Agilent Technologies

Vacuum Products Division

CE

IDP-7 Dry Scroll Vacuum Pump

INSTRUCTION MANUAL

Manual No. X3807-90007
Revision B
January 2017

JEVI VACUUM INSTRUMENTS

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IDP-7
Dry Scroll Vacuum Pump

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Warranty

Products manufactured by Seller are warranted against defects in materials and workmanship for twelve (12) months from date of shipment thereof to Customer, and Seller's liability under valid warranty claims is limited, at the option of Seller, to repair, to replace, or refund of an equitable portion of the purchase price of the Product. Items expendable in normal use are not covered by this warranty. All warranty replacement or repair of parts shall be limited to equipment malfunctions which, in the sole opinion of Seller, are due or traceable to defects in original materials or workmanship. All obligations of Seller under this warranty shall cease in the event of abuse, accident, alteration, misuse, or neglect of the equipment. In-warranty repaired or replaced parts are warranted only for the remaining unexpired portion of the original warranty period applicable to the repaired or replaced parts. After expiration of the applicable warranty period, Customer shall be charged at the then current prices for parts, labor, and transportation.

Reasonable care must be used to avoid hazards. Seller expressly disclaims responsibility for loss or damage caused by use of its Products other than in accordance with proper operating procedures.

Except as stated herein, Seller makes no warranty, expressed or implied (either in fact or by operation of law), statutory or otherwise; and, except as stated herein, Seller shall have no liability under any warranty, expressed or implied (either in fact or by operation of law), statutory or otherwise. Statements made by any person, including representatives of Seller, which are inconsistent or in conflict with the terms of this warranty shall not be binding upon Seller unless reduced to writing and approved by an officer of Seller.

Warranty Replacement and Adjustment

All claims under warranty must be made promptly after occurrence of circumstances giving rise thereto, and must be received within the applicable warranty period by Seller or its authorized representative. Such claims should include the Product serial number, the date of shipment, and a full description of the circumstances giving rise to the claim. Before any Products are returned for repair and/or adjustment, written authorization from Seller or its authorized representative for the return and instructions as to how and where these Products should be returned must be obtained. Any Product returned to Seller for examination shall be prepaid via the means of transportation indicated as acceptable by Seller. Seller reserves the right to reject any warranty claim not promptly reported and any warranty claim on any item that has been altered or has been returned by non-acceptable means of transportation. When any Product is returned for examination and inspection, or for any other reason, Customer shall be responsible for all damage resulting from improper packing or handling, and for loss in transit, notwithstanding any defect or non-conformity in the Product. In all cases, Seller has the sole responsibility for determining the cause and nature of failure, and Seller's determination with regard thereto shall be final.

If it is found that Seller's Product has been returned without cause and is still serviceable, Customer will be notified and the Product returned at the Customer's expense; in addition, a charge for testing and examination may be made on Products so returned.

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Instructions for Use

General Information

This equipment is designed for use by trained personnel. The user should read this instruction manual and any other additional information supplied by Agilent before operating the equipment. Agilent will not be held responsible for any events that occur due to non-compliance 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 IDP-7 is a hermetic, dry scroll vacuum pump. This pump is suitable for pumping air or inert gases. The pump is not intended to pump corrosive, explosive, or particulate-forming gases.

The following paragraphs contain all the information necessary to guarantee the safety of the operator when using the equipment. Detailed information is supplied in "Technical Information" on page 9.

This manual uses the following standard safety 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.

Storage

When transporting and storing the pump, the following environmental requirements should not be exceeded:

Temperature:	−20 °C to +60 °C (−4 °F to 140 °F)
Relative humidity:	0 to 95% (non-condensing)

Preparation for Installation

The pump is supplied in a special protective packing. If this shows signs of damage, which may have occurred during transport, contact your local sales office.

Total weight of the packing, IDP-7 pump included, is approximately 28.1 kg (62 lbs).

WARNING

The IDP-7 pump itself weighs 24.5 kg (54 lbs). To avoid injury, use lifting aids and proper lifting techniques when moving the pump.

WARNING

When unpacking the pump, be sure not to drop it and avoid any kind of sudden impact or shock vibration to it.

NOTE

Normal exposure to the environment cannot damage the pump. Nevertheless, it is advisable to keep the pump inlet closed until the pump is installed in the system.

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EMC Warnings

EN 55011 Class A Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

NOTE

The equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generated, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is also likely to cause harmful radio communications interference in which case the user will be required to correct the interference at his own expense.

Installation

The IDP-7 is *NOT* intrinsically safe. Do not install or use the pump 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:	+5 °C to +40 °C (41 °F to 104 °F)
Relative humidity:	0 to 95% (non-condensing)

Connect the pump to the power supply using an IEC-320 style power cord of at least 10 A capacity (see Table 2 on page 13).

CAUTION

When installing the vacuum pump it is recommended that the pump be positioned in a way that the power switch and power cord connection remain easily accessible to the user in order to be available as an option to disconnect power to the pump quickly if needed.

Use

In order to reach maximum vacuum, the pump must be left running for at least 24 hours with the inlet sealed.

There are no special instructions for starting the pump; it need only be switched on using the On/Off switch.

The optional inlet valve will open 30 seconds after the pump is started.

WARNING

The pump is designed for operation with neutral or noncorrosive fluids. It is absolutely forbidden to use it with potentially explosive or inflammable substances.

There are no special instructions for stopping the pump; it need only be disconnected from the electric power source by the On/Off switch.

The optional inlet valve will close immediately after the pump is stopped.

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Maintenance

Personnel responsible for pump operation and maintenance must be well-trained and aware of the accident prevention rules.

WARNING

- *Death may result from contact with high voltages. Always take extreme care and observe the accident prevention regulations in force.*
- *When machine is powered up, be careful of moving parts and high voltages.*
- *If you have to perform maintenance on the pump after a considerable time in operation, allow it to cool as the temperature of the outer surface may be in excess of 60 °C.*
- *Always disconnect your power supply to the pump before beginning maintenance work.*

NOTE

Before returning the pump to the factory for repair, the "Request for Return" sheet attached to this instruction manual must be completed and sent to the local sales office. A copy of the sheet must be inserted in the pump package before shipping.

If a pump is to be discarded, it must be disposed of in accordance with specific national standards.

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.

For more information refer to: http://www.agilent.com/ environment/ product/ index.shtml.

Environmental Conditions, Compliance and Utility Requirements

Environmental Conditions

This equipment meets the following IEC classifications:

- ❑ Pollution Degree 2 (See Note.)
- ❑ Installation Category II (See Note.)
- ❑ Equipment Class 1

NOTE

Pollution level describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength is adhering. 2 applies to a normal indoor atmosphere.

Installation category implies the regulation for impulse withstand voltage. It is also called the Over voltage category. II applies to electrical equipment.

This equipment requires the following space for ventilation, maintenances access, and easy access to the Main Power Breaker Switch. There must be a clear space of at least 60 cm (24") on all sides of the equipment. The bench in your laboratory must be able to support the entire system and other laboratory equipment.

Electromagnetic Compatibility

EN55011/CISPR11

Group 1 ISM equipment: Group 1 contains all ISM equipment in which there is intentionally generated and/or used conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself.

Class A equipment is equipment suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

This device complies with the requirements of CISPR11, Group 1, Class A as radiation professional equipment. Therefore, there may be potential difficulties in ensuring electromagnetic compatibility in other environments, due to conducted as well as radiated disturbances.

Operation is subject to the following two conditions:

- ❑ This device may not cause harmful interference.
- ❑ This device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- ❑ Make sure that appropriate cables are used to connect the device to peripheral equipment.
- ❑ Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

South Korean Class A EMC declaration

This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

A 급 기기
(업무용 방송통신기자재)

이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 , 가정외의 지역에서 사용하는 것을 목적으로 합니다 .

ICES/NMB-001

This ISM device complies with Canadian ICES-001.

Cet appareil ISM est conforme à la norme NMB-001 du Canada.

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Instructions d'utilisation

Cet équipement est destiné à être utilisé par un personnel formé. L'utilisateur doit lire ce manuel d'instructions et toute autre information supplémentaire fournie par Agilent avant d'utiliser l'équipement. Agilent ne sera pas tenu responsable en cas d'événement se produisant en raison de la non-conformité à ces instructions, de l'utilisation inappropriée par des personnes non formées, de l'interférence non autorisée avec l'équipement ou de toute action contraire à ce qui est énoncé par les normes nationales spécifiques.

L'IDP-7 est une pompe à vide à spirales à sec hermétique. Cette pompe est adaptée au pompage de l'air ou des gaz inertes. La pompe n'est pas conçue pour pomper les gaz corrosifs, explosifs, ou à formation de particules.

Les paragraphes suivants comprennent toutes les informations nécessaires afin de garantir la sécurité de l'opérateur lors de l'utilisation de l'équipement. Des informations détaillées sont fournies dans le paragraphe "Informations techniques" à la Table 1 on page 9.

Ce manuel utilise le protocole de sécurité standard suivant:

AVERTISSEMENT

Les messages d'avertissement ont pour but d'attirer l'attention de l'opérateur sur une procédure ou pratique particulière qui, si elle n'est pas correctement suivie, pourrait provoquer des blessures graves.

ATTENTION

Les messages d'attention sont affichés avant les procédures, qui, si elles ne sont pas suivies, pourraient endommager l'équipement.

REMARQUE

Les remarques contiennent les informations importantes prises du texte.

Conditionnement

Lors du transport et du conditionnement de la pompe, les exigences environnementales suivantes ne doivent pas être dépassées.

Température:	−20 °C à +60 °C (−4 °F à 140 °F)
Humidité relative:	0 à 95% (non-condensation)

Préparation pour l'installation

La pompe est livrée dans un emballage protecteur spécial. Si elle manifeste des signes de dommages, qui peuvent s'être produits lors du transport, contactez votre bureau des ventes local.

Le poids total de l'emballage, pompe IDP-7 incluse, est d'environ 28,1 kg.

AVERTISSEMENT

La pompe IDP-7 elle-même pèse 24,5 kg. Pour éviter les blessures, utilisez les supports de levage et les techniques de levage appropriés lors du déplacement de la pompe.

AVERTISSEMENT

Lorsque vous déballez la pompe, assurez-vous de ne pas la faire tomber et évitez tout genre d'impact soudain ou de vibration de choc dessus.

REMARQUE

L'exposition normale à l'environnement ne peut endommager la pompe. Néanmoins, il est conseillé de garder le conduit d'entrée de la pompe fermé jusqu'à ce que la pompe soit installée dans le système.

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Avertissements CEM

Avertissement Classe A EN 55011

Il s'agit d'un produit de la Classe A. Dans un environnement domestique, ce produit peut causer une radio interférence, auquel cas l'utilisateur pourrait devoir prendre les mesures adéquates.

FCC

Cet appareil est conforme à la Partie 15 des règles de la FCC. L'opération est sujette aux deux conditions suivantes : (1) ce dispositif ne provoque pas d'interférence nuisible, et (2) ce dispositif doit accepter toute interférence reçue, y compris l'interférence pouvant provoquer une opération indésirable.

REMARQUE

L'équipement a été testé et déclaré conforme aux limites d'un dispositif numérique de Classe A, selon la Partie 15 des règles de la FCC. Ces limites sont destinées à fournir une protection raisonnable contre l'interférence nuisible lorsque l'équipement est utilisé dans un environnement commercial. Cet équipement généré, utilise, et peut irradier une énergie à fréquence radio et, s'il n'est pas installé et utilisé conformément au manuel d'instructions, peut provoquer une interférence nuisible aux communications radio. L'utilisation de cet équipement dans une zone résidentielle est également susceptible de causer une interférence nuisible des communications radio.

Auquel cas, l'utilisateur devra corriger l'interférence à ses propres frais.

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Installation

L'IDP-7 n'est PAS intrinsèquement sûre. Ne pas installer ou utiliser la pompe dans un environnement exposé à des agents atmosphériques (pluie, neige, glace), à la poussière, à des gaz nocifs, ou dans des environnements explosifs ou ceux présentant un risque élevé d'incendie.

Lors de l'opération, les conditions environnementales suivantes doivent être respectées:

Température:	+5°C à +40°C (41°F à 104°F)
Humidité relative:	0 à 95% (non-condensation)

Raccordez la pompe au bloc d'alimentation en utilisant un câble électrique de style CEI-320 d'une capacité d'au moins 10 A.

ATTENTION

Lors de l'installation de la pompe à vide, il est recommandé que la pompe soit positionnée d'une manière à ce que l'interrupteur et le câble électrique restent facilement accessibles à l'utilisateur afin d'être disponibles en option pour couper rapidement l'alimentation de la pompe, si nécessaire.

Utilisation

Afin d'atteindre le vide maximal, la pompe doit être laissée en marche pendant au moins 24 heures avec le conduit d'entrée scellée.

Il n'existe aucune instruction spéciale pour le démarrage de la pompe, elle doit seulement être allumée en utilisant le commutateur On/Off.

La vanne d'admission en option s'ouvrira 30 secondes après le démarrage de la pompe.

AVERTISSEMENT

La pompe est conçue pour fonctionner avec des fluides neutres ou non corrosifs. Il est formellement interdit de l'utiliser avec des substances potentiellement explosives ou inflammables.

Il n'existe aucune instruction spéciale pour l'arrêt de la pompe ; elle doit être seulement débranchée de la source électrique par l'interrupteur On/Off.

La vanne d'admission en option se fermera automatiquement après l'arrêt de la pompe.

Entretien

Le personnel responsable de l'opération et de l'entretien de la pompe doit être bien formé et conscient des règles de prévention des accidents.

AVERTISSEMENT

- ❑ *La mort peut résulter d'un contact avec des tensions élevées. Faites toujours extrêmement attention et respectez les règlementations de prévention des accidents en vigueur.*
- ❑ *Lorsque la machine est sous tension, faites attention aux pièces en mouvement et aux tensions élevées.*
- ❑ *Si vous devez effectuer un entretien sur la pompe après un temps considérable d'utilisation, laissez-la refroidir car la température de la surface extérieure peut dépasser les 60°C.*
- ❑ *Débranchez toujours votre bloc d'alimentation de la pompe avant de commencer le travail d'entretien.*

REMARQUE

Avant de retourner la pompe à l'usine pour réparation, la feuille " Santé et Sécurité " jointe à ce manuel d'instructions doit être remplie et envoyée au bureau des ventes local. Une copie de la feuille doit être insérée dans l'emballage de la pompe avant l'expédition.

Si une pompe doit être mise au rebut, elle doit être jetée conformément aux normes nationales spécifiques.

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.

Pour en savoir plus, consulter:

http://www.agilent.com/environment/product/index.shtml

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Technical Information

Table 1 Specifications

Model	IDP-7 Dry Scroll Single Hermetic Vacuum Pump
Dimensions	248 x 260 x 421 (h x w x l [mm])
Peak pumping speed	50 Hz: 120 L/m, 7.2 m^3/hr
	60 Hz: 152 L/min (9.1 m^3/hr)
Media	No corrosive, explosive or particulate forming gases
Maximum inlet pressure	1.0 atmosphere (0 psig)
Maximum recommended continuous inlet pressure	150 T (200 mbar)
Maximum outlet pressure	115V range: 5 psig, 115 VAC 50/60HZ or greater, derate linearly to 0 psig at 90 VAC below 115 VAC 230V range: 5pisg, 230 VAC 50/60HZ or greater, derate linearly to 0 psig at 180 VAC below 230 VAC
Ultimate pressure*	20 mT at 60 Hz, 30 mT at 50 Hz
Inlet connection	NW25
Exhaust connection	NW16
Gas ballast	Female 1/8" National Pipe Thread, (20 micron sintered plug provided) SAE-2 5/16-24
Ambient operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	–20 °C to 60 °C (–4 °F to 140 °F)
Motor rating	3/8 HP 0 (280 W)
Operating voltages**	Selectable: 100-120 VAC, 50/60 HZ, 6 A typical; 200-240 VAC 50/60 HZ, 3 A typical; single phase
Motor thermal protection	Automatic thermal protection
Operating speed	50 Hz: 1450 RPM
	60 Hz: 1750 RPM
Cooling system	Air-cooled
Weight	Pump only: 24.5 kg (54 lbs)
	Shipping weight: 28.1 kg (62 lbs)
Leak rate (with exhaust sealed)	<1 x 10^{-6} secs helium
Noise Level (per ISO 11201)	52 +/- 2 dB(A)
Vibration level at inlet (per ISO 10816-1)	Class 1B, 7 mm/s
Fuse Type	M5 x 20 mm, 10 A, Slo-Blo, Littelfuse Model 215010 or equivalent
Hour meter	Integral Hour Meter provided, displays running time to closest 1 hour
Emissions and Immunity	EN 61236-1:2006 as a Class A device
Safety	EN/IEC 61010 3rd Edition CSA certified for US and Canada
Ambient Relative Humidity	5-95%; non-condensing
Water Vapor Handling	120 g/hr
Installation	Indoor use, Installation Category II, Pollution Degree 2
Altitude	2000 m (6562')

*If the pump and/or vacuum system is new, or has been exposed to atmosphere for an extended period of time, it is possible that water can be present which can affect the pump's ability to achieve ultimate pressure. To remove water from the system it is recommended to open GB1 for 15 minutes and/or flush with dry nitrogen.

**Mains supply voltage fluctuations shall not exceed 10% of the nominal voltage.

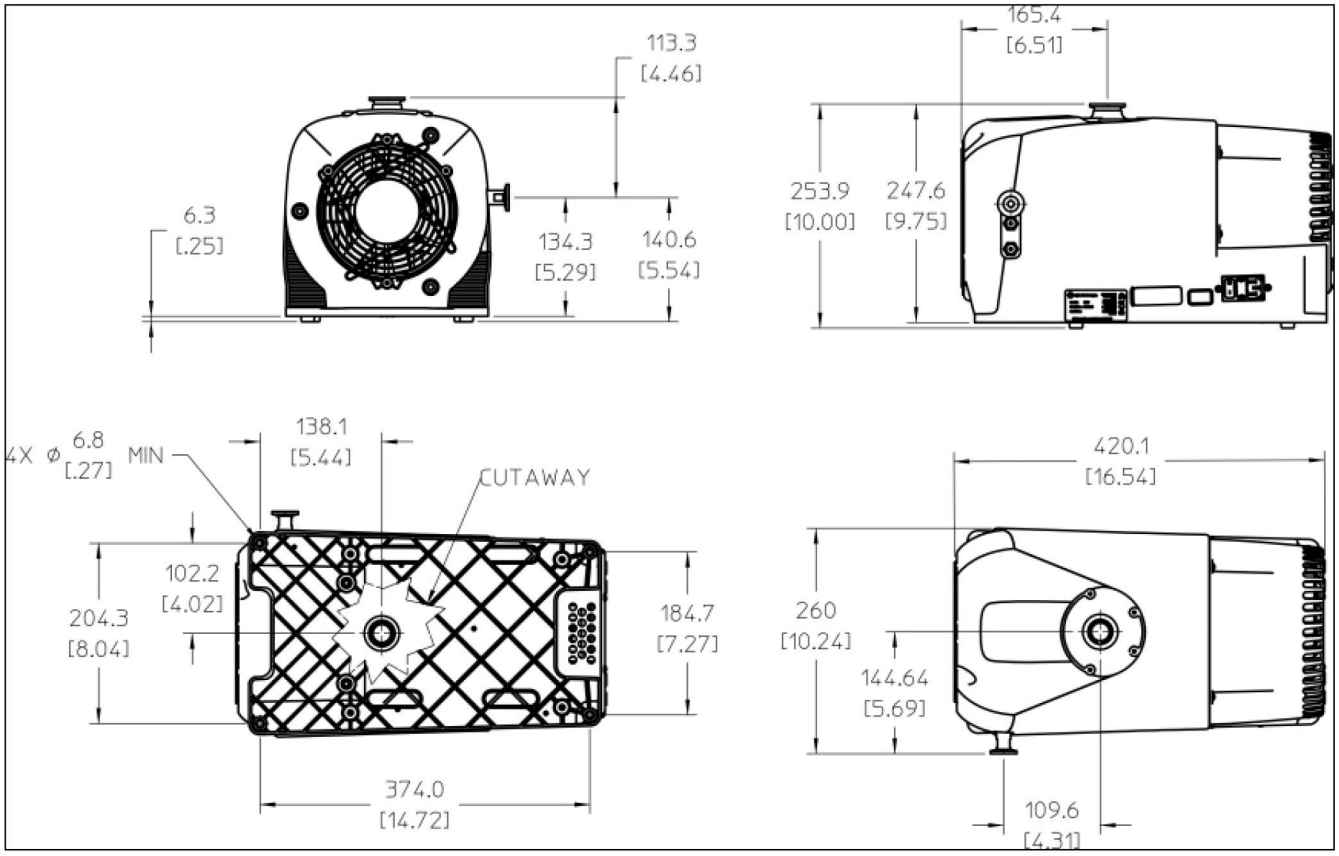

Figure 1 Outline Drawing with Dimensions

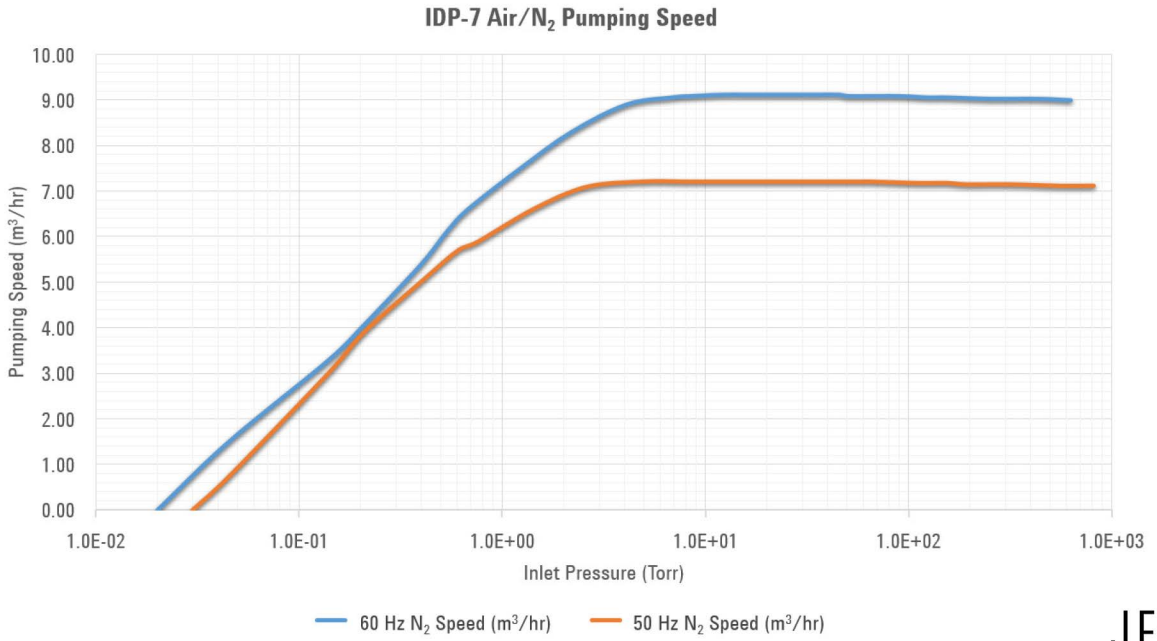

Figure 2 Pumping Speed Curves

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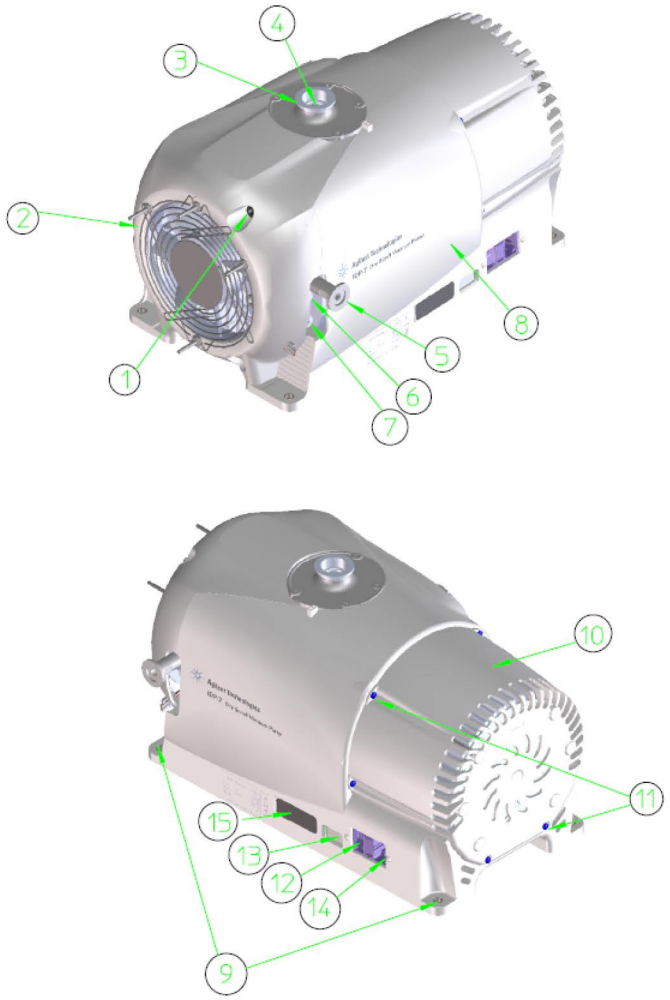

Figure 3 Outline Drawing and Principal Items

To mount from the 1/4" through hole mounting holes suitable for 1/4" or M6 hardware, first remove rubber feet secured by Phillips PT KA30 hardware.

Figure 4 Feet Label

1. Front Cowling Screws; M8 (3)
2. Front Cowling
3. Inlet (NW25)
4. Inlet Screen
5. Exhaust Adapter NW16
6. Gas Ballast Port 1 (1/8" NPT). See “Gas Ballast” on page 15.
7. Gas Ballast Port 2 (1/8" NPT). See “Gas Ballast” on page 15.
8. Main Cowling
9. Mounting Holes: (4) through holes for 1/4" or M6 Hardware
10. Rear Cowling
11. KA40 Phillips PT hardware (6)
12. On/Off Switch
13. Fuse Holder and Voltage Changeover Tab
14. Power Connection (IEC-320)
15. Hour Meter

Unpacking and Inspection

1. Orient the shipping container with “This End Up” on top.
2. Open the box and carefully lift the IDP-7 out of the box.
3. Save the carton and all packing materials.
4. Inspect the pump for damage. If there is shipping damage, contact the freight carrier and your local Agilent sales office immediately.

WARNING

The pump is a heavy object. To avoid muscle strain or back injury, use lifting aides and proper lifting techniques when removing or replacing.

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Installation

Safety

Do not remove or modify any safety or insulating equipment from the pump. To do so may create a serious safety hazard and may void the warranty.

WARNING

- ❑ *This pump is capable of pumping and exhausting air and inert gases only. It is not designed to pump explosive, flammable, corrosive or particulate forming gases. They can cause bodily injury, explosion, or fire.*
- ❑ *Install in an area that is not exposed to rain, steam, or excessive humidity. They can cause electric shock, short circuits, and severe bodily injury.*
- ❑ *Before reconfiguring the pump voltage, or inspecting or servicing the pump, be sure the electrical supply is disconnected.*
- ❑ *The gas ballast must be sealed whenever pumping any gas not intended to be vented to the atmosphere.*
- ❑ *An exhaust silencer option is available for those applications in which it is desirable to diminish the sound level produced by the pump.*
- ❑ *To prevent bodily injury, avoid exposing any part of the human body to vacuum.*

CAUTION

Although the pump can pump trace particulates normally found in the atmosphere, it is not designed to process solids, chemicals, powders, solvents, condensates, or other particulates. They can damage the equipment, degrade its performance, or shorten its useful life.

Startup

1. Check that the inlet screen is installed before beginning operation.

WARNING

Do not insert a finger or any foreign object in the path of the fan; serious personal injury may result or the pump may be damaged.

2. Operate the pump at an ambient temperature of 5 °C to 40 °C (41 °F to 104 °F), otherwise damage to the pump or shortened operating life may result.

CAUTION

Do not block the fan ducts. Blocking these ducts can cause pump overheating. A pump surface temperature in excess of 65 °C (150 °F) is potentially damaging. If such conditions are observed, turn the pump off and allow it to cool. Disassemble, inspect for damage, and repair, if necessary.

Electrical Connections

Fuse Replacement Procedure

The pump can be configured for low voltage, 100 VAC to 120 VAC, or for high voltage, 200 VAC to 240 VAC.

The pump as delivered from the factory is configured for high voltage. To change the pump voltage follow this procedure:

WARNING

Disconnect the pump from electrical power mains before attempting to change the voltage configuration.

1. Verify your electrical supply voltage and disconnect from the electrical supply.
2. Using a small flat blade screwdriver, slide the line voltage selector switch to either 115 for low voltage, or 230 for high voltage operation. Re-connect the pump to the electrical supply.

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Power Cord

Several power cord options are available from your Agilent dealer. Descriptions of the available power cords and their ordering numbers are given in Table 2.

Table 2 IDP-7 Power Cord Selection

Country	Power Cord Specification	Order
Europe	10 A / 220-230 VAC, 2.5 m	656494220
Denmark	10 A / 220-230 VAC, 2.5 m	656494225
Switzerland	10 A / 230 VAC, 2.5 m	656494235
UK/Ireland	13 A / 230 VAC, 2.5 m	656494250
India	10 A / 220-250 VAC, 2.5 m	656494245
Israel	10 A / 230 VAC, 2.5 m	656494230
Japan	12 A / 100 VAC, 2.3 m	656494240
North America	15 A / 125 VAC, 2.0 m	656458203
	10 A / 230 VAC, 2.5 m	656494255

Grounding Instructions

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This pump is equipped with a power cord that has a grounding wire with an appropriate grounding plug. The plug must be inserted into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER

Improper installation of the grounding plug can result in a risk of electrical shock.

WARNING

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

Connect the product only to an outlet that has the same configuration as the plug.

Do not use an adapter with this product.

WARNING

If the product must be reconnected for use on a different type of electric circuit, the connector should be replaced by qualified service personnel.

Extension Cords

If you must use an extension cord with this product:

- ❑ For this product, Agilent recommends using only extension cords with a minimum of 16-gage wire and a maximum length of 25 feet (7.6 m).
- ❑ Use only a 3-wire extension cord that will accept the plug.
- ❑ Make sure your extension cord is in good condition.
- ❑ Be sure the extension cord is rated high enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

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Start Current

Table 3 lists the typical IDP-7 maximum starting current and duration.

Table 3 Typical IDP-7 Maximum Starting Current (A)

Frequency	High Voltage Range					
	100 V	120 V	127 V	200 V	230 V	240 V
60 Hz	22	25	25	12	N/A	14
50 Hz	23	N/A	N/A	12	14	15

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Mechanical Connections

Isolation Valve

The IDP-7 has an optional integral automatic isolation valve. If the IDP-7 is equipped with this valve, an internal timer opens the valve 30 seconds after the pump is switched ON. If power is lost or the pump is switched OFF, the isolation valve will immediately close.

Pump Inlet

Use NW25, or larger, clean vacuum hardware with as short a length as practical between the pump and vacuum chamber.

Insert a bellows between the pump and vacuum chamber to provide both vibration isolation and strain relief.

Pump Exhaust

An NW16 exhaust fitting is located radially near the front of the pump. To avoid overheating the pump, do not restrict the exhaust flow with long lengths of small diameter tubing. Use as short as practical lengths of NW16, or larger, diameter hardware.

Gas Ballast

When pumping gas loads containing water vapor or condensible gases, use of the gas ballast is recommended. To activate gas ballast, remove the solid 1/4 NPT plug from either port 1 or port 2 (may be removed using a 9/16" nut driver), and install the sintered filter plug provided with the pump (see Figure 3 on page 11).

CAUTION

If hazardous materials are pumped, do not use gas ballast.

Gas ballast port 1 is used for moderate water vapor loads, such as intermittently pumping out a volume exposed to normal ambient humidity. Gas ballast port 2 is used for high water vapor loads, such as repetitively pumping out a volume exposed to excessive ambient humidity, or process gas loads with a high water vapor content. With both gas ballast 1 and gas ballast 2 in use, up to 120 g/hr water vapor can be handled. If both gas ballast 1 and gas ballast 2 are open (plugs removed, allowing for air flow), the sintered filter plug should be installed in the gas ballast 2 location instead of the gas ballast 1 location.

If either gas ballast is to be used for only short intervals, the removable insert may be taken out of the gas ballast without removing the entire plug. By removing this insert (may be removed using a 1/8" hex wrench), the gas ballast allows for air flow through the brass orifice. There is no need to remove the brass orifice.

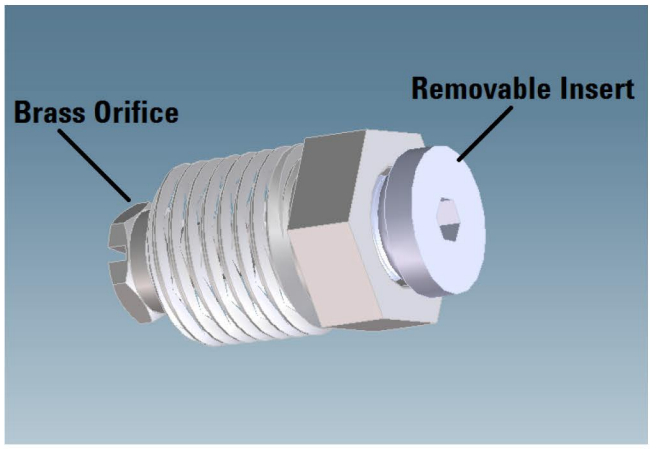

Figure 5 Gas Ballast

Gas ballast plug assembly in both port 1 and port 2.

For applications where ingress of air is undesirable, dry nitrogen at a flow rate of approximately 5 l/min can be provided to the gas ballast inlet by making a 1/4 NPT connection to the port.

CAUTION

Pumping high water vapor loads can cause a temporary increase in ultimate pressure, due to adsorption and absorption of water vapor by the internal surfaces of the pump. Pumping water vapor loads in excess of the water vapor handling capability of the gas ballast can cause reduced time between tip seal replacements.

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Operation

Cleaning the Pump

Unlike conventional oil-sealed pumps, Agilent dry scroll pumps do not contain fluid for the cleansing of accumulated dust and debris. Run the pump periodically at atmosphere for a minute or two to flush it out. Until experience is gained on your specific process, flush the pump regularly and adjust this schedule according to your specific conditions.

Startup Procedure

1. Make sure that the pump is configured for the mains voltage to which the pump is connected. See "Electrical Connections" on page 12.

NOTE

The pump ON/OFF switch is a rocker type switch that has symbols in accordance with IEC Publication 417 to represent the ON and OFF positions. Figure 6 shows a switch in the ON position.

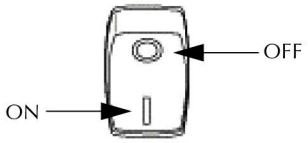

Figure 6 ON/OFF Power Switch

2. Switch the pump ON.
3. If the pump is equipped with an optional inlet valve, the valve will open automatically 30 seconds after starting the pump.

Shutdown Procedure

To shutdown the pump:

❑ Switch the pump OFF.

If the pump is equipped with an optional inlet valve, the isolation valve will close very quickly to isolate the vacuum chamber from the pump.

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Troubleshooting

Use the Troubleshooting chart in Table 4 to assist in defining a problem, determining a possible cause, and defining action steps to remedy the situation.

Table 4 Troubleshooting Chart

Problem	Possible Causes	Corrective Actions
Will not start	Fuse blown	Replace fuse. Identify cause of overload. Check the line voltage and the voltage configuration of the pump.
	Motor thermal protector open	Allow motor to cool. Identify cause of overload.
	Excessive voltage drop	Check size and length of cable.
	Defective motor	Inspect. Contact Agilent.
Poor ultimate pressure	System leak	Locate and repair leak.
	Water in pump	Flush pump with air or dry nitrogen.
	Gas ballast plugged	Replace breather vent. Contact Agilent.
	Solvent in pump	Flush pump with air or dry nitrogen. Install trap or filter.
	Seals worn out	Rebuild pump.
	Poor conductance to pump	Replumb with shorter and/or larger diameter tubing.
Hammering noise	Pump overheated	Check ventilation to pump. Check ambient temperature.
	Debris in pump	Check intake screen. Flush pump. Disassemble pump and inspect.
Pump runs intermittently	Motor thermal protector is cycling open and closed.*	Allow the motor to cool. Identify the cause of the overload.
Service, Maintenance, Tip Seal, or Part Replacement	Wear or damage	See Table 5 on page 18 and Table and Table 6 on page 18.

* *The IDP-7 is equipped with an auto-reset thermal motor protector. This protector will automatically shut down the pump when it detects an overload condition, and will automatically restart the pump when the motor has cooled to within an acceptable temperature range.*

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Maintenance

Kits and Service Options

Service of the IDP-7 should be performed by properly trained personnel only.

Agilent pumps will provide many years of trouble-free service if the maintenance procedures and intervals are observed. Cleaning and tip seal replacement are recommended when pump base pressure has risen to an unacceptably high level for your application. If your pump exhibits humming or grinding noises from the bearings, a major overhaul should be done by Agilent or an authorized rebuild center. Advance exchange pumps are available to minimize downtime.

The parts needed for tip seal replacement on the IDP-7 are available in the kit described in Table 5. This kit contains seals and O-rings, and can be obtained from your Agilent dealer.

Table 5 Accessories and Replacement Kits

Part Number	Description	Contents
X3807-67002	Front Cowling Assembly	Replacement front cowling material to replace a broken plastic cowling.
X3807-67003	Rear Cowling Assembly	Replacement rear cowling material to replace a broken plastic cowling.
X3807-68008	Gas Ballast Kit	Spare Parts

NOTE

For further service options, please contact your local service center listed in the back of this manual and ask for your local representative.

Service

Agilent offers rebuilding service at our repair centers, or you can obtain advance exchange of complete IDP-7 pumps. The service plans available and their ordering numbers are given in Table 6.

Table 6 Service Options

Factory Service Plans	Model Number
Replacement Tip Seal Set	X3807-67000
IDP-7 Exchange Pump	X3807-69000
IDP-7 Exchange with Inlet Valve	X3807-69010
IDP-7 Full Pump Rebuild	X3807-69000-RP
IIDP-7 Full Pump (with inlet valve) Rebuild	X3807-69010-RP

Cleaning

Exterior

The exterior surfaces of the IDP-7 may be cleaned with a cloth slightly moistened with water. If necessary alcohol or a mild detergent may be used instead. Do not pour or spray any liquids onto the pump.

Interior

Run the pump periodically at atmosphere for a minute or two to flush it out. For more information, see "Cleaning the Pump" on page 16.

Tip Seal Replacement

The parts and tools required to replace tip seals include:

- ❑ Tip Seal Replacement Kit P/N X3807-67000
- ❑ 4 and 8 mm Allen wrenches
- ❑ Razor blade or side-cutting pliers
- ❑ Compressed air (optional)

WARNING

If dangerous gases were being pumped, flush the pump with air or inert gas for at least 10 minutes prior to disassembly.

Figure 7 on page 19 shows the various components involved in a tip seal replacement procedure. Refer to Figure 7 as you follow the procedure.

To remove the worn tip seals:

1. Disconnect the pump from electrical power.
2. Remove (3) M8 socket head bolts (item 1).

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3. Using a crescent wrench, remove the exhaust adapter (item 2).
4. Remove the front cowling and hang out of the way (item 3). Unplug cable.
5. Remove (4) M5 bolts (item 4).
6. Remove the scroll housing axially off the frame (item 5).
7. Remove and discard the worn tip seals (item 7 and 8) and the main O-ring (item 6).
8. If compressed air is available, blow any remaining seal debris off the scroll parts. If seal debris is attached to the sides, use a razor or Exacto knife to scrape the debris off.

To install the new seals and O-rings:

1. Unpack the Tip Seal.
2. Install the closed loop portion of the Tip Seal onto the Orbiting Scroll (item 9).
3. Sequentially insert the seal from center to the outer edge of the scroll wall.
4. Cut the Tip Seal about 1/8" (3 mm) from the groove end.
5. Use the remaining Tip Seal material to fill the seal groove on the Scroll Housing and again trim the excess Tip Seal so that a gap of about 1/8" (3 mm) remains.
6. Place the new main O-ring onto the Frame (item 10). Make sure the area where the O-ring sits is clean.
7. Carefully replace the Scroll Housing making sure to line up the Locating Pins. Be sure that the Tip Seal has not fallen out of its groove.
8. Reinstall (4) M5 bolts (item 4). Torque the (4) M5 bolts to 4 N-m (40 in-lbs).
9. Place the front cowling in place and replace the M8 bolts.
10. Reinstall the exhaust adapter.
11. Reconnect the pump to the electrical power mains.

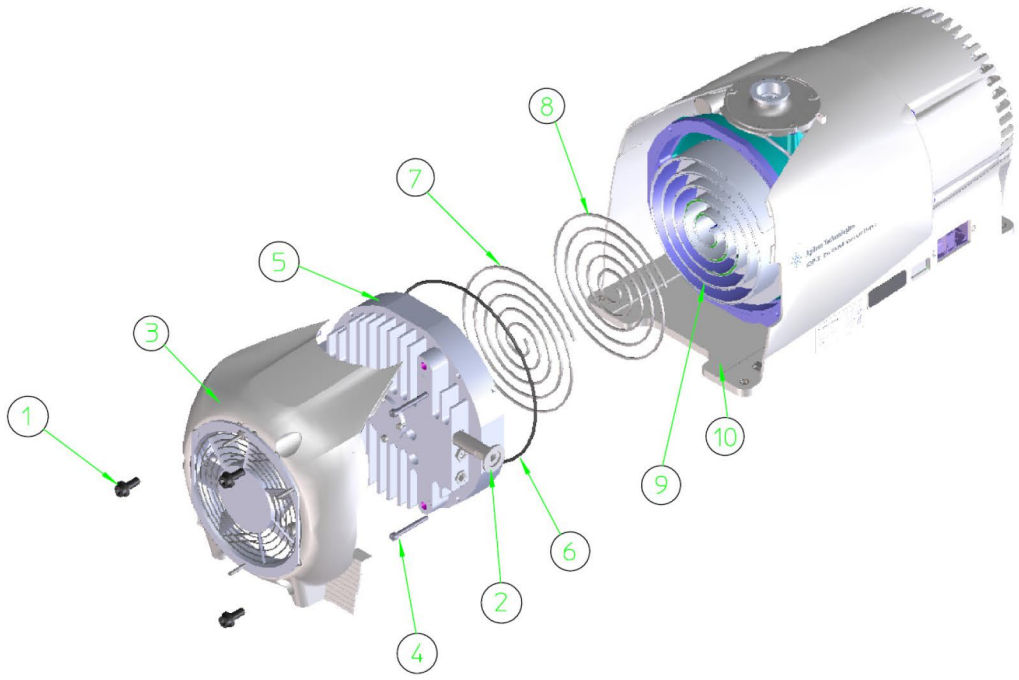

Figure 7 Exploded View of Pump Body

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1. Front Cowling Bolts; M8 (3)
2. Exhaust Fitting (NW16)
3. Front Cowling
4. Frame Bolts; M5 (4)
5. Scroll Housing
6. Main O-ring; Parker 2-265 Viton
7. Tip Seal for Scroll Housing
8. Tip Seal for Orbiting Scroll
9. Orbiting Scroll
10. Main Cowling

To test the pump:

1. Run the pump for about 5 seconds. Verify that the front fan is running.

   If you hear loud noises or observe labored operation, this indicates that the Tip Seal or main O-ring are possibly out of place.

2. Disassemble and repair as necessary.

   The pump is now ready to return to service.

NOTE

Newly installed Tip Seals may require several hours of run time to seat properly and enable the pump to meet speed and base pressure specifications.

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Vacuum Products Division
Instructions for returning products

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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

- Remove all accessories from the core product (e.g. inlet screens, vent valves).
- 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.
- If ordering an Advance Exchange product, please use the packaging from the Advance Exchange to return the defective product.
- 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.
- Include a copy of the Health and Safety Declaration in the shipping documentation on the outside of the shipping box of your returning product.
- 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.
- Return only products for which the RA was issued.

Shipping

- 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.
- 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-customercare@agilent.com

NORTH AMERICA:
Fax: 1 781 860 9252
Toll Free: 800 882 7426
vpl-ra@agilent.com

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please visit our website for individual office information
http://www.agilent.com

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Vacuum Products Division
Terms and conditions

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.

- 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.
- Agilent Technologies is not responsible for returning customer provided packaging or containers.
- 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.
- 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.
- 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.
- Products returned that have not been drained from oil will be disposed.
- A Special Cleaning fee will apply to all exposed products
- If requesting a calibration service, units must be functionally capable of being calibrated.

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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

The product has been exposed to the following substances:
(by selecting 'YES' you MUST complete the table to the right)

Substances (please refer to MSDS forms)

* 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.

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