

UC160-190

Ultra Compact Series - The Smallest Recirculating Chiller on the Planet



160 W to 190 W

- Low-light CCD cameras
- Diode lasers
- OEM medical equipment
- Laboratory equipment
- Microtiter plate temperature control
- Point-of-use temperature control

The Right Temperature Without Fail

Solid State Cooling Systems

UC160-190



Ultra Compact, quiet operation, and precise, reliable thermoelectric technology

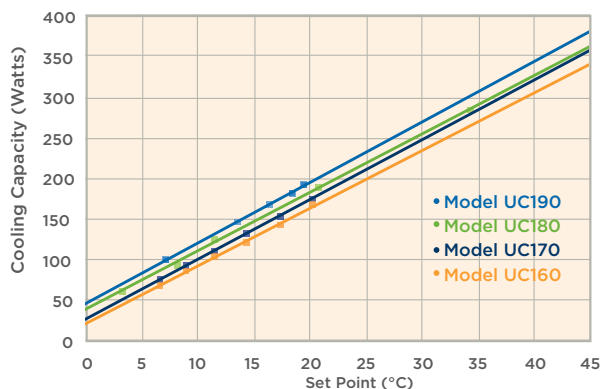
Available with a 160-190 Watt capacity, the UC160-190 delivers precise temperature control using ultra-reliable thermoelectric modules with lifetimes exceeding 200,000 hours. UC160-190 responds instantly to changes in load, holding to $\pm 0.1^{\circ}\text{C}$, even near ambient. Its universal, variable power supply only provides power when needed, making the unit very energy efficient.

As the world's smallest, air-cooled recirculating chiller, UC160-190 fits easily inside your equipment or on your table top. And its standard RS232 interface for automatic temperature control makes UC160-190 simple to use.

SPECIFICATIONS

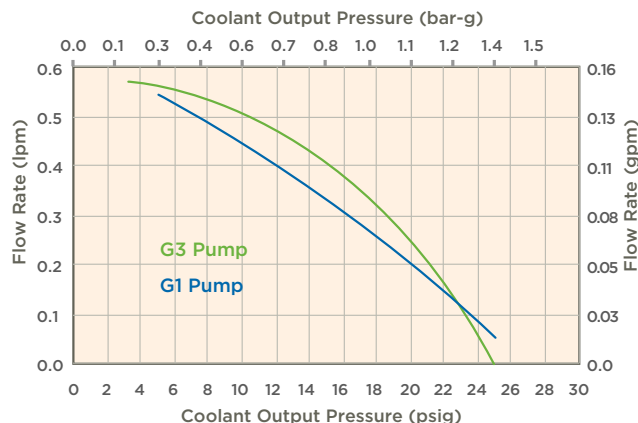
Operating Range	2 °C to 45 °C (160W / 180W models) 10 °C to 45 °C (170W / 190W models)
Ambient Temperature	10 °C to 40 °C non-condensing
Repeatability	± 0.1 °C (even near ambient)
Cooling Capacity	160W to 190W @ 20 °C (20 °C ambient) depending on model and configuration
Noise (at 1 meter)	<63 dBA
Coolant/Process Fluid	Koolance (27% propylene glycol/water mix) or 27-50% ethylene glycol/water mix
Process Fluid Fittings	1/8" female CPC with shut-off valve
Pump Options	G1: -0.5 lpm magnetically-coupled gear pump G3: Alternate longer life -0.5 lpm gear pump
Tank Volume	75 ml with level sensor (optional sealable cap)
Wetted Materials	Al and polymers, or Cu and polymers
Size (L x W x H)	7.5" x 5" x 7" (19 x 13 x 18 cm)
Weight	8 lbs (3.5 kg)
Power Input	Universal: 100 - 240 VAC, 50/60 Hz, 2.8A max
Power Consumption	Less than 200 Watts
Operating Voltage	13.5 VDC, 15 amps max (universal input, laptop style power supply included)
Communications	Keypad or RS232 interface
Alarms	Temperature, fluid level, component or system failure (display, RS232 and dry contact)
Standards	CE, TUV listed to CSA/UL 61010-1
Warranty	1 year

UC160-190 COOLING CURVES
20 °C AMBIENT, PROCESS FLUID:
27% PROPYLENE GLYCOL/WATER (KOOLANCE)



Note: Cooling Capacity will vary with configuration

UC160-190 PUMP CURVES



TCube edge

Low Cost, High performance thermoelectric chiller optimized for lasers, optics and life sciences



Key Features

- Optimized for cost vs. performance
- Precise $\pm 0.05^{\circ}\text{C}$ temperature control
- Reliable, compact, quiet and energy efficient

The Right Temperature Without Fail

Solid State Cooling Systems

TCube edge



Precise, compact and quiet

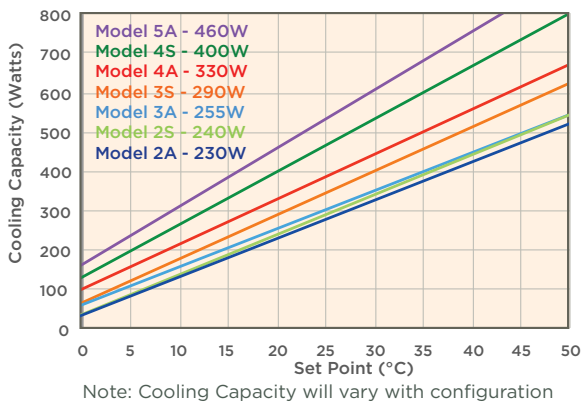
With cooling capacities from 230 Watts to 460 Watts, the TCube edge product family of thermoelectric recirculating chillers has been designed for cost-performance with features that have been specifically optimized for the laser, optics and life sciences markets.

Building on more than twenty years of leadership in thermoelectric technology, these systems offer precise temperature control ($\pm 0.05^\circ\text{C}$ repeatability), long-life reliability, quiet operation and environmental friendliness in a compact size.

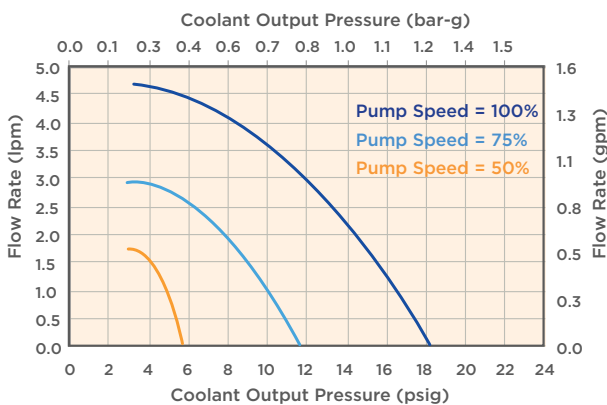
Using universal power our chillers are very energy efficient only drawing power when required.

Models are available with either aluminum or stainless steel wetted materials to ensure compatibility with the systems being controlled.

TCUBE EDGE COOLING CAPACITY PERFORMANCE MEASURED AT 20°C AMBIENT TEMPERATURE



TCUBE EDGE PUMP CURVES



SPECIFICATIONS

Operating Range	0°C to 65°C
Ambient Temperature	10°C to 40°C non-condensing
Repeatability	$\pm 0.05^\circ\text{C}$ at constant load
Cooling Capacity¹	230-460 Watts @ 20°C (20°C ambient) depending on model and configuration
Noise (at 1 meter)	-50 dBA at 50% load -63 dBA at 100% load
Process Fluid Fittings	1/4" valved CPC
Pump Type	Adjustable centrifugal pump
Pump Flow Rate	> 2 lpm @ 14 psig (adjustable for pressure sensitive applications)
Tank Volume	1 liter with level sensor
Wetted Materials	Aluminum or Stainless Steel cold plate with compatible materials
Size (L x W x H)	13 x 11 x 11" (33 x 28 x 28 cm)
Weight	25 lbs (11.3 kg)
Universal Power Input	Universal: 100-240 VAC, 50/60 Hz
Maximum Current	3.5/1.5A to 8.5/3.5A model dependent
Communications	Keypad, RS232 or optional Ethernet
Alarms	Temperature, fluid level, system or component failure (display, remote or optional audio alarm)
Standards	TUV listed to UL, CAN/CSA and EN 61010-1, CE 61010-1, RoHS
Warranty	2 years

SOLID STATE COOLING SYSTEMS

THERMOCUBE

Customizable Thermal Stability for Laser, Medical and Lab



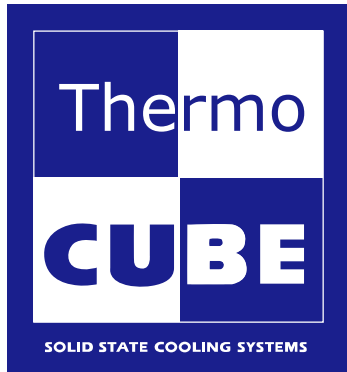
Semi-Custom Chiller for Your Unique Application

- Up to 400 Watts
- 8 pump choices
- 8 inlet/outlet fitting choices
- 3 fan choices
- 10 other standard options



The Right Temperature Without Fail

Solid State Cooling Systems

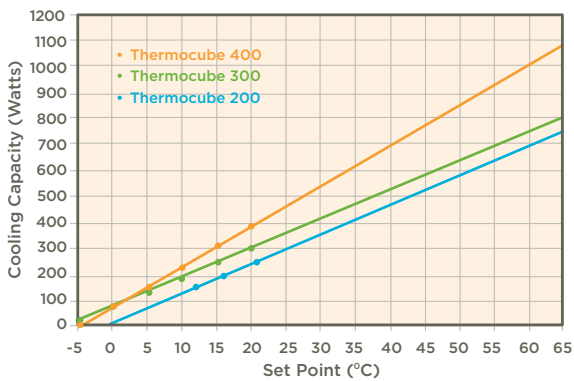


Compact, refrigerant-free and ultra-reliable thermoelectric technology

Available in 200, 300 and 400 Watt capacities, ThermoCube delivers whisper-quiet, vibration-free thermal control to ± 0.05 °C, even near ambient. Built on a core of thermoelectric modules with lifetimes exceeding 200,000 hours, it also offers worldwide power compatibility with its standard, universal power input. Our variable voltage power control means you efficiently draw power only as you need it.

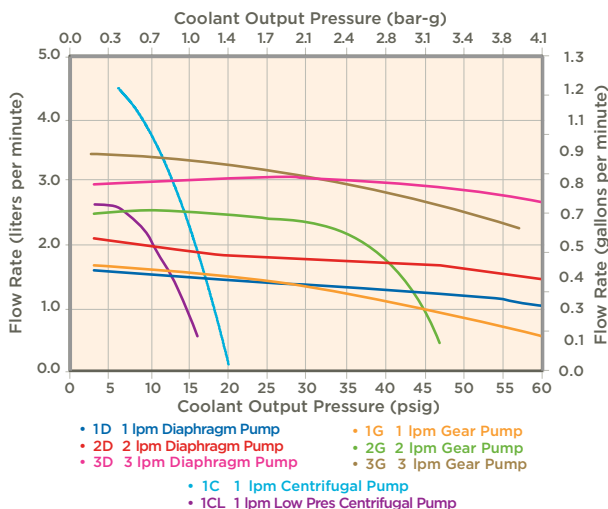
ThermoCube has many options and was designed for customization. It's air cooled, so it can operate in any lab or office.

THERMOCUBE 200/300/400 COOLING CURVES 20°C AMBIENT AIR TEMP



Note: 1 - Cooling Capacity will vary with configuration
2 - ThermoCube 400 curve measured at 208 VAC

THERMOCUBE PUMP CURVES



For complete information: sscooling.com/thermocube200

SPECIFICATIONS

Operating Range	+5 to 50 °C standard range (down to -5 °C with low temp option) (up to 65 °C with high temp option)
Ambient Temperature	10 °C to 40 °C non-condensing
Repeatability	± 0.05 °C (even near ambient)
Cooling Capacity	200, 300 or 400 Watts at 20 °C (20 °C ambient) See cooling curves
Noise (at 1 meter)	<63 dBA (60 and 49 dBA options available)
Coolant/Process Fluid	Koolance (27% propylene glycol/water mix) or 27-50% ethylene glycol/water mix. HFE or Fluorinert/Galden options available.
Process Fluid Fittings	1/4" John Guest standard, many options
Pumps	8 pump choices, see pump curves
Wetted Materials	Aluminum, stainless steel and polymers
Size (L x W x H)	13" x 11.0" x 13" (32 x 28 x 32 cm)
Weight	28 lbs. (12.7 kg) (with basic options)
Power Input	Universal: 115-230 VAC, 50/60 Hz, 7A-5A
Communications	Keypad or RS232 optional
Alarms	Temperature, fluid level, component or system failure (display and RS232 option)
Standards	TUV listed UL, CAN/CSA and EN 61010-1, CE 61010-1
Warranty	1-2 years (diaphragm pumps are 1 year)

SOLID STATE COOLING SYSTEMS

THERMOCUBE 400L-600L

Thermoelectric Liquid-Cooled Recirculating Chiller



Current Customer Applications

- Semiconductor fab equipment temperature control
- Laboratories with recirculating house chilled water
- Laser cooling
- Gas bottle temperature control
- Scanning electron microscopes
- and other applications

The Right Temperature Without Fail

Solid State Cooling Systems



Compact, refrigerant-free and ultra-reliable

Available in 400 or 600 Watts, ThermoCube 400L- 600L delivers whisper-quiet, vibration-free thermal control to ± 0.05 °C, even near ambient. Built on a core of thermoelectric modules with lifetimes exceeding 200,000 hours, it offers worldwide power compatibility, and its variable voltage power control means you draw power only as you need it.

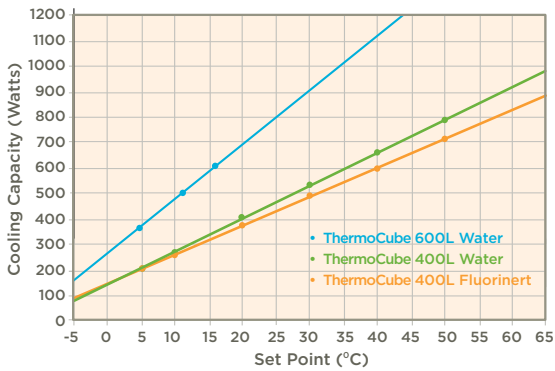
ThermoCube 400L and 600L can be used with glycol/water solutions or industrial water. Our standard pump is capable of delivering up to 50 psi for laser diode and other high-pressure applications. Low-pressure pumps are also available.

For complete information: sscooling.com/thermocube400

SPECIFICATIONS

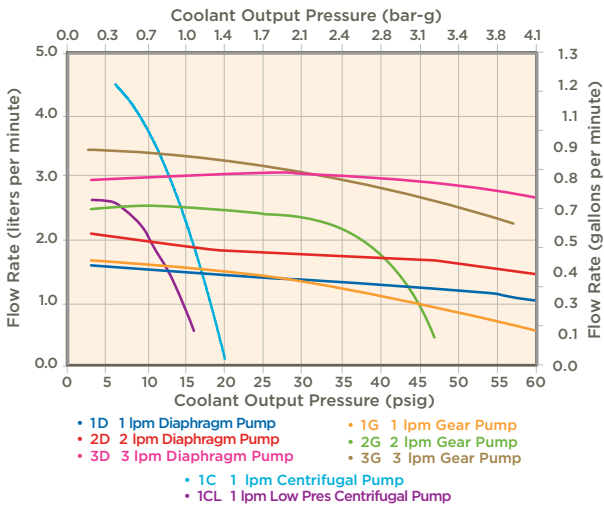
Operating Range	5 to 50 °C (down to -10 °C with low temp option; up to 65 °C with high temp option)
Ambient Temperature	10°C to 40°C non-condensing
Repeatability	± 0.05 °C, even near ambient
Cooling Capacity	400 or 600W at 20 °C (with 20°C facility chilled water)
Noise (at 1 meter)	< 48 dBA (pump dependent)
Coolant/Process Fluid	Koolance (27% propylene glycol/water mix) or 27-50% ethylene glycol/water mix; Fluorinert/Galden or HFE options available
Process Fluid Fittings	John Guest std. CPC or Swagelok optional
Pumps	8 pump choices (see pump curves)
Tank Volume	300 ml with level sensor
Wetted Materials	Aluminum, stainless steel and polymers
Filter	Optional 5 μ m external fluid filter
Facility Water	1 gpm recirculated, filtered, treated industrial water
Facility Fittings	Match coolant fittings (others on request)
Size (L x W x H)	13" x 11" x 13" (32 x 28 x 32 cm)
Weight	28 lbs. (13 kg) (with basic options)
Power Input	Universal: 115-230 VAC, 50/60 Hz, 7-5A max
Communications	Keypad or optional RS232 Interface
Alarms	Temperature, fluid level, component or system failure (display and RS232 option)
Standards	TUV listed to UL, CAN/CSA and EN 61010-1, CE 61010-1
Warranty	1-2 years (pump dependent)

THERMOCUBE 400L/600L COOLING CAPACITY 20°C AMBIENT, 20°C FACILITY WATER



Note: Cooling Capacity will vary with configuration

THERMOCUBE PUMP CURVES



SOLID STATE COOLING SYSTEMS

THERMORACK 401

Precision Thermal Control for Optimal Laser Performance and Stability



400 Watts

- Laser and industrial applications
- 4U standard 19" rack mount
- 5 to 45 °C heat or cool
- Refrigerant free
- Energy efficient
- Quiet and vibration free



The Right Temperature Without Fail

Solid State Cooling Systems



400 Watt thermoelectric reliability optimized for modest heat loads

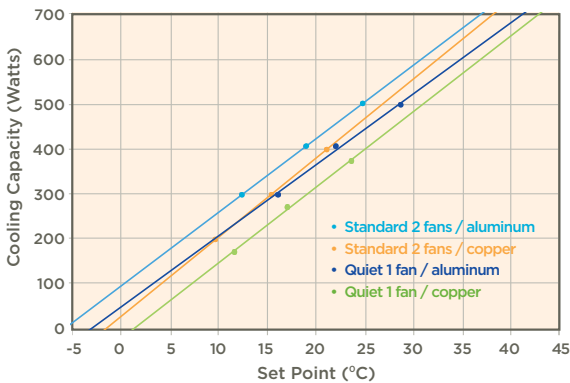
The ThermoRack 401 delivers precision temperature control to $\pm 0.05^{\circ}\text{C}$, even near ambient. With only two moving parts and standard variable speed fan it is whisper quiet and vibration free for advanced optics and laser applications.

Optimized for laser and industrial applications, ThermoRack 401 operates within the most energy-efficient range of a core of thermoelectric modules with lifetimes exceeding 200,000 hours. And our variable voltage power control means even greater efficiency, drawing power only as you need it.

ThermoRack 401 comes with a universal power supply standard so it can be operated worldwide by changing the power cord.

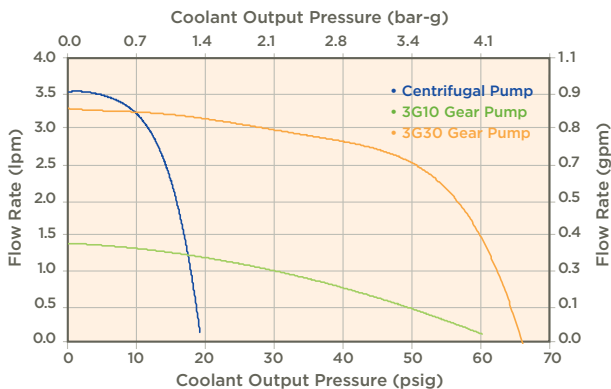
For complete information: sscooling.com/thermorack401

THERMORACK 401 COOLING CURVE
20 °C AMBIENT, PROCESS FLUID WATER



Note: Cooling Capacity will vary with configuration

THERMORACK 401 PUMP CURVE



SPECIFICATIONS

Operating Range	5 °C to 45 °C standard
Ambient Temperature	10 °C to 40 °C non-condensing
Repeatability	$\pm 0.05^{\circ}\text{C}$, even near ambient
Cooling Capacity	315-420W @ 20°C (20°C ambient) depending on configuration
Noise (at 1 meter)	2 Fan: < 55 dBA at 50%, < 68 dBA at max Quiet: < 48 dBA at 50%, < 58 dBA at max
Coolant/Process Fluid	Koolance (27% propylene glycol/water mix) or 27-50% ethylene glycol/water mix
Process Fluid Fittings	1/4" CPC with shut off valves
Pump	2 lpm @ 15 psig centrifugal pump or 3 lpm configurable gear pump
Tank Volume	1 liter with level sensor
Wetted Materials	Aluminum, stainless steel and polymers or Copper, stainless steel, brass, and polymers
Size (L x W x H)	19" x 21" x 7" 4U (48 x 53 x 18 cm)
Weight	39 lbs (18 kg)
Power Input	Universal: 100-240 VAC, 50/60 Hz, 9-4A max
Communications	Keypad or USB interface
Alarms	Temperature, fluid level, component or system failure (display and USB option)
Standards	TUV listed to UL, CAN/CSA and EN 61010-1, CE 61010-1, RoHS compliant
Warranty	2 years

SOLID STATE COOLING SYSTEMS

SSCOOLING.COM (845) 296-1300 167 MYERS CORNERS RD. WAPPINGERS FALLS, NY 12590

THERMORACK 800

Precision Thermal Control for Optimal Laser Performance and Stability



Thermorack 800 W improves

- Laser beam stability
- Beam pointing precision
- Beam shape control
- Pulse width control
- Wavelength control

Other Benefits

- Rapid temperature control response
- Refrigerant free and energy efficient
- Quiet and vibration free
- 6U standard 19" rack mount



The Right Temperature Without Fail

Solid State Cooling Systems



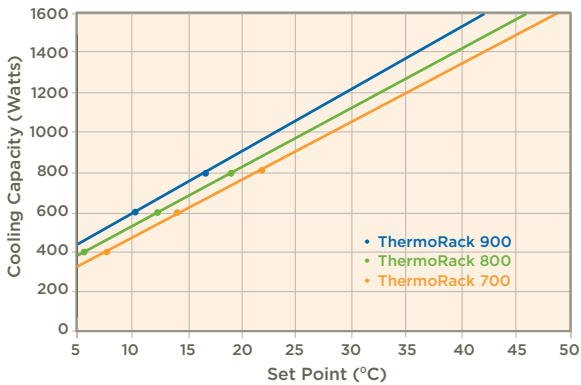
800 Watt thermoelectric reliability for laser and industrial applications

ThermoRack 800 delivers precision thermal control to $\pm 0.05^\circ\text{C}$, even near ambient. With only two moving parts and standard variable speed fan, it is quiet and vibration free. Its universal input power supply and centrifugal pump system are designed to deliver 30 psig at 1 gpm for laser diode and other applications.

ThermoRack is designed around a core of thermoelectric modules with lifetimes exceeding 200,000 hours for high reliability. And, for energy-efficiency, our variable power control only draws power as you need it.

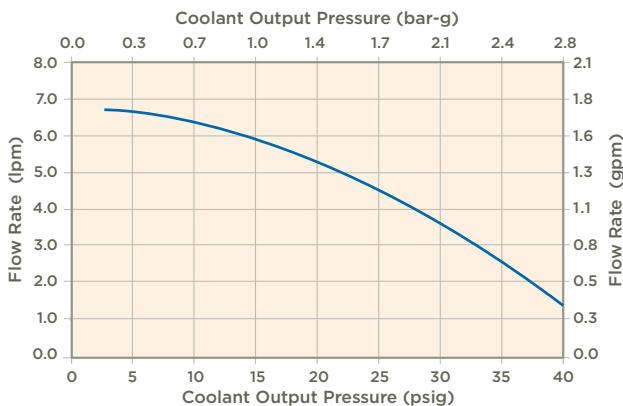
For complete information: sscooling.com/thermorack800

THERMORACK 800 COOLING CURVES
20 °C AMBIENT, PROCESS FLUID: WATER



Note: Cooling capacity will vary with configuration

THERMORACK 800 PUMP CURVE
(WATER/OPTISHIELD)



SPECIFICATIONS

Operating Range	5 °C to 50 °C standard
Ambient Temperature	10°C to 40°C non-condensing
Stability/Repeatability	± 0.05 °C, even near ambient
Cooling Capacity	Configurable from 700 W to 900 W at 20 °C (20 °C ambient)
Noise	< 63 dBA (50% load), < 75 dBA (max load)
Coolant/Process Fluid	Koolance (27% propylene glycol/water mix) or 27-50% ethylene glycol/water mix
Process Fluid Fittings	3/8" female NPT
Pump	3.5 lpm (0.9 gpm) @ 30 psig
Tank Volume	800 ml with level sensor
Wetted Materials	Al, stainless steel and polymers, or Cu, stainless steel, brass, and polymers
Size (W x D x H)	19" x 20" x 11" 6U (48 x 51 x 27 cm)
Weight	55 lbs (24.5 kg)
Power Input	200-240 VAC 1p, 50/60 Hz, 8A max 100-240 VAC, 50/60 Hz, 16-8A max (700W model only)
Communications	Keypad or optional USB interface
Standards	TUV listed to UL, CAN/CSA and EN 61010-1, CE 61010-1, RoHS compliant
Warranty	2 years

SOLID STATE COOLING SYSTEMS

SSCOOLING.COM (845) 296-1300 167 MYERS CORNERS RD. WAPPINGERS FALLS, NY 12590

MICROTITER TEMPERATURE CONTROL PLATE

Uniform Surface Temperature at an Unbeatable Price



SSCS Part Number 14-13129-2

- Accepts all ANSI SBS 2004-1 microwell plates
- Designed for high heat transfer and unparalleled temperature uniformity of $<0.1^{\circ}$ C across plate surface
- Ready for use between -5° and 50° C
- Precision construction means no leveling required for fast and accurate installation
- Robotic alignment marks standard
- Insulated design minimizes unwanted condensation
- Comes with no drip twist lock fittings
- Insulated hose kits also available
- RoHS Compliant
- Value priced

Solid State
COOLING SYSTEMS
Temperature Control...Precisely.

THERMOWRAP

Precise Temperature Control for Chemical Canisters



ThermoWrap Kit

- $\pm 0.1^\circ\text{C}$ temperature control of chemical canisters or fluid bottles
- Low-cost, compact and versatile
- Cooling, Heating or ambient control
- Simple alternative to recirculating baths
- Uses 80% less power than bath chillers
- One chiller can control multiple wraps

The Right Temperature Without Fail

Solid State Cooling Systems

THERMOWRAP



Fluid pads are available with standard (blue or flame retardant (yellow) PU coated nylon.

The fluid pad easily conforms to various size canisters. Customized sizes are available for higher volume applications



Optional insulating bag

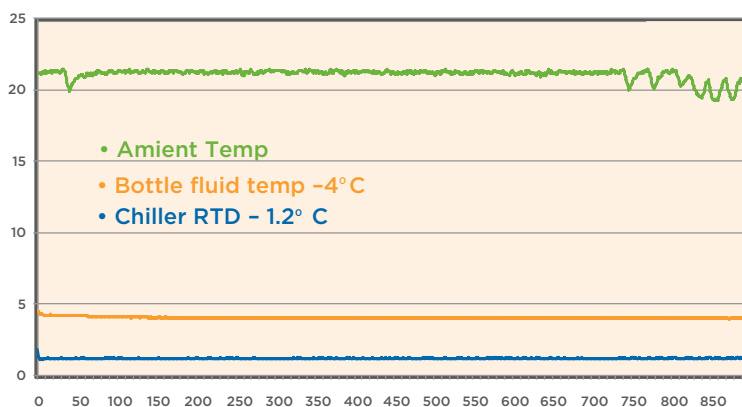
A low-cost alternative to temperature control of chemical / liquid containers

The ThremoWrap kit provides up to $\pm 0.1^\circ\text{C}$ temperature control for process chemicals, MOCVD, bioprocessing, laboratory use and life sciences applications.

Each ThermoWrap kit includes:

- 5.75" or 8" x 20" recirculating fluid pad
- Two fully insulated fluid hoses
- An optional insulating bag for more precise control

THERMOWRAP WITH INSULATING BAG CONTROLLING 2 PLASTIC FLUID BOTTLES



Extremely stable temperature control even in fluctuating ambient environments

SPECIFICATIONS

Operating Range	0°C to 50°C
Ambient Temperature	10°C to 40°C non-condensing
Stability/Repeatability	$\pm 0.1^\circ\text{C}$ at constant load
Maximum Fluid Pressure	20 psig (1.38 bar-g)
Recommended SSCS Chiller	T-Three, TCube Edge or Thermocube with centrifugal pump
Recommended Coolant / Process Fluid	Koolance (27% propylene glycol/water mix) (Contact SSCS for other fluids)
Available Sizes	5.75" x 19.875" or 8" x 19.875"
Warranty	2 years (only valid if used with SSCS chillers)