

# ***Cryopanel***

**Model 919-0180**

- (I) *MANUALE DI ISTRUZIONI*
- (D) *BEDIENUNGSHANDBUCH*
- (F) *NOTICE DE MODE D'EMPLOI*
- (GB) *INSTRUCTION MANUAL*

# ***Cryopanel***



**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 _____
<p>ADDRESS : _____</p> <p>TEL. N° : _____ FAX N° : _____</p> <p>E-MAIL : _____</p>		
<p>PROBLEM / SUGGESTION :</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
<p>REFERENCE INFORMATION (model n°, serial n°, ordering information, time to failure after installation, etc.) :</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">DATE _____</p>		

<p>CORRECTIVE ACTION PLAN / ACTUATION (by VARIAN VTT)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>LOG N° _____</p>
--	---------------------

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



ISTRUZIONI PER L'USO .....	1
INFORMAZIONI GENERALI .....	1
GENERALITA' SUL TSP CRYOPANEL ASSY .....	1
Specifiche tecniche.....	1
Installazione del TSP Cryopanel .....	2
Installazione della cartuccia TSP .....	2
GEBRAUCHSANWEISUNGEN .....	4
ALLGEMEINE HINWEISE .....	4
ALLGEMEINE ANGABEN ZU TSP CRYOPANEL ASSY .....	4
Technische Daten.....	4
Installation des TSP Cryopanel .....	5
Installation des TSP-Einsatzes.....	5
INSTRUCTIONS D'UTILISATION .....	7
INDICATIONS GÉNÉRALES.....	7
GENERALITES SUR LE TSP CRYOPANEL ASSY.....	7
Caractéristiques techniques .....	7
Installation du TSP Cryopanel .....	8
Installation de la cartouche TSP.....	8
INSTRUCTIONS FOR USE .....	10
GENERAL INFORMATION .....	10
OVERVIEW ON THE TSP CRYOPANEL ASSY .....	10
Technical Specifications .....	10
TSP Cryopanel Installation .....	11
TSP Cartridge Installation.....	11

**INFORMAZIONI GENERALI**

Questa apparecchiatura è destinata ad uso professionale. L'utilizzatore deve leggere attentamente il presente manuale di istruzioni ed ogni altra informazione addizionale fornita dalla Varian prima dell'utilizzo dell'apparecchiatura. La Varian si ritiene sollevata da eventuali responsabilità dovute all'inosservanza totale o parziale delle istruzioni, ad uso improprio da parte di personale non addestrato, ad interventi non autorizzati o ad uso contrario alle normative nazionali specifiche. Questo manuale utilizza le seguenti convenzioni:

**! PERICOLO!**

I messaggi di pericolo attirano l'attenzione dell'operatore su una procedura o una pratica specifica che, se non eseguita in modo corretto, potrebbe provocare gravi lesioni personali.

**ATTENZIONE!**

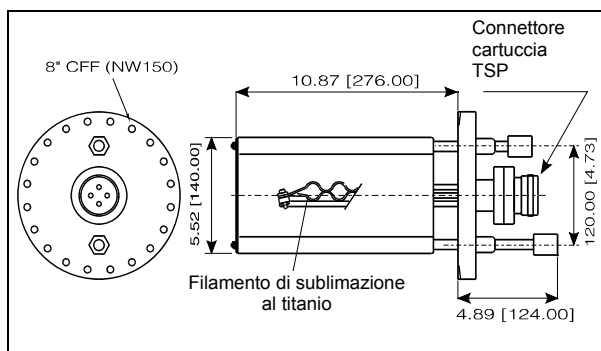
I messaggi di attenzione sono visualizzati prima di procedure che, se non osservate, potrebbero causare danni all'apparecchiatura.

**NOTA**

Le note contengono informazioni importanti estrapolate dal testo.

**GENERALITA' SUL TSP CRYOPANEL ASSY**

Il TSP Cryopanel è stato progettato per essere utilizzato in accoppiamento con la TSP (Titanium Sublimation Pump), tramite montaggio su una flangia 8" OD ConFlat®. Per il raffreddamento può essere utilizzata acqua o azoto liquido. Inoltre il sistema può funzionare in modalità UHV senza raffreddamento. Il cryopanel può essere installato su pompe ioniche double-ended o sideported.

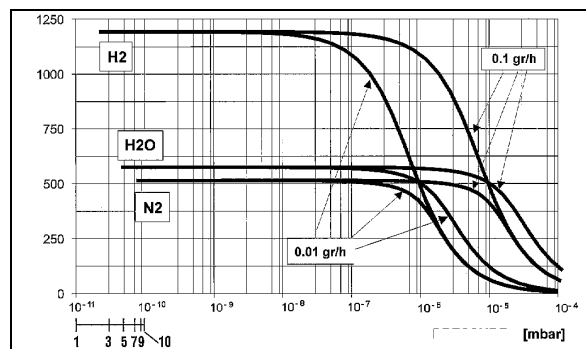


Ingombri TSP Cryopanel in mm [pollici]

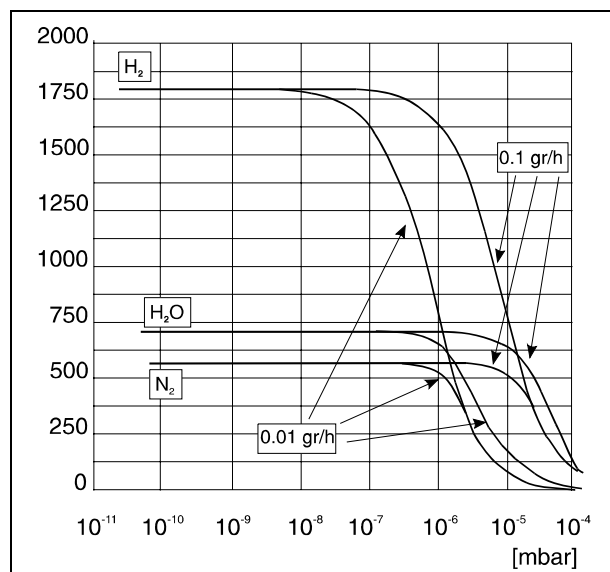
**Specifiche tecniche**

	N <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub> O
Velocità di pompaggio a 20 °C con TSP e raffreddamento ad acqua (l/s)	516	1205	578
Velocità di pompaggio a -195 °C con TSP e raffreddamento ad LN <sub>2</sub> (l/s)	555	1760	696*
Superficie di pompaggio interna (cm <sup>2</sup> )		826	
Flangia principale		8" CF (NW 150)	
Vol. del serbatoio (litri)		1.8	
Raccordi di raffreddamento		3/8" Gas	
Flangia sorgente al titanio		2 3/4 CF	

\* Tenendo presente che H<sub>2</sub>O è un fluido condensabile, l'effetto del pompaggio sulla superficie di uscita del cryopanel è compreso. La velocità di pompaggio è 12.000 l/sec.



Velocità di pompaggio a 20 °C con TSP e raffreddamento ad acqua



Velocità di pompaggio a -195°C con TSP e raffreddamento ad azoto liquido

## Installazione del TSP Cryopanel



**PERICOLO!**

Se per il raffreddamento viene utilizzato LN<sub>2</sub>, prestare molta attenzione nel maneggiare il TSP Cryopanel durante le fasi d'installazione, in quanto il contatto del LN<sub>2</sub> con la pelle provoca gravi ustioni.

Per eseguire una corretta installazione del TSP Cryopanel, attenersi fedelmente alla procedura riportata di seguito.

- Pulire accuratamente sia la flangia da 8" ConFlat® del Cryopanel, che la relativa flangia presente sulla pompa.
- Posizionare i dadi ed avvitare ciascuno con una coppia da 4,5 - 8 ft (0,6 - 1,1 Kgm). Dopo aver avvitato un dado, avvitare sempre quello dalla parte opposta rispetto al centro della flangia.
- Ripetere questa sequenza di avvitamento per altri due cicli.
- Continuare ad avvitare i dadi fino a che i lati delle flange si accostano e fino a rilevare un incremento di coppia.
- Fissare i condotti del fluido di raffreddamento ai relativi attacchi presenti sul TSP Cryopanel, avendo cura di stringere in modo adeguato i dadi di bloccaggio.

### Installazione della cartuccia TSP

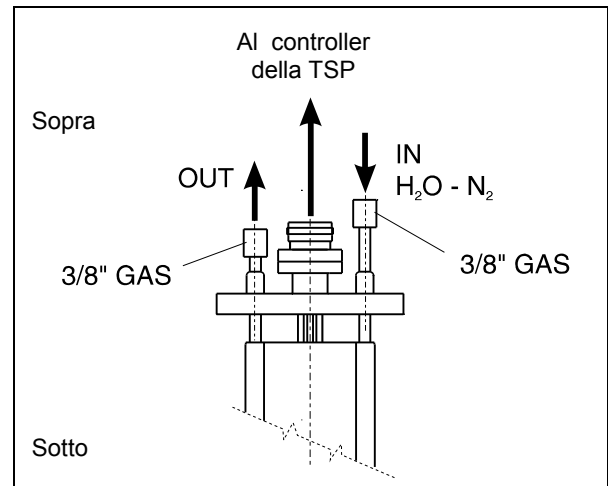
Normalmente la cartuccia TSP viene fornita con una flangia OD 2¾" ConFlat® con tre filamenti al titanio-molibdeno; ciascuno bakeable (riscaldabile) a 400°C. La sublimazione massima si ottiene con l'erogazione di 300 W di potenza.

Per il fissaggio della cartuccia sul Cryopanel, procedere come descritto nel paragrafo precedente, facendo attenzione a fissare la flangia in modo tale da non creare interferenze tra il connettore del cavo proveniente dall'unità di controllo ed i condotti di raffreddamento.

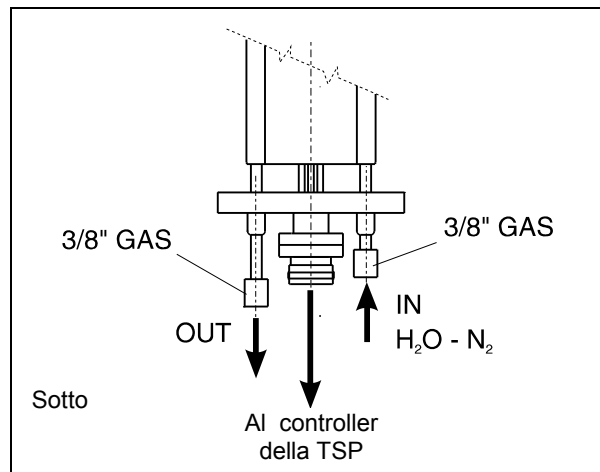
### NOTA

*Durante la fase d'installazione, occorre rispettare il verso di circolazione del fluido di raffreddamento, come riportato negli esempi seguenti.*

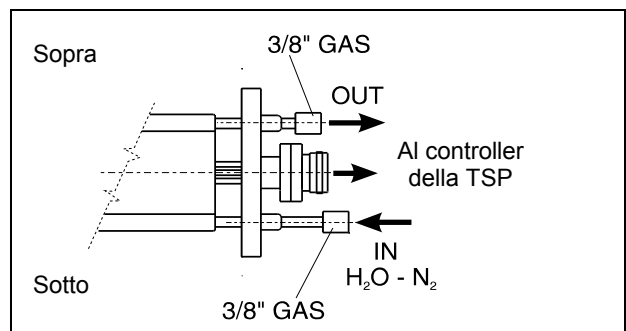
Le figure riportano alcuni esempi di posizionamento del TSP Cryopanel.



*Esempio di posizionamento verticale*



*Esempio di posizionamento verticale*



*Esempio di posizionamento orizzontale*

- Collegare il cavo proveniente dal Titanium Sublimation Controller al relativo connettore presente al centro del TSP Cryopanel.



**PERICOLO!**

L'elevata corrente che transita nel cavo di collegamento all'unità di controllo potrebbe causare gravi infortuni o pericolo di morte. Prima di collegare i cavi al connettore della cartuccia TSP, oppure prima di scollegarlo, assicurarsi di aver spento l'unità di controllo.

---

## SMALTIMENTO

### Significato del logo "WEEE" presente sulle etichette

Il simbolo qui sotto riportato applicato in ottemperanza alla direttiva CE denominata "WEEE".

Questo simbolo (**valido solo per i paesi della Comunità Europea**) indica che il prodotto sul quale è applicato, NON deve essere smaltito insieme ai comuni rifiuti domestici o industriali, ma deve essere avviato ad un sistema di raccolta differenziata.

Si invita pertanto l'utente finale a contattare il fornitore del dispositivo, sia esso la casa madre o un rivenditore, per avviare il processo di raccolta e smaltimento, dopo opportuna verifica dei termini e condizioni contrattuali di vendita.





**ALLGEMEINE HINWEISE**

Dieses Gerät ist für den professionellen Gebrauch bestimmt. Vor dem Gebrauch soll der Benutzer dieses Handbuch sowie alle weiteren von Varian mitgelieferten Zusatzdokumentationen genau lesen. Bei vollständiger bzw. teilweiser Nichtbeachtung der enthaltenen Hinweise, unsachgemäßem Gebrauch durch ungeschultes Personal, nicht autorisierten Eingriffen und Mißachtung der nationalen Bestimmungen übernimmt Firma Varian keinerlei Haftung. In dieser Gebrauchsanleitung werden Sicherheitshinweise folgendermaßen hervorgehoben:



Die Gefahrenhinweise lenken die Aufmerksamkeit des Bedieners auf eine spezielle Prozedur oder Praktik, die bei unkorrekter Ausführung schwere Verletzungen hervorrufen könnte.



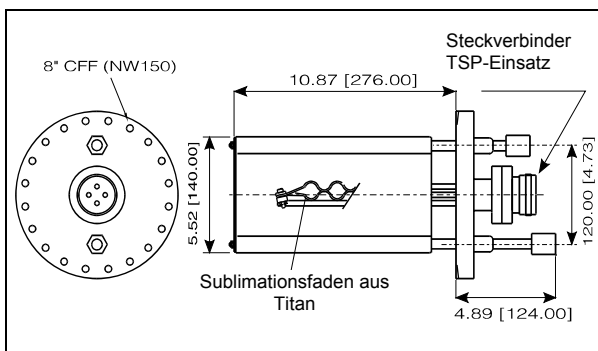
Die Warnhinweise vor bestimmten Prozeduren machen den Bediener darauf aufmerksam, daß bei Nichteinhaltung Schäden am Gerät entstehen können.

**ANMERKUNG**

Die Anmerkungen enthalten wichtige Informationen, die aus dem Text hervorgehoben werden.

**ALLGEMEINE ANGABEN ZU TSP CRYOPANEL ASSY**

Der TSP Cryopanel wurde entwickelt, um auf einen Flansch 8" OD ConFlat® montiert und in Verbindung mit TSP (Titanium Sublimation Pump) verwendet zu werden. Die Kühlung kann mit Wasser oder flüssigem Stickstoff erfolgen. Das System kann außerdem in der Betriebsweise UHV ohne Kühlung arbeiten. Cryopanel kann an "double-ended" - oder "sideported" -Ionenpumpen installiert werden.

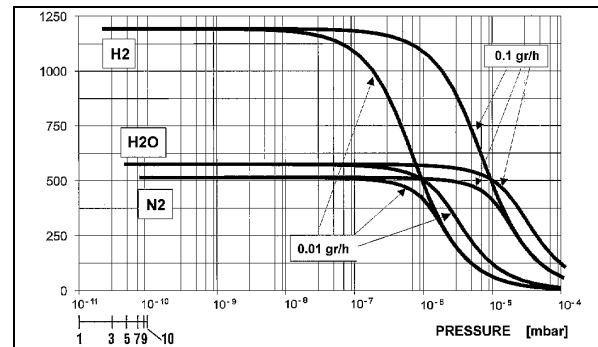


Abmessungen TSP Cryopanel in mm [Zoll]

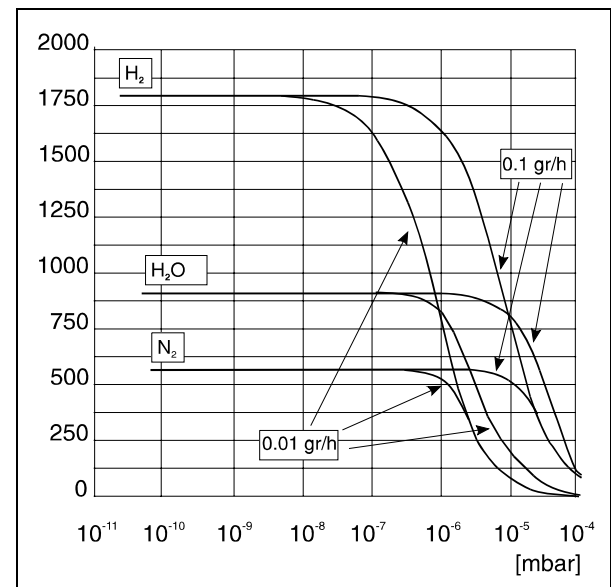
**Technische Daten**

	N <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub> O
Pumpgeschwindigkeit bei 20 °C mit TSP und Wasserkühlung (l/s)	516	1205	578
Pumpgeschwindigkeit bei -195 °C mit TSP und Kühlung mit LN <sub>2</sub> (l/s)	555	1760	696*
Interne Pumpoberfläche (cm <sup>2</sup> )		826	
Hauptflansch		8" CF (NW 150)	
Behälterinhalt (Liter)		1.8	
Kühlanschlüsse		3/8" Gas	
Flansch der Titanquelle		2¾ CF	

\* Da H<sub>2</sub>O eine kondensierbare Flüssigkeit ist, berücksichtigt dieser Wert die Pumpwirkung auf die Ausgangsfläche des Cryopanel. Die Pumpgeschwindigkeit beträgt 12.000 l/sec.



Pumpgeschwindigkeit bei 20 °C mit TSP und Wasserkühlung



Pumpgeschwindigkeit bei -195°C mit TSP und Kühlung mit flüssigem Stickstoff

### Installation des TSP Cryopanel



Wird zur Kühlung LN<sub>2</sub> verwendet, ist bei der Installation des TSP Cryopanel besondere Vorsicht geboten, da LN<sub>2</sub> schwere Verbrennungen verursacht, wenn es mit der Haut in Berührung kommt.

Zur richtigen Installation des TSP Cryopanel sind die nachstehend erteilten Anleitungen genau zu befolgen.

- Den Flansch zu 8" ConFlat® des Cryopanel und den an der Pumpe vorhandenen Flansch sorgfältig reinigen.
- Die Muttern einsetzen und mit einem Drehmoment von jeweils 4,5 - 8 ft (0,6 - 1,1 Kgm) zuschrauben. Sobald eine Mutter eingeschraubt ist, muß danach immer die der Flanschmitte gegenüberliegende Mutter eingeschraubt werden.
- Diesen Schraubvorgang zweimal wiederholen.
- Die Muttern soweit zuschrauben, bis die Seiten der Flansche nebeneinander liegen und eine Erhöhung des Drehmoments festzustellen ist.
- Die Leitungen der Kühlflüssigkeit mit den Anschlüssen am TSP Cryopanel verbinden und die Befestigungsmuttern entsprechend anziehen.

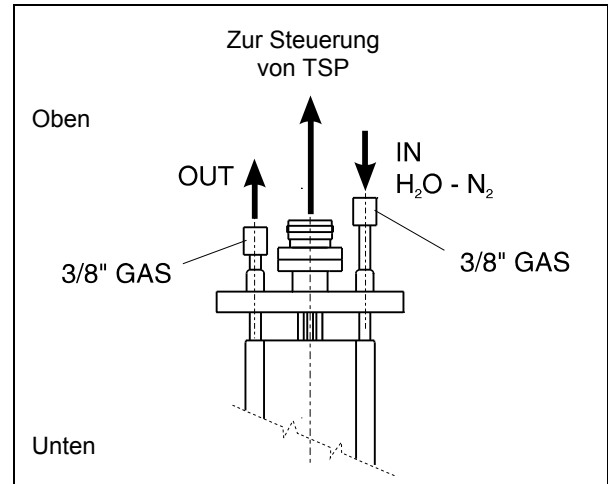
### Installation des TSP-Einsatzes

Normalerweise wird der TSP-Einsatz mit einem Flansch OD 2¾" ConFlat® mit drei Titan-Molybdän-Fäden geliefert, die bis 400°C aufheizbar (bakeable) sind. Die größte Sublimation erfolgt bei 300 W Leistung. Die Befestigung des Einsatzes am Cryopanel ist entsprechend der im vorhergehenden Abschnitt enthaltenen Beschreibung vorzunehmen. Es ist dabei darauf zu achten, daß der Flansch so befestigt wird, damit der Stecker des von der Steuereinheit kommenden Kabels und die Kühlleitungen sich nicht gegenseitig behindern.

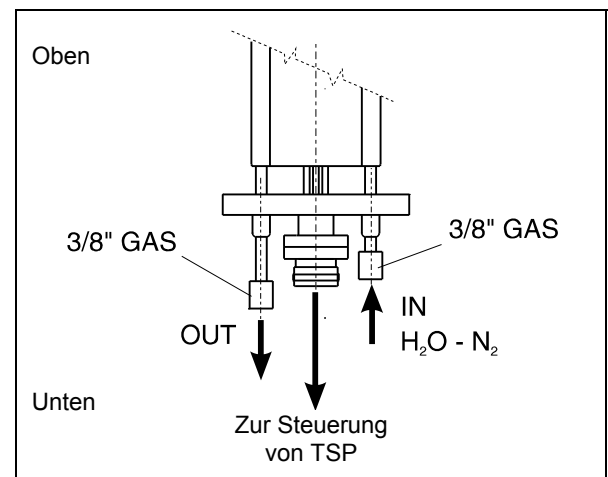
#### HINWEIS

Bei der Installation muß die Strömungsrichtung der Kühlflüssigkeit beachtet werden, wie in den folgenden Beispielen dargestellt.

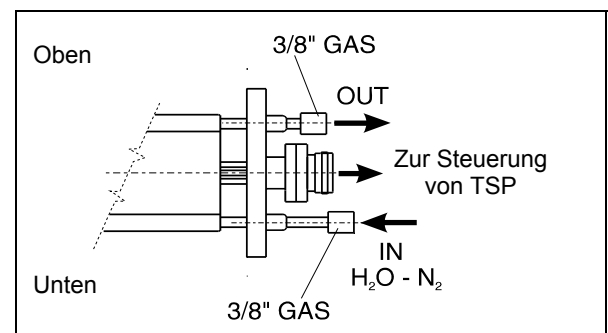
Die folgenden Abbildungen enthalten einige Beispiele für die Anordnung des TSP Cryopanel.



Beispiel für senkrechte Anordnung



Beispiel für senkrechte Anordnung



Beispiel für waagrechte Anordnung

- Das vom Titanium Sublimation Controller kommende Kabel an den entsprechenden Steckverbinder auf dem TSP Cryopanel anschließen.



Durch den starken Strom, der durch das Anschlußkabel der Steuereinheit geht, besteht große Unfall- bzw. Todesgefahr. Bevor das Kabel an den Steckverbinder des TSP-Einsatzes angeschlossen wird und bevor es gezogen wird, ist unbedingt sicherzustellen, daß die Steuereinheit ausgeschaltet ist.

---

## ENTSORGUNG

### **Bedeutung des "WEEE" Logos auf den Etiketten**

Das folgende Symbol ist in Übereinstimmung mit der EU-Richtlinie WEEE (Waste Electrical and Electronic Equipment) angebracht.

Dieses Symbol (**nur in den EU-Ländern gültig**) zeigt an, dass das betreffende Produkt nicht zusammen mit Haushaltsmüll entsorgt werden darf sondern einem speziellen Sammelsystem zugeführt werden muss.

Der Endabnehmer sollte daher den Lieferanten des Geräts - d.h. die Muttergesellschaft oder den Wiederverkäufer - kontaktieren, um den Entsorgungsprozess zu starten, nachdem er die Verkaufsbedingungen geprüft hat.



**INDICATIONS GÉNÉRALES**

Cet appareillage a été conçu en vue d'une utilisation professionnelle. Il est conseillé à l'utilisateur de lire attentivement cette notice d'instructions ainsi que toute autre indication supplémentaire fournie par Varian avant d'utiliser l'appareil. Varian décline toute responsabilité en cas de non respect total ou partiel des instructions fournies, d'opérations non autorisées, d'utilisation impropre par du personnel non formé ou contraires aux réglementations nationales spécifiques. Cette notice utilise les signes conventionnels suivants:



Les messages de danger attirent l'attention de l'opérateur sur une procédure ou une manœuvre spéciale dont la mauvaise exécution peut provoquer de graves lésions.



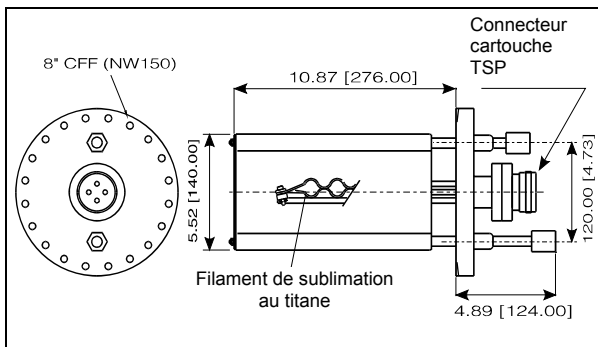
Les messages d'attention apparaissent avant certaines procédures dont le non respect peut provoquer des dommages irréversibles à l'appareillage.

**NOTE**

Les notes contiennent des renseignements importants, extrapolés du texte.

**GENERALITES SUR LE TSP CRYOPANEL ASSY**

Le TSP Cryopanel a été conçu pour être utilisé conjointement avec la TSP (Titanium Sublimation Pump) par un montage sur une bride 8" OD ConFlat®. On peut utiliser de l'eau ou de l'azote liquide pour le refroidissement. En outre, le système peut fonctionner en modalité UHV sans refroidissement. Le cryopanel peut être installé sur des pompes ioniques double-ended ou sideported.

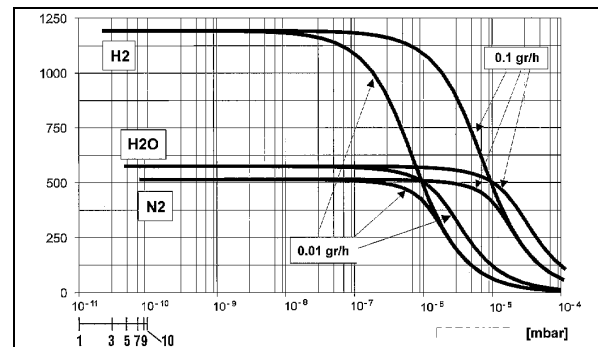


Encombres TSP Cryopanel en mm [pouces]

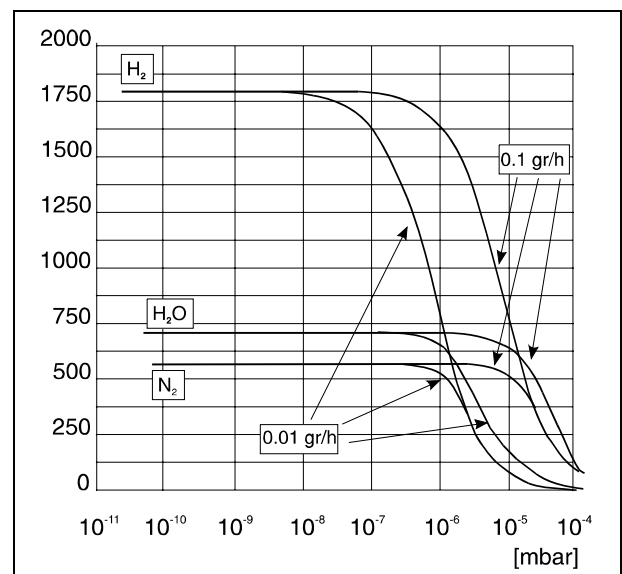
**Caractéristiques techniques**

	N <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub> O
Vitesse de pompage à 20°C avec TSP et refroidissement à l'eau (l/s)	516	1205	578
Vitesse de pompage à -195°C avec TSP et refroidissement au LN <sub>2</sub> (l/s)	555	1760	696*
Surface de pompage interne (cm <sup>2</sup> )		826	
Bride principale		8" CF (NW 150)	
Vol. du réservoir (litres)		1.8	
Raccords de refroidissement		3/8" Gaz	
Bride source au titane		2 3/4 CF	

\* Compte tenu du fait que l'H<sub>2</sub>O est un fluide condensable, l'effet du pompage sur la surface de sortie du cryopanel est compris. La vitesse de pompage est de 12.000 l/sec.



Vitesse de pompage à 20°C avec TSP et refroidissement à l'eau



Vitesse de pompage à -195°C avec TSP et refroidissement à l'azote liquide

**Installation du TSP Cryopanel**



**DANGER!**

Si l'on utilise du LN<sub>2</sub> pour le refroidissement, faire très attention en manipulant le TSP Cryopanel pendant les phases d'installation, car le contact du LN<sub>2</sub> avec la peau provoque de graves brûlures.

Pour installer correctement le TSP Cryopanel, suivre fidèlement la procédure indiquée ci-dessous:

- Nettoyer soigneusement la bride de 8" ConFlat® du cryopanel ainsi que la bride correspondante sur la pompe.
- Positionner les écrous et les visser chacun à un couple de 4,5 - 8 ft (0,6 - 1,1 Kgm). Après avoir vissé un écrou, toujours visser celui à l'opposé par rapport au centre de la bride.
- Répéter cette séquence de vissage pendant encore deux cycles.
- Continuer à visser les écrous jusqu'à ce que les côtés des brides entrent en contact et jusqu'à avoir une augmentation du couple.
- Fixer les tubulures du fluide de refroidissement aux fixations correspondantes sur le TSP Cryopanel, en prenant soin de serrer les écrous de blocage de manière appropriée.

**Installation de la cartouche TSP**

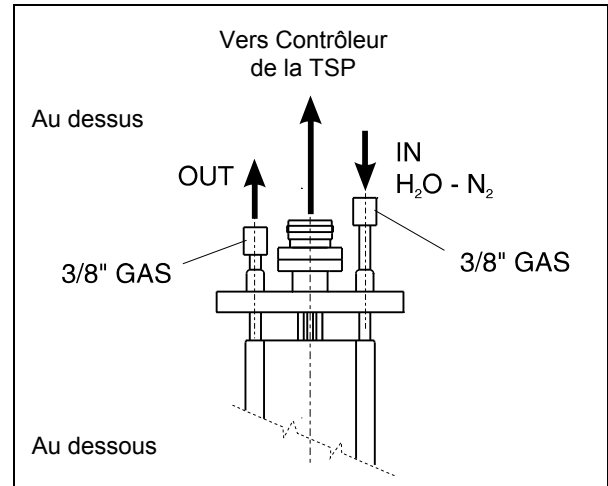
Normalement, la cartouche TSP est fournie avec une bride OD 2 3/4" ConFlat® avec trois filaments au titane - molybdène; chacun étant bakable (chauffable) à 400 °C. La sublimation maximum est obtenue en fournissant une puissance de 300 W.

Pour fixer la cartouche sur le cryopanel, procéder comme le décrit le paragraphe précédent, en prenant garde à fixer la bride de manière à ne pas créer d'interférences entre le connecteur du câble provenant du système de commande et les tubulures de refroidissement.

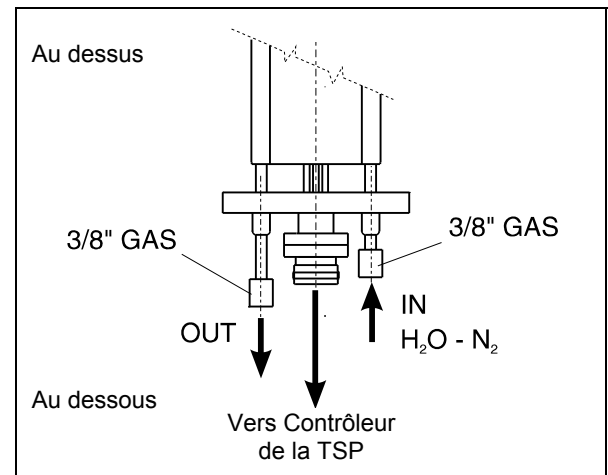
**NOTE**

*Pendant la phase d'installation, il faut respecter le sens de circulation du fluide de refroidissement, ainsi que l'illustrent les exemples suivants.*

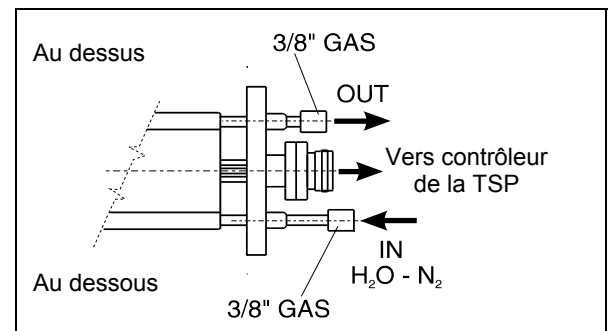
Les figures illustrent quelques exemples de positionnement du TSP Cryopanel.



*Exemple de positionnement vertical*



*Exemple de positionnement vertical*



*Exemple de positionnement horizontal*

- Brancher le câble provenant du Titanium Sublimation Controller au connecteur correspondant sur le centre du TSP Cryopanel.



**DANGER!**

Le courant élevé qui passe dans le câble de connexion au système de commande pourrait provoquer de graves accidents et mettre les personnes en danger de mort. Avant de brancher les câbles au connecteur de la cartouche TSP, et de même avant de le débrancher, vérifier que l'on a éteint le système de commande.

---

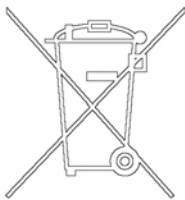
**MISE AU REBUT**

**Signification du logo "WEEE" figurant sur les étiquettes**

Le symbole ci-dessous est appliqué conformément à la directive CE nommée "WEEE".

Ce symbole (**uniquement valide pour les pays de la Communauté européenne**) indique que le produit sur lequel il est appliqué NE doit PAS être mis au rebut avec les ordures ménagères ou les déchets industriels ordinaires, mais passer par un système de collecte sélective.

Après avoir vérifié les termes et conditions du contrat de vente, l'utilisateur final est donc prié de contacter le fournisseur du dispositif, maison mère ou revendeur, pour mettre en œuvre le processus de collecte et mise au rebut.



**GENERAL INFORMATION**

This equipment is destined for use by professionals. The user should read this instruction manual and any other additional information supplied by Varian before operating the equipment. Varian will not be held responsible for any events occurring due to non-compliance, even partial, with these instructions, improper use by untrained persons, non-authorized interference with the equipment or any action contrary to that provided for by specific national standards.

This manual uses the following standard protocol:

**! WARNING!**

The warning messages are for attracting the attention of the operator to a particular procedure or practice which, if not followed correctly, could lead to serious injury.

**☞ CAUTION**

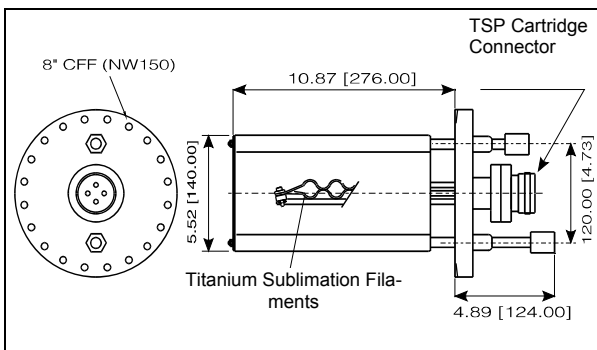
The caution messages are displayed before procedures which, if not followed, could cause damage to the equipment.

**NOTE**

The notes contain important information taken from the text.

**OVERVIEW ON THE TSP CRYOPANEL ASSY**

The TSP Cryopanel has been designed for use with the TSP (Titanium Sublimation Pump) and is mounted on an 8" OD ConFlat® flange. It can operate with water or liquid nitrogen cooling, or un-cooled if used at UHV. The cryopanel can be mounted on double-ended or side ported ion pumps.

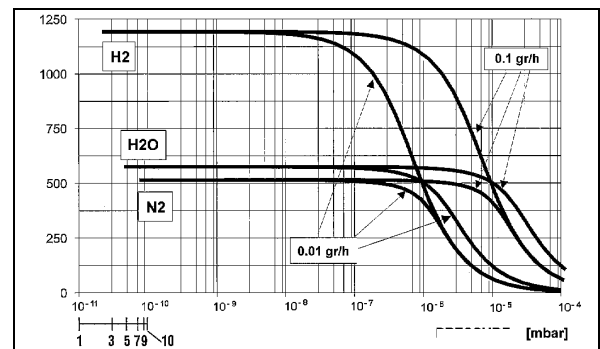


TSP Cryopanel Outline Drawing in mm [Inches]

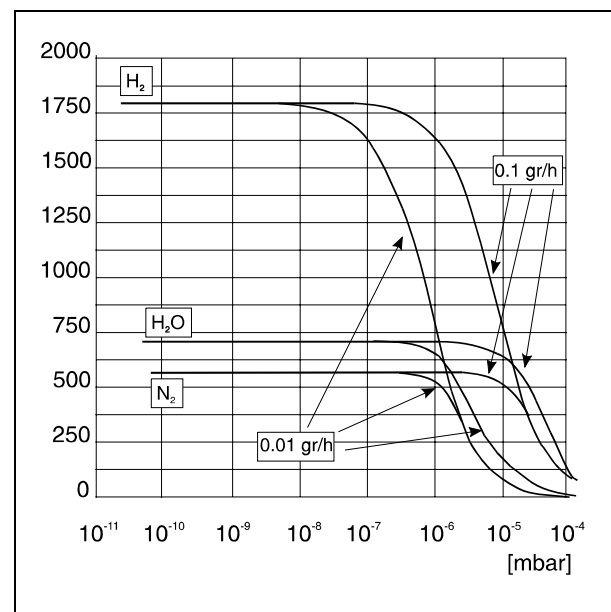
**Technical Specifications**

	N <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub> O
Pumping speed at 20 °C with TSP and water cooled (l/s)	516	1205	578
Pumping speed at -195 °C with TSP and LN <sub>2</sub> cooled (l/s)	555	1760	696*
Inner pumping surface (cm <sup>2</sup> )		826	
Main flange		8" CF (NW 150)	
Reservoir volume (liters)		1.8	
Cooling connection		3/8" Gas	
Titanium source flange		2 3/4 CF	

\* It must be considered that H<sub>2</sub>O is a condensable gas and therefore the pumping effect of the outlet surface of the cryopanel should be included. This pumping speed is = 12.000 l/s.



Pumping Speed at 20 °C with TSP and Water Cooling



Pumping Speed at -195°C with TSP and Liquid Nitrogen Cooling

### TSP Cryopanel Installation



**WARNING!**

If LN<sub>2</sub> is used for cooling, be very careful when handling the TSP Cryopanel during installation. Contact with LN<sub>2</sub> causes severe burns to the skin.

To correctly install the TSP Cryopanel, carefully follow the procedure indicated below.

- Adequately clean the cryopanel's 8" ConFlat® flange and the flange present on the pump.
- Attach the nuts and tighten each one turn to 4.5 - 8 ft (0.6 - 1.1 Kgm) of torque. After tightening a nut, always tighten the opposite nut with respect to the center of the flange.
- Repeat this tightening sequence for another two cycles.
- Continue tightening the bolts until the flange faces meet and a pronounced increase in torque is felt.
- Secure the cooling tubes for the liquid to the respective fittings on the TSP cryopanel making sure to adequately tighten the connecting nuts.

### TSP Cartridge Installation

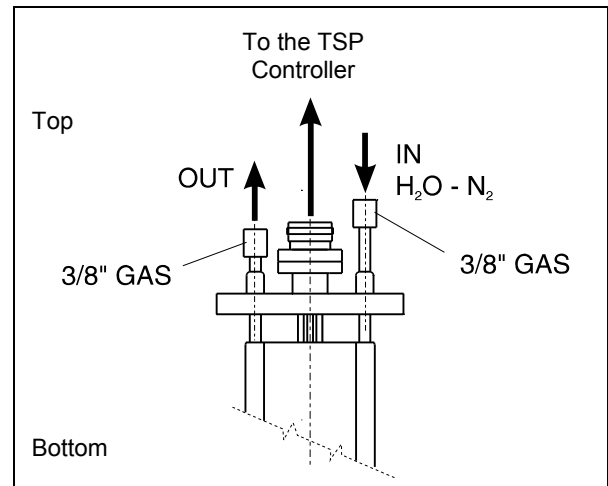
The TSP cartridge is usually provided with an OD 2¾" ConFlat® flange with three titanium-molybdenum filaments, each bakeable at 400°C. Maximum sublimation is obtained with a power of 300 W.

To secure the cartridge on the cryopanel, proceed as explained in the previous section, making sure to position the flange in a way to avoid interference between the connector of the cable from the control unit and the cooling tubes.

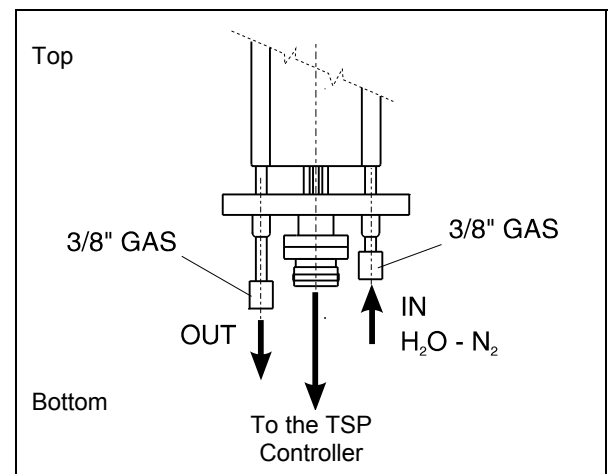
#### NOTE

During installation consider the direction in which the cooling liquid flows, as shown in the following examples.

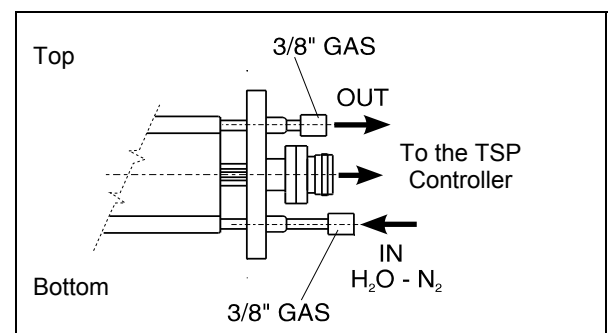
The following figures show some examples for how to position the TSP Cryopanel.



Example of a Vertical Positioning



Example of a Vertical Positioning



Example of a Horizontal Positioning

- Attach the cable from the Titanium Sublimation Controller to the connector in the center of the TSP Cryopanel.



**WARNING!**

The high voltage present in the control unit connection cable could cause severe injury or death. Be sure to power off the control unit before attaching the cable to the TSP cartridge connector, or before disconnecting it.



---

## DISPOSAL

### **Meaning of the "WEEE" logo found in labels**

The following symbol is applied in accordance with the EC WEEE (Waste Electrical and Electronic Equipment) Directive.

This symbol (**valid only in countries of the European Community**) indicates that the product it applies to must NOT be disposed of together with ordinary domestic or industrial waste but must be sent to a differentiated waste collection system.

The end user is therefore invited to contact the supplier of the device, whether the Parent Company or a retailer, to initiate the collection and disposal process after checking the contractual terms and conditions of sale.





# Request for Return



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**

Varian Vacuum Technologies  
 121 Hartwell Ave  
 Lexington, MA 02421  
 Phone : +1 781 8617200  
 Fax: +1 781 8609252

**Europe and Middle East**

Varian SpA  
 Via Flli Varian 54  
 10040 Leini (TO) – ITALY  
 Phone: +39 011 9979111  
 Fax: +39 011 9979330

**Asia and ROW**

Varian Vacuum Technologies  
 Local Office

**CUSTOMER INFORMATION**

Company name: .....	
Contact person: Name: .....	Tel: .....
Fax: .....	E-Mail: .....
Ship Method: .....	Shipping Collect #: ..... P.O.#: .....
<i>Europe only:</i> VAT reg. Number: .....	<i>USA only:</i> <input type="checkbox"/> Taxable <input type="checkbox"/> 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)**

<input type="checkbox"/> Paid Exchange	<input type="checkbox"/> Paid Repair	<input type="checkbox"/> Warranty Exchange	<input type="checkbox"/> Warranty Repair	<input type="checkbox"/> Loaner Return
<input type="checkbox"/> Credit	<input type="checkbox"/> Shipping Error	<input type="checkbox"/> Evaluation Return	<input type="checkbox"/> Calibration	<input type="checkbox"/> 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 #: .....

**FAILURE REPORT**

**TURBO PUMPS and TURBOCONTROLLERS**

<input type="checkbox"/> Does not start <input type="checkbox"/> Does not spin freely <input type="checkbox"/> Does not reach full speed <input type="checkbox"/> Mechanical Contact <input type="checkbox"/> Cooling defective	<input type="checkbox"/> Noise <input type="checkbox"/> Vibrations <input type="checkbox"/> Leak <input type="checkbox"/> Overtemperature	<b>POSITION</b> <input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Upside-down <input type="checkbox"/> Other: .....	<b>PARAMETERS</b> Power:                      Rotational Speed: Current:                     Inlet Pressure: Temp 1:                      Foreline Pressure: Temp 2:                      Purge flow: <hr/> OPERATION TIME:
<b>TURBOCONTROLLER ERROR MESSAGE:</b>			

**ION PUMPS/CONTROLLERS**

<input type="checkbox"/> Bad feedthrough <input type="checkbox"/> Vacuum leak <input type="checkbox"/> Error code on display	<input type="checkbox"/> Poor vacuum <input type="checkbox"/> High voltage problem <input type="checkbox"/> Other
Customer application:	

**VALVES/COMPONENTS**

<input type="checkbox"/> Main seal leak <input type="checkbox"/> Solenoid failure <input type="checkbox"/> Damaged sealing area	<input type="checkbox"/> Bellows leak <input type="checkbox"/> Damaged flange <input type="checkbox"/> Other
Customer application:	

**LEAK DETECTORS**

<input type="checkbox"/> Cannot calibrate <input type="checkbox"/> Vacuum system unstable <input type="checkbox"/> Failed to start	<input type="checkbox"/> No zero/high background <input type="checkbox"/> Cannot reach test mode <input type="checkbox"/> Other
Customer application:	

**INSTRUMENTS**

<input type="checkbox"/> Gauge tube not working <input type="checkbox"/> Communication failure <input type="checkbox"/> Error code on display	<input type="checkbox"/> Display problem <input type="checkbox"/> Degas not working <input type="checkbox"/> Other
Customer application:	

**PRIMARY PUMPS**

<input type="checkbox"/> Pump doesn't start <input type="checkbox"/> Doesn't reach vacuum <input type="checkbox"/> Pump seized	<input type="checkbox"/> Noisy pump (describe) <input type="checkbox"/> Over temperature <input type="checkbox"/> Other
Customer application:	

**DIFFUSION PUMPS**

<input type="checkbox"/> Heater failure <input type="checkbox"/> Doesn't reach vacuum <input type="checkbox"/> Vacuum leak	<input type="checkbox"/> Electrical problem <input type="checkbox"/> Cooling coil damage <input type="checkbox"/> 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 Anfrage ist diese Unterlage auch auf Deutsch, Italienisch und Französisch erhältlich.

## Sales and Service Offices

### France and Benelux

#### 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 84  
Fax: (33) 1 69 86 29 88  
From Benelux Tel: (31) 118 67 15 70  
From Benelux Fax: (31) 118 67 15 69

### 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

Rm 1648 Central Tower South Wing  
Beijing Junefield Plaza  
No. 10 XuanWuMenWai Street  
Beijing 100052  
P.R. China  
Tel: (86) 10 63108550  
Fax: (86) 10 63100141  
Toll Free: 800 820 6556

### 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 28521171  
Fax: (91) 11 28521173

### Italy

#### Varian Inc.

#### 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  
Toll Free: 0120 655 040

### 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  
Toll Free: 080 222 2452

### 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  
Toll Free: 0800 051342

### UK and Ireland

#### Varian Ltd.

6 Mead Road  
Oxford Industrial Park - Yarnton  
Oxford OX5 1QU - England  
Tel: (44) 1865 291570  
Fax: (44) 1865 291571

### United States

#### Varian Vacuum Technologies

121 Hartwell Avenue  
Lexington, MA 02421  
USA  
Tel: (781) 861 7200  
Fax: (781) 860 5437

### Other Countries

#### Varian Inc.

#### 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

Toll-Free: 1 800 882 7426  
vtl.technical.support@varianinc.com

#### Europe

Tel: 00 800 234 234 00  
vtt.technical.support@varianinc.com

#### China

Toll-Free: 800 820 8266  
vtc.technical.support@varianinc.com

#### Japan

Toll-Free: 0120 655 040  
vtj.technical.support@varianinc.com

#### Korea

Toll-Free: 080 222 2452  
vtk.technical.support@varianinc.com

#### Taiwan

Toll-Free: 0 800 051 342  
vtw.technical.support@varianinc.com

### Worldwide Web Site, Catalog and Order On-line:

www.varianinc.com

Representative in most countries



# VARIAN