

Thermal Conductivity Instruments

DTC-300



Site Preparation Guide

Ideal Setup

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Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Ideal Setup



IDEAL PLACEMENT AND BENCH MEASUREMENTS

Select a location with adequate floor space and a rigid laboratory bench that is level and is in a vibration-free environment.



Bench width: 1.8 m (6 ft)

Bench depth: 76 cm (30 in)

Ideal Setup and Components



COMPONENTS



- A. Chiller
- B. Instrument
- C. Computer (Controller)



Place the chiller on the **same level** as the instrument.

Instrument Measurements



INSTRUMENT MEASUREMENTS



Height: 94 cm (37 in)

Width: 64 cm (25 in)



Depth: 71 cm (28 in)

Weight: 44 kg (98 lbs)

Utility Requirements



POWER

Item	Requirement
Instrument	<ul style="list-style-type: none">• 100–120 VAC, 10 A, 60 Hz (US)• 200–240 VAC, 10 A, 50/60 Hz (Non-US)<ul style="list-style-type: none">○ Installation of a 16A Class B or C main fuse is recommended.
Power cords provided	<ul style="list-style-type: none">• NEMA 5-15 plug for 100–120 VAC <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none">• NEMA 6-15 plug for 200–240 VAC <div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"><p>NEMA 5-15 plug</p></div><div style="text-align: center;"><p>NEMA 6-15 plug</p></div></div>



Use power cords with plugs appropriate for your circuit.



Supply voltages lower than indicated may result in a degradation of performance.



Ensure that the mains assigned do not also supply power to noise generating equipment nearby, such as motors, welders, transformers, etc.



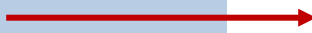
An independent heavy GROUND wire must be provided through the power hookup. Improper grounding may cause severe damage for which the supplier will not accept responsibility. All power strips must be fully grounded and carry the ground through to the sockets into which the computer is plugged.




Utility Requirements



GAS

Pneumatic Ram		Gas Requirements for Pneumatic Ram
Type		Must be nitrogen or air
Source		Must be from a gas cylinder, Grade 5 purity 
Inlet Pressure		Minimum: 40 psig (2.75 bar) Maximum: 50 psig (3.45 bar)
Tubing		<ul style="list-style-type: none">• ¼" tubing is supplied to connect from instrument to gas regulator• Tubing is rated to 100 psig (7 bar)



Purge Gas		Gas Requirements for Purge
Type		Must be nitrogen ; at sub-ambient temperatures to prevent frost and moisture buildup on internal metal components
Inlet Pressure		Less than 5 psig needed—it is simply a low, steady flow to flush the furnace cavity
Tubing		<ul style="list-style-type: none">• Purge gas port requires 1/8" tubing (provided)• A 1/8" stem to ¼" tubing adapter is also provided 




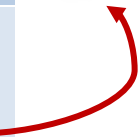
The customer is required to supply either compressed air, dried and filtered, to 10 microns, or laboratory grade inert gas (such as nitrogen from a high pressure cylinder).

Utility Requirements



COOLANT

Item	Requirement
Pressure	4.3 psig (0.30 bar) maximum
Flow Rate	20 L/min (5 gal/min) maximum  Operating close to or below min. pressure will result in erratic operation.
Cooling Capacity	<ul style="list-style-type: none"> At -20°C = 265W At 0°C = 650W At +20°C = 1000W
Coolant Liquid	<ul style="list-style-type: none"> 50/50 mix of DI water and laboratory grade ethylene glycol for testing up to 300°C Denaturalized alcohol for sub-zero testing
Connections	Supplied: Two hoses (6 feet / 1.8 meters each) to connect to the Coolant Inlet and Outlet ports on the back of the furnace. The other end of each hose is blank; a male 3/8" barb with 1/4" threads (provided) must be installed to connect to the coolant source.



Coolant Inlet and Outlet ports and hoses

P/N 202612.001 (120V for 60Hz power, 13A)

or

202442.001 (240V for 50Hz power, 13 A)



Place the chiller on the **same level** as the instrument.

Utility Requirements



WATER



Excessively cold water will result in “sweating” and corrosion of cooled metal surfaces. The purge of nitrogen gas through the furnace will prevent this.



Operating below the minimum chiller coolant level will result in erratic operation. A chiller/circulator is recommended for this instrument.



If a chiller/circulator is to be used, it **must** be placed at the same level as the instrument.

Computer Requirements



HARDWARE REQUIREMENTS

- Unused RS-232 (serial) port
- Unused USB port



Instrument drivers and software are provided on a CD.



Computer should not be attached to other analytical instruments or LAN.



SOFTWARE REQUIREMENTS

Item	Requirement
Operating System	<ul style="list-style-type: none">• Windows 7 or 10, 32- or 64-bit, Ultimate, Enterprise & Professional• Home version not supported
Network	<ul style="list-style-type: none">• <i>TA Instruments is not responsible for resolving issues associated with connections to your corporate network.</i>• <i>Network cards and/or certain network operation frequently interfere with the operation of the instrument and software.</i>
Conflicts	<i>TA Instruments is not responsible for resolving hardware/software conflicts created by the addition of third party hardware or software to the computer.</i>

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