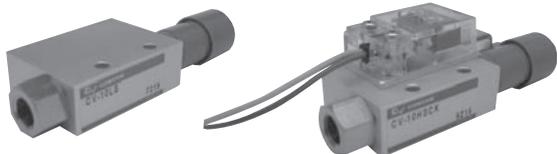


Standard vacuum ejector CV CONVUM



- Long life circle

No moving parts, simple construction

- Several sizes

Several nozzle sizes, from low to high vacuum flow

How to order

CV - ① 05 ② H ③ S ④ CK ⑤ G

① Nozzle diameter	
05	φ0.5
10	φ1.0
15	φ1.5
20	φ2.0
25	φ2.5
30A	φ3.0

② Max. vacuum pressure	
H	- 87 kPa
L	- 53 kPa

⑤ Port thread	
N	N (NPS)
G	G (BSPP)
Blank	Rc (BSPP)

④ Vacuum switch	
CK	piston micro-switch
Blank	without switch

③ Nominal pressure	
S	0.5MPa
R	0.35MPa

Note: Vacuum switch is not mountable with nozzle diameter 2.5 and 3.0

Note : ①②③④ applicable models

①	②	③		④
		S	R	
05	H	○	x	○
	L	○	x	○
10	H	○	○	○
	L	○	x	○
15	H	○	○	○
	L	○	x	○
20	H	○	○	○
	L	○	x	○
25	H	○	x	x
	L	○	x	x
30A	H	○	x	x
	L	○	x	x

Maintenance parts

- Silencer

MSS-01	CV-05, CV-10
MSM-01	CV-15
MSL-02	CV-20
MS6-01	CV-25, CV-30A

Note) Consult P412 for details

- Pressure switch: CV-CK

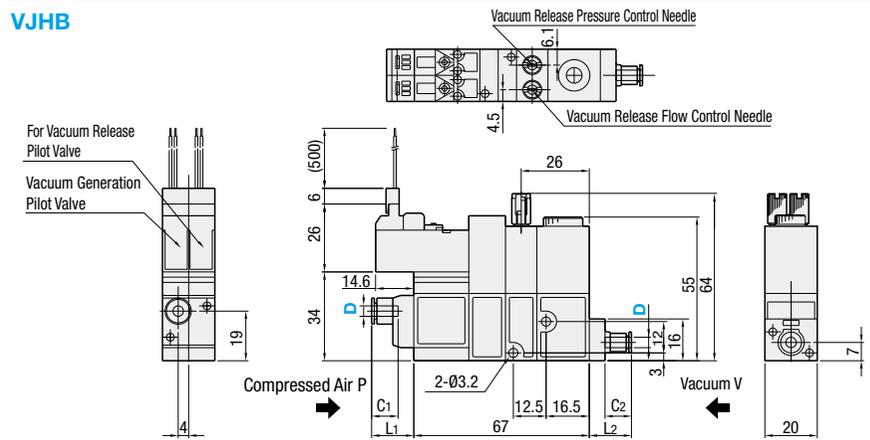
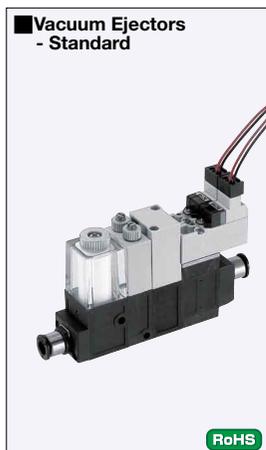
Note) Consult P76 for details

Specifications

Description	Unit	CV-05		CV-10			CV-15			CV-20			CV-25		CV-30A	
		HS	LS	HS	LS	HR	HS	LS	HR	HS	LS	HR	HS	LS	HS	LS
Fluid		Non-lubricated air / non-corrosive gas														
Ambient temperature	°C	0 ~ 60 without freezing														
Operating pressure range	MPa	0.1 ~ 0.6														
Nozzle size	φmm	0.5		1.0			1.5			2.0			2.5		3.0	
Nominal pressure	MPa	0.5		0.5	0.35		0.5	0.35		0.5	0.35		0.5		0.5	
Vacuum (air) flow	ℓ /min(ANR)	6	9	27	36	25	63	95	54	110	165	88	160	250	225	350
Max. vacuum pressure	kPa	-87	-57	-92	-57	-91	-92	-57	-91	-92	-57	-91	-92	-57	-92	-57
Air consumption	ℓ /min(ANR)	13		44			100			180			265		385	
Mass	without switch	80		80			140			350			730		870	
	with switch	120		120			190			460			-		-	

Vacuum Ejectors

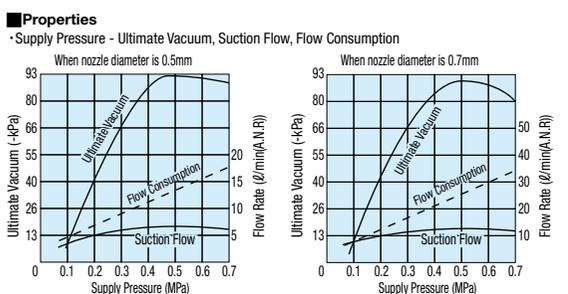
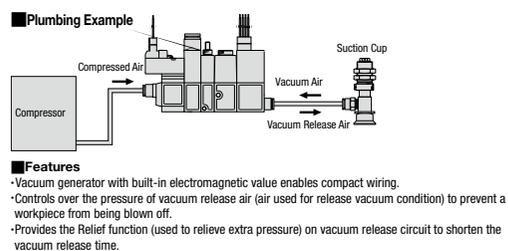
Standard Type



Part Number	Nozzle Dia. Nominal	Nozzle Dia. (mm)	L1	L2	C1	C2	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
VJHB	4	5	14.6	14.3	10.9	10.9	90.4	7	11.5	164.5	1 ~ 9 pc (s).	10~20
		7					93.1	13	23			
	6	5	17.1	17.2	11.7	11.7	90.4	7	11.5			
		7					93.1	13	23			

Name	Material
Body Resin	Glass Fiber Filled PBT (Polybutylene Terephthalate)
Seal Rubber	Nitrile Rubber
Main Valve	Aluminum Alloy
Joint Portion Metal	Brass + Electroless Nickel Plating
Vacuum Filter Cover	PCT (Polycarbonate)
Filter Cover Holder	Aluminum Alloy
Vacuum Generation Nozzle	Brass + Electroless Nickel Plating
Vacuum Generation Diffuser	Brass + Electroless Nickel Plating
Release Air Flow Rate Control Needle	Brass + Electroless Nickel Plating

Applicable Fluid	Air
Operating Temperature Range	5 ~ 50°C
Operating Pressure Range	0.3~0.7MPa
Rated Supply Pressure	0.5MPa
Release Air Flow Rate	0~50g/min (ANR) (When supply pressure is 0.5 MPa)
Structure of Release Air Relief Valve	Elastic Seal, Poppet Valve
Relief Pressure Selecting Range	0.005~0.05MPa



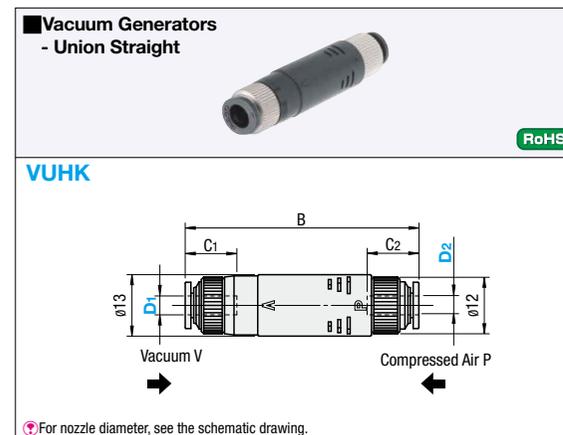
- The characteristic supply pressure above is for vacuum generation.
- Valve can cause abnormal sounds at the supply pressure of 0.4 ~ 0.45MPa, i.e. the supply pressure value just prior to the peak value of Ultimate Vacuum. This abnormal sound indicates unstable properties, and the noise will be large. It may affect the sensor and other objects and cause troubles. Please reset supply pressure.
[Ex.1] The original pressure is 0.5MPa. However, when the vacuum generator is operated, pressure supply declines down to 0.43MPa due to pressure drop and abnormal noise occurs.
→Reset the supply pressure to 0.5MPa when vacuum generator is operating.
- When selecting plumbing and equipment, use the triple value of the Nozzle Dia. Sectional Area as guide of Effective Sectional Area. If adequate supply air flow rate is not retained, sufficient vacuum properties cannot be achieved. (Abnormal sound may be generated even within the Set Pressure range. Suction Flow, Ultimate Vacuum, etc. may be left insufficient.)
[Ex. 2] Though the pressure is 0.5MPa when vacuum generator is operating, abnormal sound occurs.
→Insufficient supply air flow rate (Air flow is squeezed by pipe resistance in the vacuum generator, not obtaining supply air flow rate that meets the characteristics).
→Select plumbing and equipment to ensure the necessary effective sectional area.
[Ex. 3] When nozzle diameter is 0.5mm, the sectional area is 0.25x0.25xπx3=0.59mm²
→Select plumbing and equipment to retain the effective sectional area to 0.6mm² or more.

Item	Electromagnetic Valve for Vacuum Generator	Electromagnetic Valve for Vacuum Release
Operation Method	Direct Operation	
Valve Structure	Elastic Seal, Poppet Valve	
Rated Voltage	DC24V	
Allowable Voltage Range	DC24V±10%	
Surge Protection Circuit	Diode	
Power Consumption	1.2W (with LED)	
Manual Operation	Push Type - Non-Locking	
Operation Indicator	Coil Excitation Operation: Red LED On	
Connection Method	Red: DC24V Black: COM	
Operation Method	Air Pressure Operation with Pilot Valve	
Valve Structure	Elastic Seal, Poppet Valve	
Pressure Resistance	1.05MPa	
Valve Type	NC (Normally Closed)	
Lubrication	Not Required	
Effective Sectional Area	Air Supply Port Size: Ø4:3.5mm ² Ø6:5mm ²	1mm ²

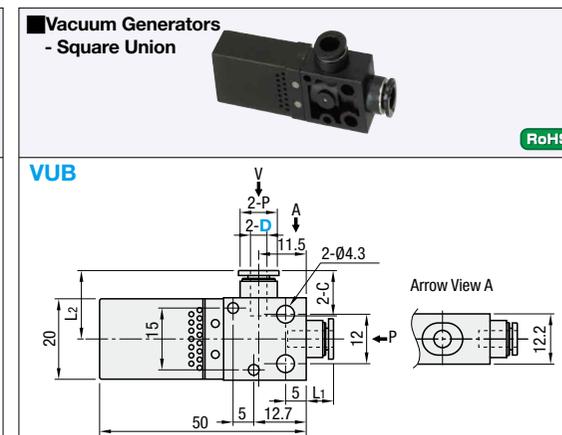
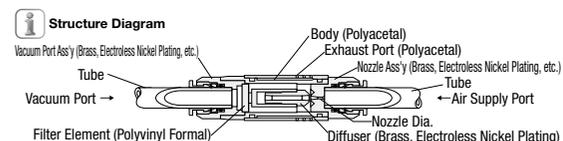
Part Number	(D)	(d)	(L)	Filtration Level	Filter Surface Area	Unit Price	Volume Discount Rate
VJHBE	12	8	30	10µm	1130mm ²	1 ~ 9 pc (s).	10~20

Material: Polyvinyl Formal

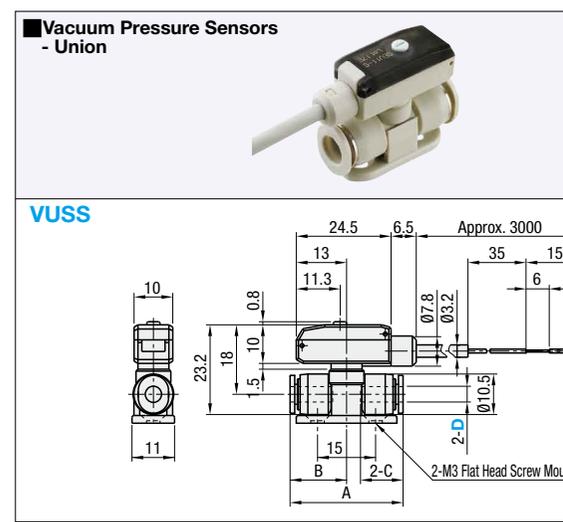
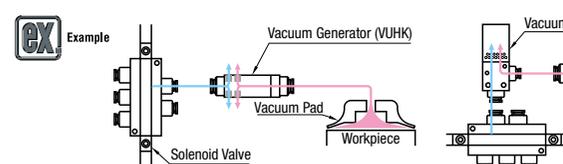
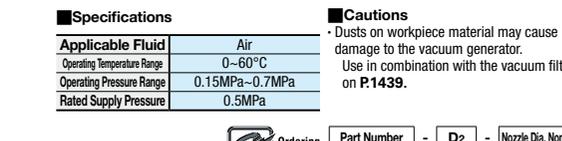
Vacuum Generators / Vacuum Pressure Sensors



Part Number	Nozzle Dia. Nominal	Nozzle Dia. (mm)	B	C1	C2	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
VUHK	4	5	49.3	11	11	90	7	11.5	18.5	1 ~ 9 pc (s).	10~20
		7				92	12.5	23			
	6	5	11.7	11.7	90	7	11.5				
		7			92	12.5	23				

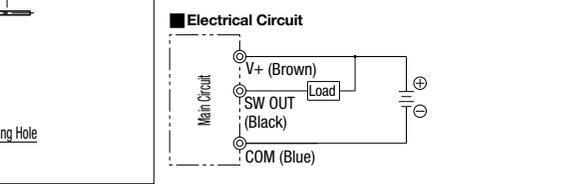


Part Number	Nozzle Dia. (mm)	P	C	L1	L2	Operating Pressure (MPa)	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
VUB	4	0.5	9	11	6.6	16.6	0.5	90	7	11.5	18	
	6	0.7	10.5	11.6	7	17	0.5	93	13	23	18.5	



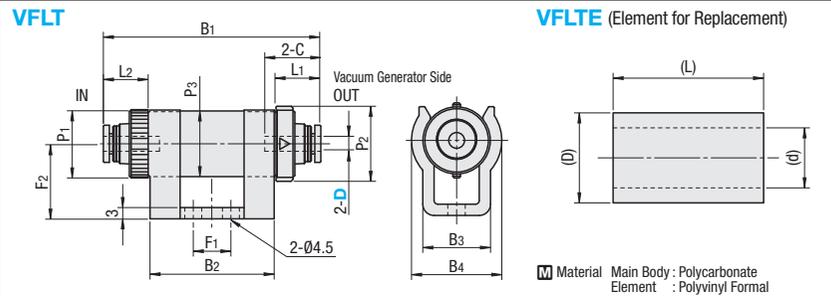
Part Number	D	C	A	B	Mass (g)	Unit Price	Volume Discount Rate
VUSS	4	11	29.2	14.6	48	1 ~ 9 pc (s).	10~20
	6	11.6	30	15	48		

Applicable Fluid	Compressed Air
Pressure Detection Method	Diffusion Semiconductor Pressure Switch
Power Supply	DC10.8 ~ 30V (Ripple included)
Power Consumption	20mA or Less (at DC24V, no load)
Operating Pressure Range	-100~0kPa
Pressure Resistance	200kPa
Storage Temp. Range	-20 ~ 70°C (Atmospheric Pressure, Humidity 60% or Less)
Operating Temperature Range	0 ~ 60°C (No Freezing)
Operating Humidity Range	35 ~ 85% (No Freezing)
Protection Structure	IEC Standards (IP40 Equivalent)
Switch Output	NPN Open Connector Output: 30V 80mA or Less Residual Voltage: 0.8V or Less
Switch Output	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°C)
Response	Approx. 1m/sec
Set Pressure Range	-100~0kPa



Vacuum Filters

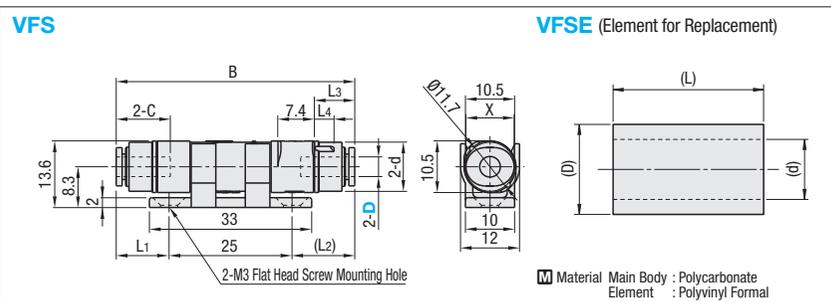
Vacuum Generators / Special Vacuum Filters / Fall Prevention Valves With Vacuum Release Function



Part Number Type	D	B1	B2	B3	B4	L1	L2	P1	P2	P3	C	F1	F2	Filtration Area (cm ²)	Mass (g)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
VFLT	4	58	33	18	24	11.9	11.9	18.2	20	17.5	14.9	10	20	7.5	18		
	6	60				13	13				16				19		

Part Number	(D)	(d)	(L)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
VFLTE	12	8	20		

Applicable to both VFLT4 and VFLT6.



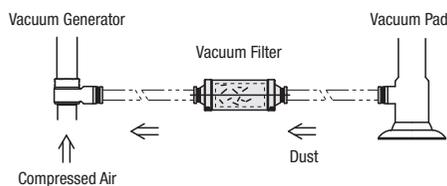
Part Number Type	D	B	C	L1	(L2)	L3	L4	d	X	Element Length	Filtration Area (cm ²)	Mass (g)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
VFS	4	48.5	11	10.8	12.7	8.2	4	10	9.8	15	2.8	5.1		
	6	53.4	11.6	13.2	15.2	10.6	4.5	10.5	11.8			6		

Part Number	(D)	(d)	(L)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
VFSE	6	4	15		

Ordering Example
Part Number: VFS4

Example

Plumbing Example
Plumbing between Vacuum Generator and Vacuum Pad removes dusts entering from pad and protects Generator from failures.



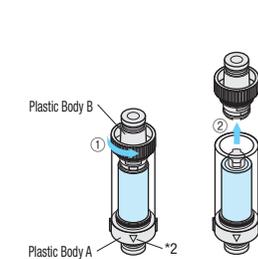
Specifications

Applicable Fluid	Air
Operating Temperature Range	0-60°C
Operating Pressure Range	-100-0kPa
Filtration Accuracy	10µm

Element Replacement

How to Remove

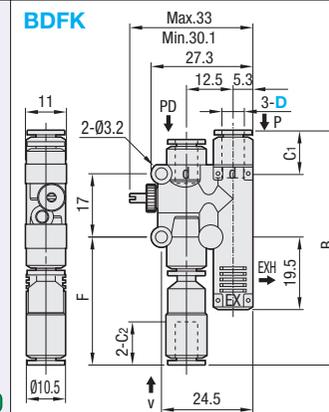
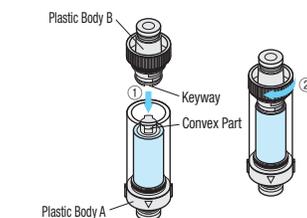
- Turn plastic body B 45° counterclockwise*.
 - Pull out plastic body B.
- *Do not turn the plastic body B beyond 45°. It may damage the plastic body.



- *2. Be sure that the vacuum generator is installed in the same direction as pointed by the △ mark. If installed reversely, the element inside will become dirty, making it impossible to know the proper time for maintenance.

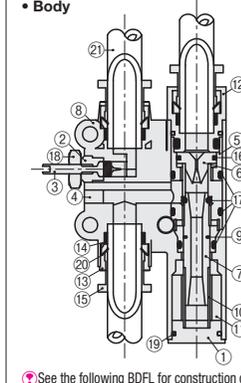
How to Lock

- 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.



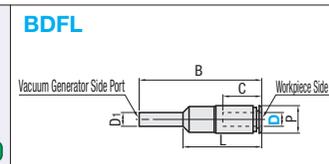
Name of Parts / Material List

Body

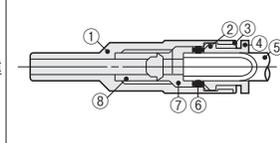


No.	Name of Parts	Material
①	End Plug	Brass, Electroless Nickel Plating
②	Upper Stopper	Brass, Electroless Nickel Plating
③	Release Needle	SUS303 Equivalent
④	Stopper 2	Brass, Electroless Nickel Plating
⑤	Sleeve	Brass, Electroless Nickel Plating
⑥	Nozzle Piston	Brass, Electroless Nickel Plating
⑦	Diffuser Spool	Brass, Electroless Nickel Plating
⑧	Resin Body	PBT Glass 15%
⑨	Spool Gasket	Nitrile Rubber (H-NBR)
⑩	Diffuser Spring	Stainless Steel
⑪	Silencer Element	Polyvinyl Formal (PVF)
⑫	Cartridge	-
⑬	Guide Ring	Brass, Electroless Nickel Plating
⑭	Elastic Sleeve	Nitrile Rubber (NBR)
⑮	Release Ring	Polyacetal (POM)
⑯	Y Gasket	Nitrile Rubber (NBR)
⑰	O-Rings	Nitrile Rubber (NBR)
⑱	Lock Nut	Aluminum Alloy
⑲	Spring Pin	Stainless Steel
⑳	Lock Pawl	Stainless Steel
㉑	Tubes	Urethane or Nylon

See the following BDFL for construction of filter.



Vacuum Filter



No.	Name of Parts	Material
①	Resin Body	Polypropylene (PP)
②	Lock Pawl	Stainless Steel
③	Guide Ring	Brass, Electroless Nickel Plating
④	Release Ring	Polyacetal (POM)
⑤	Tubes	Urethane or Nylon
⑥	Elastic Sleeve	Nitrile Rubber (NBR)
⑦	Element Presser	Polyacetal (POM)
⑧	Filter Element	Polyvinyl Formal (PVF)

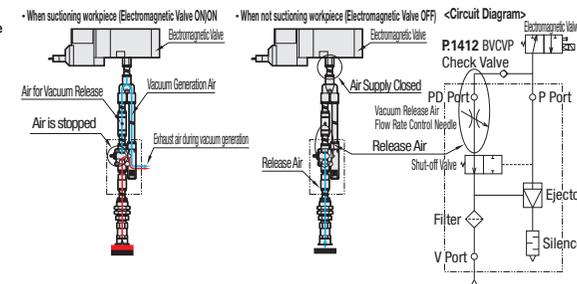
Part Number Type	D	Suction Flow Rate (l/min (ANR)) Selection	B	F	C1	C2	Nozzle Dia. (mm)	Pressure Rating (MPa)	Ultimate Vacuum (-kPa)	Flow Consumption (l/min(ANR))	Mass (g)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
BDFK	4	7	59.7	34.1	10.9	11	0.5	0.5	90	11.5	20.5		
	6	12.5	62.9	34.4	11.7	11.6	0.7		92	23	21.5		

Applicable Fluid	Air
Operating Pressure Range	0.3-0.7MPa
Operating Temperature Range	5-50°C
Lubrication	Not Required

Part Number Type	Tube Outer Dia. D	Applicable Fitting Dia. D1	B	L	C	P	Mass (g)	Filtration Area (cm ²)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
BDFL	4	4	34.7	21.5	11.0	8.0	1.5	0.8		
	6	6	35.2	21.8	11.6	10.5	2.5	1.1		

Applicable Fluid	Air
Operating Pressure Range	-100-0kPa
Filtration Accuracy	10µm
Operating Temperature Range	0-60°C
Filtration Area	Joint Size 44: 0.8cm ² Joint Size 66: 1.1cm ²

Example

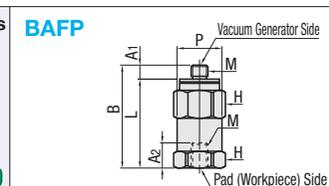


Features

Vacuum release air is introduced to the suction line to reduce the vacuum release time to a value shorter than ever. As a result, the time for suctioning and moving workpiece is shortened and the activity efficiency is improved. Flow rate of release air can be controlled by Release Air Flow Rate Control Needle.

Ordering Example

Part Number	-	Suction Flow Rate
BDFK4	-	7
BDFL4	-	



Name of Parts	M4	M6
Metal Body A	Stainless Steel	Brass, Electroless Nickel Plating
Metal Body B	Brass, Electroless Nickel Plating	Aluminum, Electroless Nickel Plating
Valve Body	Aluminum Alloy	
Stopper	Brass, Electroless Nickel Plating	
Spring	SUS304	
Filter	Polyvinyl Formal (PVF)	
O-Rings	Nitrile Rubber (NBR)	
Gasket	SUS304 + Nitrile Rubber (NBR)	

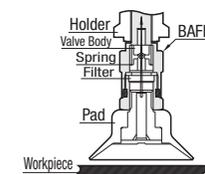
Part Number Type	No.	Thread Size	A1	A2	B	L	P	Width Across Suction Flow Rate Vacuum Decline (mm)	Valve Operation	Non-attached Level (kPa)	Effective Sectional Area (mm ²)	Mass (g)	Unit Price (1-9 pc(s))	Volume Discount Rate (10-20)
BAFP	4	M4x0.7	3	4.5	19.9	16.9	10	10	5	2	1.63	0.09	7.9	
	6	M6x1.0	4	4.9	28.1	24.1	12	12	13	2	4.06	0.09	12.4	

Specifications

Applicable Fluid	Air
Operating Pressure Range	Positive Pressure: 0 ~ 0.7MPa Negative Pressure: 0 ~ -100kPa
Min. Operating Pressure	-7kPa
Operating Temperature Range	0-60°C

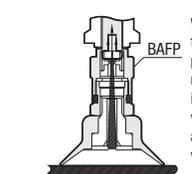
Description of Fall Prevention Valve

Fall Prevention Valve Operating Condition



When a workpiece is detached from the vacuum pad, airflow pushes up the valve and shuts the air passage. During operation, the valve sucks small amount of air through a small hole in the middle.

While Holding Workpiece



When a workpiece is tightly stuck to vacuum pad, the suction flow is reduced and the spring inside pushes down the valve. As the result, the air passage between the valve and body opens.

Ordering Example

Part Number	BAFP4
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