Thermal Conductivity Instruments

DTC-300

Site Preparation Guide

Revision A Issued February 2017

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Ideal Setup

IDEAL PLACEMENT AND BENCH MEASUREMENTS

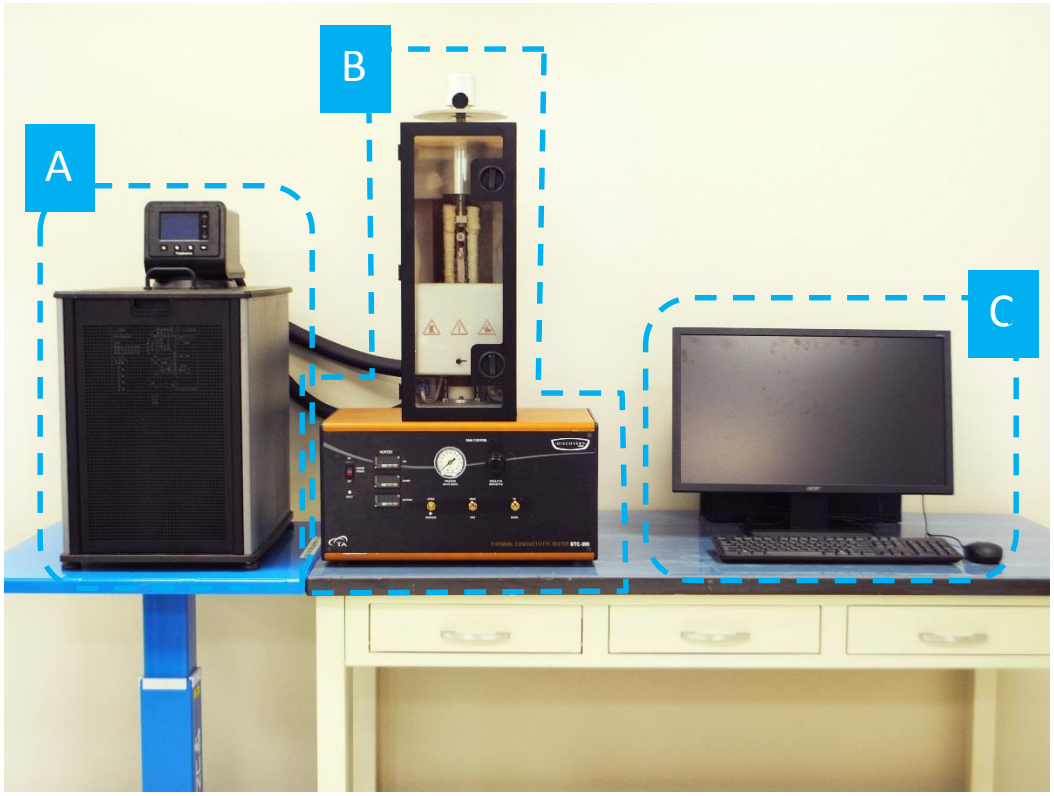
Select a location with adequate floor space and a rigid laboratory bench that is level and is in a vibration-free environment.

Bench length: 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

Instrument

- 100–120 VAC, 10 A, 60 Hz (US)
- 200–240 VAC, 10 A, 50/60 Hz (Non-US)
  - Installation of a 16A Class B or C main fuse is recommended.

Power cords provided

CAUTION **Use power cords with plugs appropriate for your circuit.**

- NEMA 5-15 plug for 100–120 VAC

OR

- NEMA 6-15 plug for 200–240 VAC


NEMA 6-15 plug


NEMA 5-15 plug

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

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

CAUTION 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	• 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	• 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

	Requirements
Pressure	4.3 psig (0.30 bar) maximum
Flow Rate	20 L/min (5 gal/min) maximum CAUTION Operating close to or below min. pressure will result in erratic operation.
Cooling Capacity	• At -20°C = 265W • At 0°C = 650W • At +20°C = 1000W
Coolant Liquid	• 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 ¼" 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)
or
202442.001 (240V for 50Hz power)

NOTE 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	• Windows 7 or 10, 32- or 64-bit, Ultimate, Enterprise & Professional • Home version not supported
Network	• *TA Instruments is not responsible for resolving issues associated with connections to your corporate network.* • *Network cards and/or certain network operation frequently interfere with the operation of the instrument and software.*
Conflicts	*TA Instruments is not responsible for resolving hardware/software conflicts created by the addition of third party hardware or software to the computer.*

Site Preparation Checklist

Thermal Conductivity Instruments: DTC-300

	Sufficient bench space for instrument, computer, and chiller (if needed): ☐ Length: 1.8 m (6 ft) ☐ Depth: 76 cm (30 in)
	Instrument power is ☐ 100–120 VAC, 10 A max, 60 Hz (US) ☐ 220–240 VAC, 10 A max, 50/60 Hz (Non-US) Computer, monitor, and chiller power is ☐ 120 V (US) ☐ 220–240 V, 6.4 A max, 50/60 Hz (Non-US)
	Pneumatic Ram Gas – Air or Nitrogen ☐ Regulator to allow 40–50 psig (2.75–5.50 bar) Purge Gas – Dry Nitrogen ☐ Under 5 psig (2.75–5.50 bar)
	Water Circulation ☐ Nominal flow rate of 20 L/minute (5 gal/min) ☐ Maximum pressure of 4.3 psig (0.30 bar) ☐ Sufficient cooling capacity ☐ 50/50 mix of DI water and laboratory grade ethylene glycol (for temperatures up to 300°C) ☐ Denaturalized alcohol (for sub-zero measurements)

I hereby acknowledge that all utility requirements have been met per the checklist above and that they will be ready at the agreed time of installation.

If all utility requirements are not met at the agreed time of installation, additional charges may be incurred for a return Service trip.

_____ / _____ / _____

Customer *DD* *MM* *YYYY*

_____ _____ _____ _____

Company *City* *State* *Country*

Please send a signed copy of the completed checklist to your local Service representative.

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TA Instruments – Waters LLC
Corporate Headquarters
159 Lukens Drive
New Castle, DE 19720
USA

Telephone: 302-427-4000
Fax: 302-427-4001
Email: info@tainstruments.com