87-900-130-01 (A)
March 3, 2011

INSTRUCTIONS

VP-100 Ion Pump

Model 819-1490 / 819-1490R001

Agilent Technologies

GENERAL INFORMATION

This equipment is destined for use by professionals. 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 occurring due to non-compliance, even partial, with these instructions, improper use by untrained persons, non-authorized interference with the equipment or any action contrary to that provided for by specific national standards.

This manual uses the following standard protocol:

WARNING!

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

CAUTION

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

NOTE

The notes contain important information taken from the text.

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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. When unpacking the pump, be sure not to drop it and avoid any kind of sudden impact or shock vibration to it. Do not dispose of the packing materials in an unauthorized manner. The material is 100% recyclable and complies with EEC Directive 85/399.

☞ CAUTION

In order to prevent outgassing problems, do not use bare hands to handle components which will be exposed to vacuum. Always use gloves or other appropriate protection.

NOTE

Normal exposure to the environment cannot damage the pump. Nevertheless, it is advisable to keep it closed until it is installed in the system, thus preventing any form of pollution by dust.

INSTALLATION

⚠ WARNING!

The pump is heavy and must be handled by means of suitable moving and handling tools.

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, to obtain the specified operation, the ambient temperature must be between 0 °C and +85 °C.

☞ CAUTION

The pump is supplied under nitrogen atmosphere and should be kept sealed with its pinch-off tubulation until it is ready for attachment to the vacuum system.

⚠ WARNING!

To avoid injury, never connect the high voltage to the pump before it is installed into the system and all the inlet flanges are properly connected or blanked off.

The pump operation is optimized using one of the special Agilent controllers (4UHV, Dual, or MiniVac) only.

☞ CAUTION

The safety specifications agreement using the pump is guaranteed using the Agilent controller only.

The VP-100 pump can be installed in any position. For convenience, a pump is usually mounted vertically with the inlet up. For mounting other than vertical, the pump should be supported with brackets.

USE

Rough pumping down to $1x10^{-4}$ mbar is recommended for the most rapid starting. Roughing with an oil-sealed mechanical pump is not desirable, but when used, a trap in the roughing line is recommended to reduce pressure due to water vapor and oils from the mechanical pump. Be careful to minimize the time that this pump is open to the system and ion pump, since mechanical pump vapors will start diffusing into the system at pressures below $1x10^{-1}$ mbar and cause contamination. In systems where oils must be completely eliminated, turbopump roughing pumps should be used. Hygroscopic deposits and hydrogen absorption into titanium may cause starting times to increase with age. During exposure to air, the deposits of titanium compound absorb water vapor. In subsequent startups, pump heating causes release of the water vapor and some previously pumped hydrogen; thus, the starting time may be lengthened.

⚠ WARNING!

When employing the pump for pumping toxic, flammable, or radioactive gases, please follow the required procedures for each gas disposal. Do not use the pump in presence of explosive gases.

☞ CAUTION

Do not put any electronic device near the pump otherwise the magnetic field around it may cause a device malfunctioning.

MAINTENANCE

The VP-100 pump does not require any maintenance. Any work performed on the pump must be carried out by authorized personnel.

⚠ WARNING!

Before carrying out any work on the pump, disconnect it from the High Voltage supply.

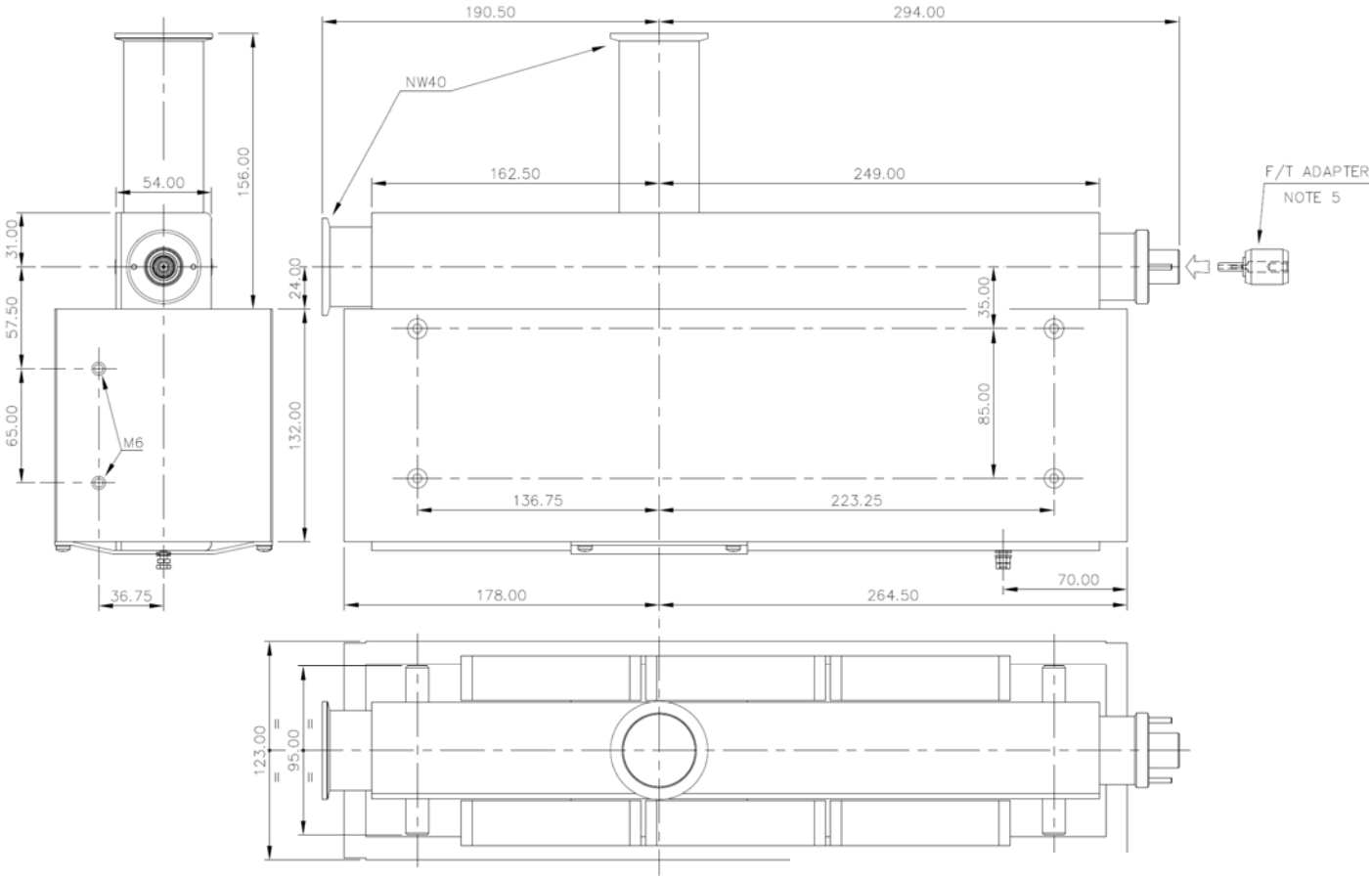
TECHNICAL SPECIFICATIONS

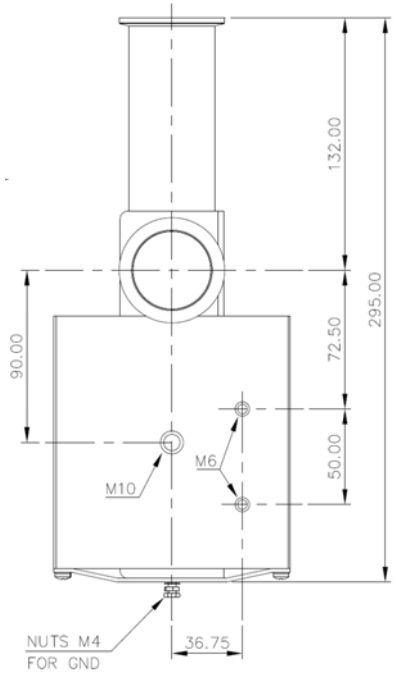
The following table details the main technical specifications of the VP-100 pump.

SPECIFICATION	MODEL	
	819-1490	819-1490R001
Nominal pumping speed for Nitrogen at $1x10^{-6}$ mbar (*) (l/s) (Measured at the longer neck flange).	25	
Operating life at $1x10^{-6}$ mbar (hours)	50000	
Max starting current	100 mA	
Max baking current	10 mA	
Protect current	20 mA	
Operating voltage (max)	+7000 Vdc +/- 10%	
Maximum starting pressure (mbar)	$\leq 1x10^{-4}$	
Ultimate pressure (mbar)	Below 10^{-8}	
Inlet flange	Klamp flange NW 40 AISI 304	
Internal volume (liters)	3.8	
Maximum baking temperature (°C)	150	
Material: Body	AISI 304 SST	
Cathode	Titanium	
Anode	AISI 304 SST	
Magnet	Ferrite	
Weight, lbs (kg)	64 (29)	

(*) Tested according to ISO/DIS 3556-1-1992

OUTLINE DRAWING





Notes

1. Both flanges closed with
   - Center ring “CO-SEAL B27158453” BOC
   - Clamp “HINGED CLAMP C10516402 (BOC)
2. Pump at atmospheric pressure filled with dry N_2
3. Pump with magnets P/N:819-1490
4. Pump without magnets P/N:819-1490R001
5. HV F/T adapter for BOC HV connector

If a pump is to be scrapped, it must be disposed of in accordance with the 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.