SOLID STATE COOLING SYSTEMS

Small liquid chillers, providing precise, reliable temperature control
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Corporate Overview

AMS TECHNOLOGIES – WHERE TECHNOLOGIES MEET SOLUTIONS

AMS Technologies is a leading solution provider and distributor of hightech, leading-edge components, systems and equipment, with 30 years of experience to date and currently serving more than 1000 European customers.

We specialise in both componentry and complete solutions for Optical technology, Thermal Management and Power Technology fields, with access to and long standing relationships with the most advanced manufacturers in each of those fields. We take active involvement in the design cycle, defining and re-defining the customers specifications to provide highly specific, customized products and solutions.

AMS Technologies has ever since been delivering solutions into a variety of high-tech markets, including renewable energies, medical, defence & aerospace, telecom & datacom, research & scientific and various other industrial segments. Our customer base consists of Europe’s largest leading technology corporations, a network of universities and research institutes as well as the most promising start-ups and is serviced from a network of local offices in Germany, the UK, France, Italy, Spain and Norway, with a focussed operations and logistics centre located in Munich, Germany.

Our commitment: Identifying the best solution for your project enabling you to become your customers’ first choice! Your AMS Technologies team

SOLID STATE COOLING SYSTEMS

Solid State Cooling Systems is a customer-centered company founded in 1994 in rural upstate New York. The company remains American owned and operated. The original focus of the company was to utilize thermoelectric technology as the basis for its chillers and heat exchangers because thermoelectrics inherently provide reliable and precise temperature control in a very small package.

Today, customers must also focus on the cost of energy and the environmentally damaging effects of Freon’s and their replacement refrigerants. Since our products reduce energy usage by up to 94% and use no refrigerants, they have been an important part of our customer’s cost-savings programs.

IN-HOUSE MANUFACTURING AND DEVELOPMENT COMPETENCIES

In-house manufacturing and development competencies have resulted in multiple product families with numerous patents awarded and pending. We grow both by developing new products we see are needed in our marketplace, and by developing unique products for our customer’s specifications using our flexible family of variable voltage power supplies, thermoelectric heat exchangers and digital temperature controllers.

Many of our customers’ names appear on the Fortune 100 list of America’s most successful companies. While we have earned the respect of these large corporations, we recognize it is the individual engineers and technicians within these corporations as well as the small manufacturers and universities and laboratories that we serve.
THERMOCUBE AIR COOLED 200, 300, 400 W

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
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.

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 RS323 option)

Standards
TUV listed UL, CAN/CSA and EN 61010-1, CE 61010-1

Warranty
1-2 years (diaphragm pumps are 1 year)
Thermoelectric Reliability for Wide Temperature Range or High Ambient Temperature

265 Watts
- Semiconductor equipment point of use temperature control
- Military
- Laboratory
- Rheometers
ThermoCube 265 delivers quiet, vibration-free thermal control to ± 0.05 °C for temperature set points ranging from -15 to 125 °C with continuous operation in 50 °C ambient.

ThermoCube 265 offers worldwide power compatibility with its standard, universal power input, and our variable voltage power control means you efficiently draw power only as you need it.

Plus, ThermoCube 265 can use a variety of cooling fluids and its standard pump can provide up to 50 psi for high-pressure applications.

For complete information: sscooling.com/thermocube265

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Range</strong></td>
<td>-15 to 65 °C standard range (up to 125°C optional)</td>
</tr>
<tr>
<td><strong>Cooling Capacity</strong></td>
<td>265 W at 25 °C (25 °C ambient) See cooling curves</td>
</tr>
<tr>
<td><strong>Modes</strong></td>
<td>Fixed setpoint, cycling</td>
</tr>
<tr>
<td><strong>Ambient Temperature</strong></td>
<td>Continuous operation in up to 50 °C ambient</td>
</tr>
<tr>
<td><strong>Precision</strong></td>
<td>± 0.05 °C, even near ambient</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>63 dBA at 3 feet (60 or 49 dBA optional)</td>
</tr>
<tr>
<td><strong>Coolant</strong></td>
<td>50/50 Water/glycol mixture, Galden/Fluorinert, or HFE</td>
</tr>
<tr>
<td><strong>Wetted Materials</strong></td>
<td>Aluminum, polymers, stainless steel</td>
</tr>
<tr>
<td><strong>Size (L x W x H)</strong></td>
<td>12.75 x 11.0 x 12.75” (32.4 x 28 x 32.4 cm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>28 lbs. (12.7 kg) (with basic options)</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>100-240 VAC, 50 or 60 Hz</td>
</tr>
<tr>
<td><strong>Standards</strong></td>
<td>CE, TUV listed to CSA/UL 61010-1</td>
</tr>
<tr>
<td><strong>Pumps</strong></td>
<td>4 pump choices (See pump curves)</td>
</tr>
<tr>
<td><strong>Alarms</strong></td>
<td>TTL (temp and system failure), Dry contacts and RS-232 optional</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td>2 years</td>
</tr>
</tbody>
</table>
OASIS THREE PRECISION TEMPERATURE CONTROL

Oasis Three

- Diode or semiconductor lasers
- Laboratory
- Scanning electron microscopes
- Low-light CCD cameras
- Rheometers
- Chemical/MOCVD canister temperature control
- Microtiter plate temperature control
The Right Temperature Without Fail
Solid State Cooling Systems

Quiet precision and thermoelectric reliability in a cost effective package

The 300 Watt Oasis Three delivers a cost-efficient way to optimize your equipment’s performance through greater thermal stability. Achieving thermal control from -5 to 45 °C to ± 0.05 °C, even near ambient, Oasis Three responds instantaneously to changes in load. Its smooth-flow centrifugal pump keeps operation vibration free.

We built Oasis Three on a core of thermoelectric modules with lifetimes exceeding 200,000 hours. We gave it worldwide power compatibility with its standard, universal power input, and our variable power control means you efficiently draw power only as you need it.


For more information: sscooling.com/oasisthree

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Operating Range</th>
<th>Std +5 to + 45 °C, Optional -5 to + 45 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatability</td>
<td>± 0.05 °C</td>
</tr>
<tr>
<td>Cooling Capacity</td>
<td>300 Watts at 25 °C in 25 °C ambient air</td>
</tr>
<tr>
<td>Heating Capacity</td>
<td>400 Watts at 25 °C in 25 °C ambient air</td>
</tr>
<tr>
<td>Process Fittings</td>
<td>3/8” Female NPT standard</td>
</tr>
<tr>
<td></td>
<td>3/8” Adaptor kits available for John Guest, CPC or Swaglok</td>
</tr>
<tr>
<td>Communications</td>
<td>USB interface</td>
</tr>
<tr>
<td>Coolant</td>
<td>Recommend Optishield Plus, Water/Glycol, Water</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>Copper, brass, polymers</td>
</tr>
<tr>
<td>Size (L x W x H)</td>
<td>13 x 11 x 11” (33 x 11 x 11 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>25 lbs</td>
</tr>
<tr>
<td>Power</td>
<td>100 - 240 VAC, 50 or 60 Hz, 8.2 Amp max</td>
</tr>
<tr>
<td>Standards</td>
<td>RoHS compliant, CE, TUV listed to CSA/UL 61010-1</td>
</tr>
<tr>
<td>Pump</td>
<td>Std. 2 lpm @ 14 psi centrifugal</td>
</tr>
<tr>
<td></td>
<td>Optional 2 lpm @ 10 psi centrifugal</td>
</tr>
<tr>
<td>Alarms</td>
<td>Temperature and system failure, fluid level</td>
</tr>
</tbody>
</table>
OASIS RECIRCULATING CHILLER 160 TO 190 W

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
Ultra-compact, quiet operation, and precise, reliable thermoelectric technology
Available with a 160-190 Watt capacity, the Oasis chiller delivers precise temperature control using ultra-reliable thermoelectric modules with lifetimes exceeding 200,000 hours. Oasis responds instantaneously to changes in load, holding to ± 0.1 °C, even near ambient, and its universal, variable power supply does so at minimal energy cost.

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

For complete information: sscooling.com/oasis160

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Range</strong></td>
<td>2 to 45 °C; 160 / 180W models only 10 to 45 °C; 170 / 190W models only*</td>
<td>*non condensing environment</td>
</tr>
<tr>
<td><strong>Tank Volume</strong></td>
<td>75 ml</td>
<td></td>
</tr>
<tr>
<td><strong>Cooling Capacity</strong></td>
<td>160 -190 W @ 20 °C (20 °C ambient) See cooling curves</td>
<td></td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>Dry contact alarm and RS232 standard</td>
<td></td>
</tr>
<tr>
<td><strong>Modes</strong></td>
<td>Cool, heat, cycle</td>
<td></td>
</tr>
<tr>
<td><strong>Connections</strong></td>
<td>1/8” CPC with shut-off valve</td>
<td></td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>± 0.1 °C with a constant load</td>
<td></td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>&lt;65 dBA at 3 feet</td>
<td></td>
</tr>
<tr>
<td><strong>Coolant</strong></td>
<td>27% propylene glycol/water preferred, ethylene glycol/water, OptiShield Plus or water acceptable</td>
<td></td>
</tr>
<tr>
<td><strong>Wetted Materials</strong></td>
<td>Al and polymers or Cu and polymers</td>
<td></td>
</tr>
<tr>
<td><strong>Size (L x W x H)</strong></td>
<td>7.5” x 5” x 7” (19 x 13 x 18 cm)</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Voltage</strong></td>
<td>13.5 VDC, 14.5 amps maximum (universal input, laptop style power supply included)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>8 lbs (3.5 kg)</td>
<td></td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Universal input, 100 - 240 VAC, 50/60 Hz.</td>
<td></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>Less than 200 Watts</td>
<td></td>
</tr>
<tr>
<td><strong>Standards</strong></td>
<td>CE, TUV listed to CSA/UL 61010-1</td>
<td></td>
</tr>
<tr>
<td><strong>Pump</strong></td>
<td>Magnetically-coupled gear pump with brushless DC motor (10,000 hr MTBF)</td>
<td></td>
</tr>
</tbody>
</table>

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Oasis Recirculating Chiller 160 to 190 W 13
THERMOCUBE LIQUID COOLED 400L to 600L

WHY CHOOSE THERMOCUBE 400 L / 600 L

- Compact size
- Precise temperature control, even near ambient
- Improved laser beam stability
- For use with Fluorinert, glycol solutions or water
- Whisper-quiet
- Cleanroom applications

APPLICATIONS

- Semiconductor Wafer Temperature control
- Laser cooling
**ThermoCube™**

**400L / 600L Watt ThermoElectric Liquid to Liquid Thermoelectric Chiller**

**Why Choose ThermoCube 400L / 600L**

Customers choose the ThermoCube for its compact size, quiet operation, precise temperature control and energy efficiency. Excellent for manufacturing, cleanroom and laboratories.

Water-cooled liquid thermoelectric temperature control unit for cooling, heating and temperature cycling.

- Compact, quiet, reliable, energy-efficient chiller with only one moving part…the pump.

- Capable of temperature cycling, cooling or heating modes...easy to input temperature setpoints

- Digital PID temperature control for \(\pm 0.05\) °C accuracy

- Reservoir with built-in level sensor

- Variable voltage, variable current power supply for smooth control, high reliability, excellent energy conservation

- Alarm signal output standard

- Two year warranty, with pump maintenance

---

**Figure 1**  
Thermocube 400L/600L Cooling Capacity  
20 deg C Plant Cooling Water  
Process Fluid Temperature (deg F)

<table>
<thead>
<tr>
<th>Process Fluid Temperature (deg F)</th>
<th>Cooling Capacity (watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50.0</td>
<td>341</td>
</tr>
<tr>
<td>68.0</td>
<td>682</td>
</tr>
<tr>
<td>86.0</td>
<td>1024</td>
</tr>
<tr>
<td>104.0</td>
<td>1365</td>
</tr>
<tr>
<td>122.0</td>
<td>1706</td>
</tr>
</tbody>
</table>

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**SPECIFICATIONS SUMMARY**

(May include optional components.)

- **Operating Range:** -10 to + 65 °C
- **Cooling Capacity:** 400 or 600 watts at 20 °C into 20 °C house chilled water
- **House water:** 1 gpm recirculated filtered treated industrial water
- **Coolant:** Water/glycol mixture, industrial water, DI water or Galden with optional pump
- **Filter:** Optional 5 µm external fluid filter
- **Noise:** < 48 dBA at 3 feet
- **Size:** 12.75 x 11.25 x 12.75"
- **Weight:** 22 lbs.
- **Pumps Available:**
  - 1 lpm @ 40 psi diaphragm std, Optional pumps:
  - 2 lpm @ 10 psi diaphragm
  - 1, 2 or 3 lpm @ 30 psi mag coupled gear
  - 2 lpm @ 10 psi centrifugal
- **Alarms:** TTL (temp. and system failure), fluid level
- **Process Fittings:** 1/4" John Guest standard, CPC or Swagelok available
- **House Fittings:** 3/8" John Guest standard, CPC or Swagelok available
- **Standards:** CE Mark and Intertek listed to ANSI/UL STD 61010-1
Why choose ThermoCube?

- Compact size
- Precise temperature control, even near ambient
- For use Fluorinert or PAO
- Very energy efficient
- Quiet

Applications

- Avionics bench testing
- Airborne cooling
- Power Supply cooling
WHY CHOOSE THERMOCUBE?
Customers choose the ThermoCube for its compact size, quiet operation, precise temperature control and energy efficiency.

RELIABLE FREON-FREE THERMOELECTRIC TECHNOLOGY
The ThermoCube uses thermoelectric technology, widely used throughout the world for 50 years in various applications from spacecrafts to home appliances. With lifetimes exceeding 200,000 hours, the thermoelectric modules at the core of this chiller make for ultra-high intrinsic reliability.

LOWER HEAT LOAD
ThermoCube PAO is available in 275 Watt capacity, below the economical range of refrigerant-based chillers.

WHISPER QUIET
With only two moving parts, the pump and cooling fan, ThermoCube is quiet.

PRECISE TEMPERATURE CONTROL
Because electrons transfer the heat, ThermoCube responds instantaneously to changes in load. The digital PID temperature controller holds to $< \pm 0.05 \, ^\circ C$, even near ambient.

ENERGY EFFICIENCY
ThermoCube is very energy-efficient. Its thermoelectric modules are powered by a variable voltage power supply that provides the minimum power required to control the temperature at set point, so ThermoCube only draws as much power as needed. It was also designed to operate in the modules’ most energy-efficient range.

NO VIBRATION
ThermoCube is virtually vibration-free equipped with smooth-flow magnetically coupled gear pumps.

HIGH PRESSURE PUMPS STANDARD
ThermoCube’s standard pump is capable of delivering up to 45 psi for laser diode and other high-pressure applications.

SPECIFICATIONS SUMMARY
(May include optional components.)
Operating Range: 0 to +50 °C
Cooling Capacity: 275 W at 25 °C (25 °C ambient)
Modes: Fixed setpoint, cycling
Precision: $< \pm 0.1 \, ^\circ C$, even near ambient
Coolant: PAO, water/glycol mixture, industrial water, DI water or Galden/Fluorinert
Filter: 5 μm external fluid filter
Power: 85 - 265 VAC, 50 or 60 Hz
Pumps: 1 or 2 lpm @ 30 psi mag coupled gear
Plumbing: Stainless steel, Ni coated aluminum
Alarms: Dry contact (temperature, system and fluid level)
Process Fittings: ¼” Swagelok
Noise: 63 dBA at 3 feet
Size (L x W x H): 12.75 x 11.0 x 12.75”
Weight: 34 lbs.
STANDARDS: CE, Intertek Listed to ANSI/UL STD 61010-1
Why choose ThermoRack 300 to 650 Watt Chiller

- Compact size, Standard 19” Electronics Rack Enclosure
- Precise temperature control, even near ambient
- Improved laser beam stability
- Very energy efficient
- Quiet operation

Applications

- Medical equipment
- Laser cooling
- Analytical equipment
- Scanning electron microscopes
- Power supply cooling
ThermoRack™ 300 to 650 Watt Thermoelectric Recirculating Chiller

Why Choose ThermoRack 300 to 650
Customers choose the ThermoRack for its compact size, quiet operation, precise temperature control and energy efficiency.

Reliable Freon-Free Thermoelectric Technology
The ThermoRack uses thermoelectric technology, widely used throughout the world for 50 years in various applications from spacecraft to home appliances. With lifetimes exceeding 200,000 hours, the thermoelectric modules at the core of this temperature control system make for ultra-high intrinsic reliability.

Optimized for Modest Heat Loads
ThermoRack is available in 300 to 650 Watt capacities and is ideal for many laser, biomedical and industrial applications.

Quiet Operation
Only two moving parts, the pump and cooling fan, ThermoRack is set up for a quiet operation.

Precise Temperature Control
Because electrons transfer the heat, ThermoRack responds instantaneously to changes in load. The digital PID temperature controller holds to $<\pm0.05$ °C, even near ambient.

Energy Efficiency
ThermoRack is very energy-efficient. Its thermoelectric modules are powered by a variable-voltage power supply that provides the minimum power required to control the temperature at set point, so ThermoRack only draws as much power as needed. It was also designed to operate in the modules’ most energy-efficient range.

No Vibration
ThermoRack is virtually vibration-free when equipped with the smooth-flow magnetically coupled gear pump.

HIGH PRESSURE PUMPS STANDARD
ThermoRack’s standard pump is capable of delivering up to 50 psi for laser diode and other high-pressure applications.

Specifications Summary
(May include optional components.)

- Operating Range: -5 to 65 °C
- Cooling Capacity: 300, 400, or 650 W at 25 °C (23 °C ambient)
- Modes: Fixed setpoint, cycling
- Precision: $<\pm0.05$ °C, even near ambient
- Coolant: Water/glycol mixture, alcohol water, DI water
- Tank: 1 liter with level sensor
- Power: 85 - 265 VAC, 50 or 60 Hz (for 650, 200-240VAC required)
- Pumps: 1, 2 or 3 lpm @ 30 psi mag coupled gear
- Interface: Manual or RS232
- Alarms: TTL (temp. and system failure), fluid level
- Process Fittings: 1/4” CPC fittings
- Optional: John Guest or Swagelok appropriately sized
- Noise: ~63 dBA at 3 feet (quieter models available)
- Size (L x W x H): 21 x 19 x 7” (4U)
- Weight: < 43 lbs (20 kg)
- Standards: RoHS Compliant, CE, Intertek listed to UL61010-1-2004
- Warranty: 2 year warranty
THERMORACK 401 TEMPERATURE CONTROL FOR LASER APPLICATIONS

THERMORACK 401
Precision Thermal Control for Optimal Laser Performance and Stability

400 Watts
- Laser and industrial applications
- Industrial
- -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 ± 0.05 °C, even near ambient, and with only two moving parts, it’s 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

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Operating Range</th>
<th>5 to 45 °C standard, -5 to 45 °C optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Volume</td>
<td>1 liter with level sensor</td>
</tr>
<tr>
<td>Cooling Capacity</td>
<td>400 W at 25 °C (25 °C ambient)</td>
</tr>
<tr>
<td>Process Fittings</td>
<td>CPC valve standard</td>
</tr>
<tr>
<td>Communications</td>
<td>USB interface</td>
</tr>
<tr>
<td>Repeatability</td>
<td>± 0.05 °C, even near ambient</td>
</tr>
<tr>
<td>Coolant</td>
<td>Optishield Plus recommended, Water/27% glycol mixture</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>Aluminum, polymers, stainless steel or copper, brass, polymers, stainless steel</td>
</tr>
<tr>
<td>Size (L x W x H)</td>
<td>19” x 7” x 20” D (4U) (48 x 18 x 51 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>28 lbs (13 kg)</td>
</tr>
<tr>
<td>Power</td>
<td>100-240 VAC, 9 amps max, 50 or 60 Hz</td>
</tr>
<tr>
<td>Standards</td>
<td>RoHS Compliant, CE Mark, TUV listed to CSA/ UL61010-1</td>
</tr>
<tr>
<td>Pump</td>
<td>Centrifugal pump 2 lpm@14 psig</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 year warranty</td>
</tr>
</tbody>
</table>
THERMORACK 800 TEMPERATURE CONTROL FOR LASER APPLICATIONS

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
- Energy efficient
- Quiet and vibration free
- Rack mount
ThermoRack 800 delivers precision thermal control to ±0.05 °C, even near ambient, and with only two moving parts, it is whisper quiet and vibration free. Its universal power supply and centrifugal pump system are designed to deliver 30 psi at 1 gpm for laser diode and other high-pressure applications. It can perform laser diode and other high-pressure applications right out-of-the-box and worldwide.

ThermoRack is designed to operate within the most energy-efficient range of a core of thermoelectric modules with lifetimes exceeding 200,000 hours. Our variable power control means even greater efficiency, drawing power only as you need it.

For complete information: sscooling.com/thermorack800

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Range</td>
<td>+7 to +50 °C standard</td>
</tr>
<tr>
<td></td>
<td>-10 to +50 (with LT option)</td>
</tr>
<tr>
<td>Tank Volume</td>
<td>0.8 liter with level sensor</td>
</tr>
<tr>
<td>Cooling Capacity</td>
<td>800 W at 25 °C (25 °C ambient)</td>
</tr>
<tr>
<td>Process Fittings</td>
<td>3/8” female NPT</td>
</tr>
<tr>
<td>Communications</td>
<td>USB interface</td>
</tr>
<tr>
<td>Repeatability</td>
<td>± 0.05 °C, even near ambient</td>
</tr>
<tr>
<td>Coolant</td>
<td>OptiShield Plus recommended, Water/27% glycol mixture</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>Copper, polymers, brass</td>
</tr>
<tr>
<td>Size (L x W x H)</td>
<td>19” x 10.5” x 20” D (6U) (48 x 26.7 x 51 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>55 lbs (24.5 kg)</td>
</tr>
<tr>
<td>Power</td>
<td>200 - 240 VAC, 8 Amp max, 50 or 60 Hz</td>
</tr>
<tr>
<td>Standards</td>
<td>RoHS Compliant, CE Mark, TUV listed to CSA/ UL61010-1</td>
</tr>
<tr>
<td>Pump</td>
<td>1 gpm @ 30 psi (water)</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 year warranty</td>
</tr>
</tbody>
</table>
WHY CHOOSE THERMO CUBE 300 A?

- VERY ENERGY EFFICIENT
- PRECISE TEMPERATURE CONTROL, EVEN NEAR AMBIENT
- FOR USE WITH CDA, N₂, O₂, AR OR OTHER INERT GASES
- COMPACT SIZE
- WHISPER-QUIET

APPLICATIONS

- MICROENVIRONMENT TEMPERATURE CONTROL
- KINETICS EXPERIMENTS
- OPTICS BENCHES
WHY CHOOSE THERMOCUBE 300 A?
Customers choose the ThermoCube for its compact size, quiet operation, precise temperature control and energy efficiency.

RELIABLE FREON-FREE THERMOELECTRIC TECHNOLOGY
The ThermoCube uses thermoelectric technology, widely used throughout the world for 50 years in various applications from spacecrafts to home appliances. With lifetimes exceeding 200,000 hours, the thermoelectric modules at the core of this chiller make for ultra-high intrinsic reliability.

LOWER HEAT LOAD
ThermoCube is available in 300 Watt capacity, for up to 300 slpm gas flows.

WHISPER QUIET
With only one moving part, the cooling fan, ThermoCube is quiet. Available with four fan options and sound-dampening insulation, the quietest model runs at 49 dBA.

PRECISE TEMPERATURE CONTROL
Because electrons transfer the heat, ThermoCube responds instantaneously to changes in load. The digital PID temperature controller holds to \(< \pm 0.05 \, ^\circ C\), even near ambient.

ENERGY EFFICIENCY
ThermoCube is very energy-efficient. Its thermoelectric modules are powered by a variable voltage power supply that provides the minimum power required to control the temperature at set point, so ThermoCube only draws as much power as needed. It was also designed to operate in the modules’ most energy-efficient range.

NO VIBRATION
With only one moving part, ThermoCube is virtually vibration-free.

SPECIFICATIONS SUMMARY
- **Operating Range**: -5 to +50 °C
- **Cooling Capacity**: 300 W at 25 °C (25 °C ambient)
- **Modes**: Fixed setpoint, cycling
- **Precision**: \(< \pm 0.05 \, ^\circ C\), even near ambient
- **Coolant**: Ambient air
- **Power**: 85—265 VAC, 50 or 60 Hz
- **Alarms**: TTL (temp and system failure)
- **Process Fittings**: 1/4” John Guest standard
- **Optional**: CPC or Swagelok
- **Noise**: 63 dBA at 3 feet (60 or 49 dBA optional)
- **Size (L x W x H)**: 12.75 x 11.0 x 12.75”
- **Weight**: 23 lbs
- **Standards**: CE Mark and Intertek listed to ANSI/UL STD 61010-1
- **Warranty**: 2 years

Please refer to the “tech info” section on our web site for detailed technical background on thermoelectric technology and its applications.
WHY CHOOSE THERMOCUBE 400 AC?

- **VERY ENERGY EFFICIENT**
- **PRECISE TEMPERATURE CONTROL, EVEN NEAR AMBIENT**
- **COMPACT SIZE**
- **WHISPER-quiet**
- **FOR USE WITH ENCLOSURES UP TO ~ 200 CU. FT. IN SIZE**

APPLICATIONS

- **MICROENVIRONMENT TEMPERATURE CONTROL**
- **ENCLOSURE COOLING TO ELIMINATE THERMAL EXPANSION ISSUES**
- **OPTICS BENCHES**
THERMO CUBE™
400 WATT THERMOELECTRIC ENCLOSURE AIR CONDITIONER

WHY CHOOSE THERMO CUBE 400 AC?
Customers choose the ThermoCube for its compact size, quiet operation, precise temperature control and energy efficiency. Enables self-contained enclosure air conditioning for use in clean rooms or hazardous environments.

RELIABLE FREON-FREE THERMOELECTRIC TECHNOLOGY
The ThermoCube uses thermoelectric technology, widely used throughout the world for 50 years in various applications from spacecrafts to home appliances. With lifetimes exceeding 200,000 hours, the thermoelectric modules at the core of this chiller make for ultra-high intrinsic reliability.

LOWER HEAT LOAD
ThermoCube is available in 400 Watt capacity, for up to 150 cfm recirculating air or inert gas.

WHISPER QUIET
With only one moving part, the cooling fan, ThermoCube is quiet. Available with four fan options and sound-dampening insulation, the quietest model runs at 49 dBA.

PRECISE TEMPERATURE CONTROL
Because electrons transfer the heat, ThermoCube responds instantaneously to changes in load. The digital PID temperature controller holds to \(< 0.05°\) C, even near ambient.

ENERGY EFFICIENCY
ThermoCube is very energy-efficient. Its thermoelectric modules are powered by a variable voltage power supply that provides the minimum power required to control the temperature at set point, so ThermoCube only draws as much power as needed. It was also designed to operate in the modules’ most energy-efficient range.

NO VIBRATION
With only one moving part, ThermoCube is virtually vibration-free.

SPECIFICATIONS SUMMARY
Operating Range: -5 to +50°C
Cooling Capacity: 400 W at 25°C (25°C ambient)
Precision: \(< 0.05°\) C, even near ambient
Power: 85–265 VAC, 50 or 60 Hz
Alarms: TTL (temp. and system failure)
PCW Fittings: 1/4" John Guest standard
Optional: CPC or Swagelok
Noise: 63 dBA at 3 feet (60 or 49 dBA optional)
RS232
Communications: Optional
Size (L x W x H): 12.75 x 11.0 x 12.75"
Weight: 23 lbs
Standards: CE Mark and Intertek listed to ANS/UL
Warranty: 2 years

ThermoCube Performance Curves

ThermoCube 400 AC
WHAT CAN WE DO FOR YOU?

Please contact us for further information