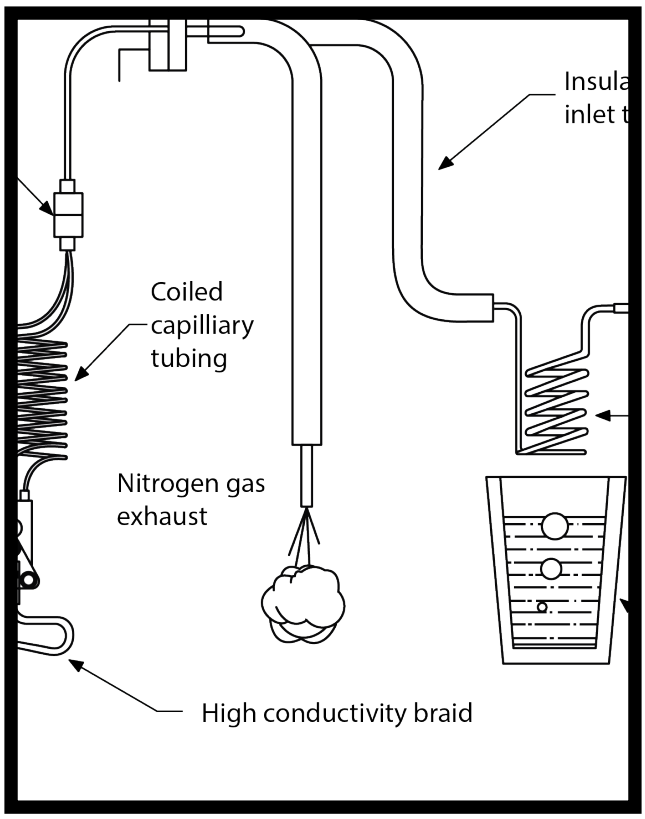
VACGEN

Assembly Guide

Gas Cooling AS0022

VGS03-02T22



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DISCLAIMER

This Assembly Guide should be used in conjunction with the owner's manual where available, and is intended as a guide only as there maybe variations between versions and therefore must be used at the Owner's Risk. For more detailed assistance, please contact our Support desk +44 (0) 1323 379 335 or support@vacgen.com.

HEALTH AND SAFETY

All repairs and services should be carried out by a qualified engineer, usinig the correct tools and procedures to carry out the repair. VACGEN are not liable for any errors within the assembly guides which may cause inconsistencies during repair.

The Goods, especially chemicals, may be dangerous if not properly used or stored and the appropriate precautions taken. The Customer accordingly agrees that it shall take all such steps as are reasonably practicable or usual to eliminate or reduce any risk to health and/or safety to which use of the Goods may give rise and acknowledges that where the Goods are manufactured to a design supplied by the Customer, the Company will not undertake any research as to the risks to health and/or safety which may arise from use or storage of the Goods. Where the Goods are manufactured to a design supplied by the Customer, the Customer shall comply with all the duties which may be implied at law on a designer and/or manufacturer of the Goods.

Revision	Date	Comment	Initials
1			
2			
3			

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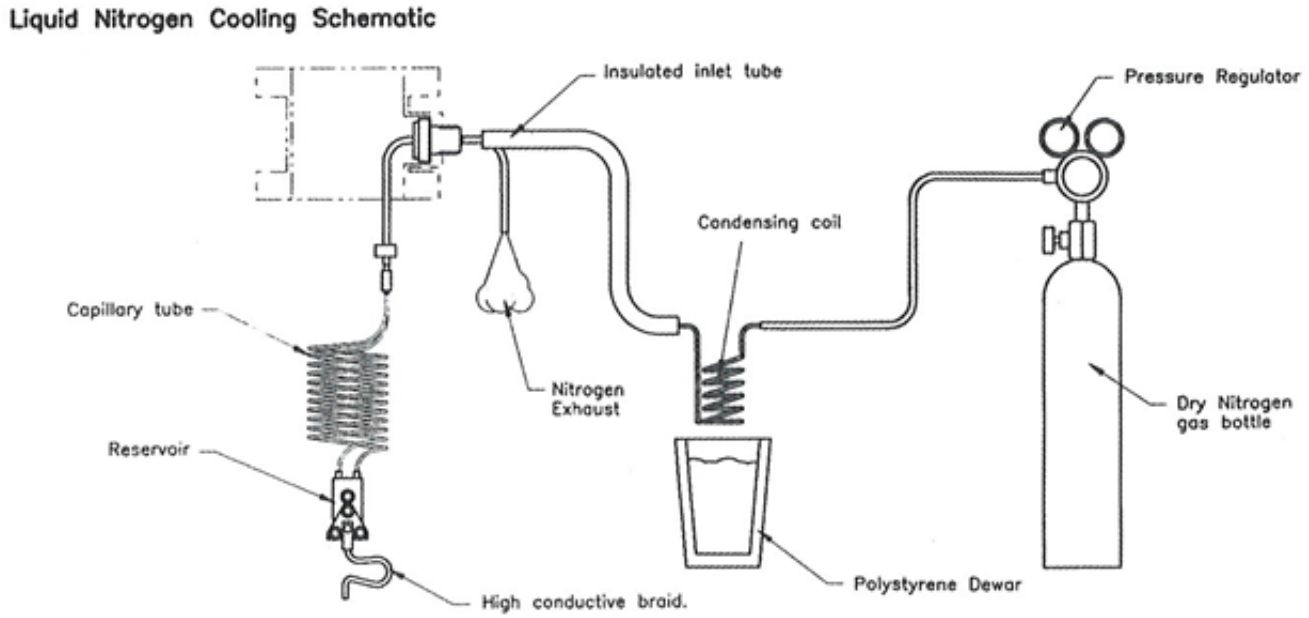
Gas Cooling

Important Note: Great care should be taken using Liquid Nitrogen
Health and Safety rules apply and Cryogenic Gloves and Face Shield must be worn.

1. You will need three lengths of flexy pipe. From the gas bottle to Dewar Coil. From Dewar Coil to Inlet. From Exhaust (Outlet) to safe area, away from personnel
2. Assemble flexy pipe to the coil
3. Push the other end of the flexy pipe onto either inlet tubes on the manipulator, with the insulated outer cover, make sure this covers the full length
4. Push the second short length of flexy pipe onto the other inlet tube (exhaust) on the manipulator. NOTE: You do not need the outer insulator on this tube.
   Make sure the exhaust gas will not affect anything it is aiming at, as it will condense of form water droplets.
5. Connect the third length of flexy pipe to the coil,
6. Attach the other to a dry Nitrogen gas supply, with a gauge that will read at least 0 bar to 2 bar. NOTE: You do not need the outer insulator on this tube.
7. Check the flow and no gas leaks, this is very important
8. Place the coil into the dewar
9. Purge the line using 1 bar
10. After at least 5 minutes, very slowly add liquid Nitrogen into the dewar
    NOTE: You will get gas bursts that will register on the gauge, so it is important to add the liquid very slowly
11. Once the dewar is full, turn the pressure up to 1.5 bar and the temperature should start to fall quickly
12. It is important to keep the dewar full to the top
13. Once at base temperature or liquid starts to spit out of the exhaust, back the pressure off to a minimum of 0.5 bar
14. Keep the dewar full all the time you are working on your sample. To stop cooling, you can either remove the coil from the Dewar and allow the gas to pass through it at 0.5 bar, until at room temperature or just leave the coil in the dewar, until all the liquid has evaporated.

DRAWINGS

Typical Cooling Setup



Average Temperatures
Reservoir 5 mins > -165°c
Sample Plate 35 mins > -160°c Base Temperature

NOTE:
Base temperature can be affected by:
Room temperature
Sample Size
Gas Flow
Amount of liquid in Dewar
Emissive heat load