

# 取扱説明書

製品カタログには、ピスコ製品、及びピスコ真空機器共通の取扱い上の注意事項が記載されています。本製品のご使用にあたっては、製品カタログの注意事項についても併せてご確認ください。

## 注意事項

1. 圧縮空気は、取扱いを誤ると危険です。空気圧機器を使用した機械・装置の組立てやメンテナンスなどは、十分な知識と経験を持った人が行ってください。
2. 製品の保守点検などを行う場合には、供給している電源を切り、供給エアを止め配管内の残圧を確実に排気させてから行ってください。
3. 本製品は、防爆構造ではありません。引火性、爆発性のあるガス、流体、雰囲気中での使用は避けてください。また、真空回路側に常時0.1MPa以上の圧力が印加されるような使い方は避けてください。
4. パイロットバルブへ下記①～③の状態での通電をするとコイルより発熱します。発熱により製品寿命の低下、作動不具合などに繋がる可能性があります。また、熱による火傷、及び周辺機器への影響を与える可能性があります。下記①～③の状態での通電される場合には、当社の営業所にご相談ください。
  - ①概ね2時間を超える長時間連続通電
  - ②ハイサイクル通電
  - ③断続的通電でも、1日当たりの累計通電時間が、非通電時間よりも通電時間の割合が大きい場合

1. 使用圧力範囲外での使用はしないでください。使用圧力範囲を超える圧力で使用した場合には、破損、変形の危険性があります。
2. パルプの制御回路の漏洩電流は1mA以下としてください。漏洩電流による誤作動の原因となる可能性があります。

使用流体	空気
使用压力範囲	0.25 ~ 0.7MPa
使用温度範囲	5 ~ 50°C
保護構造	IEC規格 IP40 相当

形 式	ノズル径 (mm)	供給圧力 (MPa)	到達真空度 (-kPa)	吸入流量 (ℓ/min[ANR])	消費流量 (ℓ/min[ANR])
VGH05…	0.5	0.5	90	7	11.5
VGL05…			66	12	
VGH07…	0.7	0.5	93	13	23
VGL07…			66	26	
VGE07…		0.35	90	10.5	17
VGH10…			1.0	0.5	
VGL10…	66	40			46
VGE10…	0.35	90		21	34

作動方式	パイロットバルブによる空気圧作動
弁構造	弾性体シール、ポペット弁
耐 圧	1.05MPa
バルブタイプ	ノーマルクローズ
給 油	不要
有効断面積	5mm <sup>2</sup>

作動方式・弁構造	直動式ボベツ形	
許容電圧範囲	DC24V ±10%	AC100V ±10%
サージ保護回路	サージアブソーバ	ブリッジダイオード
消費電力	12W(LED付)	1.5VA(LED付)
手動操作	プッシュ式/ノンロック形	
動作表示	コイル励磁動作時：赤色LED点灯	
結線方式	コネクタ式(ケーブル長さ：500mm)	
	赤色：DC24V、黒色：COM	青色

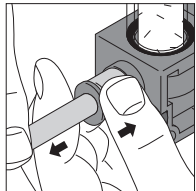
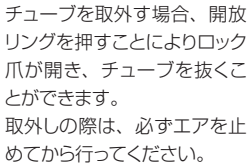
エレメント材質	PVF(ポリビニールホルマール)
濾過度	10μm
フィルタ面積	1,130mm <sup>2</sup>
交換エレメント注文形式	VGFE10

1.コネクタケーブルに過大な引張力、極端な曲げ、ケーブルの繰返し動作などは避けてください。製品の破損、ケーブル断線の原因となる可能性があります。



1. 取外しの際は、必ずエアを止め、残圧を排気してから行ってください。
2. 配管作業を行う場合には、供給・真空・排気の各ポートを間違えないように、必ず製品カタログなどにより、各ポート位置を確認してください。

- 真空発生器VGは、チューブをチューブエンドまで差込むだけでロック爪が固定、弾性体スリーブがチューブの外周をシールします。装着の際は、当社総合カタログ、継手の共通注意事項「2.チューブ装着上の注意」を参照し装着してください。



This diagram shows an exploded view of a mechanical assembly. The components are labeled with callouts 1 through 6:

- 1:** A small cylindrical pin or screw, shown at the top left.
- 2:** A larger cylindrical pin or screw, shown below callout 1.
- 3:** A small cylindrical pin or screw, shown to the left of the main assembly.
- 4:** A small cylindrical pin or screw, shown to the left of the main assembly.
- 5:** A small cylindrical pin or screw, shown to the left of the main assembly.
- 6:** A small cylindrical pin or screw, shown to the left of the main assembly.

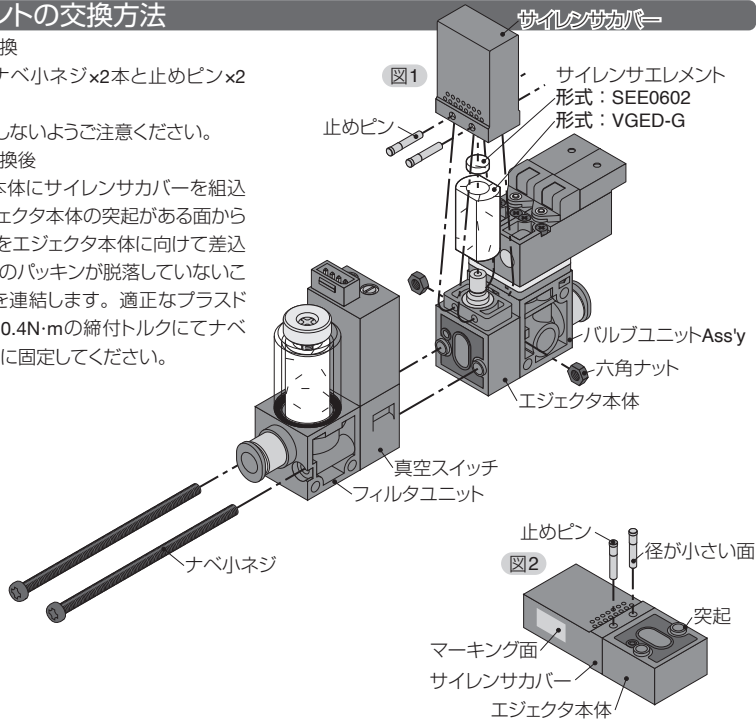
The assembly consists of a main rectangular block with a cylindrical component (callout 2) inserted into a hole. A smaller rectangular block is attached to the top of the main block. A cylindrical component (callout 3) is attached to the side of the main block. A cylindrical component (callout 4) is attached to the bottom of the main block. A cylindrical component (callout 5) is attached to the side of the main block. A cylindrical component (callout 6) is attached to the bottom of the main block.

フィルタカバー

固定ネジ

フィルタエレメント  
式：VGFE10

図2のよ様にエジクタ本体にサイレンサババーを組み込み、止めピン×2本をエジクタ本体の突起がある面から止めピンの径が小さい面をエジクタ本体の突起に向けて差込み固定します。各ユニットのバックギヤが脱落していないことを確認の上、ユニットを連結します。適正なプラスドライバーを使用し、0.35 ~ 0.4N・mの締付トルクにてナベ小ナジと六角ナットを確実に固定してください。



※) その他詳細につきましては、下記までお問い合わせください。

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※)最寄りの営業所につきましては当社カタログまたは公式Webサイトをご確認ください。

PISCO®

Vacuum Generator

VG

User's Manual

HIR0043-01

Thank you for purchasing PISCO product. Please be sure to read this User's Manual before using this item in order to make sure the safety. Please keep this manual handy with care, so that you can refer to it whenever necessary. Please refer to the enclosed User's manual for the handling of sensor. PISCO products catalogues include Common Safety Instructions for PISCO products and Vacuum equipment. Please confirm the Safety Instructions as well before using this item.

Safety Instructions

● Warnings

1. Mishandling of compressed air is dangerous. Conduct assembly and maintenance of devises with pneumatic equipment by persons with enough knowledge and experience.

2. Carry out maintenance and checks of equipment only after turning power off, shutting air off and making certain that the pressure in the piping has dropped to zero.

3. Since this item is not of explosion-proof structure, do not use it in surroundings containing flammable and/or explosive gases and/or fluids. Avoid use where constant pressure of 0.1Mpa (14.5psi) or above is in the vacuum circuit.

4. The coil generates heat when the solenoid valve is energized in the following ① to ③ conditions. The heat may possibly lead to shorter operating life or system failure of the product. There are also possibilities of bad influence to peripherals or of burn injury by heat.

If the product is energized in the following conditions, please consult with Pisco in such a case.

① Continuous energizing for about 2 hours or more.

② High cycle energizing.

③ The total energizing time of a day exceeds the total non-energizing time even if it is intermittent energizing.

● Cautions

1. Do not use the equipment other than the service pressure range. Operating it other than the specified pressure range may cause damage or deformation.

2. The leakage current of valve controlling unit is Max. 1mA, otherwise there may be a possibility of malfunction by the leakage current.

Specifications

Fluid admitted	Air	
Service pressure range	0.25 ~ 0.7MPa (36 ~ 102psi)	
Service temperature range	5 ~ 50°C (41 ~ 122°F)	
Protective structure	IEC standard IP40 equivalent	

Ejector characteristics

Model	Nozzle diameter (mm)	Supply Pressure (MPa)	Final vacuum (-kPa)	Suction flow (ℓ/min[ANR])	Air consumption (ℓ/min[ANR])
VGH05...	0.5	0.5	90	7	11.5
VGL05...			66	12	
VGH07...			93	13	
VGL07...	0.7	0.5	66	26	23
VGE07...		0.35	90	10.5	
VGH10...			93	27	
VGL10...	1.0	0.5	66	40	46
VGE10...		0.35	90	21	

Suction valve specifications

■ Pilot valve

Operating system	Direct operation	
Valve construction	Elastic seal, poppet valve	
Voltage rating	24VDC	100VAC
Allowable voltage range	24VDC +/-10%	100VAC +/-10%
Surge limiting circuit	Surge absorber	Bridge diode
Power consumption	1.2W (with LED)	1.5VA (with LED)
Manual operation	Non-lock push type	
Operating indication	Red LED lights up during coil excitation	
Wiring method	Connector type (cable length: 500mm (19.7inch))	
	Red : +24VDC Black : COM	Blue

■ Switch-over valve

Operating system	Pneumatic operation by pilot valve	
Valve construction	Elastic seal, poppet valve	
Proof pressure	1.05MPa (152.3 psi)	
Valve type	Normally closed	
Lubrication	Not required	
Effective sectional area	5mm <sup>2</sup>	

Blow-off solenoid valve specification

Operation type / valve construction	Direct operation / poppet valve	
Rated voltage	24VDC +/-10%	100VAC +/-10%
Surge protection	Surge absorber	Bridge diode
Allowable voltage range	12W (with LED)	1.5VA (with LED)
Manual operation	Non-lock push type	
Operation indicator	Red LED lights up during coil excitation	
Wiring type	Connector wire (cable length: 500mm (19.7in.))	
	Red: +24VDC, Black: COM	Blue

Filter specifications

Element material	PVF (polyvinyl formal)
Filtering capacity	10μm
Filter surface area	1,130mm <sup>2</sup>
Replacement element type	VGFE10

Circuit diagram (Solenoid valve)

● Caution

1. Do not pull or bend the connector cable with excessive force and also avoid repeat action on the cable. Doing so may result in the products broken and the cables being snapped off.

-0V (Black)

+24V (Red)

24VDC spec. Suction and blow-off valve

(-)Blue

(-)Blue

100VAC spec. Suction and blow-off valve

How to fit and release tubing

● Warning

1. Before removing tubing from the unit, be sure to turn off the air supply and discharge residual air pressure completely.

2. Install the piping by checking the supply port, vacuum port and exhaust port in the catalogue.

(1).Tube insertion

Simply insert a tubing to the tube end of the fitting built-in Vacuum Generator VG. The lock- claws automatically fix the tubing, and elastic sleeve seals the tube surrounding. Please refer to "2. Cautions on the fitting of tube" in Common Safety Instructions for Quick-Fitting in PISCO PRODUCTS catalogue.

(2).Tube Release

In case of releasing the tube, push the release ring to open the lock-claws, and the tube can be released. Before releasing the tube, make certain that the pressure inside the tube is zero pressure.

How to fix Vacuum Generator VG

● Caution

1. Do not apply excessive vibration to the unit. Using it in such condition can lead to malfunctions and/or errors.

■ Fix the generator by M3 threads with the tightening torque of 0.3 ~ 0.35N·m using 4 installation holes on the resin body. Please look up an appearance drawing of the product catalog for the positions of installation holes.

How to adjust blow-off flow

● Caution

1. Please use proper flat-tip screwdriver and wrench for adjustment of blow-off flow and tightening the lock nut.

2. After setting the blow-off flow, make sure to tighten the lock nut carefully not to move setting by caring for the following 2 points.

① Tighten the lock nut 20 to 30 degree further by using appropriate wrench from the point after tightening the lock nut by hand until the nut hits the needle guide.

② Pay attention that it may damage the internal thread if over tightened.

■ Turning the blow-off flow adjustment needle clockwise to decrease the flow rate of air, while turning the needle counterclockwise to increase the flow.

How to replace the filter element

■ Changing the filter element is serviced by loosing the fixing screw of filter window. After replacing the filter element, with confirming that the filter packing is in place, put the filter window back on and tighten the fixing screw with tightening torque of 0.18 to 0.22N·m.

Filter cover

Fixing screw

Filter element Type: VGFE10

How to replace the silencer element

■ Replacing the silencer element.

Changing the silencer element is serviced by loosing 2 lock pins and the 2 fixing screws, which are connecting the units.

※) Please pay attention not to loose 2 lock nuts.

■ Reassembling after replacing silencer element

As shown in the Fig. 2, with caring the direction of pins where smaller diameter side of pins goes in first, press and fix 2 lock pins from the side of prominence after installing the silencer cover on the ejector unit. After confirming all seal packing of all units are in place without missing, connect the units together with 2 fixing screws and 2 hex nuts. Securely fasten the screws and nuts by Phillips screwdriver with tightening torque of 0.35 to 0.4N·m.

Silencer cover

Silencer element Type: SEE0602 Type: VGED-G

Lock pin

Fig. 1

Valve unit

Hex. nut

Ejector unit

Vacuum switch

Filter unit

Lock pin

Fig. 2

Smaller diameter side

Prominence

Laser marking side

Silencer cover

Ejector unit

Fixing screw

※)Please make inquiry about other details to the following.

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