

### Nextreme™ Value Chiller

The Nextreme™ Value Chiller offers OEMs a cost-effective and reliable thermal management solution that keeps sensitive electronics in industrial and analytical equipment at the optimum temperature. Based on the Nextreme Performance Chiller Series design, the Value line offers the same ease of use, low maintenance features and high coefficient of performance (COP) as the performance chiller but at a lower cost to provide a more competitive pricing of an OEM bundled solution. Most importantly, the Value Chiller can be configured to meet unique application requirements. By using environmentally friendly R513A refrigerant, Nextreme Chillers achieve similar performance with half the Global Warming Potential (GWP) compared to traditional hydrofluorocarbon (HFC) refrigerants. Units run on universal input 230V, 50/60Hz, which means that they can operate anywhere in the world.

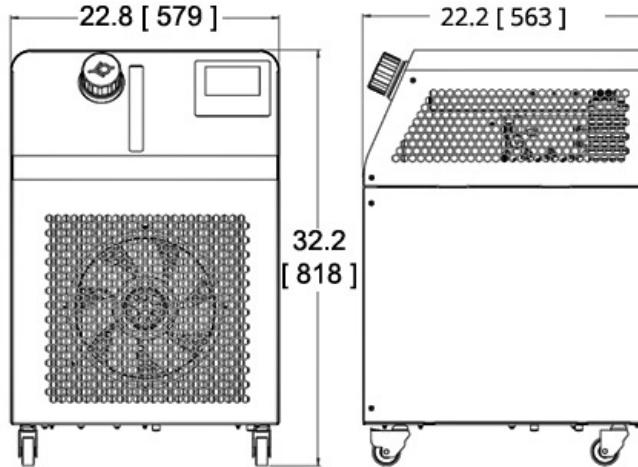


### Features

- Economical Cooling Solution
- Reliable Performance
- Environmentally Friendly
- User-Friendly
- Application Specific Configurations

### Applications

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

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### Cooling Power Operating Points

#### 100% Water / 60Hz / 20°C Ambient Air

Cooling Power (Qc) = 4,850 Watts  
Fluid Setpoint = 20 °C  
Fluid ΔT @ 15.0 L/min = 4.7 °C

#### 100% Water / 50Hz / 20°C Ambient Air

Cooling Power (Qc) = 4,200 Watts  
Fluid Setpoint = 20 °C  
Fluid ΔT @ 15.0 L/min = 4.0 °C

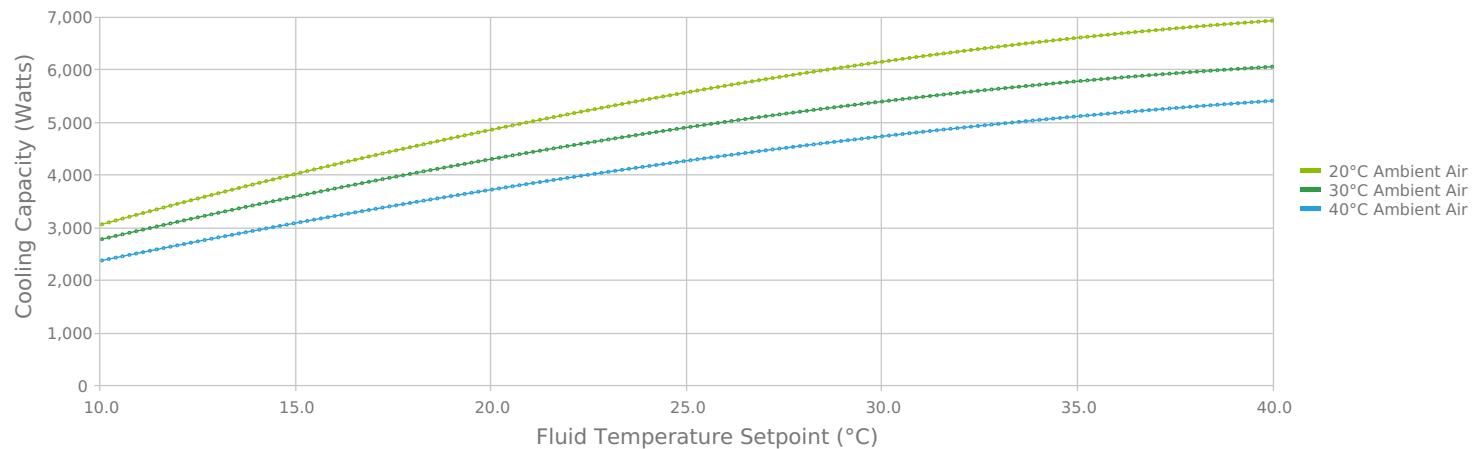
#### 100% Water / 60Hz / 30°C Ambient Air

Cooling Power (Qc) = 4,300 Watts  
Fluid Setpoint = 20 °C  
Fluid ΔT @ 15.0 L/min = 4.1 °C

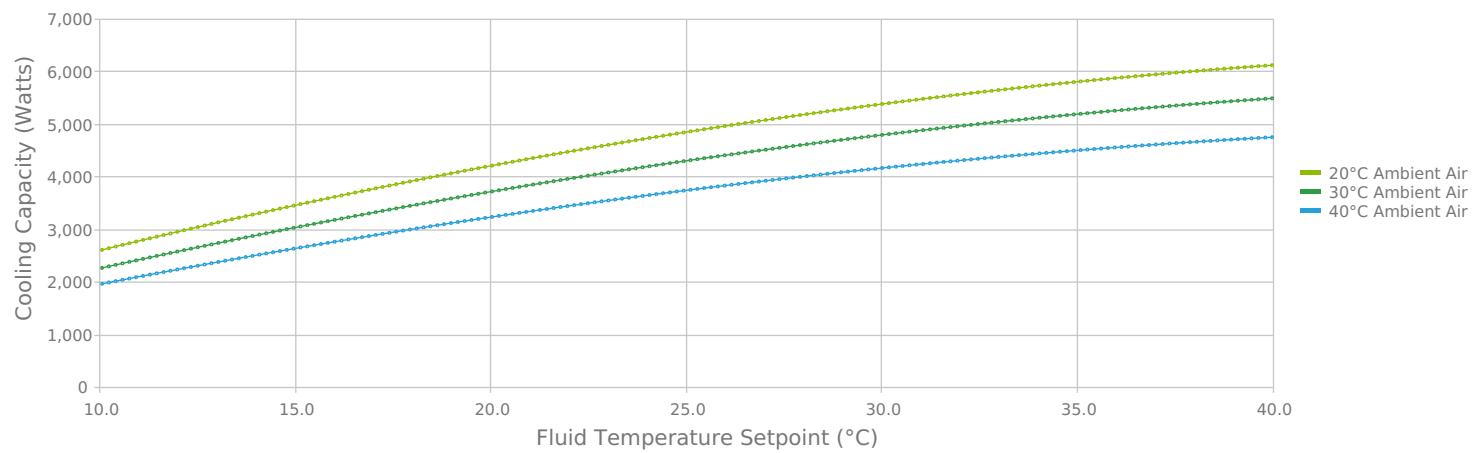
#### 100% Water / 50Hz / 30°C Ambient Air

Cooling Power (Qc) = 3,700 Watts  
Fluid Setpoint = 20 °C  
Fluid ΔT @ 15.0 L/min = 3.6 °C

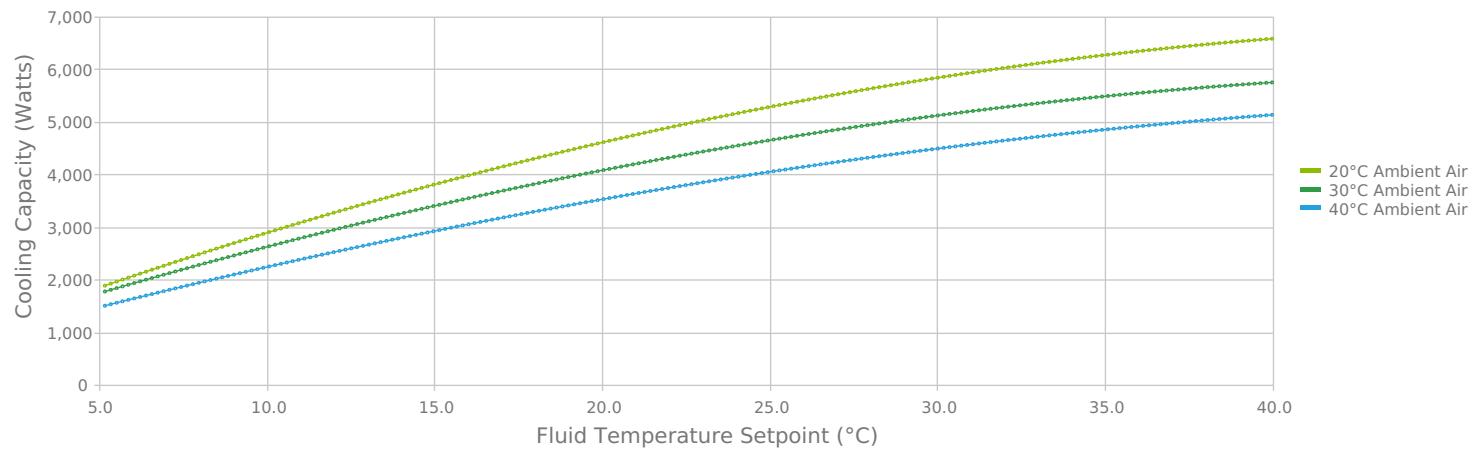
VRC4500-A1-20-BT1 Cooling Capacity - 60Hz  
100% Water Flow = 15 L/min



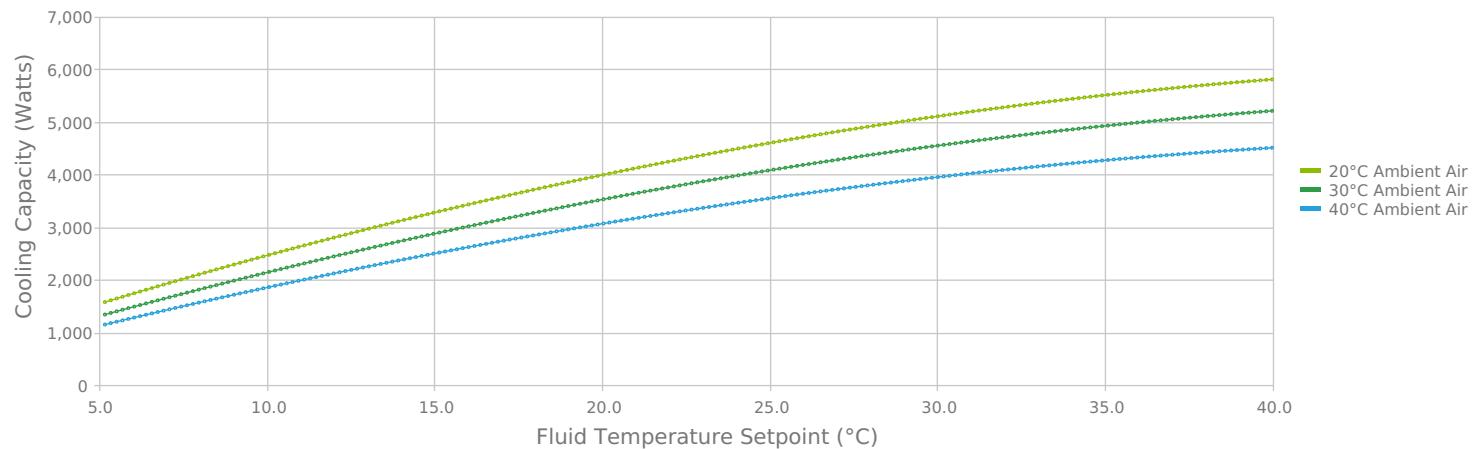
VRC4500-A1-20-BT1 Cooling Capacity - 50Hz  
100% Water Flow = 15 L/min



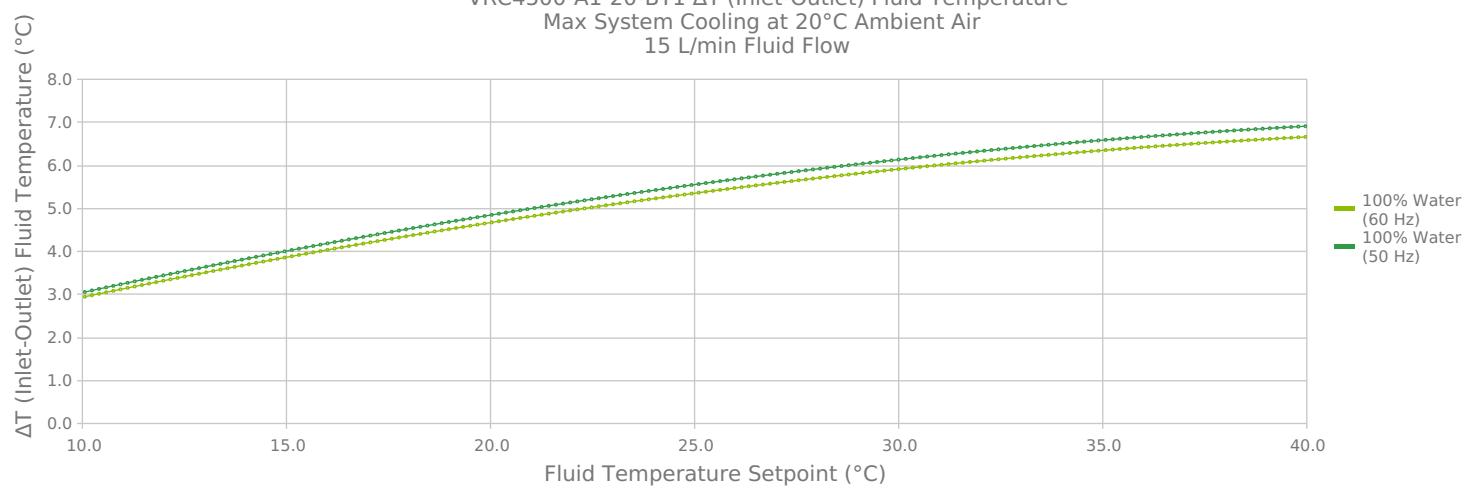
VRC4500-A1-20-BT1 Cooling Capacity - 60Hz  
60/40 Water-Glycol Flow = 15 L/min



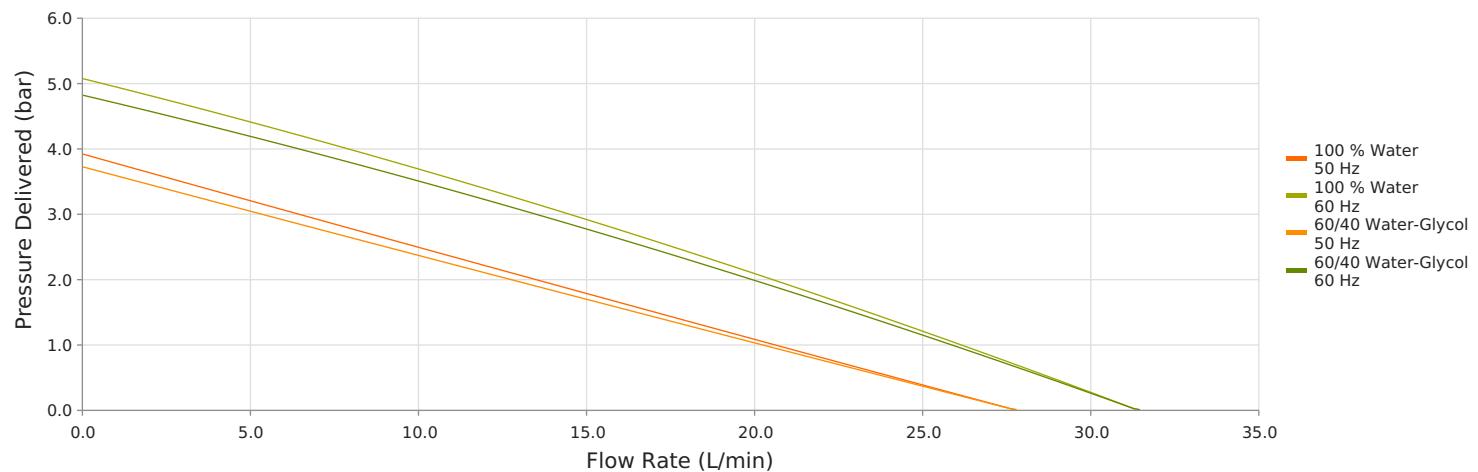
VRC4500-A1-20-BT1 Cooling Capacity - 50Hz  
60/40 Water-Glycol Flow = 15 L/min



VRC4500-A1-20-BT1  $\Delta T$  (Inlet-Outlet) Fluid Temperature  
Max System Cooling at 20°C Ambient Air  
15 L/min Fluid Flow



VRC4500-A1-20-BT1 - Pump Curve



# Technical Specifications

## Performance

<b>Nominal Cooling Capacity<sup>1</sup></b>	4,850 W
<b>Setpoint Range</b>	5°C to 40°C
<b>Temperature Stability</b>	±0.5°C
<b>Nominal Operating Flowrate (60 Hz)</b>	15.0 L/min @ 2.9 Bar
<b>Nominal Operating Flowrate (50 Hz)</b>	15.0 L/min @ 1.8 Bar
<b>Refrigerant (Fluorinated greenhouse gas)</b>	R513A; GWP 631
<b>Refrigerant Charge</b>	650g

## Operation

<b>Coolant</b>	Water or Water/Glycol
<b>Operating Temperature<sup>2</sup></b>	15°C to 40°C
<b>Storage temperature range (w/o coolant)</b>	-25°C to 70°C
<b>Humidity range</b>	30% to 80%
<b>Storage Humidity range</b>	5% to 95%, non-condensing
<b>Altitude</b>	< 2,000 meters
<b>Input Voltage</b>	230 VAC
<b>Frequency</b>	50/60 Hz
<b>Current</b>	< 13.2 Amps
<b>Input Power Connection</b>	C19 Receptacle
<b>Maximum Forward Pressure</b>	5 Bar
<b>Compliance</b>	ANSI / UL / CSA / IEC EN 61010-1 Edition 3

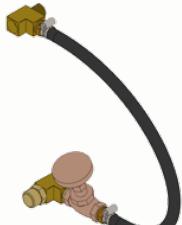
## Physical

<b>Height</b>	818 mm
<b>Length</b>	563 mm
<b>Width</b>	579 mm
<b>Weight</b>	67 kg
<b>Coolant Capacity</b>	5 Liters
<b>Couplings</b>	1/2 in NPT

# Standard Features

<b>Color Touch Screen Display</b>	Simple user interface and detailed communication of system status without the need for alarm codes or symbols.
<b>Semi-Closed Fluid System</b>	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.
<b>Optical Fluid Level Switch</b>	Fluid level sensing with no moving parts.
<b>RS-232 Communications</b>	Complete control integration of chiller into higher level assembly control system.

# Accessory Kits

	<b>Feature</b>	<b>Kit Part Number</b>	<b>Description</b>
	Flow Control Valve and Flow Sensing Kit	387004277	<p>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.</p> <p>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. The flow rate local display is only on NRC products. This kit is for all refrigerant chillers: EFC2400, NRC1200, NRC2400, NRC5000, VRC1200, VRC2400, and VRC4500.</p>
	Water Filter Kit	387004279	Hot swappable, 5-micron water filter for filtering particulates from the coolant circuit.
	Flow Bypass Kit	387010608	<p>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.</p> <p>This kit does not contain a flow meter.</p>
	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

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

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