

Closed-Loop DCLC™

Direct Contact Liquid Cooling Solutions for Servers & Desktops

CoolIT Systems Closed-Loop DCLC™ solutions are direct contact liquid cooling devices confined within a Server or Desktop. Actively-pumping coldplate assemblies are installed on heat-producing components and serve to reject hot air through slim, quiet radiators. Integrating these sealed liquid loops is simple, as they ship pre-filled with coolant and installation is comparable to that of a standard heat sink. Distributors, System Integrators and OEMs can use this component guide to develop the ideal cooling solution from our Closed-Loop DCLC™ product line, which is currently anchored by the legendary E3 pump.



Active Coldplate Assemblies

E3

Featuring CoolIT Systems patented Split-Flow technology and a liquid cooled stator, the E3 is extremely reliable, quiet and has the best performance on the market. With more than 2 million units deployed, the E3 is universally compatible and features low power consumption and superior cooling.



- Thermal Resistance of 0.037°C per W
- MTTF validated to 80,000 hours at 60°C
- 1U chassis compatible
- Custom cosmetic lids available for unique branding
- LED lighting and self-regulating controller

EP2

Designed specifically for the Intel® Xeon Phi™ X200 Processor family (code-named Knights Landing or KNL), the EP2 active coldplate leverages CoolIT Systems E3 pump technology and Split-Flow design theory to enable reliable, high performance Closed-Loop DCLC™ solutions.



- Thermal Resistance of 0.050°C per W
- Same pump construct as the E3
- 1U chassis compatible
- Reference retention scheme
- Includes CPU carrier

Server Radiators

CoolIT Systems' Server Radiators are low profile and designed for use in both 1U and 2U chassis. The 2U chassis is available in custom lengths to suit unique cooling applications.

MODEL	PART NUMBER	DETAILS
1U	800-00187	Single pass radiator with 22mm tubes Supports up to three 40mm fans 167mm (W) x 40mm (H) x 57mm (D)
1Ue	820-00633	Single pass radiator with 22mm tubes Supports up to five 40mm fans 249mm (W) x 40mm (H) x 57mm (D)
1UFB	820-00738	Single pass radiator with 32mm tubes Supports up to three 40mm fans 167mm (W) x 40mm (H) x 57mm (D)
1UeFB	820-00743	Single pass radiator with 32mm tubes Supports up to five 40mm fans 249mm (W) x 40mm (H) x 57mm (D)
2U	820-00663	Dual pass radiator with two rows of 18mm tubes Supports up to two 80mm fans 196mm (W) x 83.5mm (H) x 44mm (D)

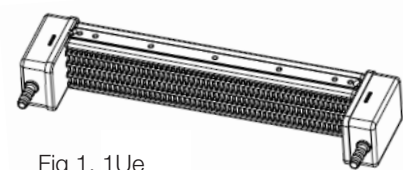


Fig 1. 1Ue

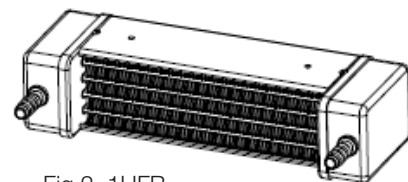


Fig 2. 1UFB

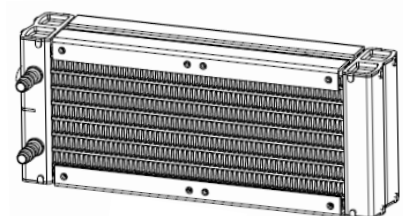


Fig 3. 2U

Desktop Radiators

CoolIT Systems offers high performance cooling solutions for integration into desktops. The modern-looking SP Series are the highest performing radiators, while the T Series radiators are a lower cost solution which use conventional stamped tanks for a traditional look.

SP Series Radiators

MODEL	PART NUMBER	DETAILS
SP120	800-00665	Dual pass radiator with 18mm tubes 120mm (W) x 157mm (H) x 27mm (D)
SP120FB	820-00666	Dual pass radiator with two rows of 18mm tubes 120mm (W) x 157mm (H) x 44mm (D)
SP240	820-00667	Dual pass radiator with 18mm tubes 120mm (W) x 277mm (H) x 27mm (D)
SP280	820-00668	Dual pass radiator with 18mm tubes 140mm (W) x 322mm (H) x 27mm (D)
SP360	820-00815	Dual pass radiator with 18mm tubes 120mm (W) x 397mm (H) x 27mm (D)

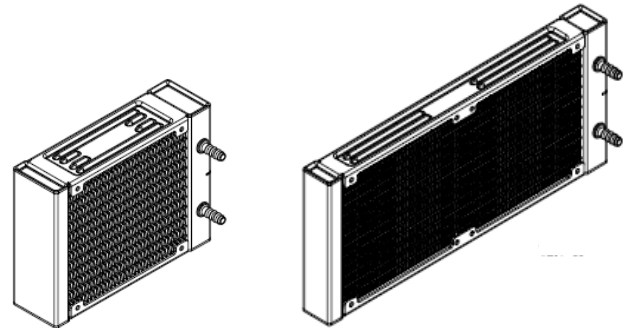


Fig 4. SP120FB

Fig 5. SP240

T Series Radiators

MODEL	PART NUMBER	DETAILS
T120	800-00141	Dual pass radiator with 16mm tubes 120mm (W) x 155mm (H) x 27 (D)
T120FB	820-00152	Dual pass radiator with two rows of 16mm tubes 120mm (W) x 155mm (H) 44mm (D)
T240	820-00154	Dual pass radiator with 18 mm tubes 120mm (W) x 277mm (H) x 27mm (D)

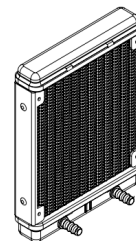


Fig 6. T120

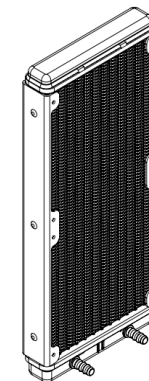


Fig 7. T240

Tubing Options

CIIR Tubing

- 6mm internal diameter Chlorinated Isobutylene Isoprene Rubber
- Approximately 2.5 million joints using cold insertion
- At 23°C, operating pressure is 150 psig
- Quality inspection mitigates thickness non-conformances
- Zero reported field failures of the barb interface

FEP Tubing

- 6mm internal diameter Fluorinated Ethylene Propylene
- Approximately 1.8 million joints using cold insertion
- At 23°C, operating pressure is 380 psig
- Quality inspection mitigates thickness non-conformances
- 3 reported failures due to rough handling

Barbs, Fittings & Seals

6.35mm Compatible Barbs

- Performance and reliability ensured by triple barb design
- Barb construct prevents creep during temperature cycling
- Straight (0°), 45° and 90° fittings available for most applications



Fig 8. 0° Barb Endform

O-Ring Seals

- Double O-Ring sealing system used between fitting and housing
- Fittings secured by spring-steel pins
- Gland design ensures reliable seal adhering to aerospace standards

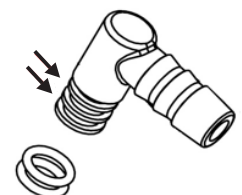


Fig 9. O-Ring Seal

Learn more about CoolIT Systems liquid cooling solutions for data centers, servers and desktops at www.coolitsystems.com.