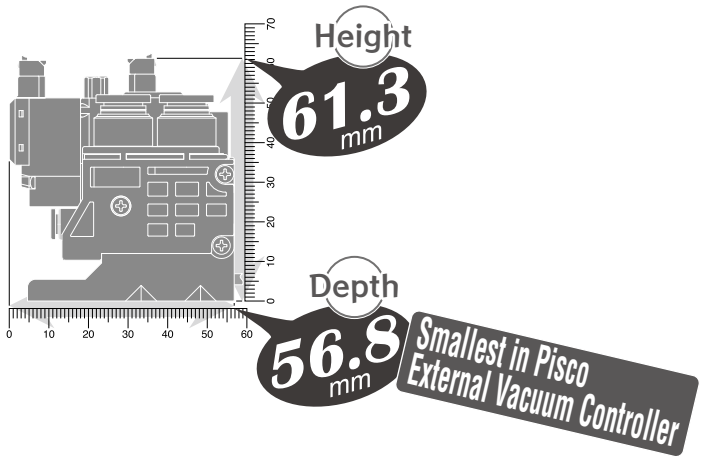
External Vacuum Controller **VIP** Series

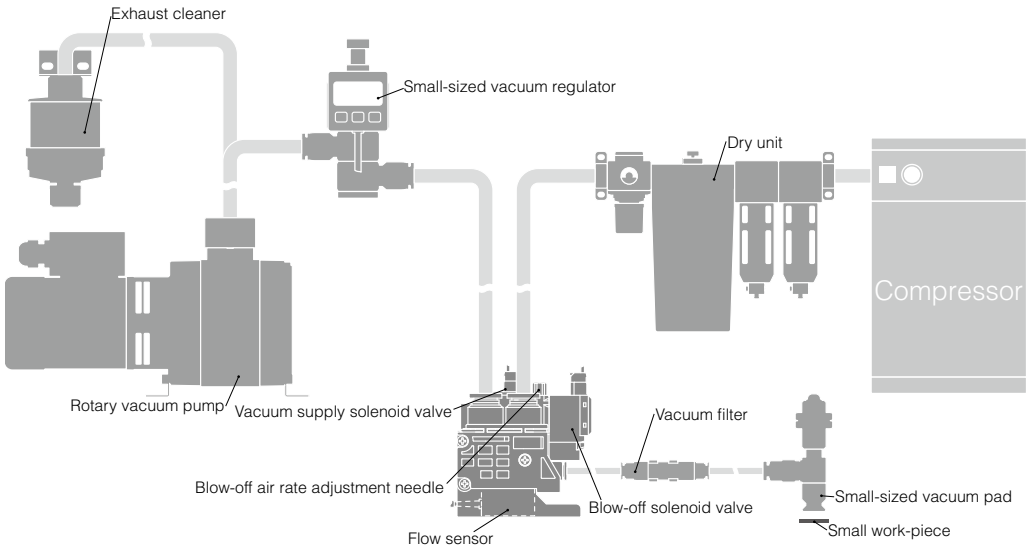
Characteristics

- Built-in vacuum flow sensor model makes confirmation of suctioning a small work-piece possible. Best suitable for pick & place small work-pieces. Built-in pressure sensor type and without pressure sensor type are also available.
- Ultra small body (compared with other series in Pisco) realizes vacuum switchover with large flow. (8.5ℓ/min(ANR) or more at vacuum supply pressure : -80kPa)



- 2 selections for blow-off air rate adjusting method; adjustable type with a needle, and fixed type.

Piping Example



Specifications

Fluid medium		**Air** (JIS B 8392-1 : Compliant with [Class 1.2.1~2.4.3]), **Vacuum Air**
Operating pressure range		**43.5 ~ 102**psi (**0.3 ~ 0.7**MPa)
Operating vacuum range		**0 ~ -26.6**in Hg (**0 ~ -90**kPa)
Operating temp. range		**41 ~ 122**°F (**5 ~ 50**°C) (No freezing)
Operating humidity range		**35 ~ 85**%RH (No dew condensation)
Vibration resistance / shock resistance		Less than **50**m/s^2 / Less than **150**m/s^2
Protective structure		IEC standard **IP40** equiv.
Lubrication		**No required**
Proof pressure	Air supply circuit	**152**psi (**1.05**MPa)
	Vacuum circuit	**29**psi (**0.2**MPa)

* Proof pressure shows the level of pressure at which the product would not be damaged. It is different from the operating pressure range, in which the product operates properly.

Solenoid Valve Specifications

Rated voltage	**24**VDC ± **10**%
Power consumption	**1.2**W (with LED)
Surge protection	**Varistor**
Operation indicator	**Current application: RED LED ON**
Manual operation	**Push-lock button**

Vacuum Supply Valve Specifications

Operation type		**Pilot valve**
Valve type		**Normally closed**
Vacuum supply air rate (*1, *2, *3, *4)		**0.35**SCFM (**10ℓ**/min(ANR)) (at vacuum supply pressure : **-23.6**in Hg. (**-80**kPa))
Response time (*5)	OFF → ON	**7** msec
	ON → OFF	**8.5** msec

*1 The value above applies when vacuum port size is ø4mm. The air flow rate decreases by 15% with ø3mm, and by 50% with ø1.8mm.
*2 The air flow rate decreases by 30% in case of the sensor code "-A □ 005" and "-A □ 010" with vacuum port size of ø4mm or ø3mm.
*3 Vacuum supply air flow rate varies according to the vacuum port dia. and tube length on vacuum side
*4 The air flow rate in SCFM is a reference value converted by multiplying l/min(ANR) by 0.035.
*5 The value at supply air: 0.5MPa with rated voltage (100%)

Blow-off Valve Specifications

Operation type		**Direct operation**
Valve type		**Normally closed**
Response time (*1, *2, *3)	OFF → ON	**3.5** msec
	ON → OFF	**2.5** msec

*1 The value above applies when vacuum port size is ø4mm. The air flow rate decreases by 15% with ø3mm, and by 50% with ø1.8mm.
*2 The air flow rate decreases by 30% in case of the sensor code "-A □ 005" and "-A □ 010" with vacuum port size of ø4mm or ø3mm.
*3 The value at supply air: 0.5MPa with rated voltage (100%)

Blow-off function

Blow-off air rate	**Without blow-off air rate adjustment needle**
	0.33SCFM (**9.5ℓ**/min(ANR)) or more (at supply pressure **72.5**psi (**0.5**MPa)
	With blow-off air rate adjustment needle
	0 ~ 0.33SCFM (**9.5ℓ**/min(ANR)) or more (at supply pressure **72.5**psi (**0.5**MPa)

* Blow-off air flow rate varies according to the vacuum port dia. and tube length on vacuum side.
* The air flow rate in SCFM is a reference value converted by multiplying l/min(ANR) by 0.035.

Pressure sensor without LED display Specifications

		-V1 (1 analog output)
Rated voltage		**10.8 ~ 30**VDC (Ripple voltage included)
Current consumption		**20**mA
Pressure detection		**Diffused semiconduction pressure sensor**
Pressure proof		**145**psi (**1.0**MPa)
Analog output	Pressure detection range	**0 ~ -29.5**in. Hg (**-100 ~ 0**kPa)
	Output voltage	**1 ~ 5**V
	Zero-point voltage	**1±0.04**V
	Span voltage	**4±0.04**V
	Output current	**1**mA max.
	Temperature characteristic	**±2**%F.S. max. (at Ta=**77**°F/**25**°C)
	Linearity	**±0.5**%F.S. max.
	Output impedance	**1**kΩ

* Allowable range of the variation of "Zero point voltage" and "Pressure setting value" caused by repeated voltage application is ±3%F.S.

Flow sensor Specifications

Rated voltage	**24**VDC **± 10%**
Current consumption	**30**mA max. (no-load)
Operating pressure range	**-26.6 ~ 59.1**in. Hg (**-90**kPa ~ **0.2**MPa)
Proof pressure	**43.5**psi (**0.3**MPa)
Analog output	**1 ~ 5**V (non-linear characteristic, connected load impedance **50**kΩ or more)
Pressure characteristic	**±10**%F.S. max. (at Ta=**77**°F/**25**°C)
Temperature characteristic	**±0.6**%F.S./°C max. (at Ta=**77**°F/**25**°C)
Accuracy of response	**±2**%F.S.max.
Response time	**5**m·sec max. (Sensor alone)
Output impedance	**1**kΩ

Model Designation (Example)

VIP - **4** (1) **8** (2) **6** (3) - **D24** (4) - **N** (5) - **AF050** (6) - **M08** (7)

(1) Vacuum (V) port size (Tube dia.)

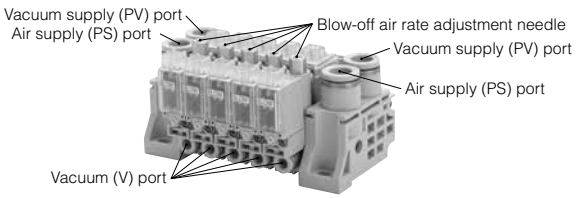
	mm size (mm)		
Code	**180**	**3**	**4**
Tube dia. (mm)	ø1.8mm push-in fitting	ø3mm push-in fitting	ø4mm push-in fitting

(2) Vacuum supply (PV) port size (Tube dia.)

	mm size (mm)		
Code	**4**	**6**	**8**
Tube dia. (mm)	ø4mm push-in fitting	ø6mm push-in fitting	ø8mm push-in fitting

(3) Air supply (PS) port size (Tube dia.)

	mm size (mm)		
Code	**4**	**6**	**8**
Tube dia. (mm)	ø4mm push-in fitting	ø6mm push-in fitting	ø8mm push-in fitting



(4) Valve voltage

Code	**D24**
Voltage	24VDC

(5) Blow-off air rate adjustment needle

No code: Without needle

N: With needle

(6) Sensor

Code	Sensor specifications
No code	Without sensor
AF005	One direction flow sensor (Flow range: 0 ~ 0.02SCFM (0 ~ 0.5ℓ/min(ANR))
AF010	One direction flow sensor (Flow range: 0 ~ 0.04SCFM (0 ~ 1ℓ/min(ANR))
AF050	One direction flow sensor (Flow range: 0 ~ 0.18SCFM (0 ~ 5ℓ/min(ANR))
AF100	One direction flow sensor (Flow range: 0 ~ 0.35SCFM (0 ~ 10ℓ/min(ANR))
AR005	Bi-directional flow sensor (Flow range: ±0.02SCFM (±0.5ℓ/min(ANR))
AR010	Bi-directional flow sensor (Flow range: ±0.04SCFM (±1ℓ/min(ANR))
AR050	Bi-directional flow sensor (Flow range: ±0.18SCFM (±5ℓ/min(ANR))
AR100	Bi-directional flow sensor (Flow range: ±0.35SCFM (±10ℓ/min(ANR))
V1	Analog output pressure sensor

* The flow rate in SCFM is a reference value converted by multiplying ℓ/min [ANR] by 0.035.

(7) No. of stations

Code	**M02**	**M03**	**M04**	**M05**	**M06**	**M07**	**M08**	**M09**	**M10**
No. of stations	2	3	4	5	6	7	8	9	10

Detailed Safety Instructions

Before using the PISCO products, be sure to read the "Safety Instructions", "Common Safety Instructions for Products in This Catalog on page 13 to 16, "Common Safety Instructions for Vacuum Series on page 18, "Common Safety Instructions for Vacuum Generator Complex Types on page 31, and "Common Safety Instructions for External Vacuum Controllers on page 80.

⚠Warning : 1. Tighten threads with proper tightening torque. Improper tightening may cause an air leakage, a drop of the product or damage to components.

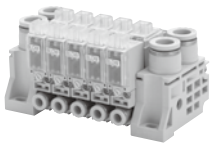
⚠Caution : 1. In selecting the piping to the supply (PS, PV) port or the vacuum (V) port, secure piping bore and length for enough effective sectional area. Insufficient effective sectional area may cause performance drop in characteristics such as suction flow and blow-off airflow.
2. This product is not equipped with a vacuum filter. Make sure to select and use PISCO vacuum filter. If the filter is not used, dust or other particles are accumulated inside the product and cause vacuum performance drop and solenoid valve malfunction such as air leakage. (Recommended filter: VFU series and VFJ series)

RoHS The products listed in this page are ECO-friendly products.
* Please refer to page 4 for the details of ECO-friendly products.

Without blow-off air rate adjustment needle

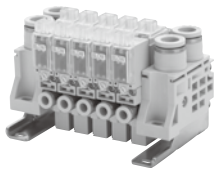
VIP Without sensor

Model code
VIP-①②③-D24-⑦



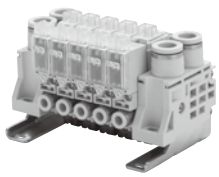
VIP With flow sensor

Model code
VIP-①②③-D24-AF005-⑦
VIP-①②③-D24-AF010-⑦
VIP-①②③-D24-AF050-⑦
VIP-①②③-D24-AF100-⑦
VIP-①②③-D24-AR005-⑦
VIP-①②③-D24-AR010-⑦
VIP-①②③-D24-AR050-⑦
VIP-①②③-D24-AR100-⑦



VIP With pressure sensor

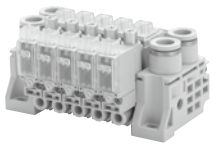
Model code
VIP①②③-D24-V1-⑦



With blow-off air rate adjustment needle

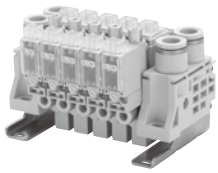
VIP Without sensor

Model code
VIP-①②③-D24-N-⑦



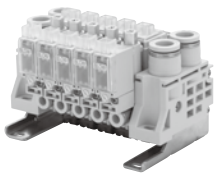
VIP With flow sensor

Model code
VIP-①②③-D24-N-AF005-⑦
VIP-①②③-D24-N-AF010-⑦
VIP-①②③-D24-N-AF050-⑦
VIP-①②③-D24-N-AF100-⑦
VIP-①②③-D24-N-AR005-⑦
VIP-①②③-D24-N-AR010-⑦
VIP-①②③-D24-N-AR050-⑦
VIP-①②③-D24-N-AR100-⑦



VIP With pressure sensor

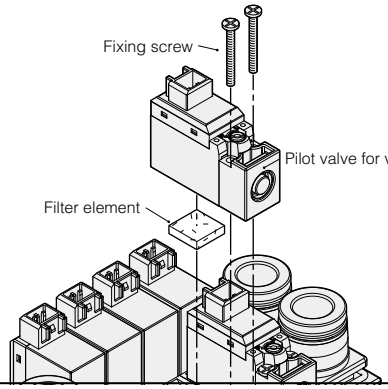
Model code
VIP-①②③-D24-N-V1-⑦



Caution
* ①: Replaced with vacuum port size code.
* ②: Replaced with vacuum supply port size code.
* ③: Replaced with air supply port size code
* ⑦: Replaced with no. of stations.
* Make-to-order production

Package specification
1 pc. in a bag

Replacement Filter Element



Filter element Model code
VN013B19

Package specification
10pcs. in a bag