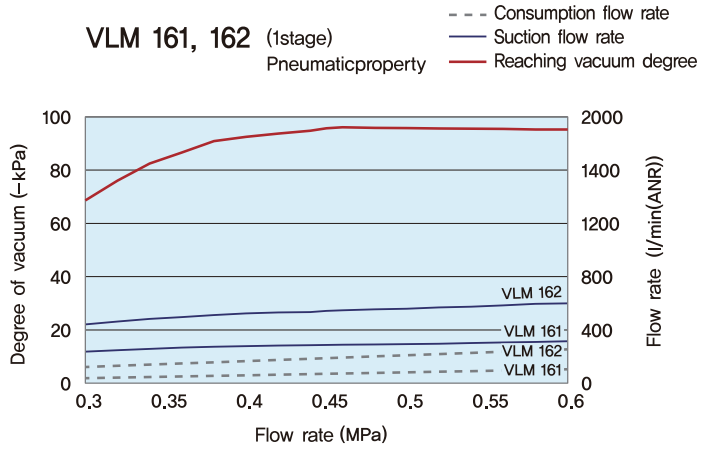
※ For the operation of digital pressure gauge, please refer to our homepage(https://www.pisco.co.kr) and catalog.

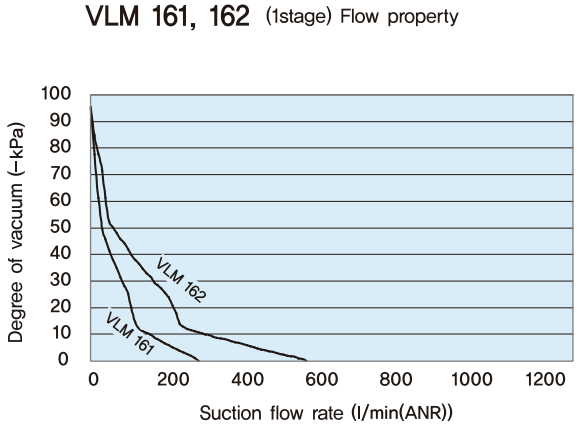
Pneumatic property

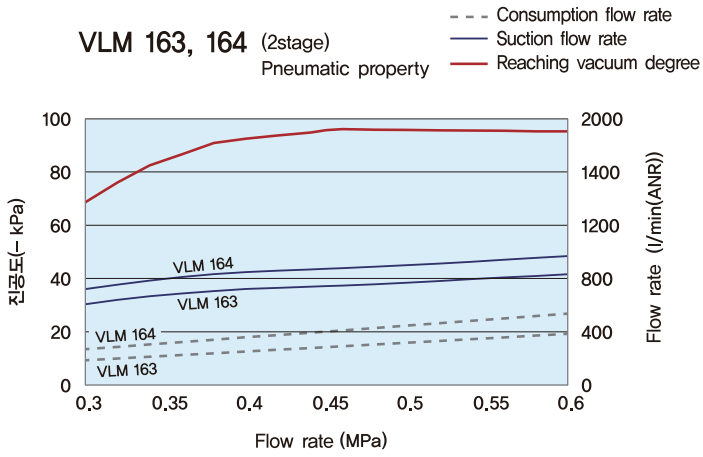
Fluid used	air
Operating pressure range	−101 ~ 0kPa
Filtration degree	1, 5, 10, 200㎛(Collection efficiency : 95%)
Operating temperature range	0~60℃(No freezing)
Filtration area	64.4㎠
Treatment flow rate(※1)	360ℓ /min[ANR]
Bowl storage capacity	90㎤
Vacuum breaking pressure(※2)	0.1MPa below

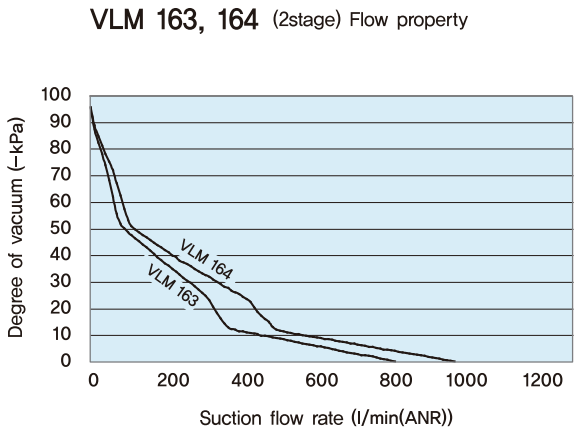
※1 : Representative model Conventional filtration degree: 5㎛ Pressure loss: 3kPa treatment flow rate.
※2 : Permissible value of internal pressure when instantaneous static pressure is applied for vacuum destruction.

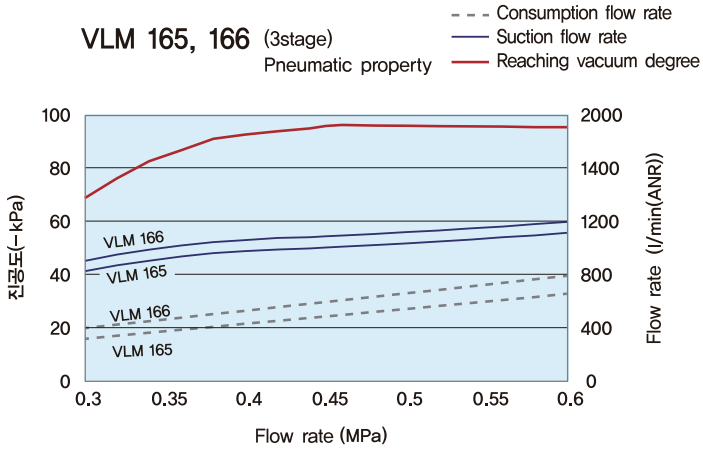
Suction flow and reaching vacuum degree

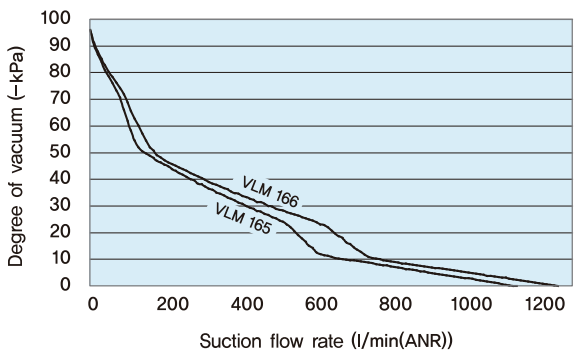




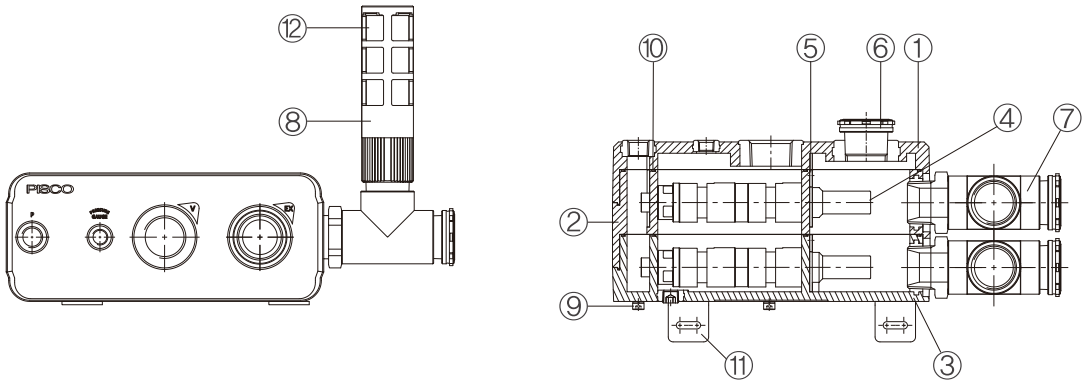








Structural diagram



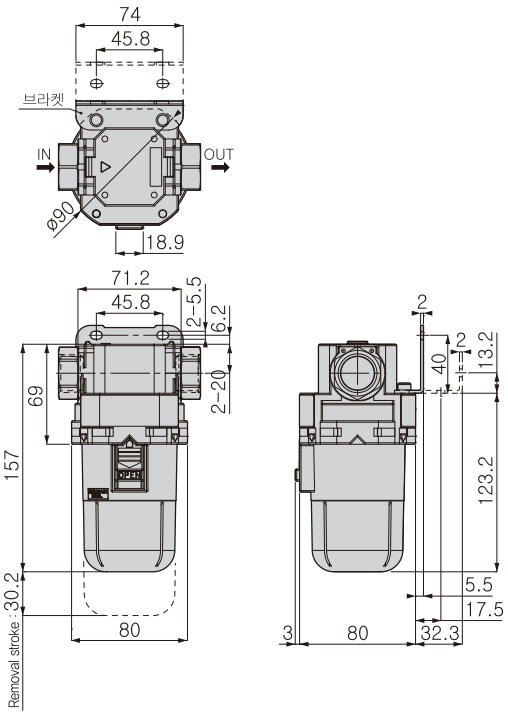
No.	Part name	Color	Material
①	TOP COVER	Black	PA
②	MIDDLE CASE	Gray	PA
③	BOTTOM CASE	Gray	PA
④	NOZZLE	Gray	PA
⑤	NOZZLE CLIP	Metal	SPCC
⑥	END CAP	Green	PBT
⑦	T SOCKET	Gray	PBT
⑧	SILENCER	Black	PBT
⑨	BOLT	Metal	SPCC
⑩	PACKING	Green	FKM
⑪	BRACKET	Metal	SPCC
⑫	ELEMENT	White	PVF

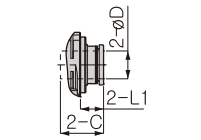
※ The specified Pantone color is a variation of color. It may show slight difference in color and may change

Dimensions of vacuum filter

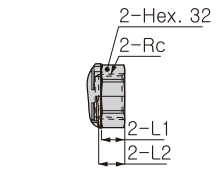
Connection Type: One-touch fitting type

Connection type: Female thread type

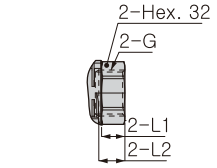




Connection Type: For one-touch fitting type



Connection Type: For tapered female thread type

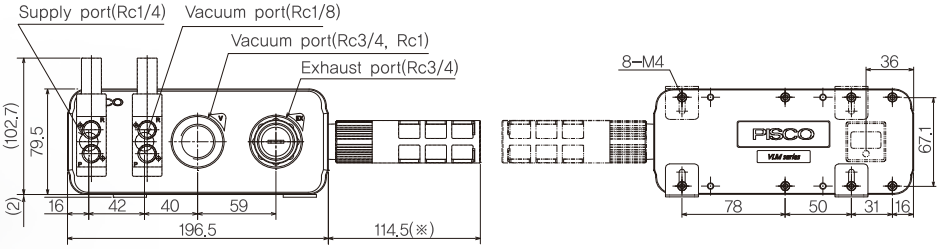


Connection Type: Parallel female thread type

Dimensional drawing

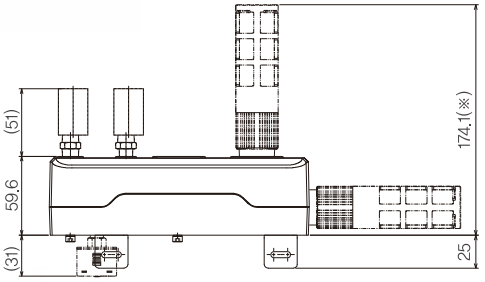
VLM161–162 Type (1 stage nozzle)

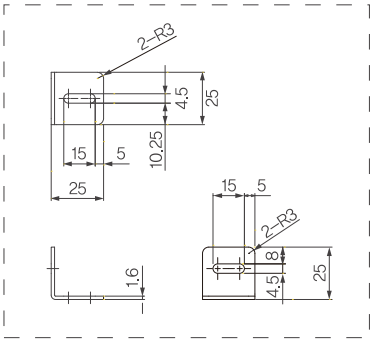
Exhaust port specification : No option



Exhaust port specification : S1

Silencer 1ea
End cap 1ea

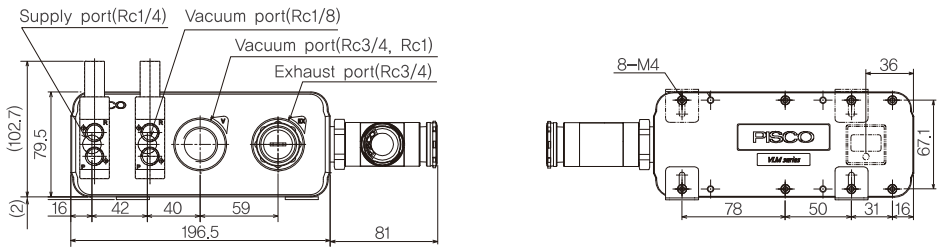


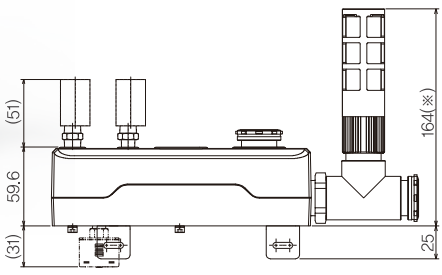


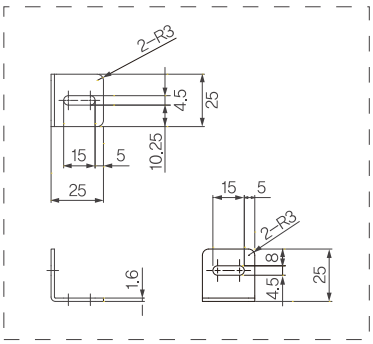
※ Reference dimension for mounting the silencer.

Exhaust port specification : S2

Silencer 1ea
Revolving exhaust socket 1ea
End cap 2ea





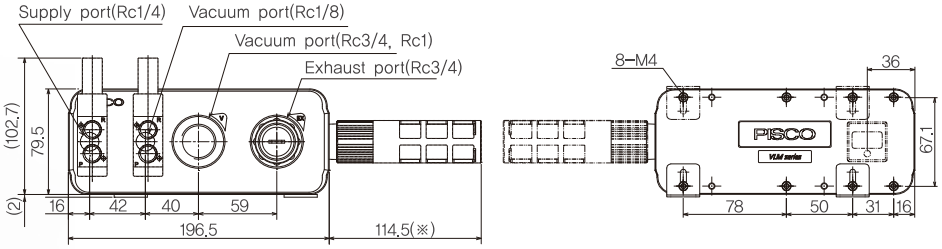


※ Reference dimension for mounting the silencer.

Dimensional drawing

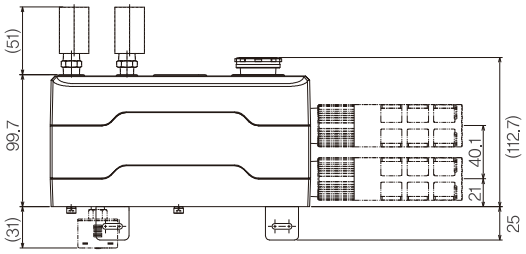
VLM163-164 Type (2 stage nozzle)

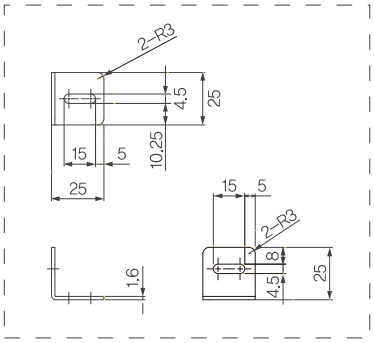
Exhaust port specification : No option



Exhaust port specification : S1

Silencer 2ea
End cap 1ea

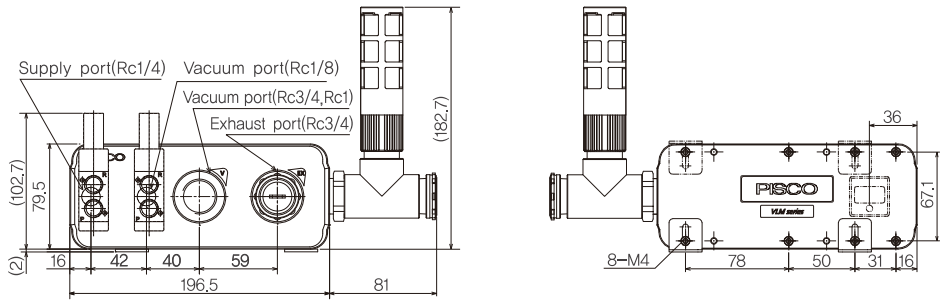


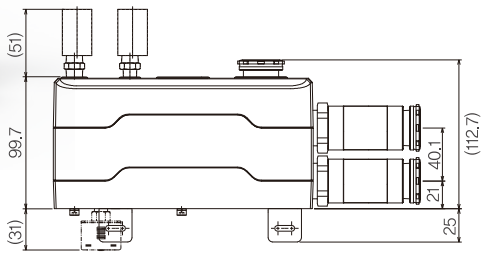


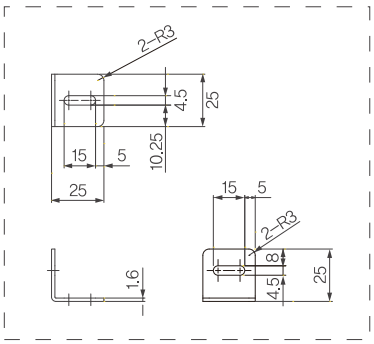
※ Reference dimension for mounting the silencer.

Exhaust port specification : S2

Silencer 2ea
Revolving exhaust socket 2ea
End cap 3ea



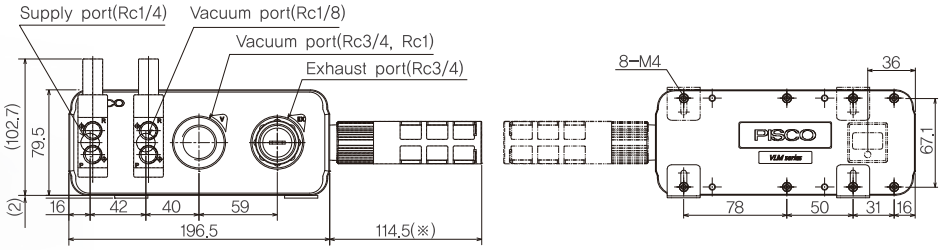




※ Reference dimension for mounting the silencer.

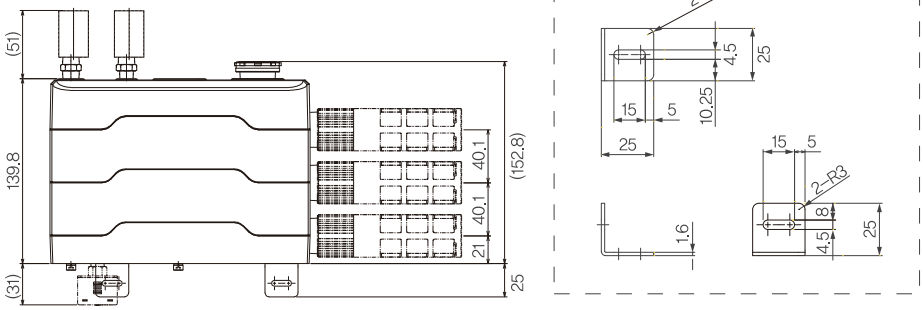
VLM165-166 Type (3 stage nozzle)

Exhaust port specification : No option



Exhaust port specification : S1

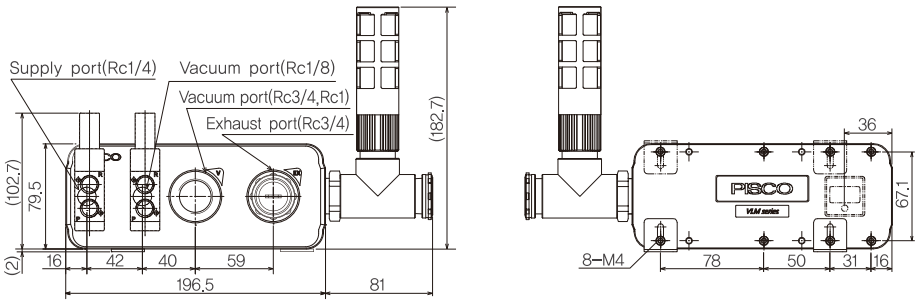
Silencer 3ea
End cap 1ea

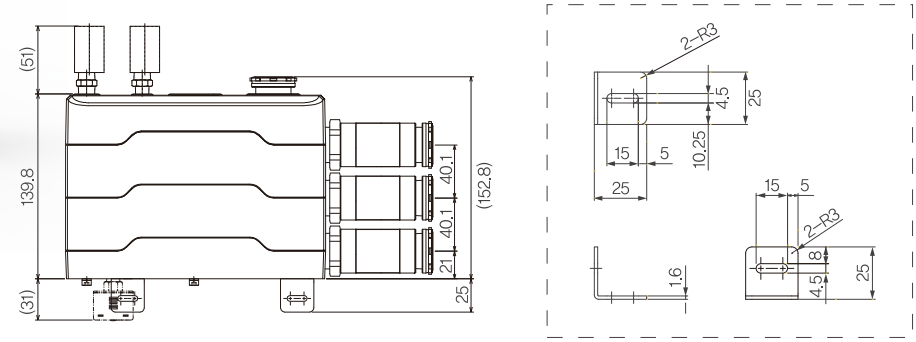


※ Reference dimension for mounting the silencer.

Exhaust port specification : S2

Silencer 3ea
Revolving exhaust socket 3ea
End cap 4ea





※ Reference dimension for mounting the silencer.

Nozzle maintenance

■ To clean the nozzle and diffuser, follow the procedure below. Be careful when performing maintenance.

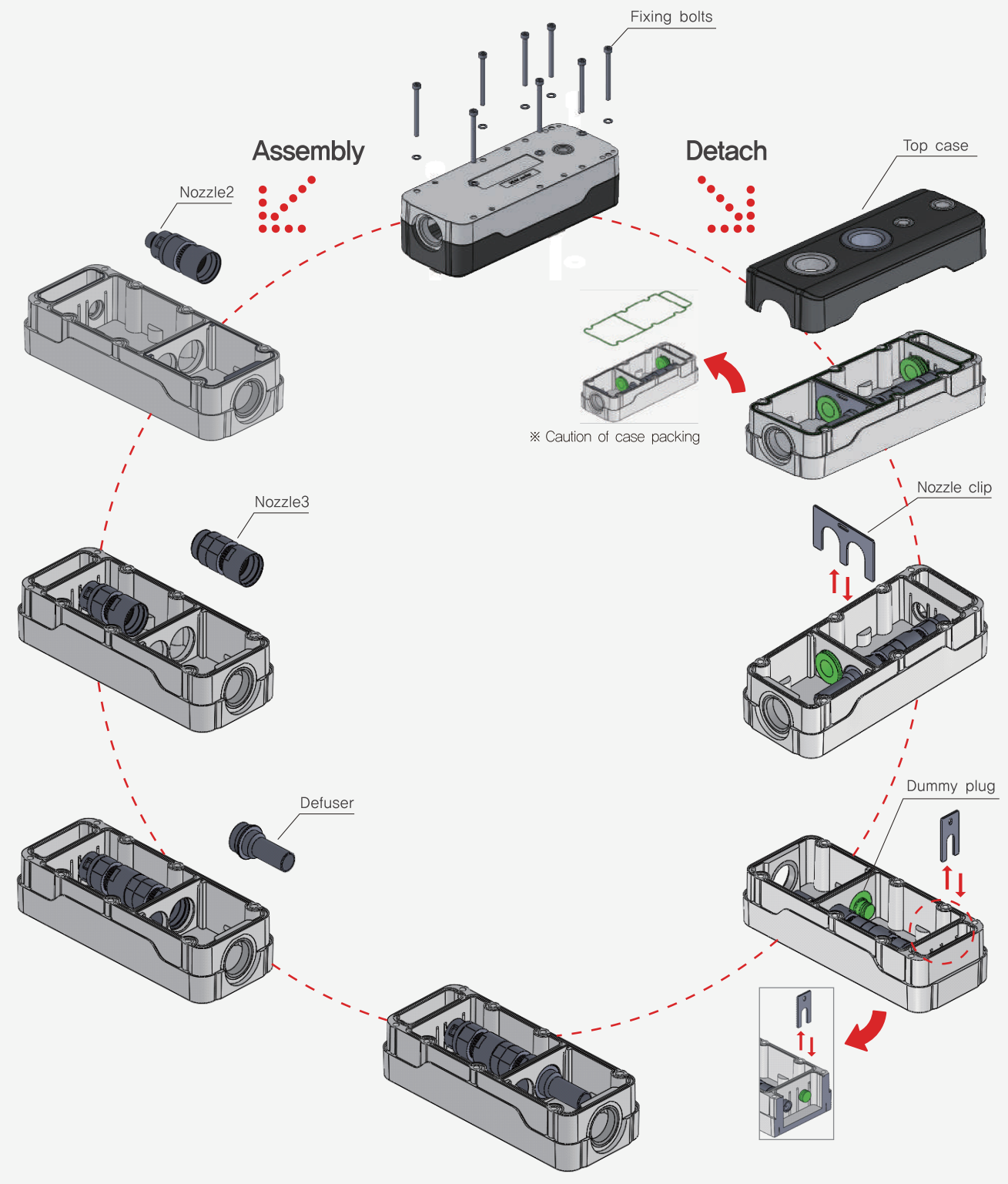
① In order, remove the fixing screw, top case, nozzle clip, and dummy plug on the back of the product.

② Remove the diffuser from the body

③ In the main body, nozzle 3, nozzle 1, 2 take out in order. Nozzles 1 and 2 should be removed together in assembled state.

④ Remove attachments of seal parts at nozzles, diffusers and packing parts etc., with air blow or wipe them out.

⑤ Insert in the body in reverse order. When tightening the fixing screws, tighten them with a tightening torque of 1N.m to 1,2N.m. Also, be careful not to drop the O-ring.



Precautions

⚠ Warning

1. When performing the maintenance of the vacuum generator VLM, be sure to perform it by a person with sufficient knowledge and experience

⚠ Caution

1. It is recommended to use a vacuum filter*VLFR / VLIFU34–FM) due to possibility of contamination from the vacuum port(V).
2. If the silencer is not used or if concentrated exhaust is used, dust or air in the atmosphere or piping will flow back from the exhaust port whenthe operation is OFF. This may cause dust absorption into the product, which may affect the performance of the product
3. When using a revolving exhaust socket, the suction flow is reduced by 15% due to the exhaust resistance
4. Vacuum properties are subject to the measurement conditions of our company, and may differ depending on the vacuum piping conditions
5. Do not use corrosive gas and flammable gas. Also as a fluid.
6. Avoid using it in locations with water droplets, oils, dust, etc. This product is not drip–proof and may cause malfunctions.
7. Keep piping for the vacuum port and supply port as short as possible. If the piping resistance increases, the performance of the vacuum generator itself deteriorates, which may result in inadequate functions
8. Do not apply excessive load to the product body. It may cause damage.

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