



Agilent Technologies

Vacuum Products Division

***Calibrated Leak
Replacement for VS
C15, VS, and
(G8610, G8611, or
G8612) Series Leak
Detectors***

*FIELD REPLACEMENT
INSTRUCTIONS*

Part Number 699909998

Rev. C

July 2017



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Agilent Field Instruction Sheet

Calibrated Leak Replacement for VS C15, VS, and (G8610, G8611, or G8612) Series Leak Detectors

Preface

This instruction sheet gives the procedure for replacing the calibrated leak for both the VS C15 ("Section One: VS C15 Calibrated Leak Replacement" on page 3), VS Series leak detectors ("Section Two: Calibrated Leak Replacement for VS Series Leak Detectors" on page 7), and (G8610, G8611, or G8612) series leak detectors ("Section Three: Calibrated Leak Replacement for G8610, G8611, or G8612"). This manual is shipped with material VSFLDCL for calibrated leak replacement.

Documentation Standards

This manual uses the following documentation standards:

NOTE

Notes contain important information.



CAUTION

Cautions appear before instructions, which if not followed, could cause damage to the equipment or data loss.



WARNING

Warnings appear for a particular procedure or practice which, if not followed correctly, could lead to serious injury or death.



Hazard and Safety Information

Operators and service personnel must be aware of all hazards associated with this equipment. They must know how to recognize hazardous and potentially hazardous conditions, and know how to avoid them. The consequences of unskilled, improper, or careless operation of the equipment can be serious. Every operator or service person must read and thoroughly understand operation/maintenance manuals and any additional information provided by Agilent. All warning and cautions must be read carefully and strictly observed. Consult local, state, and national agencies regarding specific requirements and regulations. Address any safety, operation, and/or maintenance questions to your nearest Agilent office.

Solvents

WARNING

The mechanical components of leak detectors may be cleaned with one of the recommended solvents. When heated, sprayed, or exposed to high-temperature equipment, these solvents become flammable and explosive, causing serious injury or death. Do not use these solvents near a high-temperature source. Ventilate the working area with a blower and work in a large, well-ventilated room.



Solvents are irritants, narcotics, depressants and/or carcinogens. Their inhalation and/or ingestion may produce serious side effects. Prolonged or continued contact with the skin results in absorption through the skin and moderate toxicity. Always ensure that cleaning operations are carried out in large, well-ventilated rooms, and wear eye shields, gloves, and protective clothing.

Vacuum Equipment and Cleanliness

Cleanliness is vital when servicing the leak detector or any vacuum equipment. There are some techniques that are more important in leak detector servicing than in general vacuum work:

O-ring Care

When removing, checking or replacing O-rings, keep in mind the following:

NOTE



Agilent recommends replacing all O-rings during routine maintenance or during any maintenance procedure requiring that O-rings be removed.

CAUTION



Remove O-rings carefully with your fingers. Do not use metal tools for this task; this prevents scratching of any sealing surfaces.

- Wipe all O-rings clean with a lint-free cloth before installation to ensure that no foreign matter is present to impair the seal.
- Do not use grease or any other substance on O-rings that will come in contact with the vacuum surfaces.
- Do not use alcohol, methanol or other solvents on O-rings. Doing so causes deterioration and reduces their ability to hold a vacuum.
- Agilent does not recommend the use of vacuum grease. If applicable, apply a small amount of Apiezon[®] L grease and wipe the O-rings shiny dry.

Hazard and Safety Information

The common international symbols used in this manual and on the equipment are defined below.

OFF Supply (Power)		Earth (Ground) Terminal	
ON Supply (Power)		Caution, Hot Surface	
AC – Alternating Current		Caution, Risk of Electrical Shock	
Warning, Risk of danger		Protective Conductor Terminal	
Frame or chassis Terminal			

Section One: VS C15 Calibrated Leak Replacement

Equipment Required

- M4 Allen Wrench
- Flat Head Screwdriver

Installation Procedure

WARNING



Disconnect power from the unit before performing any maintenance procedure that requires physically disconnecting any part of the system.

1. Disconnect the power to back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using an M4 Allen wrench, remove the two screws on the unit's top and open the unit (Figure 1: Unit Top Screws).



Figure 1: Unit Top Screws

4. Loosen and remove the clamp (Figure 2: Remove Clamp).

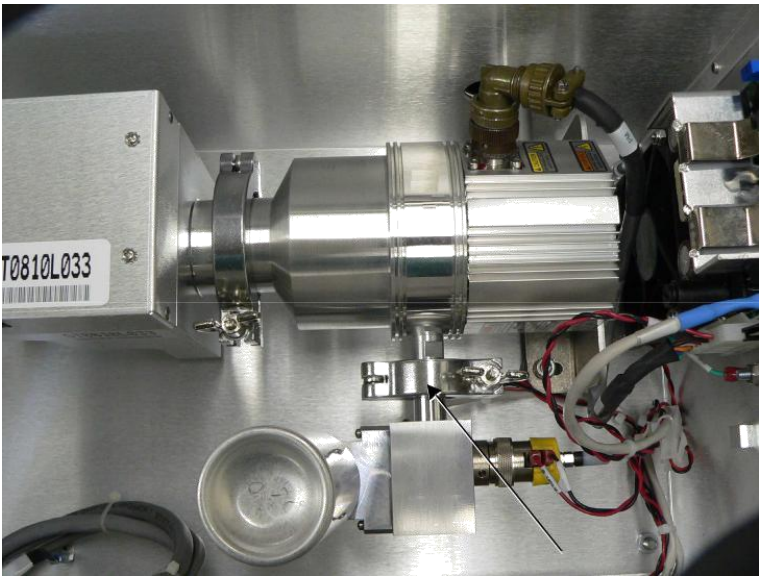


Figure 2: Remove Clamp

5. Disconnect the cable from the calibrated leak board (Figure 3: Cable to Calibrated Leak Connection).



Figure 3: Cable to Calibrated Leak Connection

6. Remove the assembly and use a flat head screw driver to remove the two screws holding the calibrated leak (Figure 4: Calibrated Leak Screws).



Figure 4: Calibrated Leak Screws

7. Discard the calibrated leak and the O-ring.
8. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.
9. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver.
10. Connect the calibrated leak temperature cable end labeled P1A to the leak assembly board connector J1A (Figure 5: Leak Assembly Board Connection).

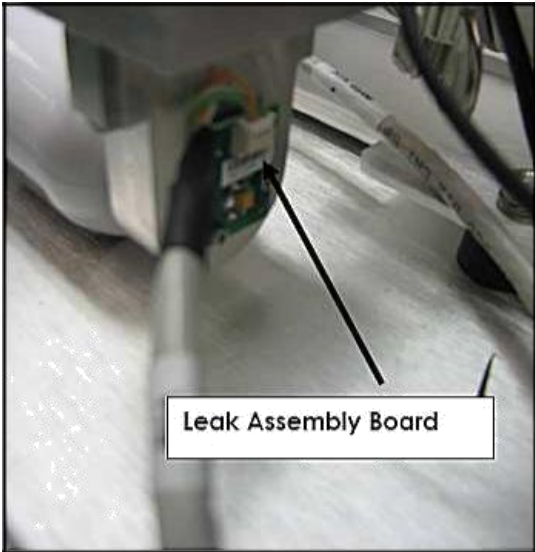


Figure 5: Leak Assembly Board Connection

11. Reattach the leak assembly to the flange with the clamp.
 12. Close the cover and secure using the existing hardware.
 13. Power up the VS C15 component leak detector.
 14. Set up the Internal Calibrated Leak by either:
 - *Setting up the Internal Calibrated Leak Option via the front panel display by:*
 - a. Select *Advanced Parameters > Internal Type* and select *STD LEAK*.
 - b. Select *Maintenance > Internal Calibrated Leak* and input the calibration data from the Calibration Certificate for the internal calibrated leak including:
 - *Internal Leak Value*
 - *Temperature*
 - *Temperature coefficient factor*
 - *Cal Leak - Date of Expiration*
 - c. Validate the setup using the *Calibration Set Up* menu: the temperature compensated leak value, internal calibrated leak temperature and date of expiration.
 - Or —
 - *Setting up the Internal Calibrated Leak Option via the RS232 serial communications port (see the operation manual for communicating via the RS232 serial port) by:*
 - a. Enter the following commands:
 - *1 INIT-INTERANL-TYPE*
 - *X.XE-0X INIT-STDLEAK* (Enter the leak rate value from the calibration certificate ex. *1.8E-07 INIT-STDLEAK*).
 - *XX.X INIT-LEAKTEMP* (Enter the temperature from the calibration certificate ex. *23.5 INIT-LEAKTEMP*).
 - *-/+XX INIT-TEMPFACTOR* (Enter the temperature coefficient from the calibration certificate ex. *-7 INIT-TEMPFACTOR*).
 - *mm dd yyyy INIT-LKEXPIRE* (Enter the date of expiration from the calibration certificate ex. *12 22 2008 INIT-LKEXPIRE*).
 - b. Validating that the correct internal leak data was inputted (data from the Calibration Certificate) by:
 - *?STDLEAK* (reports back the value of the internal calibrated leak).
 - *?LEAKTEMP* (reports back the temperature of the calibrated leak from the factory calibration).
 - *?TEMPFACTOR* (reports back the temperature coefficient).
 - *?LKEXPIRE* (reports back the date of expiration).
- Perform an internal calibration (via the I/O, Front Panel Display or RS232) to validate a successful installation of the internal calibrated leak.



Section Two: Calibrated Leak Replacement for VS Series Leak Detectors

Equipment Required

- Extended Length M5 Allen Wrench (included with leak detector)
- Slotted Screw Driver

Installation Procedure

For clarity, some items have been omitted from views.

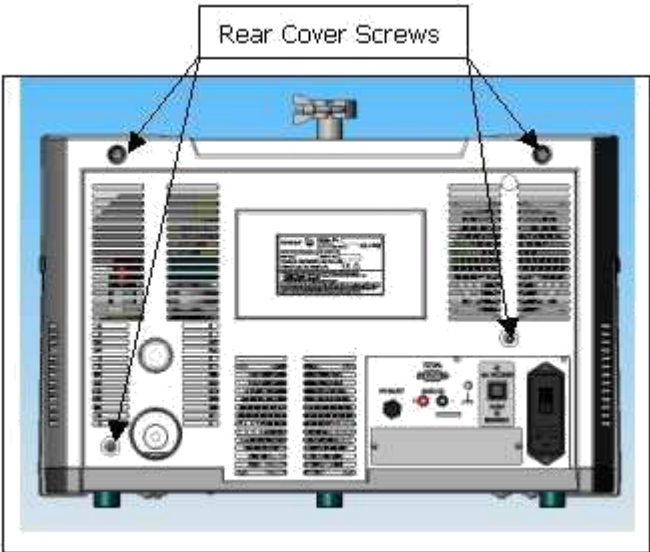


Figure 1: Rear Cover Screws

WARNING



Disconnect power from the unit before performing any maintenance procedure that requires physically disconnecting any part of the system.

1. Turn off the power switch located on the back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using an extended length M5 Allen wrench, remove the four screws holding the rear plastic cover (Figure 1: Rear Cover Screws) and detach the rear plastic cover from the unit.



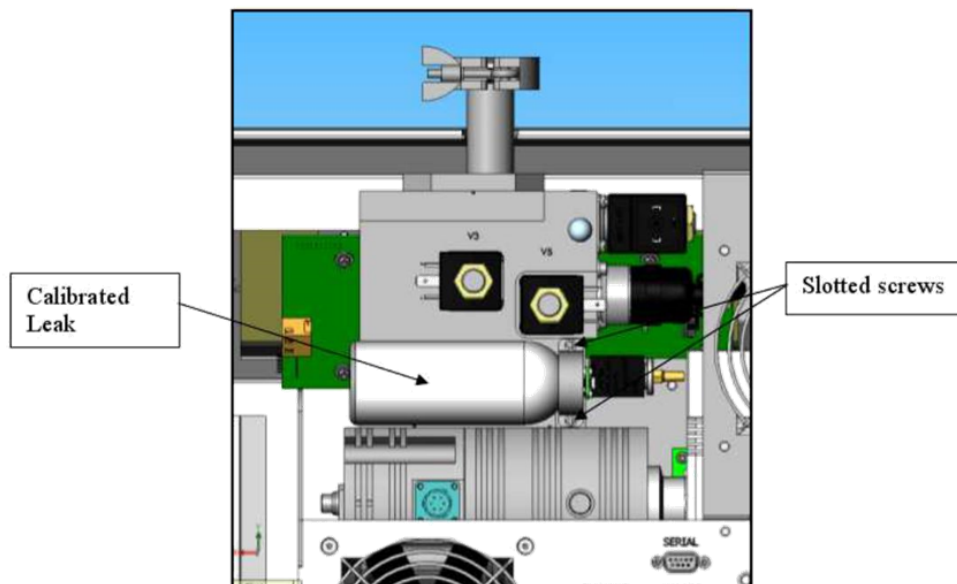


Figure 2: Calibrated Leak Location

4. Carefully disconnect the calibrated leak temperature cable from the calibrated leak PC board.
5. Using a slotted screwdriver, remove the two screws holding the calibrated leak in place (Figure 2: Calibrated Leak Location).
6. Discard the calibrated leak and the O-ring.
7. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.
8. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver (Figure 2: Calibrated Leak Location).
9. Reconnect the calibrated leak temperature cable to the replacement calibrated leak.

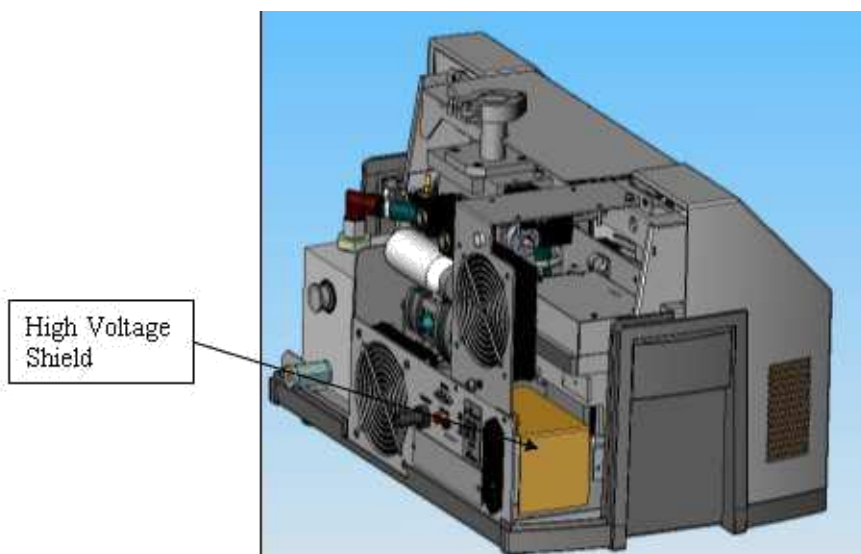


Figure 3: High Voltage Location

WARNING



Extreme care must be taken due to the presence of high voltage. Ensure that high voltage shield and front cover are in position before proceeding (Figure 3: High Voltage Location).

10. Connect the power cord and power up the unit.

11. Watch the *Home* screen to verify that the *Spectube Pressure Wait* message progresses to *Stabilization Wait* and *System Ready* within ten minutes.

Refer to the operator's manual if the system fails to reach the System Ready mode.

12. Leak check the calibrated leak O-ring to ensure a leak free joint between the atmosphere and the vacuum space inside.

13. Configure the internal leak by:

a. Opening the VS Display screen and selecting **Menu/Setup/**  **/Maintenance/Internal Calibrated Leak**.

b. Entering the following information from the calibration certificate and pressing **OK** after each input:

- Leak rate
- Temperature
- Temperature coefficient
- Calibration expiration date

c. Pressing  to exit.

14. Attach the rear cover and secure it to the frame using the existing hardware.

Agilent recommends a full calibration of the unit prior to leak test operations.



Section Three: Calibrated Leak Replacement for G8610, G8611, or G8612

Equipment Required

- Slotted Screw Driver

Installation Procedure

For clarity, some items have been omitted from views.



Figure 1: Rear Cover Screws

WARNING



Disconnect power from the unit before performing any maintenance procedure that requires physically disconnecting any part of the system.

1. Turn off the power switch located on the back of the unit and unplug.
2. Wait 30 seconds for the high voltage to dissipate.
3. Using a slotted screw driver, unfasten the four screws holding the rear cover (Figure 1: Rear Cover Screws) and detach the rear cover from the unit.

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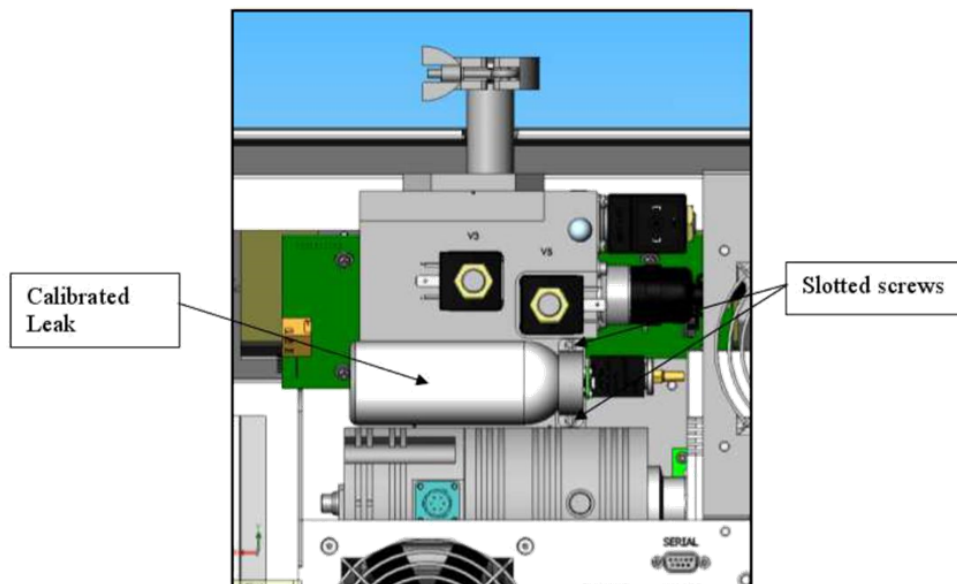


Figure 2: Calibrated Leak Location

4. Carefully disconnect the calibrated leak temperature cable from the calibrated leak PC board.
5. Using a slotted screwdriver, remove the two screws holding the calibrated leak in place (Figure 2: Calibrated Leak Location).
6. Discard the calibrated leak and the O-ring.
7. Inspect the replacement calibrated leak and O-ring for damage or particle contamination and remove any particle contamination.
8. Install the O-ring in the groove and then assemble the replacement calibrated leak to the valve block using a slotted screwdriver (Figure 2: Calibrated Leak Location).
9. Reconnect the calibrated leak temperature cable to the replacement calibrated leak.



Figure 3: High Voltage Location

WARNING
high



Extreme care must be taken due to the presence of high voltage. Ensure that voltage shield and front cover are in position before proceeding (Figure 3: High Voltage Location).

10. Connect the power cord and power up the unit.
11. Watch the *Home* screen to verify that the *Spectube Pressure Wait* message progresses to *Stabilization Wait* and *System Ready* within ten minutes.
Refer to the operator's manual if the system fails to reach the System Ready mode.
12. Leak check the calibrated leak O-ring to ensure a leak free joint between the atmosphere and the vacuum space inside.
13. Configure the internal leak by:
 - a. **Menu/Maintenance/General**
 - b. Entering the following information from the calibration certificate
 - Internal leak rate
 - Temperature
 - Temperature +/- coefficient
 - Calibration expiration date
 - c. Pressing the home icon to exit.
15. Attach the rear cover and secure it to the frame using the existing hardware. Agilent recommends a full calibration of the unit prior to leak test operations.

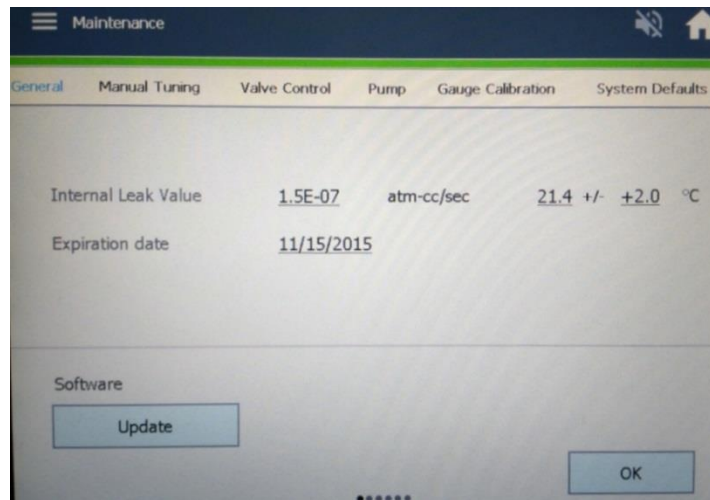


Figure 4. Calibrated leak information update





Vacuum Products Division Instructions for returning products

Dear Customer,

Please follow these instructions whenever one of our products needs to be returned.

Complete the attached **Request for Return form** and send it to Agilent Technologies (see below), taking particular care to include the completed **Health and Safety** declaration Section. No work can be started on your unit until we receive a completed copy of this form.

After evaluating the information, Agilent Technologies will provide you with a **Return Authorization (RA) number** via email or fax, as requested. Note: Depending on the type of return, a Purchase Order may be required at the time **the Request for Return is submitted**. We will quote any necessary services (evaluation, repair, special cleaning, eg).

Product preparation

- o Remove all accessories from the core product (e.g. inlet screens, vent valves).
- o Prior to shipment and if applicable for your product, drain any oils or other liquids, purge or flush all gasses, and wipe off any excess residue.
- o If ordering an Advance Exchange product, please use the packaging from the Advance Exchange to return the defective product.
- o Seal the product in a plastic bag, and package product carefully to avoid damage in transit. You are responsible for loss or damage in transit.
- o Include a copy of the Health and Safety Declaration in the shipping documentation on the outside of the shipping box of your returning product.
- o Clearly label package with RA number. Using the shipping label provided will ensure the proper address and RA number are on the package. Packages shipped to Agilent without a RA clearly written on the outside cannot be accepted and will be returned.
- o Return only products for which the RA was issued.

Shipping

- o Ship to the location specified on the printable label, which will be sent, along with the RA number, as soon as we have received all of the required information. Customer is responsible for freight charges on returning product.
- o Return shipments must comply with all applicable Shipping Regulations (IATA, DOT, ADR, etc.) and carrier requirements.

RETURN THE COMPLETED **REQUEST FOR RETURN** FORM TO YOUR NEAREST LOCATION:

EUROPE:

Fax: 00 39 011 9979 330

Fax Free: 00 800 345 345 00

Toll Free: 00 800 234 234 00

vpt-customer@agilent.com

NORTH AMERICA:

Fax: 1 781 860 9252

Toll Free: 800 882 7426

vpl-ra@agilent.com

PACIFIC RIM:

please visit our website for individual
office information

<http://www.agilent.com>



TERMS AND CONDITIONS

Please read the terms and conditions below as they apply to all returns and are in addition to the Agilent Technologies Vacuum Product Division – Products and Services Terms of Sale.

- o Unless otherwise pre-negotiated, customer is responsible for the freight charges for the returning product. Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.
- o Agilent Technologies is not responsible for returning customer provided packaging or containers.
- o Customers receiving an Advance Exchange product agree to return the defective, rebuildable part to Agilent Technologies **within 15 business days**. Failure to do so, or returning a non-rebuildable part (crashed), will result in an invoice for the non-returned/non-rebuildable part.
- o Returns for credit toward the purchase of new or refurbished Products are subject to prior Agilent approval and may incur a restocking fee. Please reference the original purchase order number.
- o Units returned for evaluation will be evaluated, and a quote for repair will be issued. If you choose to have the unit repaired, the cost of the evaluation will be deducted from the final repair pricing. A Purchase Order for the final repair price should be issued within 3 weeks of quotation date. Units without a Purchase Order for repair will be returned to the customer, and the evaluation fee will be invoiced.
- o Products returned that have not been drained from oil will be disposed.
- o A Special Cleaning fee will apply to all exposed products
- o If requesting a calibration service, units must be functionally capable of being calibrated.

**Vacuum Products Division
Request for Return Form**

Customer information		
Company :		Contact Name:
Address:		Tel: Fax:
		Email:

Equipment			
Product description	Agilent PartNo	Agilent Serial No	Original Purchasing Reference
Failure description		Type of process (for which the equipment was used)	

Type of return	
☐ Non Billable ☐ Billable  New PO # (hard copy must be submitted with this form): _____	
☐ Exchange ☐ Repair ☐ Upgrade ☐ Consignment/Demo ☐ Calibration ☐ Evaluation ☐ Return for Credit	

Health and safety		Substances (please refer to MSDS forms)			
The product has been exposed to the following substances: (by selecting 'YES' you MUST complete the table to the right)		* Agilent will not accept delivery of any product that is exposed to radioactive, biological, explosive substances or dioxins, PCB's without written evidence of decontamination.			
		Trade name	Chemical name	Chemical Symbol	CAS Number
Toxic	☐ YES ☐ NO				
Harmful	☐ YES ☐ NO				
Corrosive	☐ YES ☐ NO				
Reactive	☐ YES ☐ NO				
Flammable	☐ YES ☐ NO				
Explosive (*)	☐ YES ☐ NO				
Radioactive (*)	☐ YES ☐ NO				
Biological (*)	☐ YES ☐ NO				
Oxidizing	☐ YES ☐ NO				
Sensitizer	☐ YES ☐ NO				
Other dangerous substances	☐ YES ☐ NO				

Goods preparation	
If you have replied YES to one of the above questions. Has the product been purged? ☐ YES ☐ NO	
If yes, which cleaning agent/method:	
Has the product been drained from oil? ☐ YES ☐ NOT APPLICABLE	
I confirm to place this declaration on the outside of the shipping box. ☐	

I declare that the above information is true and complete to the best of my knowledge and belief. I understand and agree to the terms and conditions on page 2 of this document.	
Name:	Authorized Signature:
Position:	
Date:	
NOTE: If a product is received at Agilent 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 Agilent employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.	

Agilent Vacuum Products Division/Sales and Service Offices

United States

Agilent Technologies
121 Hartwell Avenue
Lexington, MA 02421 - USA
Tel. +1 781 861 7200
Fax. +1 781 860 5437
Toll-Free: +1 800 882 7426
vpl-customer-care@agilent.com

Belgium

Agilent Technologies Belgium S.A./N.V.
Customer Contact Center
Pegasus Park
De Kleetlaan 12A bus 12
B-1831 Diegem
Tel. +32 2 404 92 22
Fax. +32 2 626 46 30
customer-care_belgium@agilent.com

Brazil

Agilent Technologies Brasil
Avenida Marcos Penteado de Ulhoa
Rodrigues, 939 - 6º andar
Castelo Branco Office Park
Torre Jacarandá - Tamboré
Barueri, São Paulo CEP: 06460-040
Toll-Free: +0800 728 1405

China

Agilent Technologies (China) Co. Ltd
No.3, Wang Jing Bei Lu, Chao Yang District
Beijing, 100102, China
Tel. +86 (0)10 64397888
Fax. +86 (0)10 64392765
Toll free: 800 820 6778 (Phone)
Toll free: 400 820 6778 (Cell Phone)
vacuum.cnmarketing@agilent.com
vpc-customerservice@agilent.com

France

Agilent Technologies
Parc Technopolis - Z.A. de Courtaboeuf
3, avenue du Canada - CS 90263
91978 Les Ulis cedex, France
Tel. +33 (0) 1 64 53 61 15
Fax. +33 (0) 1 64 53 50 01
vpf.sales@agilent.com

Germany and Austria

Agilent Technologies
Sales & Services GmbH & Co. KG
Lyoner Str. 20
60 528 Frankfurt am Main
GERMANY
Ph. +49 69 6773 43 2230
Fax. +49 69 6773 43 2250

India (Sales)

Agilent Technologies India Pvt. Ltd.
Unit Nos 110-116, & Part of 101 & 109
First Floor, Splendor Forum,
Plot No. -3, District Centre, Jasola
New Delhi-110025
Tel. +91 11 4623 7100
Fax. +91 4623 7105

India (Service)

Agilent Technologies India Pvt. Ltd.
C-Block, RMZ Centennial Plot Number -8A, 8B,
8C, 8D,
Doddanakundi Industrial Area, ITPL Road,
Mahadevapura Post, Bangalore- 560048
Tel. +91 80 40614000
Fax. +91 80 40148991

Italy

Agilent Technologies Italia S.p.A.
Via F.lli Varian, 54
10040 Leini, (Torino) - Italy
Tel. +39 011 9979 111
Fax. +39 011 9979 350
Toll free: 00800 234 234 00
vpt-customerservice@agilent.com

Japan

Agilent Technologies Japan, Ltd.
9-1 Takakura-cho Hachioji-city,
Tokyo, Japan
Tel. +81-3-5232-1253
Fax. +81-120-565-154
Toll-Free: +81-120-477-111
jp-vvt-sales.pdl-ext@agilent.com

Korea

Agilent Technologies Korea, Ltd.
Ilshin Building 4F
Yongsan-gu Hannam-daero
Seoul Korea 04418
Tel. +82 (0)2 2194 9449
Fax. +82 (0)2 2194 9853
Toll free: 080 222 2452
vpk-customerservice@agilent.com

Mexico

Agilent Technologies
Concepcion Beistegui No. 109
Col Del Valle
C.P. 03100 – Mexico, D.F.
Tel. +52 5 523 9465
Fax. +52 5 523 9472

Netherlands

Agilent Technologies Netherlands B.V.
Customer Contact Center
Laan van Langerhuize 1, toren A-8
1186 DS Amstelveen
Tel. +31 020 547 2600
Fax. +31 020 654 5748
customer-care_netherlands@agilent.com

Singapore

Agilent Technologies Singapore Pte. Ltd.
1 Yishun Avenue 7,
Singapore 768923
Tel. (65) 6215 8045
Fax. (65) 6754 0574
Toll-Free: 1 800 2762622
vps-customerservice@agilent.com

Southeast Asia

Agilent Technologies Sales Sdn Bhd
Unit 201, Level 2 uptown 2,
2 Jalan SS21/37, Damansara Uptown
47400 Petaling Jaya, Selangor, Malaysia
Tel. +603 7712 6181
Fax. +603 7727 1239
Toll-Free: +1 800 880 805
vps-customerservice@agilent.com

Taiwan

Agilent Technologies Taiwan Limited
No. 20 Gao-shuang Road, Ping-zhen Dis
Tao-Yuan City
32450 Taiwan, R.O.C.
Tel. +8863 3 4959004
Toll-Free: 0800 018 768
vpw-customerservice@agilent.com

UK and Ireland

Agilent Technologies LDA UK Limited
Lakeside Cheadle Royal Business Park
Cheadle, Cheshire SK8 3GR,
United Kingdom
Tel. +44 01865291570
Fax. +44 01865291571
Toll-Free: 00 800 234 234 00
Toll-Free fax.: 00 800 345 345 00
vpt-customer-care@agilent.com

Other Countries

Agilent Technologies Italia S.p.A.
Via F.lli Varian, 54
10040 Leini, (Torino) - Italy
Tel. +39 011 997 9111
Fax. +39 011 997 9350
Toll-Free: 00 800 234 234 00
vpt-customer-care@agilent.com

Customer Support & Service

NORTH AMERICA:
Toll Free: 800 882 7426
vpl-ra@agilent.com
Lexington-service@agilent.com

EUROPE:

Toll-Free: 00 800 234 234 00
vpt-customer-care@agilent.com

PACIFIC RIM:

please visit our website for individual office
information
<http://www.agilent.com/chem/vacuum>

Worldwide Web Site, Catalog and Order Online:
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