VARIAN

*vacuum technologies*

# *Turbo-V Vent Valve*

## Model 969-9843

*MANUALE ISTRUZIONI*

*BEDIENUNGSHANDBUCH*

*NOTICE DE MODE D'EMPLOI*

*INSTRUCTION MANUAL*

87-900-947-01 (D)
JUNE 2004

# *Turbo-V Vent Valve*

VARIAN

vacuum technologies

*Dear Customer,*

*Thank you for purchasing a VARIAN vacuum product. At VARIAN Vacuum Technologies we make every effort to ensure that you will be satisfied with the product and/or service you have purchased.*

*As part of our Continuous Improvement effort, we ask that you report to us any problem you may have had with the purchase or operation of our product. On the back side you find a Corrective Action Request form that you may fill out in the first part and return to us.*

*This form is intended to supplement normal lines of communications and to resolve problems that existing systems are not addressing in an adequate or timely manner.*

*Upon receipt of your Corrective Action Request we will determine the Root Cause of the problem and take the necessary actions to eliminate it. You will be contacted by one of our employees who will review the problem with you and update you, with the second part of the same form, on our actions.*

*Your business is very important to us. Please, take the time and let us know how we can improve.*

*Sincerely.*

*Sergio PIRAS*

*Vice President and General Manager*
*VARIAN Vacuum Technologies*

*Note: Fax or mail the Customer Request for Action (see backside page) to VARIAN Vacuum Technologies (Torino) - Quality Assurance or to your nearest VARIAN representative for onward transmission to the same address.*

**CUSTOMER REQUEST FOR CORRECTIVE / PREVENTIVE / IMPROVEMENT ACTION**

TO : VARIAN VACUUM TECHNOLOGIES TORINO - QUALITY ASSURANCE

FAX N° : XXXX - 011 - 9979350

ADDRESS: VARIAN S.p.A. - Via F.lli Varian, 54 - 10040 Leinì (Torino) - Italy

E-MAIL : marco.marzio@varianinc.com

| NAME | COMPANY | FUNCTION |
|---|---|---|
| | | |

ADDRESS :

TEL. N° : FAX N° :

E-MAIL :

PROBLEM / SUGGESTION :

REFERENCE INFORMATION (model n°, serial n°, ordering information, time to failure after installation, etc.) :

DATE

CORRECTIVE ACTION PLAN / ACTUATION (by VARIAN VTT) LOG N°

XXXX = Code for dialing Italy from your country ( es. 01139 from USA; 00139 from Japan, etc.)

VARIAN

# PROCEDURA PER L'INSTALLAZIONE DEL KIT TURBO-V VENT VALVE

## GENERALITÀ

Il Turbo-V "Vent Valve" comprende un'unità di controllo ed una valvola, che realizzano un sistema completo per la ventilazione automatica della pompa Turbo-V nella fase di spegnimento o nel caso si verifichi una caduta di tensione. La valvola in condizioni di riposo (senza alimentazione) è normalmente aperta. L'attivazione avviene in modo elettromagnetico, mentre il fissaggio (Viton-sealed) viene realizzato tramite un adattatore di tipo M8 o M5 con relativo O-ring sul foro per alto vuoto della pompa. L'aria di ingresso nella valvola, viene filtrata tramite un opportuno filtro o un adattatore da 1/4" presente sull'ingresso aria della valvola stessa.

L'unità di controllo viene alimentata dal governo Turbo-V che non è predisposto per il montaggio su rack.

L'unità di controllo viene attivata con un ritardo prefissato di circa 2,5 secondi per evitare ventilazioni inopportune durante una caduta di tensione temporanea e per permettere la chiusura delle valvole di sistema prima della ventilazione.

## CARATTERISTICHE TECNICHE

### *Unità di controllo*

- Tensione di ingresso — 120 Vca ± 10%
  - frequenza — da 50 a 60 Hz
  - potenza — 5 A
- Tensione di uscita — 24 Vcc ± 5%
  - potenza (max) — 11 W
- Ritardo — circa 2,5 secondi
- Temperatura operativa — da 0 a 40 °C
- Temperatura di immagazzinamento — da -20 a 50 °C

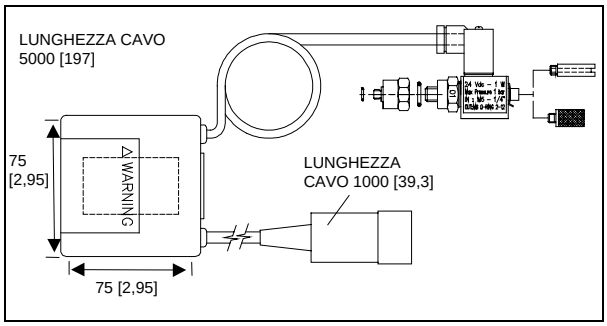
### *Cavi di connessione*

- Ingresso — lungo 0,5 metri, 3 fili
- Uscita alla valvola — lungo 5 metri, 3 fili
- Peso (con cavo) — 0,5 Kg (1,1 lbs)

### *Vent valve*

- Stato valvola — Normalmente aperta (chiusa quando viene alimentata)
- Connessione di alto vuoto — Adattatore M8/M5
- Ingresso aria — Filtro bronzo sinterizzato o un adattatore da 1/4"
- Dimensione foro — 1,2 mm (0,05")
- Gamma di pressioni — da $10^{-6}$ mbar a 1 bar (da$10^{-7}$ Torr a atm)
- Leak rate — ≤ $1x10^{-7}$ mbar l/s
- Vita — 1 milione di cicli
- Tensione di ingresso — 24 Vcc +10% -5%
  - potenza — 2,5 W
- Temperatura di bakeout — 60 °C
- Peso (senza cavo) — 0,1 Kg (0,24 lb)

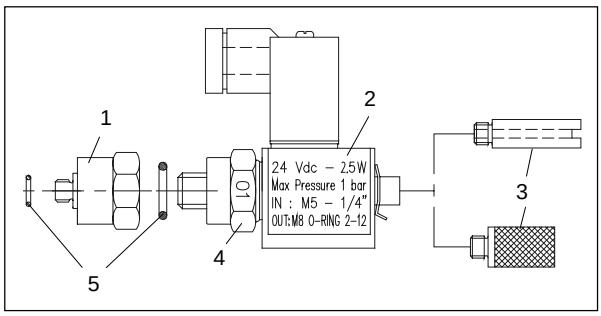
La figura seguente riporta le dimensioni di ingombro del Turbo-V Vent Valve.




*Dimensioni in mm [pollici]*

## INSTALLAZIONE

In figura sono riportati i vari componenti presenti nel Kit Turbo-V Vent Valve. Tali componenti sono forniti disassemblati; sarà quindi cura del cliente provvedere all'assemblaggio del Kit.




*Kit Turbo-V Vent Valve*

1. Adattatore M8 - M5
2. Valvola
3. Filtro/Adattatore da 1/4"
4. Dado di fissaggio bobina
5. O-ring

Il kit contiene due adattatori femmina/maschio, uno M8 ed uno M5. Sarà cura del cliente utilizzare quello specifico per le proprie esigenze.

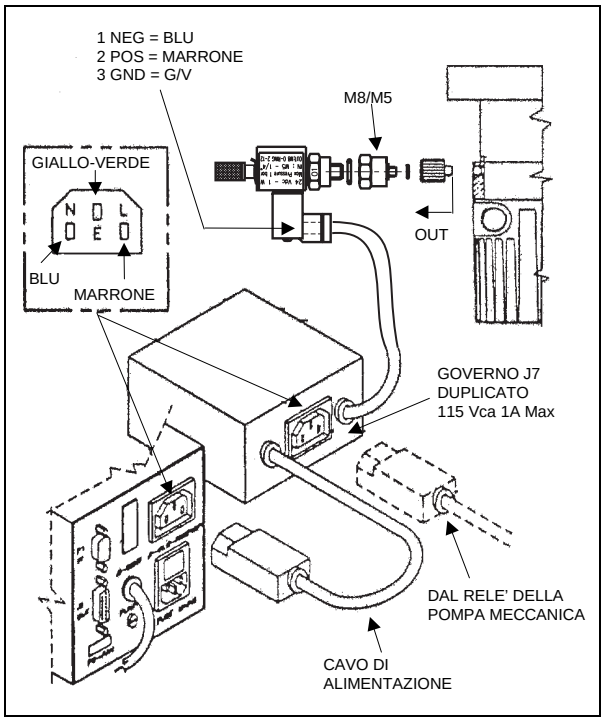
**ATTENZIONE**

**Durante la fase di assemblaggio del kit, fare attenzione a non svitare la ghiera ed il dado di fissaggio della bobina interna alla valvola.**

Completato l'assemblaggio, procedere con l'installazione sulla pompa.

Per pompe dotate di tappo a vite, dopo aver rimosso il tappo stesso, utilizzare l'adattatore appropriato per fissare la valvola alla pompa.

La seguente figura riporta un'installazione tipica su una pompa dotata di tappo.



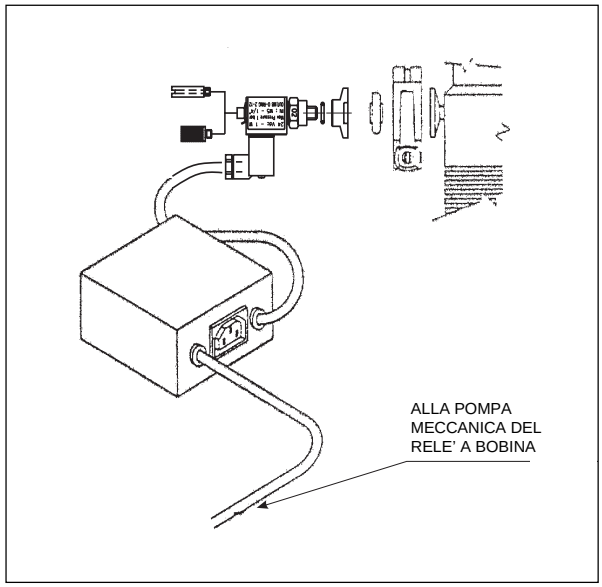

*Installazione su pompa con tappo a vite*

Dopo aver completato l'installazione meccanica, collegare il cavo di alimentazione dell'unità di controllo del Turbo-V vent valve al rispettivo connettore sul pannello posteriore del governo del Turbo pump.

**ATTENZIONE**

**Prima di alimentare il kit, assicurarsi che la tensione di uscita presente sul connettore sia 115 Vca**.

Per l'installazione su pompe non dotate di tappo a vite, occorre utilizzare il sistema di flange in dotazione alla pompa, come riportato in figura.




*Installazione su pompa senza tappo a vite*

Se si esegue l'installazione su una pompa il cui governo non dispone della presa di alimentazione valvola a 115 Vca, occorre rimuovere il connettore tagliando il cavo di alimentazione del governo; quindi collegarlo al modulo J21 come riportato nella figura precedente.

# ANLEITUNG ZUR INSTALLATION DER BAUGRUPPE TURBO-V VENT VALVE

## ALLGEMEINES

Die Baugruppe Turbo-V "Vent Valve" umfaßt eine Steuereinheit und ein Ventil, wodurch ein komplettes System zur automatischen Belüftung der Turbo-V - Pumpe beim Ausschalten oder bei Spannungsabfall entsteht. In Ruhestellung (ohne Versorgung) ist dieses Ventil geöffnet. Es wird elektromagnetisch betätigt. Seine Befestigung (Viton-sealed) erfolgt mit einem Adapter Typ M8 oder M5 und mit einem O-Ring an der Bohrung für Hochvakuum der Pumpe. Am Eingang des Ventils ist ein Filter oder Adapter Größe 1/4" vorhanden, der die einströmende Luft filtert.

Die Steuereinheit wird von der Turbo-V - Steuerung versorgt, die nicht zur Montage auf dem Rack vorgesehen ist.

Die Steuereinheit wird mit einer auf zirka 2,5 Sekunden voreingestellten Verzögerung eingeschaltet, um eine unerwünschte Belüftung bei zeitweisem Spannungs-abfall zu verhindern und um das Schließen der Systemventile vor der Belüftung zu ermöglichen.

## TECHNISCHE DATEN

### *Steuereinheit*

- Eingangsspannung 120 V a.c. ± 10%
  - Frequenz von 50 bis 60 Hz
  - Leistung 5 A
- Ausgangsspannung 24 V d.c ± 5%
  - Leistung (max) 11 W
- Verzögerung ca. 2,5 Sekunden
- Betriebstemperatur von 0 bis 40 °C
- Lagerungstemperatur von -20 bis 50 °C

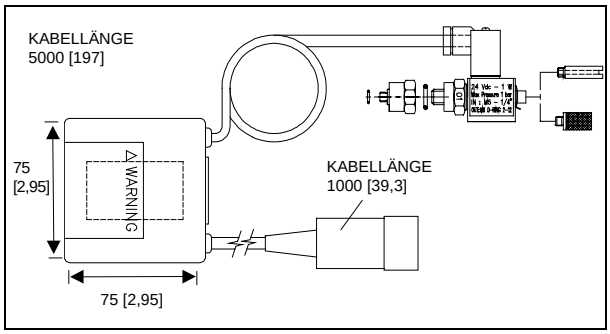
### *Anschlußkabel*

- Eingang Länge = 0,5 m, 3 Adern
- Ausgang zum Ventil Länge = 5 m, 3 Adern
- Gewicht (mit Kabel) 5 Kg (1,1 lbs)

### *Vent valve*

- Ventilzustand offen (bei Versorgung geschlossen)
- Hochvakuumanschluß Adapter M8/M5
- Lufteingang Sinterbronzefilter oder Adapter Größe 1/4"
- Bohrungsdurchmesser 1,2 mm (0,05")
- Druckwerte von $10^{-6}$ mbar bis 1 bar (von$10^{-7}$ Torr bis atm)
- Leak rate ≤ $1x10^{-7}$ mbar l/s
- Lebensdauer 1 Million Zyklen
- Eingangsspannung 24 V d.c. +10% -5%
  - Leistung 2,5 W
- Bakeout - Temperatur 60 °C
- Gewicht (ohne Kabel) 0,1 Kg (0,24 lb)

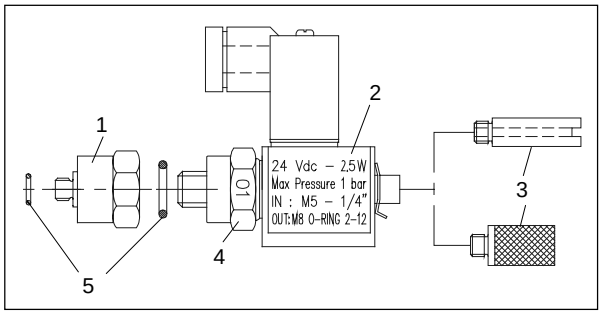
Auf nachstehender Abbildung sind die Abmessungen des Ventils Turbo-V Vent Valve angegeben.




*Maße in mm [Zolli]*

## INSTALLATION

In der Abbildung sind die verschiedenen Bauteile der Baugruppe Turbo-V Vent Valve dargestellt. Diese Bauteile werden lose geliefert und müssen daher vom Kunden zusammengebaut werden.




*Bauteile des Ventils Turbo-V Vent Valve*

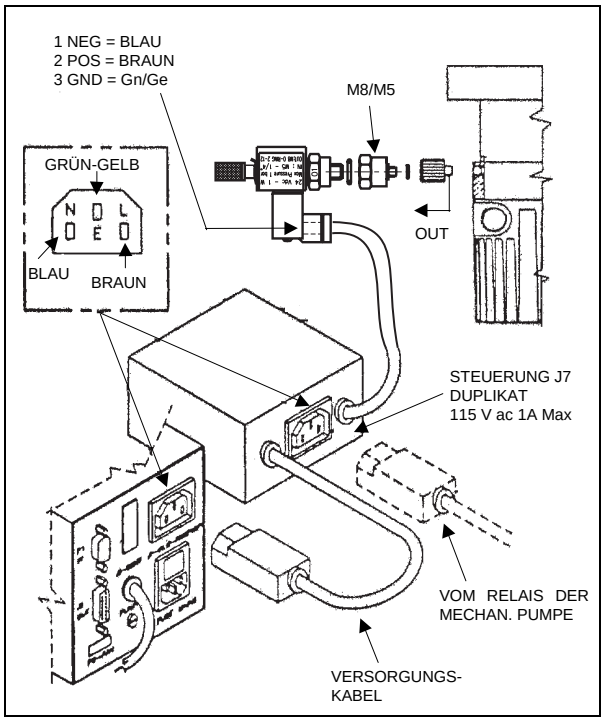
1. Adapter M8- und M5
2. Ventil
3. Filter/Adapter Größe 1/4"
4. Befestigungsmutter für Spule
5. O-Ring

Die Baugruppe enthält zwei Steckstück/Schraub-stück Adapter mit M8- und M5-Gewinde. Der Kunde verwendet jenen Adapter, der seinen Anforderungen entspricht.

**ACHTUNG**

**Beim Zusammenbau dürfen die Nutmutter und die Befestigungsmutter der Spule, die sich im Ventil befindet, nicht losgeschraubt werden.**

Nach dem Zusammenbau muß das Ventil auf der Pumpe installiert werden. Bei Pumpen mit Verschlußschraube muß diese entfernt werden. Danach ist zur Befestigung des Ventils an der Pumpe der geeignete Adapter zu verwenden. Auf der folgenden Abbildung ist eine typische Installation an einer Pumpe mit Verschlußschraube dargestellt.



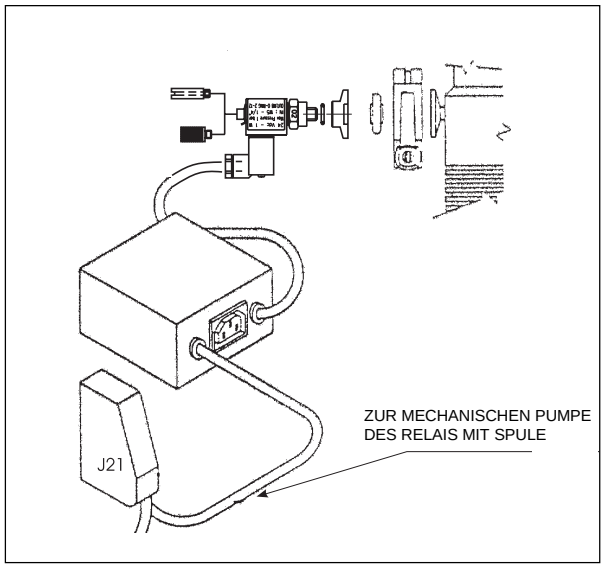

*Installation auf Pumpe mit Verschlußschraube*

Nach erfolgter mechanischer Installation das Verbindungskabel der Steuereinheit des Ventils Turbo-V vent valve an den Stecker an der hinteren Platte der Steuerung der Turbopumpe anschließen.

**ACHTUNG**

**Sicherstellen, daß die am Stecker vorhandene Ausgangsspannung 115 V a.c. beträgt, bevor die Baugruppe unter Spannung gesetzt wird.**

Zur Installation an Pumpen ohne Verschlußschraube muß das mit der Pumpe gelieferte Flanschsystem verwendet werden, wie in der folgenden Abbildung dargestellt.




*Installation an Pumpe ohne Verschlußschraube*

Wenn die Installation an einer Pumpe vorgenommen wird, deren Steuerung über keinen Anschluß 115 V a.c. zur Ventilversorgung verfügt, muß der Stecker entfernt werden, indem das Versorgungskabel der Steuer-einheit durchgeschnitten und an das Modul J21 angeschlossen wird, wie in obiger Abbildung dargestellt.

# PROCÉDURE POUR L'INSTALLATION DU KIT TURBO-V VENT VALVE

## GÉNÉRALITÉS

Le Turbo-V "Vent Valve" comporte un système de commande et une valve qui composent un dispositif complet pour la ventilation automatique de la pompe Turbo-V pendant la phase d'extinction ou en cas de chute de tension. La valve en condition de repos (non alimentée) est normalement ouverte. L'activation est réalisée de manière électromagnétique, alors que la fixation (Viton-sealed) est réalisée grâce à un adaptateur de type M8 ou M5 avec le joint torique correspondant sur l'orifice pour vide de la pompe. L'air en entrée dans la valve est filtré par un filtre ou un adaptateur
de 1/4" pour tuyaux présent sur l'entrée d'air de la valve elle-même.

Le système de commande est alimenté par le gérant Turbo-V qui n'est pas prédisposé pour être monté sur rack.

Le système de commande est activé avec un retard prédéfini de 2,5 secondes environ pour éviter une ventilation inopportune pendant une chute de tension temporaire et pour permettre aux valves de système de se fermer avant la ventilation.

## CARACTÉRISTIQUES TECHNIQUES

### *Système de commande*

- Tension en entrée — 120 Vca ± 10%
  - fréquence — de 50 à 60 Hz
  - puissance — 5 A
- Tension en sortie — 24 Vcc ± 5%
  - puissance (maxi) — 11 W
- Retard — 2,5 secondes environ
- Température d'exercice — de 0 à 40 °C
- Température de stockage — de -20 à 50 °C

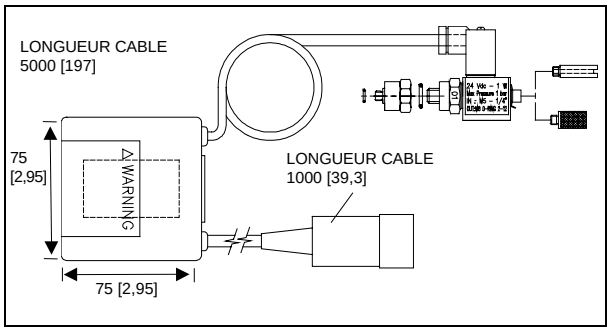
### *Câbles de connexion*

- Entrée — 0,5 mètres de long, 3 fils
- Sorties à la valve — 5 mètre de long, 3 fils
- Poids (avec câble) — 0,5 Kg (1,1 lbs)

### *Vent Valve*

- Etat valve — Ouverte normalement (fermée sous alimentation)
- Connexion du vide — Adaptateur M8/M5
- Entrée d'air — Filtre bronze fritté ou un adaptateur de 1/4" pour tuyaux
- Dimension orifice — 1,2 mm (0,05")
- Gamme de pressions — de $10^{-6}$ mbar à 1 bar (de$10^{-7}$ Torr à atm)
- Leak rate — ≤ 1x$10^{-7}$ mbar l/s
- Durée de vie — 1 million de cycles
- Tension en entrée — 24 Vcc +10% -5%
  - puissance — 2,5 W
- Température de bakeout — 60 °C
- Poids (sans câble) — 0,1 Kg (0,24 lb)

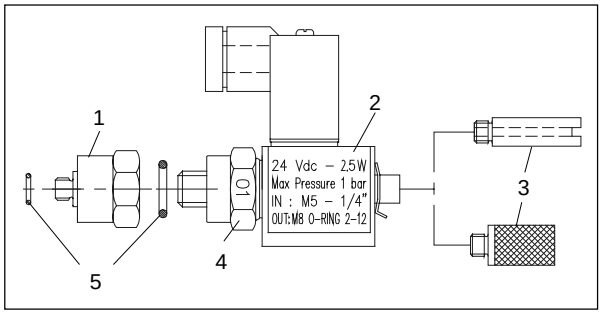
La figure ci-dessous indique les dimensions d'encombrement du Turbo-V Vent Valve.




*Dimensions en mm (pouces)*

## INSTALLATION

La figure illustre les différents composants présents dans le kit Turbo-V Vent Valve. Ces composants sont fournis démontés; il faudra donc que le client fasse l'assemblage du kit.




*Kit Turbo-V Vent Valve*

1. Adaptateur M8 - M5
2. Valve
3. Filtre/Adaptateur de 1/4" pour tuyaux
4. Ecrou de fixation bobine
5. Joint torique

Le kit contient deux adaptateurs femelle/mâle, un M8 et un M5. Ce sera au client d'utiliser celui qui convient à ses nécessités.

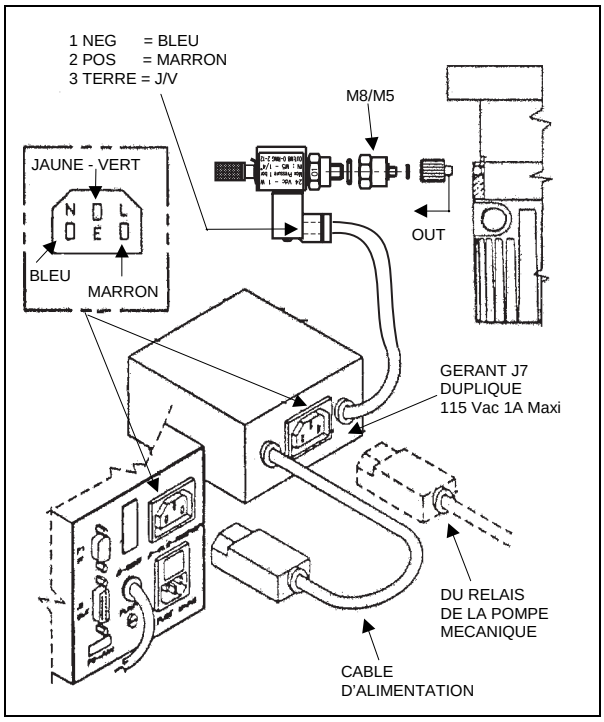
**ATTENTION**

**Pendant la phase d'assemblage du kit, il faut faire attention à ne pas dévisser la baïonnette et l'écrou de fixation de la bobine interne à la valve.**

Une fois l'assemblage effectué, procéder à l'installation sur la pompe.

Pour les pompes qui comportent un bouchon à vis, après avoir enlevé ce dernier, utiliser l'adaptateur approprié pour fixer la valve à la pompe.

La figure ci-après illustre une installation caractéristique sur une pompe munie de bouchon.



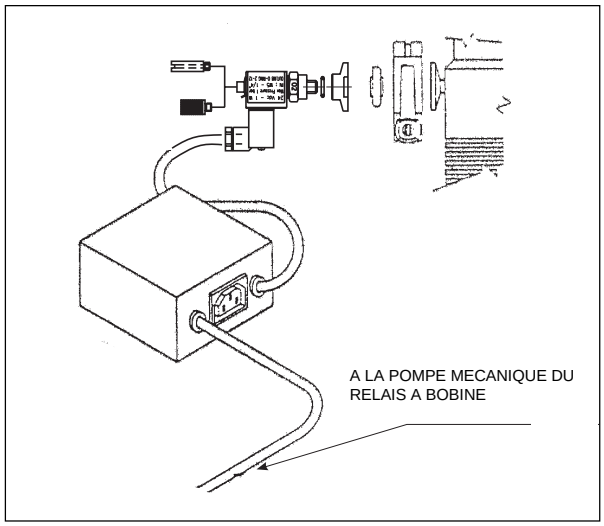

*Installation sur pompe avec bouchon à vis*

Après avoir achevé l'installation mécanique, brancher le câble d'alimentation du système de commande du Turbo-V Vent Valve à son connecteur sur le panneau arrière du gérant du Turbo pump.

**ATTENTION**

**Avant d'alimenter le kit, vérifier que la tension de sortie présente sur le connecteur est de 115 Vac.**

Pour l'installation sur des pompes non pourvues de bouchon à vis, il faut utiliser le système de brides fourni avec la pompe, comme l'indique la figure.




*Installation sur pompe sans bouchon à vis*

Si l'on exécute l'installation sur une pompe dont le gérant ne dispose pas de la prise d'alimentation valve à 115 Vac, il faut enlever le connecteur en coupant le câble d'alimentation du gérant; puis le brancher au module J21 ainsi que sur la figure ci-dessus.

# TURBO-V VENT VALVE KIT INSTALLATION PROCEDURE

## OVERVIEW

The Turbo-V "Vent Valve", consisting of a control unit and a valve, is a complete unit for automatic venting of the Turbo-V vent pump when it is switched off or during a power failure. The valve is a normally-open (power off) valve, electro-magnetically-actuated and Viton-sealed with an M8 and M5 thread with O-ring on the high vacuum port and a filter or tube 1/4" adapter on the air inlet.

The control unit is powered by the Turbo-V controller and is not suitable for rack mounting.

The control unit is provided with a fixed delay time of about 2.5 seconds to avoid undesired venting during a temporary power failure and to allow closure of the system valves before venting.

## TECHNICAL CHARACTERISTICS

### *Control unit*

- Input voltage 120 Vac ± 10%
  - frequency 50 to 60 Hz
  - power 5 A
- Output voltage 24 Vdc ± 5%
  - power (max) 11 W
- Delay time about 2.5 sec.
- Operating temperature 0 to 40 °C
- Storage temperature -20 to 50 °C

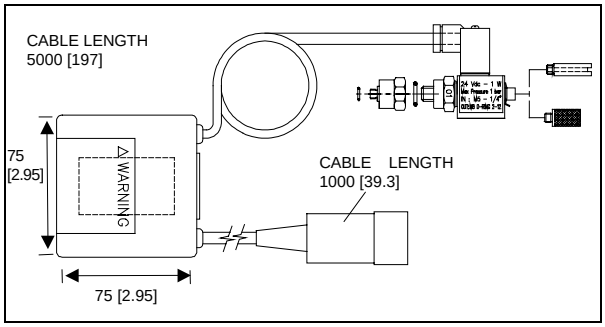
### Connection Cables

- Input 0.5 meter long, 3 wire
- Output to valve 5 meters long, 3 wire
- Weight (with cable) 0.5 Kg (1.1 lbs)

### Vent Valve

- Valve status Normally open (closed when power is applied)
- High vacuum connection M8/M5 thread
- Air intake sintered bronze filter or tube 1/4" adapter
- Orifice size 1.2 mm (0.05")
- Pressure range $10^{-6}$ mbar to 1 bar ($10^{-7}$ Torr to atm)
- Leak rate ≤ $1x10^{-7}$ mbar l/s
- Life cycle one million cycles
- Input voltage 24 Vdc +10% -5%
  - power 2.5 W
- Bakeout temperature 60 °C
- Weight (w/o cable) 0.1 Kg (0.24 lb)

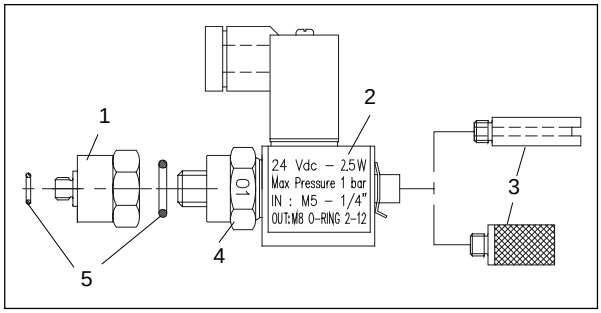
The following figure gives the overall dimensions of the Turbo-V Vent Valve.




*Dimensions in mm [inches]*

## INSTALLATION

The following figure shows the different components of the Turbo-V Vent Valve kit. These will be supplied to the client disassembled.




*Turbo-V Vent Valve Kit*

1. M8 - M5 adapter
2. Valve
3. Filter/ Tube 1/4" adapter
4. Coil securing nut
5. O-ring

The kit contains an M8 and M5 female/male adapter. It is up to the client to decide which adapter to use.

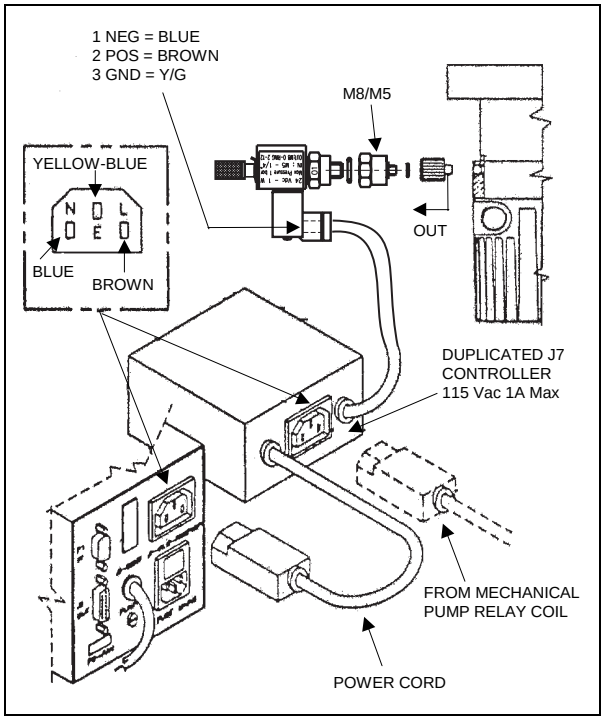
**WARNING**

When assembling the kit, be careful not to unscrew the coil securing ring and nut inside the valve.

Once the kit is assembled, install it on the pump.

For pumps equipped with a screw cap, once the screw cap is removed use the appropriate adapter to secure the valve to the pump.

The following figure shows a tipical installation on a pump equipped with a screw cap.



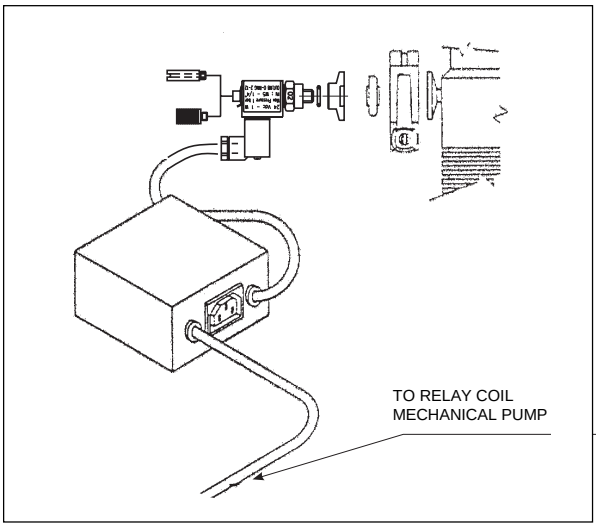

*Installation on a Pump Equipped with a Screw Cap*

Upon completion of the mechanical installation, attach the Turbo-V vent valve controller unit power cord to the related connector on the rear panel of the Turbo pump controller.

**WARNING**

Before powering on the kit, be sure that the output voltage on the connector is 115 Vac.

For installation on pumps that are not equipped with a screw cap, use the flange system provided with the pump as shown in the following figure.




*Installation on a Pump not Equipped with a Screw Cap*

For installation on a pump whose controller is not equipped with a 115 Vac valve power supply socket, remove the connector after cutting the controller power cord and connect it to module J21 as shown in the previous figure.

VARIAN

# *Request for Return*

ISO 9001 REGISTERED

1. A Return Authorization Number (RA#) **WILL NOT** be issued until this Request for Return is completely filled out, signed and returned to Varian Customer Service.
2. Return shipments shall be made in compliance with local and international **Shipping Regulations** (IATA, DOT, UN).
3. The customer is expected to take the following actions to ensure the **Safety** of workers at Varian: (a) Drain any oils or other liquids, (b) Purge or flush all gasses, (c) Wipe off any excess residues in or on the equipment, (d) Package the equipment to prevent shipping damage, (for Advance Exchanges please use packing material from replacement unit).
4. Make sure the shipping documents clearly show the RA# and then return the package to the Varian location nearest you.

| **North and South America** | **Europe and Middle East** | **Asia and ROW** |
|---|---|---|
| Varian Vacuum Technologies<br>121 Hartwell Ave<br>Lexington, MA 02421<br>Phone : +1 781 8617200<br>Fax: +1 781 8609252 | Varian SpA<br>Via Flli Varian 54<br>10040 Leini (TO) – ITALY<br>Phone: +39 011 9979111<br>Fax: +39 011 9979330 | Varian Vacuum Technologies<br>Local Office |

***CUSTOMER INFORMATION***

Company name: ……

Contact person: Name: …… Tel: ……

Fax: …… E-Mail: ……

Ship Method: …… Shipping Collect #: …… P.O.#: ……

*Europe only*: VAT reg. Number: …… *USA only:* ☐ Taxable ☐ Non-taxable

Customer Ship To: …… Customer Bill To: ……

…… ……

…… ……

***PRODUCT IDENTIFICATION***

| Product Description | Varian P/N | Varian S/N | Purchase Reference |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

***TYPE OF RETURN*** *(check appropriate box)*

☐ Paid Exchange ☐ Paid Repair ☐ Warranty Exchange ☐ Warranty Repair ☐ Loaner Return
☐ Credit ☐ Shipping Error ☐ Evaluation Return ☐ Calibration ☐ Other ……

***HEALTH and SAFETY CERTIFICATION***

Varian Vacuum Technologies **CAN NOT ACCEPT** any equipment which contains **BIOLOGICAL HAZARDS** or **RADIOACTIVITY**. Call Varian Customer Service to discuss alternatives if this requirement presents a problem.

The equipment listed above (check one):

☐ **HAS NOT** been exposed to any toxic or hazardous materials

OR

☐ **HAS** been exposed to any toxic or hazardous materials. In case of this selection, check boxes for any materials that equipment was exposed to, check all categories that apply:

☐ Toxic ☐ Corrosive ☐ Reactive ☐ Flammable ☐ Explosive ☐ Biological ☐ Radioactive

List all toxic or hazardous materials. Include product name, chemical name and chemical symbol or formula.

……

Print Name: …… Customer Authorized Signature: ……

Print Title: …… Date: ……/……/……

**NOTE:** If a product is received at Varian which is contaminated with a toxic or hazardous material that was not disclosed, **the customer will be held responsible** for all costs incurred to ensure the safe handling of the product, and **is liable** for any harm or injury to Varian employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.

---

Do not write below this line

Notification (RA)#: …… Customer ID#: …… Equipment #: ……

VARIAN

*Request for Return*

ISO 9001 REGISTERED

# *FAILURE REPORT*

**TURBO PUMPS and TURBOCONTROLLERS**

| | | | | | |
|---|---|---|---|---|---|
| ☐ Does not start | ☐ Noise | POSITION | PARAMETERS | | |
| ☐ Does not spin freely | ☐ Vibrations | ☐ Vertical | Power: | | Rotational Speed: |
| ☐ Does not reach full speed | ☐ Leak | ☐ Horizontal | Current: | | Inlet Pressure: |
| ☐ Mechanical Contact | ☐ Overtemperature | ☐ Upside-down | Temp 1: | | Foreline Pressure: |
| ☐ Cooling defective | | ☐ Other: | Temp 2: | | Purge flow: |
| | | …… | OPERATION TIME: | | |

**TURBOCONTROLLER ERROR MESSAGE:**

**ION PUMPS/CONTROLLERS**

| | |
|---|---|
| ☐ Bad feedthrough | ☐ Poor vacuum |
| ☐ Vacuum leak | ☐ High voltage problem |
| ☐ Error code on display | ☐ Other |

Customer application:

**VALVES/COMPONENTS**

| | |
|---|---|
| ☐ Main seal leak | ☐ Bellows leak |
| ☐ Solenoid failure | ☐ Damaged flange |
| ☐ Damaged sealing area | ☐ Other |

Customer application:

**LEAK DETECTORS**

| | |
|---|---|
| ☐ Cannot calibrate | ☐ No zero/high backround |
| ☐ Vacuum system unstable | ☐ Cannot reach test mode |
| ☐ Failed to start | ☐ Other |

Customer application:

**INSTRUMENTS**

| | |
|---|---|
| ☐ Gauge tube not working | ☐ Display problem |
| ☐ Communication failure | ☐ Degas not working |
| ☐ Error code on display | ☐ Other |

Customer application:

**PRIMARY PUMPS**

| | |
|---|---|
| ☐ Pump doesn't start | ☐ Noisy pump (describe) |
| ☐ Doesn't reach vacuum | ☐ Over temperature |
| ☐ Pump seized | ☐ Other |

Customer application:

**DIFFUSION PUMPS**

| | |
|---|---|
| ☐ Heater failure | ☐ Electrical problem |
| ☐ Doesn't reach vacuum | ☐ Cooling coil damage |
| ☐ Vacuum leak | ☐ Other |

Customer application:

## FAILURE DESCRIPTION

(Please describe in detail the nature of the malfunction to assist us in performing failure analysis):

***NOTA: Su richiesta questo documento è disponibile anche in Tedesco, Italiano e Francese.***
***REMARQUE : Sur demande ce document est également disponible en allemand, italien et français.***
***HINWEIS: Auf Aufrage ist diese Unterlage auch auf Deutsch, Italienisch und Französisch erhältlich.***

# Sales and Service Offices

**Argentina**
**Varian Argentina Ltd.**
Sucursal Argentina
Av. Ricardo Balbin 2316
1428 Buenos Aires
Argentina
Tel: (54) 1 783 5306
Fax: (54) 1 786 5172

**Benelux**
**Varian Vacuum Technologies**
Rijksstraatweg 269 H,
3956 CP Leersum
The Netherlands
Tel: (31) 343 469910
Fax: (31) 343 469961

**Brazil**
**Varian Industria e Comercio Ltda.**
Avenida Dr. Cardoso de Mello 1644
Vila Olimpia
Sao Paulo 04548 005
Brazil
Tel: (55) 11 3845 0444
Fax: (55) 11 3845 9350

**Canada**
**Central coordination through:**
Varian Vacuum Technologies
121 Hartwell Avenue
Lexington, MA 02421
USA
Tel: (781) 861 7200
Fax: (781) 860 5437
Toll Free # 1 (800) 882 7426

**China**
**Varian Technologies - Beijing**
Room 1201, Jinyu Mansion
No. 129A, Xuanwumen Xidajie
Xicheng District
Beijing 100031 P.R. China
Tel: (86) 10 6641 1530
Fax: (86) 10 6641 1534

**France and Wallonie**
**Varian s.a.**
7 avenue des Tropiques
Z.A. de Courtaboeuf - B.P. 12
Les Ulis cedex (Orsay) 91941
France
Tel: (33) 1 69 86 38 13
Fax: (33) 1 69 28 23 08

**Germany and Austria**
**Varian Deutschland GmbH**
Alsfelder Strasse 6
Postfach 11 14 35
64289 Darmstadt
Germany
Tel: (49) 6151 703 353
Fax: (49) 6151 703 302

**India**
**Varian India PVT LTD**
101-108, 1st Floor
1010 Competent House
7, Nangal Raya Business Centre
New Delhi 110 046
India
Tel: (91) 11 5548444
Fax: (91) 11 5548445

**Italy**
**Varian Vacuum Technologies**
via F.lli Varian 54
10040 Leini, (Torino)
Italy
Tel: (39) 011 997 9 111
Fax: (39) 011 997 9 350

**Japan**
**Varian Vacuum Technologies**
Sumitomo Shibaura Building, 8th Floor
4-16-36 Shibaura
Minato-ku, Tokyo 108
Japan
Tel: (81) 3 5232 1253
Fax: (81) 3 5232 1263

**Korea**
**Varian Technologies Korea, Ltd**
Shinsa 2nd Bldg. 2F
966-5 Daechi-dong
Kangnam-gu, Seoul
Korea 135-280
Tel: (82) 2 3452 2452
Fax: (82) 2 3452 2451

**Mexico**
**Varian, S. de R.L. de C.V.**
Concepcion Beistegui No 109
Col Del Valle
C.P. 03100
Mexico, D.F.
Tel: (52) 5 523 9465
Fax: (52) 5 523 9472

**Taiwan**
**Varian Technologies Asia Ltd.**
14F-6, No.77, Hsin Tai Wu Rd., Sec. 1
Hsi chih, Taipei Hsien
Taiwan, R.O.C.
Tel: (886) 2 2698 9555
Fax: (886) 2 2698 9678

**UK and Ireland**
**Varian Ltd.**
28 Manor Road
Walton-On-Thames
Surrey KT 12 2QF
England
Tel: (44) 1932 89 8000
Fax: (44) 1932 22 8769

**United States**
**Varian Vacuum Technologies**
121 Hartwell Avenue
Lexington, MA 02421
USA
Tel: (781) 861 7200
Fax: (781) 860 5437

**Other Countries**
**Varian Vacuum Technologies**
via F.lli Varian 54
10040 Leini, (Torino)
Italy
Tel: (39) 011 997 9 111
Fax: (39) 011 997 9 350

**Customer Support & Service:**

**North America**
Tel: 1 (800) 882 7426 (toll-free)
vtl.technical.support@varianinc.com

**Europe**
Tel: 00 (800) 234 234 00 (toll-free)
vtt.technical.support@varianinc.com

**Japan**
Tel: (81) 3 5232 1253 (dedicated line)
vtj.technical.support@varianinc.com

**Korea**
Tel: (82) 2 3452 2452 (dedicated line)
vtk.technical.support@varianinc.com

**Taiwan**
Tel: 0 (800) 051 342 (toll-free)
vtw.technical.support@varianinc.com

**Worldwide Web Site, Catalog and Order On-line:**
www.varianinc.com

Representative in most countries

VARIAN

07/03