SOLID STATE COOLING SYSTEMS

Small liquid chillers, providing precise, reliable temperature control
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORPORATE OVERVIEW</td>
<td>05</td>
</tr>
<tr>
<td>SOLID STATE COOLING SYSTEMS</td>
<td>06</td>
</tr>
<tr>
<td>ThermoCube Air Cooled 200, 300, 400 W</td>
<td>06</td>
</tr>
<tr>
<td>ThermoCube Air Cooled 265 W</td>
<td>08</td>
</tr>
<tr>
<td>Oasis Three Precision Temperature Control</td>
<td>10</td>
</tr>
<tr>
<td>Oasis Recirculating Chiller 160 to 190 W</td>
<td>12</td>
</tr>
<tr>
<td>ThermoCube Liquid Cooled 400L to 600L</td>
<td>14</td>
</tr>
<tr>
<td>ThermoCube PAO Chiller 275W</td>
<td>16</td>
</tr>
<tr>
<td>ThermoRack 300 to 650 W</td>
<td>18</td>
</tr>
<tr>
<td>ThermoRack 401 Temperature Control for Laser Applications</td>
<td>20</td>
</tr>
<tr>
<td>ThermoRack 800 Temperature Control for Laser Applications</td>
<td>22</td>
</tr>
<tr>
<td>ThermoCube 300A Compressed Gas Chiller</td>
<td>24</td>
</tr>
<tr>
<td>ThermoCube 400AC Air Conditioner</td>
<td>26</td>
</tr>
</tbody>
</table>
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.

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
ThermoCube Air-Cooled 200, 300, 400 W

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.

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)
THERMOCUBE AIR COOLED 265 W

THERMOCUBE 265
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 \( \pm 0.05 \) °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>Operating Range</th>
<th>-15 to 65 °C standard range (up to 125°C optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Capacity</td>
<td>265 W at 25 °C (25 °C ambient) See cooling curves</td>
</tr>
<tr>
<td>Modes</td>
<td>Fixed setpoint, cycling</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>Continuous operation in up to 50 °C ambient</td>
</tr>
<tr>
<td>Precision</td>
<td>( \pm 0.05 ) °C, even near ambient</td>
</tr>
<tr>
<td>Noise</td>
<td>63 dBA at 3 feet (60 or 49 dBA optional)</td>
</tr>
<tr>
<td>Coolant</td>
<td>50/50 Water/glycol mixture, Galden/Fluorinert, or HFE</td>
</tr>
<tr>
<td>Wetted Materials</td>
<td>Aluminum, polymers, stainless steel</td>
</tr>
<tr>
<td>Size (L x W x H)</td>
<td>12.75 x 11.0 x 12.75” (32.4 x 28 x 32.4 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>28 lbs. (12.7 kg) (with basic options)</td>
</tr>
<tr>
<td>Power</td>
<td>100-240 VAC, 50 or 60 Hz</td>
</tr>
<tr>
<td>Standards</td>
<td>CE, TUV listed to CSA/UL 61010-1</td>
</tr>
<tr>
<td>Pumps</td>
<td>4 pump choices (See pump curves)</td>
</tr>
<tr>
<td>Alarms</td>
<td>TTL (temp and system failure), Dry contacts and RS-232 optional</td>
</tr>
<tr>
<td>Warranty</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>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Range</td>
<td>Std +5 to + 45 °C, Optional -5 to + 45 °C</td>
</tr>
<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&quot; Female NPT standard, 3/8&quot; 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&quot; (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, 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**

| Operating Range       | 2 to 45 °C: 160 / 180W models only  
|                       | 10 to 45 °C: 170 / 190W models only*  
|                       | *non condensing environment  |
| Tank Volume           | 75 ml |
| Cooling Capacity      | 160 -190 W @ 20 °C (20 °C ambient) See cooling curves |
| Communications        | Dry contact alarm and RS232 standard |
| Modes                 | Cool, heat, cycle |
| Connections           | 1/8” CPC with shut-off valve |
| Repeatability         | ± 0.1 °C with a constant load |
| Noise                 | <65 dBA at 3 feet |
| Coolant               | 27% propylene glycol/water preferred, ethylene glycol/water, OptiShield Plus or water acceptable |
| 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) |
| Operating Voltage     | 13.5 VDC, 14.5 amps maximum (universal input, laptop style power supply included) |
| Weight                | 8 lbs (3.5 kg) |
| Power                 | Universal input, 100 - 240 VAC, 50/60 Hz. |
| Power Consumption     | Less than 200 Watts |
| Standards             | CE, TUV listed to CSA/UL 61010-1 |
| Pump                  | Magnetically-coupled gear pump with brushless DC motor (10,000 hr MTBF) |
THERMOCUBE LIQUID COOLED 400L to 600L

WHY CHOOSE THERMOCUBE 400L / 600L

- 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

<table>
<thead>
<tr>
<th>Process Fluid Temperature (deg C)</th>
<th>Cooling Capacity (watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>14.0</td>
</tr>
<tr>
<td>20</td>
<td>32.0</td>
</tr>
<tr>
<td>30</td>
<td>50.0</td>
</tr>
<tr>
<td>40</td>
<td>68.0</td>
</tr>
<tr>
<td>50</td>
<td>86.0</td>
</tr>
<tr>
<td>60</td>
<td>104.0</td>
</tr>
<tr>
<td>70</td>
<td>122.0</td>
</tr>
</tbody>
</table>

**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 ANS/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
**ThermoCube™ PAO**

**Thermoelectric Recirculating Chiller**

**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**
The 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, the ThermoCube is quiet.

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

**Energy Efficiency**
The 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**
The ThermoCube is virtually vibration-free equipped with smooth-flow magnetically coupled gear pumps.

**High Pressure Pumps Standard**
The 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 ANS/UL STD 61010-1

**Figure 1 Cooling Performance of ThermoCube PAO**

<table>
<thead>
<tr>
<th>PAO Coolant, 20 deg C Ambient</th>
</tr>
</thead>
</table>

- ▲ 110-120 VAC Input
- ■ 200-240 VAC Input
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 $< \pm 0.05 ^\circ C$, 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: $< \pm 0.05 ^\circ C$, 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
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
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

AMS Technologies | Solid State Cooling Systems
800 Watt thermoelectric reliability for laser and industrial applications

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

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

---

The Right Temperature Without Fail
Solid State Cooling Systems

The data below are representative of a 1 gpm flow at 30 psi. The ThermoRack 800 data is for cooling capacity versus Delta T (Ambient Temp - Coolant Temp).
THERMOCUBE 300A COMPRESSED GAS CHILLER

WHY CHOOSE THERMOCUBE 300A?

- 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 \(< +0.05 \, ^°C\), 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:** 300 W at 25 °C (25 °C ambient)
- **Modes:** Fixed setpoint, cycling
- **Precision:** \(< +0.05 \, ^°C\), 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.
THERMOCUBE AC 400 AIR COOLED

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**
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

- Net Cooling Capacity (watts)
- Process Fluid Temperature - Ambient Temperature (°C)

ThermoCube 400 AC
WHAT CAN WE DO FOR YOU?

Please contact us for further information

Germany
AMS Technologies AG (Headquarters)
Fraunhoferstr. 22
82152 Martinsried, Germany
Phone +49 (0)89 895 77 0
Fax +49 (0)89 895 77 199
info@amstechnologies.com

United Kingdom
AMS Technologies Ltd.
Unit 11, St Johns Business Park
Lutterworth
Leicestershire LE17 4HB, United Kingdom
Phone +44 (0)1455 556360
Fax +44 (0)1455 552974
info@amstechnologies.com

France
AMS Technologies S.A.R.L.
1, avenue de l’Atlantique
Courtaboeuf
91976 Les Ulis, France
Phone +33 (0)1 64 86 46 00
Fax +33 (0)1 69 07 87 19
info@amstechnologies.com

Italy
AMS Technologies S.r.l.
Via San Bernardino, 49
20025 Legnano (MI), Italy
Phone +39 0331 596 693
Fax +39 0331 590 732
info@amstechnologies.com

Spain
AMS Technologies S.L.
C/Muntaner, 200 Atico, 4a
08036 Barcelona, Spain
Phone +34 (0) 93 380 84 20
Fax +34 (0) 93 380 84 21
info@amstechnologies.com

Nordic
AMS Technologies Nordic
Aspect Photonics AB
Aminogatan 34
43153 Mölndal, Sweden
Phone +46 (0)8 55 44 24 80
Fax +46 (0)8 55 44 24 99
info@amstechnologies.com

Optical Technologies
Power Technologies
Thermal Management

www.amstechnologies.com