

# Vacuum Generators / Vacuum Pressure Sensors

Union Straight / Square Union / Union

### Vacuum Generators – Union Straight

**VUHK**

For nozzle diameter, see the schematic drawing.

Part Number	Type	D <sub>1</sub>	D <sub>2</sub>	Nozzle Dia. Nominal	Nozzle Dia. (mm)	B	C <sub>1</sub>	C <sub>2</sub>	Ultimate Vacuum (-kPa)	Suction Flow Rate (L/min (ANR))	Flow Consumption (L/min (ANR))	Mass (g)
VUHK	4	4	5	0.5	49.3	11	11	90	7	11.5	18.5	
				0.7	56.1	92	12.5	23	20			
	6	6	5	51.2	11.7	11.7	90	7	11.5	17.5		
			0.7	57.7	92	12.5	23	18.5				

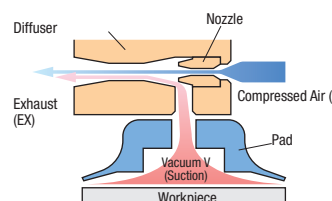
**Part Number Example**

Part Number	D <sub>1</sub>	D <sub>2</sub>	Nozzle Dia. Nominal
VUHK4	4	4	5
VUB6	6	6	7

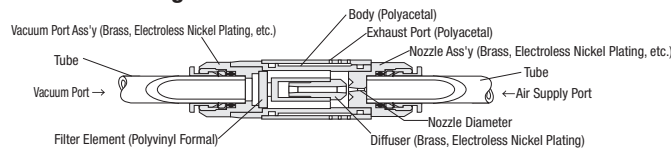
Larger nozzle diameter provides more suction flow and shortens time required to vacuum inner volume from the generator to work. In this case, however, air consumption is larger.

### Principle of Vacuum Generation

Compressed air introduced draws secondary air through its viscosity, generating vacuum function force.



### Structure Diagram



### Cautions

- Dusts on work material may cause damage to the vacuum generator.
- Use in combination with the vacuum filter on the next page.

### Specification of Sensor Head

<b>Applicable Fluid</b>	Compressed Air
<b>Pressure Detection Method</b>	Diffusion Semiconductor Pressure Switch
<b>Power Supply</b>	DC10.8-30V (Ripple Included)
<b>Power Consumption</b>	20 mA or less (at DC24V, No Load)
<b>Operating Press. Range</b>	-100-0 kPa
<b>Max. Pressure</b>	200 kPa
<b>Storage Temp. Range</b>	-20-70°C (Atmospheric Pressure, Humidity 60% or less)
<b>Operating Temp. Range</b>	0-60°C (Not to be frozen)
<b>Operating Humidity Range</b>	35-85% (Not to be frozen)
<b>Protection Structure</b>	IEC Standards (conforming to IP40)
<b>Switch Output</b>	No. of Pressured Positions: 1
	Switch Output: NPN Open Connector Output 30V80mA or less Residual Voltage 0.8V or less Residual Voltage 0.8V or Less
	Operation Indicator: N.O. (Red LED On at or above set pressure)
	Operating Difference: Fixed (2%F.S. or less)
	Operation Accuracy: ±3% F.S. Max. (at Ta = 25°)
	Response: Approx. 1 m. sec
	Set Pressure Range: -100-0 kPa

**Part Number Example**

Part Number	Part Number
VUSS4	VUSS4

### Vacuum Pressure Sensor – Union

**VUSS**

For 2-M3 Mounting Hole of Flash Screw

**Electrical Circuit**

Part Number	Type	D	C	A	B	Mass (g)
VUSS	4	11	11.6	29.2	14.6	48

### Vacuum Generators – Square Union

**VUB**

Part Number	Type	D	Nozzle Dia. (mm)	P	C	L <sub>1</sub>	L <sub>2</sub>	Operating Pressure (MPa)	Ultimate Vacuum (-kPa)	Suction Flow Rate (L/min (ANR))	Flow Consumption (L/min (ANR))	Mass (g)
VUB	4	4	0.5	9	11	6.6	16.6	0.5	90	7	11.5	18
			0.7	10.5	11.6	7	17	0.5	93	13	23	18.5

### Specification

<b>Applicable Fluid</b>	Air
<b>Operating Temperature Range</b>	0-60°C
<b>Operating Pressure Range</b>	0.15-0.7 MPa
<b>Rated Supply Pressure</b>	0.5 MPa

# Vacuum Filters

Elements for Replacement

### Vacuum Filters (Elements for Replacement)

**VFLT**

**VFLTE Element for Replacement**

Material: Body : Polycarbonate  
Element : Polyvinyl Formal

Part Number	Type	D	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	C	F <sub>1</sub>	F <sub>2</sub>	Filtration Area (cm <sup>2</sup> )	Mass (g)
VFLT	4	58	33	18	24	11.9	11.9	18.2	20	17.5	14.9	16	10	20	7.5	18

Part Number	Type	(D)	(D)	(L)
VFLTE		12	8	20

Applicable to both VFLT4 and VFLT6.

### Vacuum Filters (Elements for Replacement) – Small

**VFS**

For 2-M3 Mounting Hole of Flash Screw

**VFSE Element for Replacement**

Material: Body : Polycarbonate  
Element : Polyvinyl Formal

Part Number	Type	D	B	C	L <sub>1</sub>	(L <sub>2</sub> )	L <sub>3</sub>	L <sub>4</sub>	d	X	Element Length	Filtration Area (cm <sup>2</sup> )	Mass (g)
VFS	4	48.5	11	10.8	12.7	8.2	4	10	9.8	9.8	15	2.8	5.1

Part Number	Type	(D)	(D)	(L)
VFSE		6	4	15

**Part Number Example**

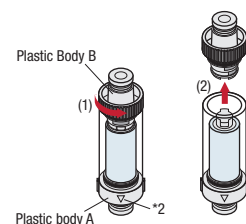
Part Number	Part Number
VFS4	VFS4

### Application Example

### Element Replacements

- How to Remove**
- Turn plastic body B 45° counterclockwise.\*
  - Pull out plastic body B.

\*Do not turn the plastic body B beyond 45°. It may damage the plastic body.



\*2. Be sure that the vacuum generator is installed on Δ the marked side. If installed on the opposite side, the element inside will become fouled, making it impossible to know the proper time for maintenance.

### Specifications

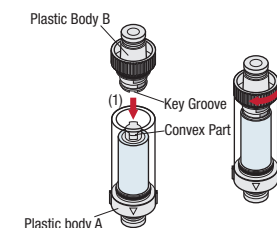
<b>Applicable Fluid</b>	Air
<b>Operating Temperature Range</b>	0-60°C
<b>Operating Pressure Range</b>	-100-0kPa
<b>Filtration Accuracy</b>	5 μm

### How to Lock

- Press-fit plastic body B completely to plastic body A. Be sure that the lug of plastic body A aligns with the key slot in plastic body B.
- Turn plastic body B 45° clockwise\*1 to lock.

\*1. Do not turn the plastic body B beyond 45°. It may damage the plastic body.

\*2. When locking, be sure that the lug of plastic body A comes to the center of the hole in plastic body B.



### Piping Example

Piping between Vacuum Generator and Vacuum Pad removes dusts entered from Pad and prevent Generator from failures.

