

Zero Degree C Cooling Option—H1000 Series

Specifications

Introduction

Micromanipulator's H1000 Series Thermal Chuck System is an integrated system to maximize your options. Choose a Thermal Chuck *and* a Temperature Control System (operate either an AC or DC Heat Controller). Next choose desired heat exchanger (cooling to ambient or rapid cooling of the thermal chuck below the cool setpoint). Then choose the Cooling Option (either above ambient with user-supplied cooling water or rapid cool down to 0 degrees C). This specification sheet features the Zero degree C Cooling Option (part number C1000-V1-C-0) to rapidly cool down the thermal chuck and provide control for temperatures below ambient to as low as Zero degrees C.

The Model C1000-V1(V2)-C-0 Zero degree C Cooling Option is required to rapidly cool down the thermal chuck and provide control for temperatures below ambient to as low as 0° C when using the H1000 Thermal Chuck System.

This Thermal Chuck System component, when combined with an H1000 Heat Controller, provides precise temperature control above ambient and the C1000-V1(V2)-C-0 Zero Degree C cooling option below ambient. The mutual operation of the 0° C cooling option and the Heat Controller assists control and stability of temperatures near ambient.

The C1000-V1(V2)-C-0 cooling option includes a *Cooling Module* which controls the flow of cooling fluid via the *Service Module* for temperature control below ambient. Also included is a *Zero Degree Chiller* which is an external refrigeration unit to provide a source of chilled cooling fluid.

Features

- The C1000-V1(V2)-C-0 cooling option requires an H1000 Heat Controller to function and is compatible with all H1000 Heat Controllers.
- The C1000 also allows the user to manually air-purge the thermal chuck as desired.

- The C1000 Cooling Module contains the display and control electronics for the cooling option and mounts within the space provided in the Heat Controller cabinet.
- The power for the Cooling Module is supplied by the Heat Controller, eliminating the need for a separate power cord.
- The Cooling Module allows entry of up to 10 temperature calibration data setpoints to cause the C1000 display to match the measured temperature of the chuck surface.
- Optional temperature control software enables programmable heat, cool and soak cycles and sequencing.
- The Cooling Module includes a built-in RS-422 interface. RS-232 and IEEE-488 interfaces are available options.
- The Zero Degree Chiller and Service Module may be remotely located up to 10 feet away from the probe station to reduce audible and electrical noise from the test hardware environment.
- The Zero Degree Chiller is available in 110 VAC and 230 VAC models. It is mounted on casters, having its own power cord.

- The Zero Degree Chiller provides cooling fluid to achieve and maintain chuck temperature as low as 0° C.
- The remote Service Module provides a convenient location for all system service connections and eliminates the possibility of controller damage due to fluid leakage.
- The remote Service Module routes cooling fluid to the chuck during a cooling cycle and continuously to the cooling shield on the thermal chuck. The cooling shield reduces the risk of a burn injury while protecting the probe station hardware from heat radiation that can cause thermal stress of positioning components. The cooling shield also aids in balancing the Heat Controller to improve near-ambient temperature control.
- All hoses feature self-sealing quick connect couplings for easy hookup without spillage problems associated with conventional hose fittings.



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Specifications subject to change without notice.

Specifications

Performance

- Temperature control: PID
 - Typical ramp rates from 400° C to 0° C ^[1]
 - 6" (150mm) coaxial chuck: 11 minutes
 - 8" (200mm) coaxial chuck: 18 minutes
- ^[1] To within 0.5° C of setpoint.

Physical data

- Cooling Module - 4 lb (1.8 kg)
 - 8.5" x 3.25" x 14" (22cm x 8.25cm x 36cm) WxHxD
- Service Module (SRV1) - 5 lb (2.26 kg)
 - 8.5" x 2.75" x 13.5" (22cm x 7cm x 34cm) WxHxD
- Zero Degree Chiller - 82 lb (37kg) when full
 - 12.5" x 19" x 28" (32cm x 48cm x 71cm) WxHxD
- Hoses/Cable: 10 feet (304cm) long
- Temperature Control Software: pcTC

Facility requirements

Power:

C1000-V1-C-0 115 VAC, 8A

C1000-V2-C-0 230 VAC, 5A

Shop air:

40-100 psig @ 1 SCFM

Cooling fluid:

Type: 3:2 water/propylene glycol
mixture, Sierra brand recommended

Capacity: 0.5 gallons (.19 dekaliter)

Space: Allow at least 6" (15cm) in front of the
chiller for air circulation.

Note: Air output is not filtered

Accessories

- RS-232 Interface: H1000-RS-232
- IEEE-488 Interface: H1000-IEEE
- Temperature Control Software: pcTC