Liquid to Air Heat Exchanger WL1500
MFG Part Number: 1515.00

WL Series Liquid Cooling System

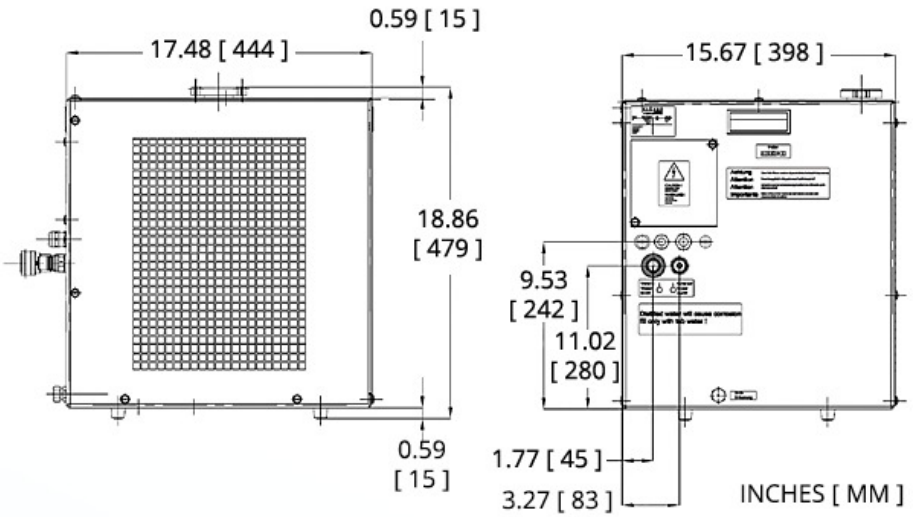
The WL1500 is a re-circulating liquid to air heat exchanger that offers dependable, compact performance by removing large amounts of heat from a liquid circuit. The coolant is re-circulated using a high pressure pump to assure maximum flow rate. Heat from coolant is absorbed by a radiant heat exchanger and dissipated into the ambient environment using brand name fan. Manual adjustments can be made to control flow switch. Customized features are available, however, MOQ applies.

Features

- Cooling to ambient
- High heat pumping capacity
- Compact form factor
- Long life operation

Applications

- Cooling Particle Accelerators: Linear Accelerators and Cyclotrons
- Semiconductor Fabrication Equipment Cooling
- X-ray Cooling in Industrial Scanners



FLUID OPERATING POINTS

100% Water

Cooling Power (Qc) = 1500 Watts
Thermal Conductance = 125.3 W/°C
ΔT (Ambient-Coolant)* = 12.0 °C
ΔT (Outlet-Inlet)** @ 6.0 L/min = 3.6 °C

70/30 Water-Glycol

Cooling Power (Qc) = 1500 Watts
Thermal Conductance = 112.0 W/°C
ΔT (Ambient-Coolant)* = 13.4 °C
ΔT (Outlet-Inlet)** @ 6.0 L/min = 3.8 °C

60/40 Water-Glycol

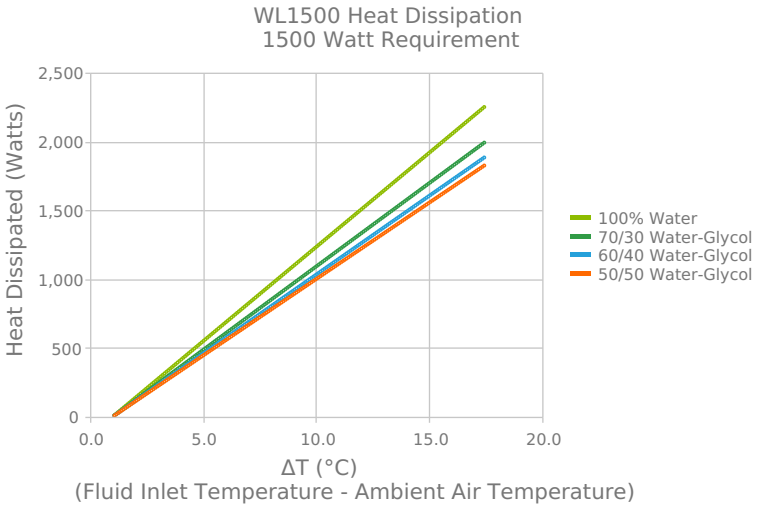
Cooling Power (Qc) = 1500 Watts
Thermal Conductance = 106.3 W/°C
ΔT (Ambient-Coolant)* = 14.1 °C
ΔT (Outlet-Inlet)** @ 6.0 L/min = 3.9 °C

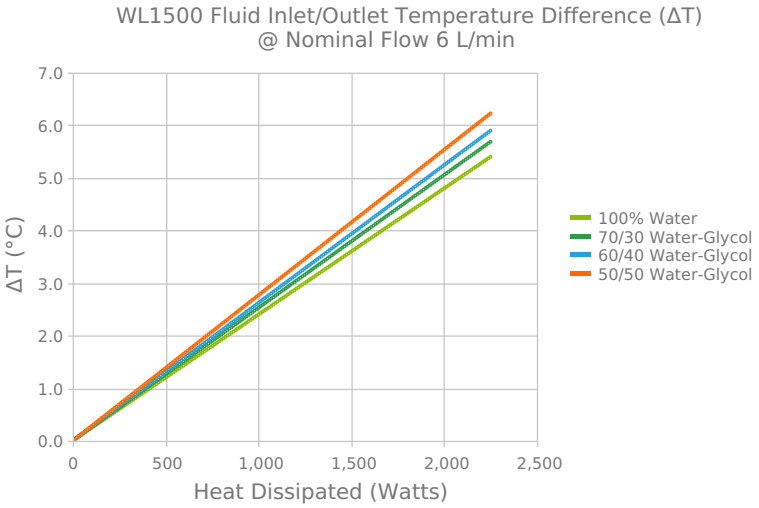
50/50 Water-Glycol

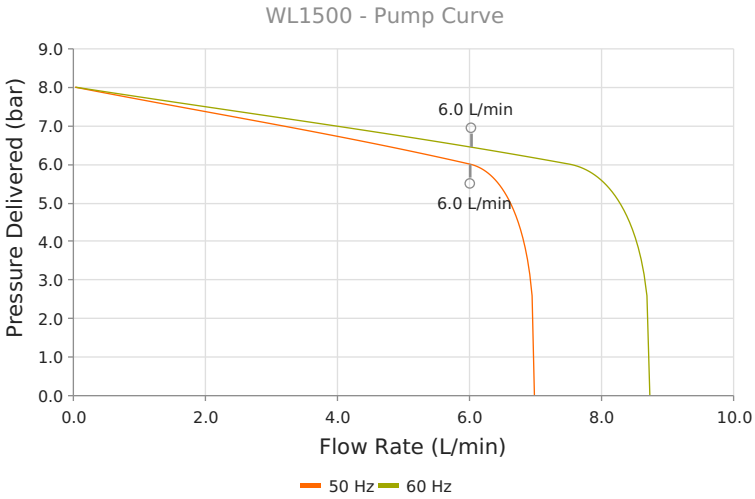
Cooling Power (Qc) = 1500 Watts
Thermal Conductance = 103.3 W/°C
ΔT (Ambient-Coolant)* = 14.5°C
ΔT (Outlet-Inlet)** @ 6.0 L/min = 4.1 °C

* ΔT (Ambient-Coolant) is the temperature difference between the ambient temperature and the coolant temperature that is at the outlet of the heat exchanger during steady-state operation. This temperature difference would initially be 0 and increase to the steady state value under load. This would also be the temperature at the inlet to the application.

** ΔT (Outlet-Inlet) is the temperature difference between the inlet temperature and the outlet temperature of the application at the nominal coolant flow. More flow (application pressure drop less than nominal) would necessarily mean a smaller ΔT.


WL1500 Heat Dissipation
1500 Watt Requirement
Heat Dissipated (Watts)
2,500
2,000
1,500
1,000
500
0
0.0
5.0
10.0
15.0
20.0
ΔT (°C)
(Fluid Inlet Temperature - Ambient Air Temperature)
100% Water
70/30 Water-Glycol
60/40 Water-Glycol
50/50 Water-Glycol


WL1500 Fluid Inlet/Outlet Temperature Difference (ΔT)
@ Nominal Flow 6 L/min
ΔT (°C)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
500
1,000
1,500
2,000
2,500
Heat Dissipated (Watts)
100% Water
70/30 Water-Glycol
60/40 Water-Glycol
50/50 Water-Glycol


WL1500 - Pump Curve
Pressure Delivered (bar)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
6.0 L/min
6.0 L/min
0.0
2.0
4.0
6.0
8.0
10.0
Flow Rate (L/min)
50 Hz
60 Hz

TECHNICAL SPECIFICATIONS

Performance

Nominal Cooling Capacity	1,500 Watts
Nominal Operating Flowrate (60 Hz)	6.0 L/min @ 6.4 Bar
Nominal Operating Flowrate (50 Hz)	6.0 L/min @ 6.0 Bar

Operation

Coolant	Water or Water/Glycol
Operating Temperature	5°C to 40°C
Storage temperature range (w/o coolant)	-25°C to 70°C
Humidity range	20% to 80%
Storage Humidity range	5% to 95%, non-condensing
Input Voltage	230 VAC
Frequency	50/60 Hz
Current	< 2.5 Amps
Noise	< 68 dB(A)
Flow Switch Open	≤ 4 L/min
Maximum Forward Pressure	7 Bar

Physical

Height	481 mm
Length	479 mm
Width	398 mm
Weight	38.5 kg
Coolant Capacity	3 Liters
Couplings	Press fit (9 mm ID hose)

Features	Applications
Compact design	Medical imaging systems
Reliable operation	Photonics laser systems
Adjustable flow switch	X-Ray scanning systems
Bypass valve protection	Semiconductor fabrication

NOTES

1. Check coolant level regularly. For optimal cooling performance, coolant level should always be above radiator fins.
2. Hose selection should be of material and thickness to support pressure resistance and coolant type.
3. Manual adjustments can be made to control pressure flow rate.
4. Check air filter and coolant filter periodically for replacement.
5. Multiple cord plug options available to accommodate regional socket outlet requirements. Consult with Laird Technologies on cord plug selection.

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