

Liquid-to-Liquid Thermoelectric Assembly



Thermoelectric cooling unit for medical and industrial laser applications

The Liquid-to-Liquid Series thermoelectric assembly (TEA) offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through one liquid heat exchanger and dissipated thru a second liquid heat exchanger. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. This product series is available in a wide range of cooling capacities and voltages. Custom configurations are available, however, MOQ applies.

Heat exchangers are designed to accommodate distilled water with glycol. Corrosion resistant turbulators are enclosed inside channels to increase heat transfer. Mating port adaptors are sold separately.

FEATURES

- Compact form factor
- Reliable solid-state operation
- Precise temperature control
- Bi-metal thermostat for overheat protection
- RoHS compliant

APPLICATIONS

- Medical Diagnostics
- Industrial Lasers
- Medical Lasers
- Analytical Instrumentation

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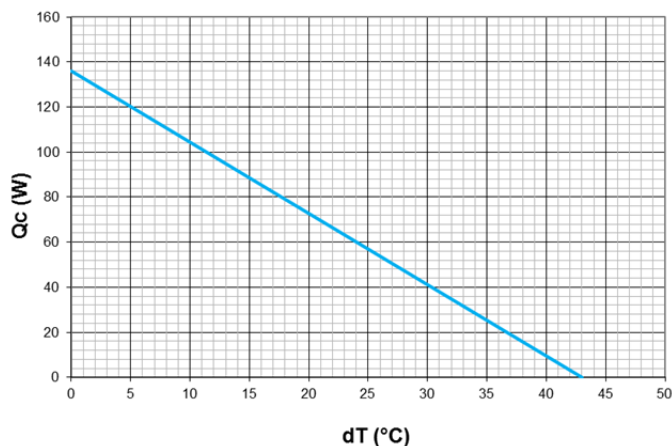
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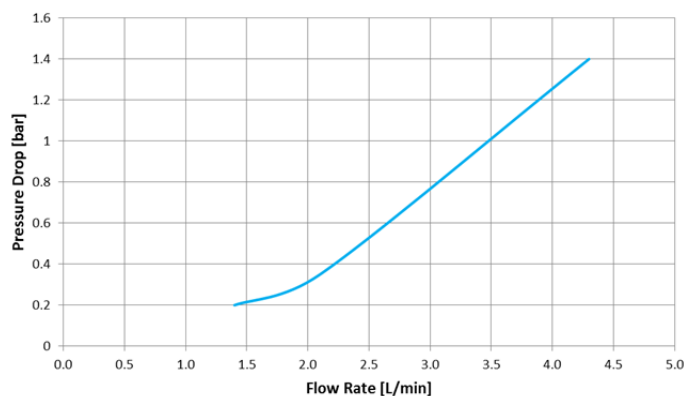
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Qc vs dT



Flow Rate vs Pressure Drop



SPECIFICATIONS

TECHNICAL

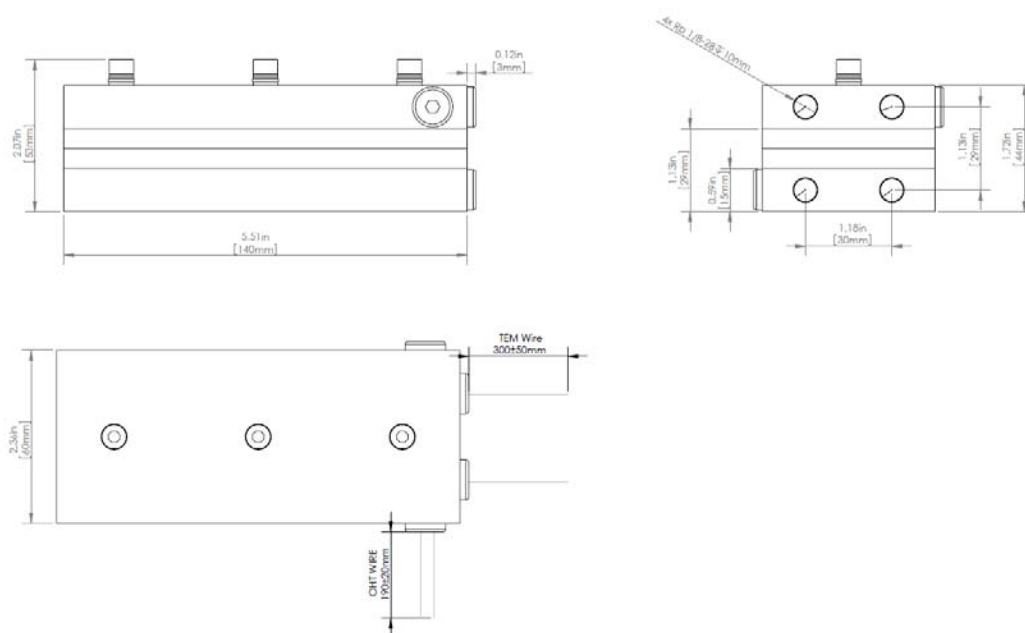
Technology	Thermoelectric modules, liquid cooling, closed loop (non-mixing), filterless, non-refrigerant
Cooling at $\Delta T = 0^{\circ}\text{C}$	136 W (464 Btu/h)
Voltage (nominal / maximum) ¹	24/28 VDC
COP (Coefficient of Performance)	74%
Grounding (all voltages)	Positive or negative
Current draw, $\pm 10\%$ (nominal / startup)	4.2/4.7 A
Weight	0.8 kg (1.8 lbs)
Connector type (on unit / mating side)	TEM: Leads, 18 AWG, Red/Black OHT: Leads

ENVIRONMENTAL

Temperature range	-40°C to +62°C (-40°F to +143°F)
Hi-Pot Testing	750 VDC
Over temp Thermostat	75°C $\pm$ 5°C (167°F $\pm$ 41°F) on hot side heat sink

1) Max ripple 5%

MECHANICAL DRAWING



For overheating protection, the cooler is equipped with a bimetal thermostat. The maximum rating for the thermostat is 8 A. For systems with 8 A or less, the thermostat can be connected directly in series with the thermoelectric modules (TEMs). Otherwise, connect the TEMs to the power source through a relay of suitable rating which state is controlled with the bimetal thermostat.

Note: Cold side heat exchanger requires insulation to minimize moisture buildup under dew point conditions.

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