

mDC-KITs – mini Direct Cooling Kits

compact solutions for direct cooling based on TECs and/or direct evaporation



- ❄ no need for coolant (water) loop
- ❄ no corrosion/erosion
- ❄ efficient systems based on Peltier modules and/or direct evaporation
- ❄ direct evaporation provides high heat flux with low mass flow
- ❄ precisely cooling medical and photonics applications
- ❄ excellent temperature stability
- ❄ nominal cooling capacities from 100 W to 800 W
- ❄ low vibration, low noise
- ❄ lightweight & compact
- ❄ easy to integrate



MORE
on AMS
Portal

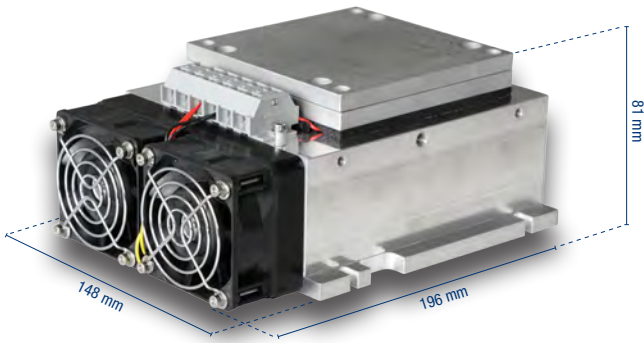


www.amstechnologies-webshop.com



THERMAL
MANAGEMENT

mDC-T-130-24-KIT – Thermoelectric Plate-to-Air Cooling Kit



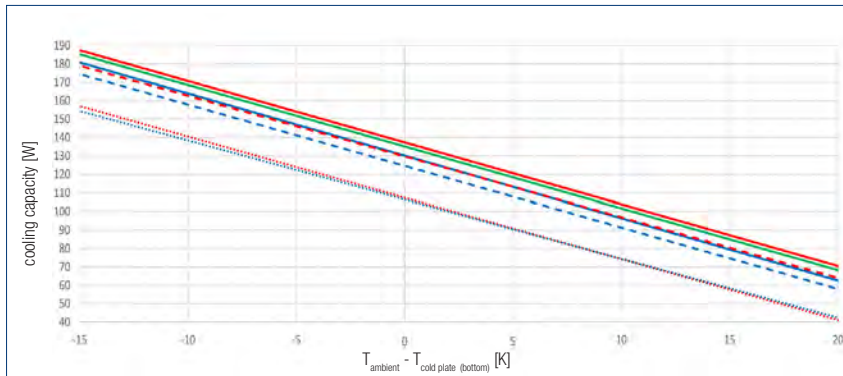
The compact thermoelectric plate-to-air cooling unit was developed for precise temperature control of laser diode modules and direct heat transfer to the ambient air. The highly efficient, solid state unit reaches a cooling capacity of 130 W for 24 VDC supply voltage and +25°C on laser mounting plate and +25°C ambient temperature.

specifications	fans 24 VDC
noise*	max. 49 dB(A)
power consumption per fan*	6 W
nominal cooling capacity	130 W
coefficient of performance	0.57

TECs operated at nominal 24 VDC @ 8.2 A

*manufacturer's data

mDC-T-130-24-KIT – performance curve for $P_{el} = 24\text{ V} @ 8.2\text{ A}$

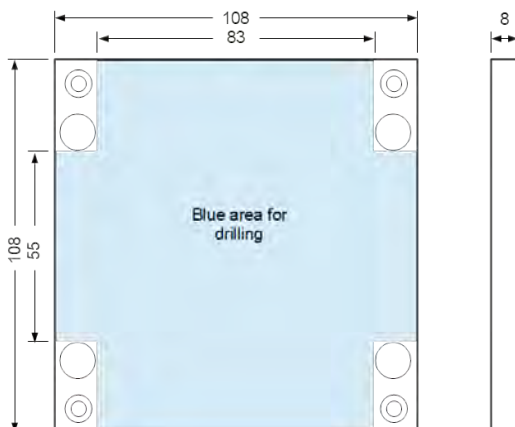


Performance was measured with two heat sources of $86,5 \times 38,5\text{ mm}^2$ each, mounted on top of the universal mounting plate, and is given for the temperature in the center of the fixed bottom aluminium plate.

—	Ambient 35°C/24 V @ 7.8 A
—	Ambient 25°C/24 V @ 8.2 A
—	Ambient 15°C/24 V @ 8.6 A
- - -	Ambient 35°C/20 V @ 6.6 A
- - -	Ambient 15°C/20 V @ 7.4 A
· · ·	Ambient 35°C/14 V @ 5.2 A
· · ·	Ambient 15°C/14 V @ 5.8 A

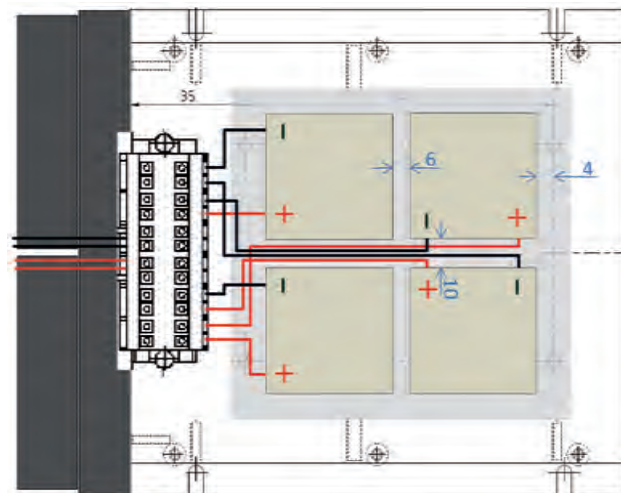
laser mounting plate

The mDC-T-130-24-KIT thermoelectric plate-to-air cooling unit is equipped with a universal, user-detachable mounting plate allowing a very flexible mounting of your individual laser diode modules or other devices to be cooled. The blue area may be used for drilling holes for laser module fixation. Drilling holes and assembly of laser diode module and universal mounting plate shall be done with special care to ensure low thermal resistances at interfaces. The kit comes with graphite foil and screws pre-mounted.

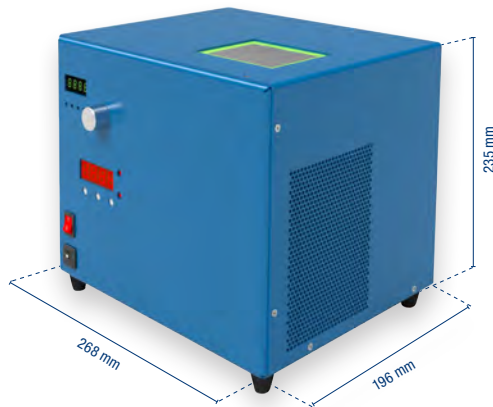


electrical wiring

Picture shows wiring for nominal 24 VDC @ 8.2 A supply. For nominal 12 VDC supply, all four TECs have to be connected in parallel – please contact AMS Technologies for details.



mDC-CT-4-KIT – mini Compressor/Thermoelectric Plate-to-Air Cooling Kit



The mDC-CT-4-KIT direct cooling system cascades a thermoelectric (Peltier) element and a compressor-based refrigerant circuit. Based on the “direct evaporation” technology, the compressed refrigerant evaporates directly on the hot side of the Peltier module and thus dissipates the heat very effectively and with high heat flux.

The Compressor/Peltier cascade significantly expands the temperature range of the capabilities of the individual technologies, enabling a very wide operating temperature range from -50°C to $+150^{\circ}\text{C}$ in a compact device. Utilizing suitable insulation, constant operation at -50°C is possible, while still providing about 4 W cooling power at this extreme temperature point.

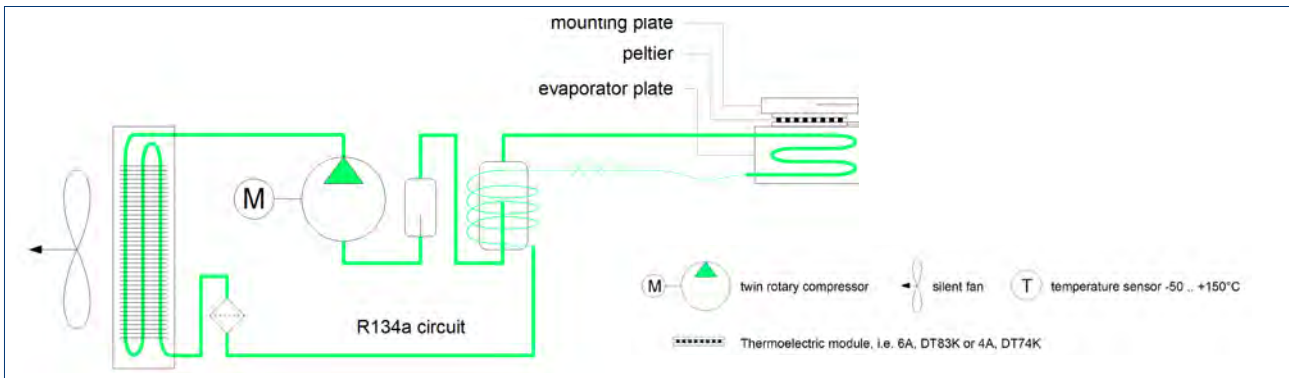
key features

- cascading of compressor refrigerant circuit and Peltier element
- refrigerant directly cooling the Peltier element's hot side
- different Peltier modules, 12-24 V, exchangeable
- ultra wide temperature range -50°C to $+150^{\circ}\text{C}$ in a compact system
- stable operation @ -50°C with 4 W cooling capacity
- compressor runs on 24 VDC
- compressor speed to be set manually 20-100 rps
- mounting plate can be customized

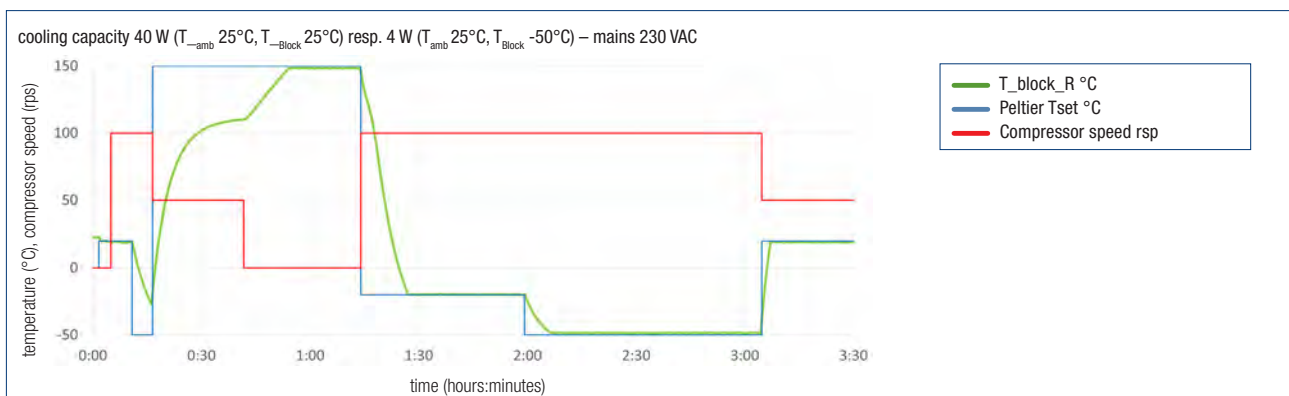
The system does not require a water circuit, is very quiet, low-vibration and maintenance-free. Possible applications are in the fields of analytics, molecular reactors, rheology or viscosity measurement – or wherever very low temperatures have to be maintained with moderate heat loads.

specifications	
set temperature range	-50°C to $+150^{\circ}\text{C}$
cooling capacity @ -50°C	4 W

process & instrumentation diagram



performance curve for insulated plate, zero active load



SOLUTIONS



enabling your ideas.

Optical, Power and Thermal Management Technologies

■ GERMANY

AMS Technologies AG
Fraunhoferstr. 22
82152 Martinsried, Germany
Phone + 49 (0) 89 895 77 0

■ FRANCE

AMS Technologies S.A.R.L.
Silic 649 – Bâtiment Magnolia
16, avenue du Québec
91945 Courtaboeuf Cedex
Phone + 33 (0) 1 64 86 46 00

■ ITALY

AMS Technologies S.r.l.
Via Copernico, 21
20025 Legnano (MI), Italy
Phone + 39 0331 596 693

■ NORDICS

AMS Technologies Nordics
Azpect Photonics AB
Aminogatan 34
431 53 Mölndal, Sweden
Phone + 46 (0) 8 55 44 24 80

■ SPAIN

AMS Technologies S.L.
C/Filadors 35, 3^o, 7^a
08208 Sabadell, Spain
Phone + 34 93 380 84 20

■ UNITED KINGDOM

AMS Technologies Ltd.
Nene House, Drayton Way
Daventry, Northamptonshire
NN11 8EA, United Kingdom
Phone + 44 (0)1455 556360

Download
Brochure



Intertek

info@amstechnologies.com
www.amstechnologies.com
www.amstechnologies-webshop.com