



**VARIAN**   
*vacuum technologies*

## ***TPS-bench*** **Models**

<b>969-8200</b>	<b>969-8202</b>
<b>969-8203</b>	<b>969-8204</b>
<b>969-8208</b>	<b>969-8212</b>
<b>969-8213</b>	<b>969-8214</b>
<b>969-8215</b>	<b>969-8216</b>

- (I) MANUALE DI ISTRUZIONI*
- (D) BEDIENUNGSHANDBUCH*
- (F) NOTICE DE MODE D'EMPLOI*
- (E) MANUAL DE INSTRUCCIONES*
- (P) MANUAL DE INSTRUÇÕES*
- (NL) BEDRIJFSHANDLEIDING*
- (DK) INSTRUKSTIONSBOG*
- (S) BRUKSANVISNING*
- (N) INSTRUKSJON MANUAL*
- (FIN) OHJEKÄSIKIRJA*
- (GR) ΟΔΗΓΙΕΣ ΧΡΗΣΕΩΣ*
- (H) FELHASZNÁLÓI KÉZIKÖNYV*
- (PL) PODRECZNIK INSTRUKCJI*
- (CZ) NÁVOD K POUŽITÍ*
- (SK) NÁVOD NA OBSLUHU*
- (SLO) PRIROČNIK ZA NAVODILA*
- (GB) INSTRUCTION MANUAL*

# ***TPS-bench***



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



## Safety Guideline

for

# Turbomolecular Pumps

Turbomolecular pumps as described in the following operating manual contain a large amount of kinetic energy due to the high rotational speed in combination with the specific mass of their rotors.

In case of a malfunction of the system for example rotor/stator contact or even a rotor crash the rotational energy may be released.



### **WARNING!**

**To avoid damage to equipment and to prevent injuries to operating personnel the installation instructions as given in this manual should be strictly followed!**

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**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. The following paragraphs contain all the information necessary to guarantee the safety of the operator when using the equipment. Detailed information about the installed equipment are available into the supplied relevant technical manuals.

**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.

**DESCRIPTION**

The TPS-bench is a pumping group and is composed of the following units:

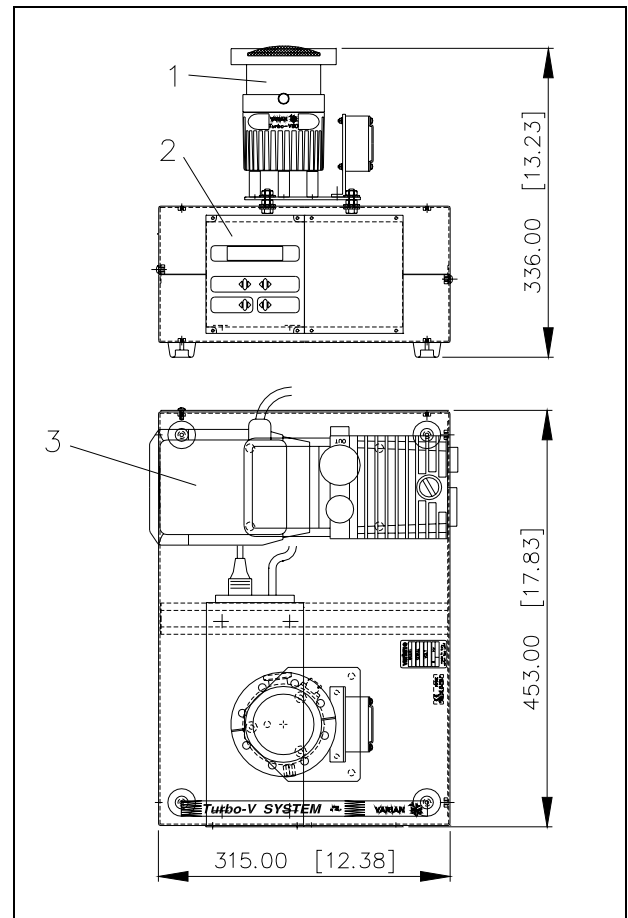
- a Turbo pump with relevant accessories;
- a backing pump;
- the Turbo pump controller;
- a senTorr unit (optional).

The TPS-bench is factory assembled with the required pumps and accessories. The base models are the following:

TPS-bench 220 V			
P/N	TMP	Flange	Foreline
969-8202	TV301	ISO100	SH110
969-8208	TV301	ISO100	DS102
969-8204	TV81M	ISO63	DS102
969-8202	TV81M	ISO63	SH110
969-8200	TV81M	ISO63	DS42

TPS-bench 110 V			
P/N	TMP	Flange	Foreline
969-8212	TV301	ISO100	SH110
969-8213	TV301	ISO100	DS102
969-8214	TV81M	ISO63	DS102
969-8215	TV81M	ISO63	SH110
969-8216	TV81M	ISO63	DS42

The following figure shows a TPS-bench overall view with indication of the units position (dimensions expressed as mm [inches]).



*TPS-bench*

Remote start/stop, pump status signals, forepump start/stop, interlock control (for pressure switch, water flow switch, etc.) capability, are provided via the controller auxiliary connectors.

The TPS-bench needs to be powered by a voltage of 110 to 125 Vac or to 200 to 240 Vac with a frequency of 50/60 Hz. According to the TPS-bench configuration The absorbed power varies from 627 to 1360 VA according to the TPS-bench configuration.

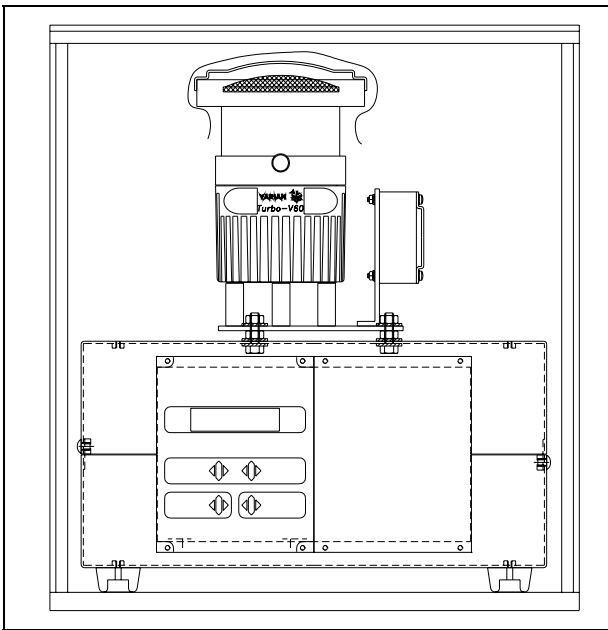
**STORAGE**

When transporting and storing the TPS-bench, the following environmental requirements should be satisfied:

- temperature: from -20 °C to +70 °C
- relative humidity: 0 - 95% (without condensation)

**PREPARATION FOR INSTALLATION**

The TPS-bench is supplied in a special protective packing. If this shows signs of damage which may have occurred during transport, contact your local sales office. When unpacking the TPS-bench, ensure that it is not dropped or subjected to any form of impact.



TPS-bench packaging

Do not dispose of the packing materials in an unauthorised manner. The material is 100% recyclable and complies with EEC Directive 85/399.

### INSTALLATION

The TPS-bench installation does not require specific presettings.



**WARNING!**

TPS-bench must be fixed to the standing plane by means of suitable fixing device.

Detailed information about the other units installed into the TPS-bench are contained in the relevant Instructions Manuals.



**WARNING!**

The Turbo pump of the TPS-bench can reach high temperature that can cause severe injury. Pay attention during the unit handling.

When the Turbo pump is water cooled, be sure that the water tubes are not in contact with live elements.

### NOTE

*The TPS-bench installed in its final position must be positioned so that cold air can flow through the units. Do not install or use the TPS-bench in an environment exposed to atmospheric agents (rain, snow, ice), dust, aggressive gases, or in explosive environments or those with a high fire risk.*

During operation, the following environmental conditions must be respected:

- temperature: from 0 °C to +40 °C
- relative humidity: 0 - 95% (without condensation)

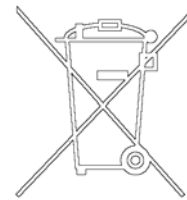
### DISPOSAL

#### 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.



### USE



**WARNING!**

When employing the TPS-bench for pumping toxic, flammable, or radioactive gases, please follow the required procedures for each gas disposal.



**WARNING!**

Never operate the Turbo pump if the pump inlet is not connected to the system or blanked off.



**WARNING!**

When the pump must be reinstalled after a removal, to avoid dangers in the case of a sudden stop of the Turbo pump, it must be fixed to the TPS-bench by means of the suitable fixing device using screws with a minimum yield point of 550 N/mm<sup>2</sup> and fixing them with a torque of 4.5 Nm.

Detailed information and operating procedures that involve optional connections or options are supplied in the Instruction Manual of each unit.

### MAINTENANCE

The TPS-bench does not require any maintenance. Any work performed on the TPS-bench must be carried out by authorised personnel.

When an unit mounted on the TPS-bench is faulty, refer to the relevant Instruction Manual.



**WARNING!**

Before carrying out any work on the TPS-bench, disconnect it from the supply.

To gain access to the controller connectors execute the following procedure:

- Unscrew the four screws that fix the TPS-bench box rear panel.
- Pull out the rear panel.
- Disconnect the controller connectors.



**WARNING!**

Should the TPS-bench be used for pumping toxic, flammable, or radioactive gases and it is to be scrapped, please follow the required procedures for each gas disposal.

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**Accessories**

<b>Gauge DIY KIT FOR TPS-mobile</b>		
969-9185	DIY EYESYS GAUGE KIT	KF40
969-9186	DIY EYESYS GAUGE KIT	ISO63
969-9187	DIY EYESYS GAUGE KIT	CFF4.5
969-9188	DIY EYESYS GAUGE KIT	ISO100
969-9189	DIY EYESYS GAUGE KIT	ISO160
969-9196	DIY EYESYS GAUGE KIT	CFF2.75
969-9197	DIY EYESYS GAUGE KIT	CFF6
969-9198	DIY EYESYS GAUGE KIT	CFF8
969-9190	DIY FULL RANGE KIT	KF40
969-9192	DIY FULL RANGE KIT	ISO63
969-9193	DIY FULL RANGE KIT	CFF4.5
969-9194	DIY FULL RANGE KIT	ISO100
969-9195	DIY FULL RANGE KIT	ISO160
969-9199	DIY FULL RANGE KIT	CFF2.75
969-9201	DIY FULL RANGE KIT	CFF6
969-9202	DIY FULL RANGE KIT	CFF8





# 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.#: .....
<u>Europe only:</u> VAT reg. Number: .....	<u>USA only:</u> <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 #: .....



# Request for Return



## 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/> <b>OPERATION TIME:</b>
<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

