TTS
TARK THERMAL SOLUTIONS

Nextreme™ Eco-Friendly Chiller EFC2400-A2-20-BT1
MFG Part Number: 387008347

Nextreme™ Eco-Friendly Chiller

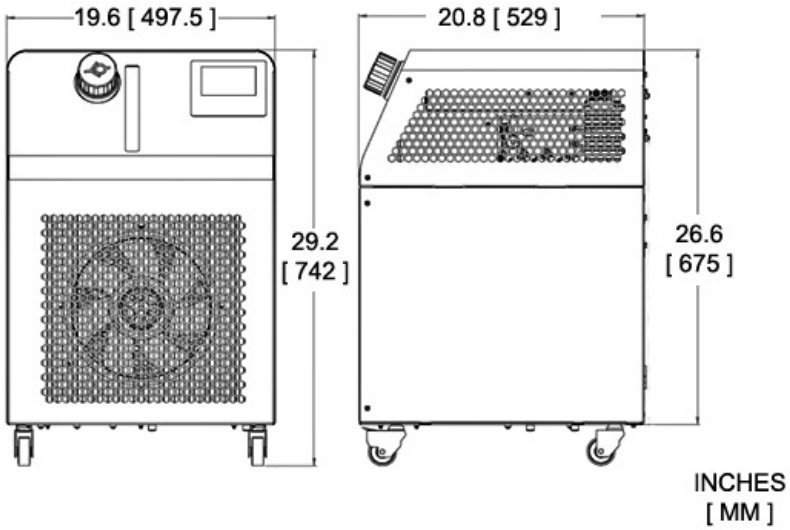
The Nextreme™ Eco-Friendly Chiller offers all users a cost-effective and reliable thermal management solution that is compliant with foreseeable future regulations with regards to refrigerant use. Part of the Nextreme family of chiller products, the EFC line offers the same ease of use, low maintenance features that makes it ideal for cooling sensitive electronics in industrial and analytical equipment. By using natural R290 refrigerant, the EFC Chillers achieve similar performance with a near-zero Global Warming Potential (GWP) when compared to traditional hydrofluorocarbon (HFC) refrigerants. The product also uses a variable speed compressor to maintain a high coefficient of performance (COP) and reduce system noise during partial load operation. For OEMs, the Eco-Friendly Chiller can be configured to meet unique application requirements. Units run on universal input of 200-240V, 50/60Hz, which means that they can operate anywhere in the world.

Features

- Reliable Performance
- Environmentally Friendly
- Quick Start Guide User Friendly
- Economical Cooling Solution

Applications

- Mass Spectrometry
- Electron Microscopes
- Medical Imaging
- Biotech
- Liquid Chromatography
- Medical Lasers
- Industrial Lasers
- Semiconductor Metrology
- Semiconductor Fabrication



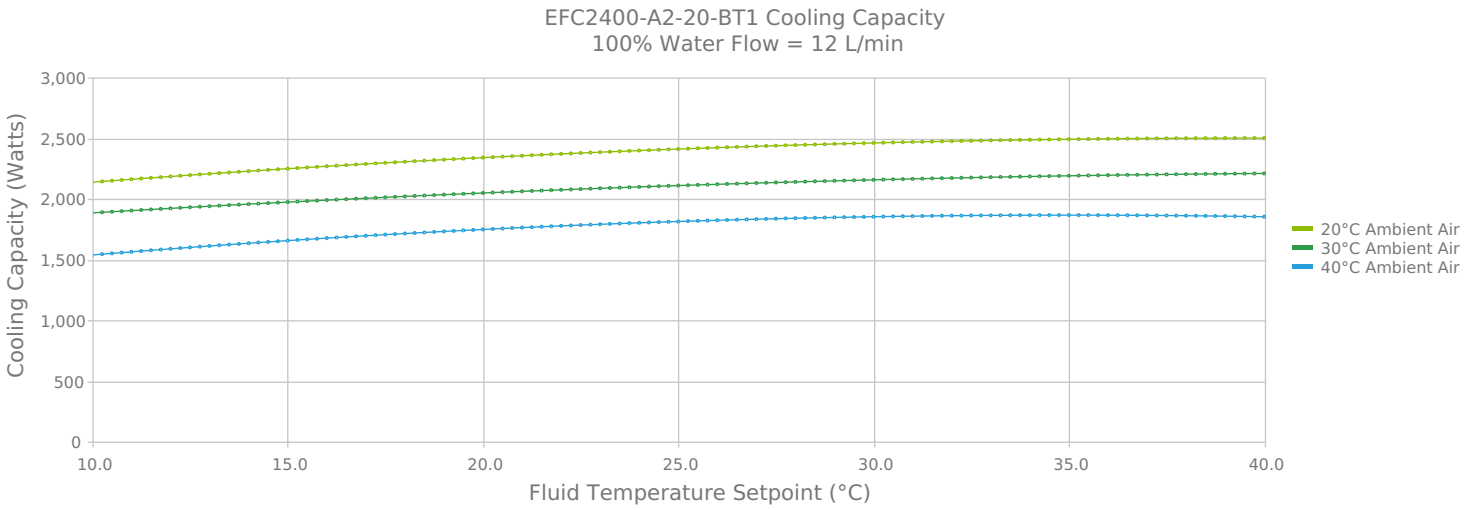
Cooling Power Operating Points

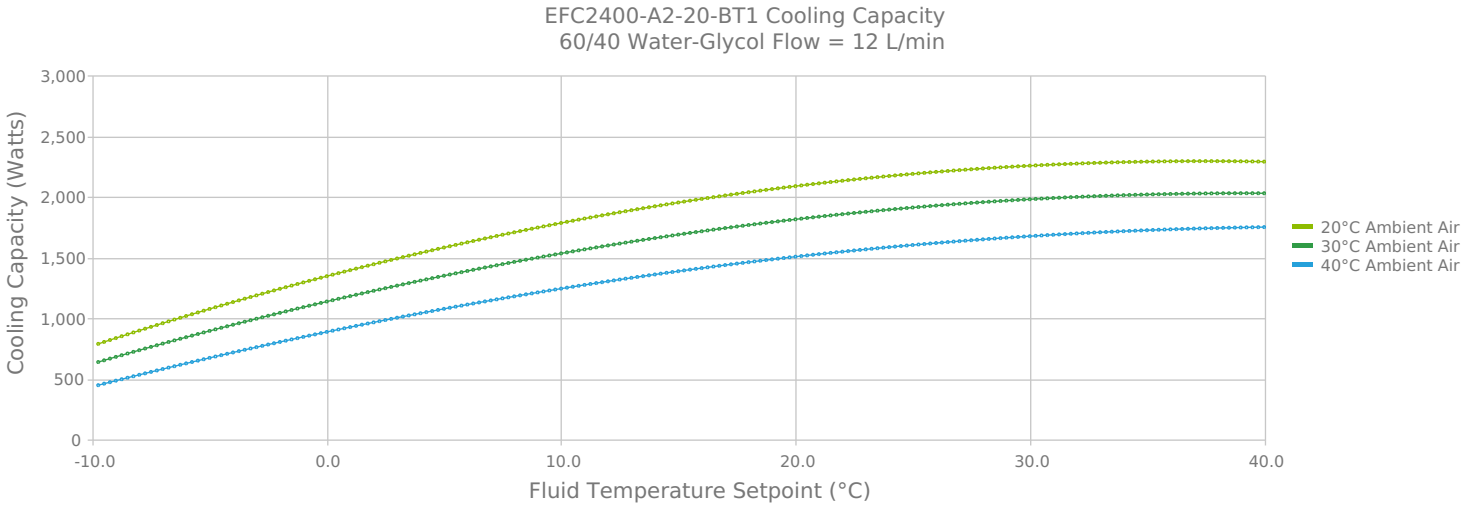
100% Water / 20°C Ambient Air
Cooling Power (Qc) = 2,350 Watts
Fluid Setpoint = 20 °C
Fluid ΔT @ 12.0 L/min = 2.8 °C

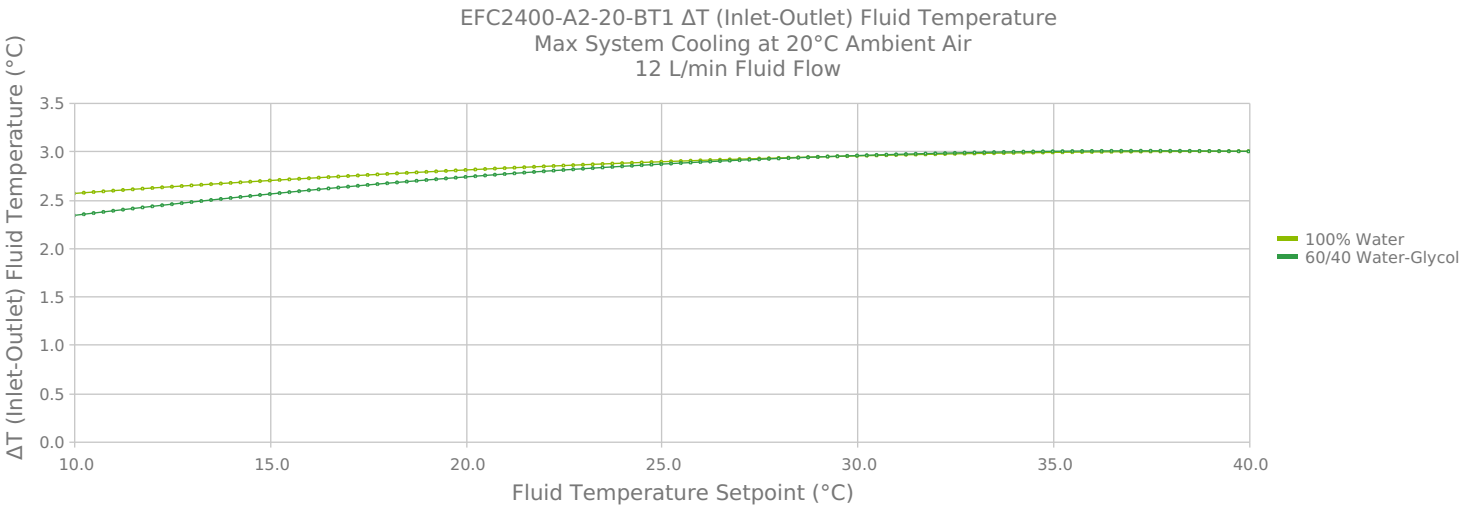
100% Water / 30°C Ambient Air
Cooling Power (Qc) = 2,050 Watts
Fluid Setpoint = 20 °C
Fluid ΔT @ 12.0 L/min = 2.5 °C

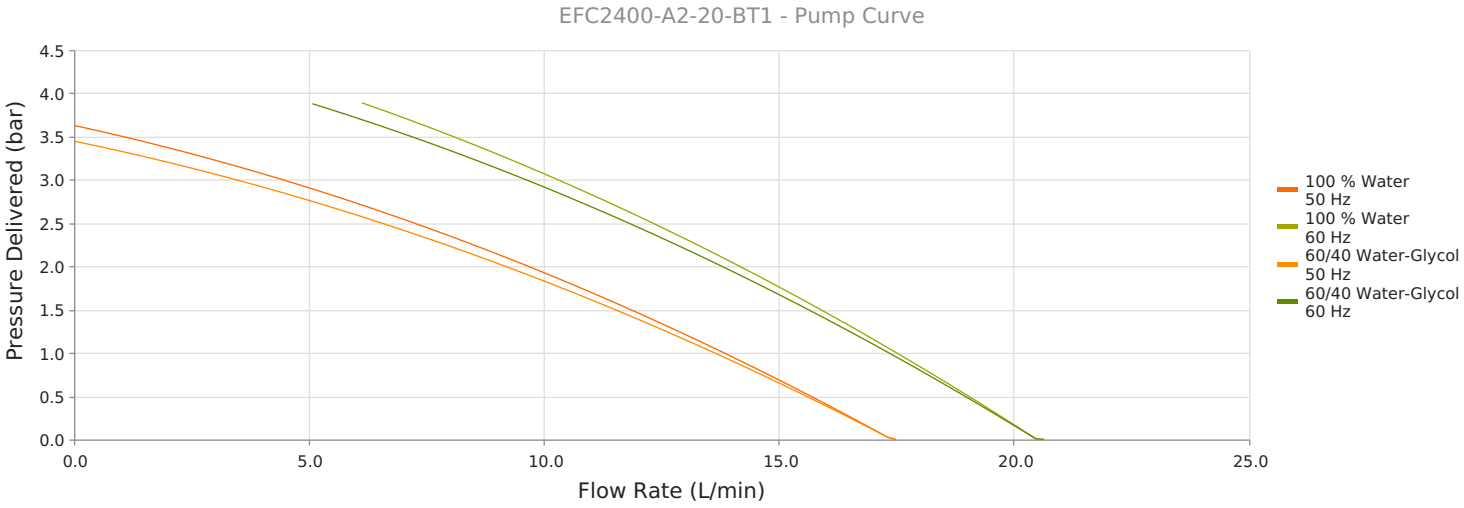
40% Glycol / 20°C Ambient Air
Cooling Power (Qc) = 2,100 Watts
Fluid Setpoint = 20 °C
Fluid ΔT @ 12.0 L/min = 2.5 °C

40% Glycol / 30°C Ambient Air
Cooling Power (Qc) = 1,800 Watts
Fluid Setpoint = 20 °C
Fluid ΔT @ 12.0 L/min = 2.2 °C


EFC2400-A2-20-BT1 Cooling Capacity
100% Water Flow = 12 L/min
Cooling Capacity (Watts)
3,000
2,500
2,000
1,500
1,000
500
0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Fluid Temperature Setpoint (°C)
20°C Ambient Air
30°C Ambient Air
40°C Ambient Air


EFC2400-A2-20-BT1 Cooling Capacity
60/40 Water-Glycol Flow = 12 L/min
Cooling Capacity (Watts)
3,000
2,500
2,000
1,500
1,000
500
0
-10.0
0.0
10.0
20.0
30.0
40.0
Fluid Temperature Setpoint (°C)
20°C Ambient Air
30°C Ambient Air
40°C Ambient Air


EFC2400-A2-20-BT1 ΔT (Inlet-Outlet) Fluid Temperature
Max System Cooling at 20°C Ambient Air
12 L/min Fluid Flow
ΔT (Inlet-Outlet) Fluid Temperature (°C)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Fluid Temperature Setpoint (°C)
100% Water
60/40 Water-Glycol


EFC2400-A2-20-BT1 - Pump Curve
Pressure Delivered (bar)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
5.0
10.0
15.0
20.0
25.0
Flow Rate (L/min)
100 % Water
50 Hz
100 % Water
60 Hz
60/40 Water-Glycol
50 Hz
60/40 Water-Glycol
60 Hz

Technical Specifications

Performance

Nominal Cooling Capacity[1]	2,350 W
Setpoint Range	-10°C to 40°C
Temperature Stability	±0.1°C
Nominal Operating Flowrate (60 Hz)	12.0 L/min @ 2.6 Bar
Nominal Operating Flowrate (50 Hz)	12.0 L/min @ 1.4 Bar
Refrigerant	R 290
Refrigerant Charge	98g ±1g

Operation

Coolant	Water or Water/Glycol
Operating Temperature[2]	10°C to 40°C
Storage temperature range (w/o coolant)	-20°C to 70°C
Humidity range	30% to 80%
Storage Humidity range	5% to 95%, non-condensing
Altitude	< 2,000 meters
Input Voltage	230 VAC
Frequency	50/60 Hz
Current	< 8.6 Amps
Input Power Connection	C19 Receptacle
Maximum Forward Pressure	3.9 Bar

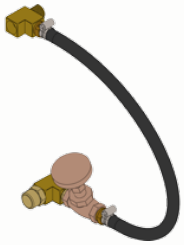
Physical

Height	742 mm
Length	529 mm
Width	498 mm
Weight	54.5 kg
Coolant Capacity	5 Liters
Couplings	1/2 in NPT

Standard Features

Color Touch Screen Display	Simple user interface and detailed communication of system status without the need for alarm codes or symbols.
Semi-Closed Fluid System	Sealed fluid system with breathable reservoir cap (similar to an automobile). This prevents evaporative loses, introduction of bacteria, and the need for components to prevent fluid from draining back into the system when installed below the application.
Optical Fluid Level Switch	Fluid level sensing with no moving parts.
RS-232 Communications	Complete control integration of chiller into higher level assembly control system.

Accessory Kits

	Feature	Kit Part Number	Description
	Flow Control Valve and Flow Sensing Kit	387004277	This externally installed valve is for reducing the overall flow to the application. Full flow continues through the chiller to maintain high heat transfer rates and temperature stability. The flow meter is for measuring coolant flow rate and is installed externally to the chiller with both a local display (GPM) and connectivity to the chiller LCD display.
	Water Filter Kit	387004279	Hot swappable, 5-micron water filter for filtering particulates from the coolant circuit.
	Flow Bypass Kit	387010608	This externally installed valve is for reducing the overall flow to the application. Full flow continues through the chiller to maintain high heat transfer rates and temperature stability. This kit does not contain a flow meter.
	Pressure Bypass Kit	387010420	This pressure bypass kit prevents high pressure operation and can either operate partially open or open when there is a change in operation (e.g., flow to application stopped). It can be used for flow control but operates with less precision. This pressure bypass maintains full flow through the chiller heat exchanger.

Cord Options

These power cords have been tested and validated on Nextreme devices.

Power cord is not supplied with the unit and must be ordered separately.

MFG Part Number	Plug Type	Standard	Style	Cable Length	Rating	Color	Connector
387005324	Universal	None	Flying Leads	2.0 m	250VAC, 16A* / 20A**	Black	C19

* IEC ** UL

Notes

Nominal capacity rating is given at a 20°C (68°F) setpoint, 20°C (68°F) ambient temperature, sea level, and 60Hz operation.
For ambient conditions outside this range, please contact Laird Thermal Systems.

Revision: 04 Date: 06-27-2025

Print Date: 06-26-2025