

Operating instructions for portable leak-checker and turbo pump cart system

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Components

- 1 Pfeiffer Vacuum HiCube 80 Eco Turbo Pumping Station
- 2 Thermocouple Gauge
- 3 Capacitance Gauge
- 4 Granville Phillips Nude Bayard-Alpert Tungsten Filament Ion Gauge
- 5 Inficon Transpector Residual Gas Analyzer (RGA)

CAUTION: The RGA and three pressure gauges each have a unique range of pressure, given in parentheses, for which they operate accurately and without damage occurring. Failure to follow operating procedure presented could result in damage to instruments and other equipment

PROCEDURE

Pump Down

Prior to starting the pump down procedure ensure all instruments, other than the tc gauge if preferred, are off. Once the pump begins, do not introduce any rapid changes in pressure, such as venting, or adding components to the vacuum chamber, until the pump has completely stopped, as this can damage the pump.

Turbo Pump

1A. Pfeiffer Vacuum HiCube 80 Eco Turbo Pump

- 1.1 Open top valve exposing turbo pump to external chamber
- 1.2 Tighten venting connection screw located on HiPace pump housing
- 1.3 Loosen transportation locks on power supply unit
- 1.4 Turn on the pump's main power supply using green switch on back of unit
- 1.5 Turn pump on with ON/OFF button on DCU 110 Display Controller unit

Pressure Gauges

2A. Thermocouple Gauge (10^{-3} torr, 700 torr)

- 2.1 Turn thermocouple gauge on using Varian Multi-gauge Controller
(The tc gauge can be run at STP, so it can operate prior to step 1.)
- 2.2 Tc gauge will peg out at 10^{-3} torr

3A. Capacitance Gauge (10 torr, 10^{-6} torr)

- 3.1 Turn on the capacitance gauge by toggling the power switches on the MKS Instruments INC Type 170M - 26B Meter Unit to on

4A. Ion Gauge (10^{-3} torr, 10^{-11} torr)

- 4.1 Turn on the ion gauge by pushing the EMIS button on the Varian Multi-Gauge Controller

5A. Inficon Transpector Residual Gas Analyzer (RGA)

Note: There are two modes for the RGA, a diagnostic mode, and an analysis mode. Prior to use ensure the RGA is in the desired mode and that the pressure of the chamber is at most 10^{-6} torr. For complete operation instructions of the RGA reference the *TRANSPECTOR™ Gas Analysis System Manual*.

Shutting Down

Prior to venting the system ensure that all instruments, other than the tc gauge if preferred, are off. During venting the pressure of the chamber will rise above operation tolerances for all of the gauges, except the tc gauge.

Pressure Gauges

1B. Inficon Transpector Residual Gas Analyzer (RGA) (10^{-14} torr, 10^{-6} torr)

Note: Ensure that the RGA is turned off before the chamber pressure rises above 10^{-6} torr to avoid damaging the RGA. For complete operation instructions of the RGA reference the *TRANSPECTOR™ Gas Analysis System Manual*.

2B. Ion Gauge (10^{-3} torr, 10^{-11} torr)

- 2.1. Turn off the ion gauge by pushing the EMIS button on the Varian Multi-Gauge controller

3B. Capacitance Gauge (10^{-1} torr, 10^{-6} torr)

- 3.1. Turn off the capacitance gauge by toggling the power switches on the MKS Instruments INC Type 170M - 26B Meter Unit to off

4B. Thermocouple Gauge (10^{-3} torr, 700 torr)

- 4.1. Turn thermocouple gauge off using Varian Multi-gauge Controller (The tc gauge can be run at STP, so it can operate throughout shutdown if desired.)

Turbo Pump

5B. Pfeiffer Vacuum HiCube 80 Eco Turbo Pump

- 5.1. Turn off pump with ON/OFF button on DCU 110 Display Controller unit
- 5.2. Close top valve isolating the turbo pump from external chamber
- 5.3. Ensure the turbo pump has come to a complete stop by toggling to the rotor RPM display option on the DCU 110 Display Controller unit
- 5.4. Turn off the pump's main power supply using green switch on back of unit
- 5.5. Loosen venting connection screw located on HiPace pump housing
Note: It is recommended that the venting connection screw is not left open for more than five minutes, or moisture might enter the turbo pump chamber.
- 5.6. Tighten transportation locks on power supply unit