

## Waterless Chiller Plant

The ThermalWorks Waterless Chiller Plant sets a new standard for efficient operation and rapid deployment. This air-cooled chiller maintains critical cooling even in high ambient temperatures up to 135 °F and consumes no water. It is available in 1 MW and 2 MW skid-mounted modules.



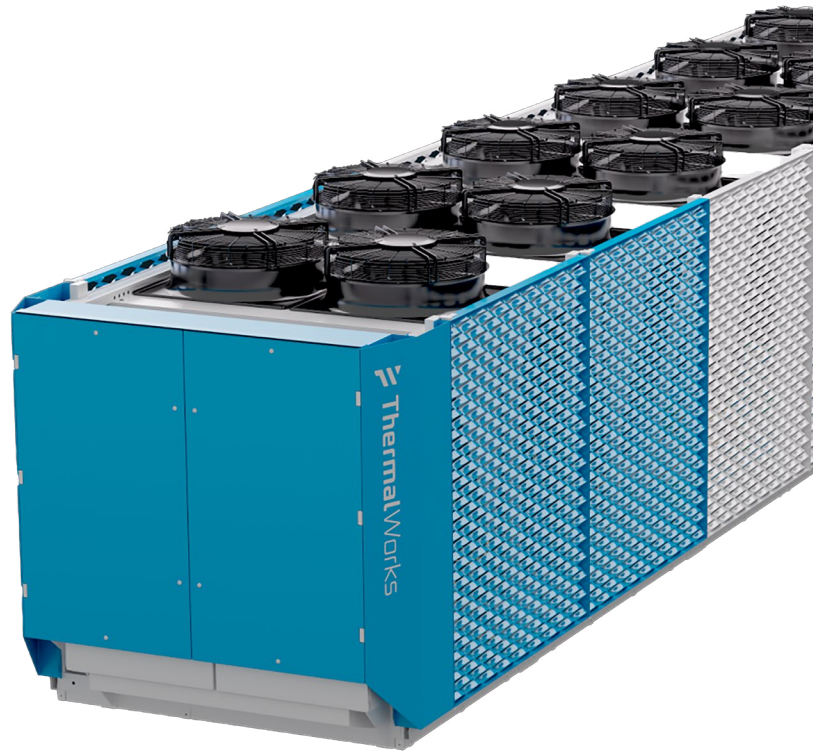
Supports high density liquid cooling and/or air cooling on the same circuit. Enables seamless transfer from air-cooled to liquid cooling as density grows.



Lowest peak and average PUE of any air-cooled chiller system.



Supports a temperature delta of 60 °F between supply fluid and return fluid (3X higher than traditional chillers).



### Standard Features

- **Adapts autonomously** to changing conditions, with three modes of operation: extended free cooling, free cooling with mechanical assist and full mechanical cooling. The system maximizes free cooling, reduces energy consumption and eliminates the need for evaporative cooling towers.
- **Oil-free Danfoss Turbocor® centrifugal compressors** provide predictable performance, low-maintenance, low sound levels and a long 25-year chiller design life.
- **High delta T microchannel heat exchangers** extend the temperature range of free cooling, which saves energy and eliminates the need for evaporative-water cooling.
- **Fully integrated** N+1 system with dual power source; 2N piping and distribution path; dual valved piping.
- **Climate-smart** factory-sealed coolant loop uses R-1234ze or R-515B, low GWP refrigerants.

### Key Features

- Microchannel type high efficiency fluid coolers and condensers
- Variable speed fans and pumps
- Oil-free centrifugal compressors
- Power meter
- PLC-based controls and power distribution equipment
- Flooded evaporators
- Automatic transfer switch

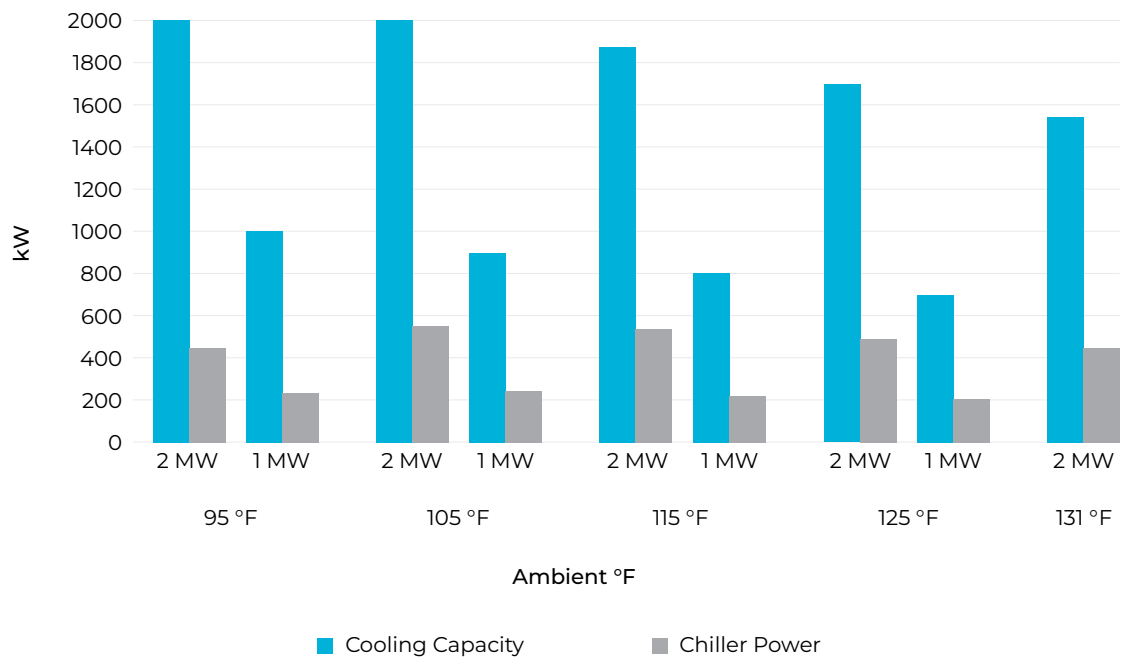
Typical Operation Under Standard Conditions (95 °F outdoor air, 1,500' elevation, 78 °F cold aisle)		C1000	C2000
GENERAL	Gross Cooling Capacity	1 MW	2 MW
	Nominal Cooling Capacity	1 MW	2 MW
	Input	225 @ 95 °F	450 @ 95 °F
	Refrigerant Type	R1234ze or R515B	R1234ze or R515B
	Fluid Type	30% propylene glycol/water by volume	
	Total Fluid Pressure Drop	15 psi [100 kPa]	15 psi [100 kPa]
	Flow Rate	210 gpm [757 l/m]	420 gpm [1,600 l/m]
EVAPORATOR	Entering Fluid Temperature	97 °F [36 °C]	97 °F [36 °C]
	Leaving Fluid Temperature	62 °F [17 °C]	62 °F [17 °C]
CONDENSER/ FLUID COOLER	Number of Fans	12	18
	Fan FLA (each)	4.4 @ 400 VAC 3.8 @ 460 VAC	5.0 @ 400 VAC 4.4 @ 460 VAC
COMPRESSORS	Quantity	2	4
	Type	Magnetic bearing oil-free centrifugal	
	FLA (each)	150 @ 400 VAC 131 @ 460 VAC	207 @ 400 VAC 180 @ 460 VAC
PUMP	Quantity	1	2
	FLA	21.4 @ 400 VAC 18.6 @ 460 VAC	42.0 @ 400 VAC 36.5 @ 460 VAC
	Design Flow	240 gpm [900 l/m]	300 gpm [1,135 l/m]
	Design Head	152 ft [46 m]	240 ft [73 m]
ELECTRICAL DATA	Volts/Ph/Hz	400/3/50 or 460/3/60	400/3/50 or 460/3/60
	Total FLA	380 @ 400 VAC 330 @ 460 VAC	885 @ 400 VAC 770 @ 460 VAC
PHYSICAL DATA	Length x Width x Height	457.2 X 84.8 x 96.3 in [1,614 X 2,154 X 2,446 mm]	632 x 102 x 108 in [16,053 X 2,591 X 2,743 mm]
	Shipping Weight	21,000 lb [9,525 kg]	38,580 lb [17,500 kg]
	Operating Weight (without mesh)	22,600 lb [10,251 kg]	47,620 lb [21,600 kg]
	Operating Weight (with mesh)	23,702 lb [10,752 kg]	48,940 lb [22,200 kg]
SOUND DATA	Measured Sound Pressure Level at 1 m from Front Center of Unit, 85% Fan Speed (test data in accordance with ASTM E1124)	76 dBA	76 dBA

\* See derating curve

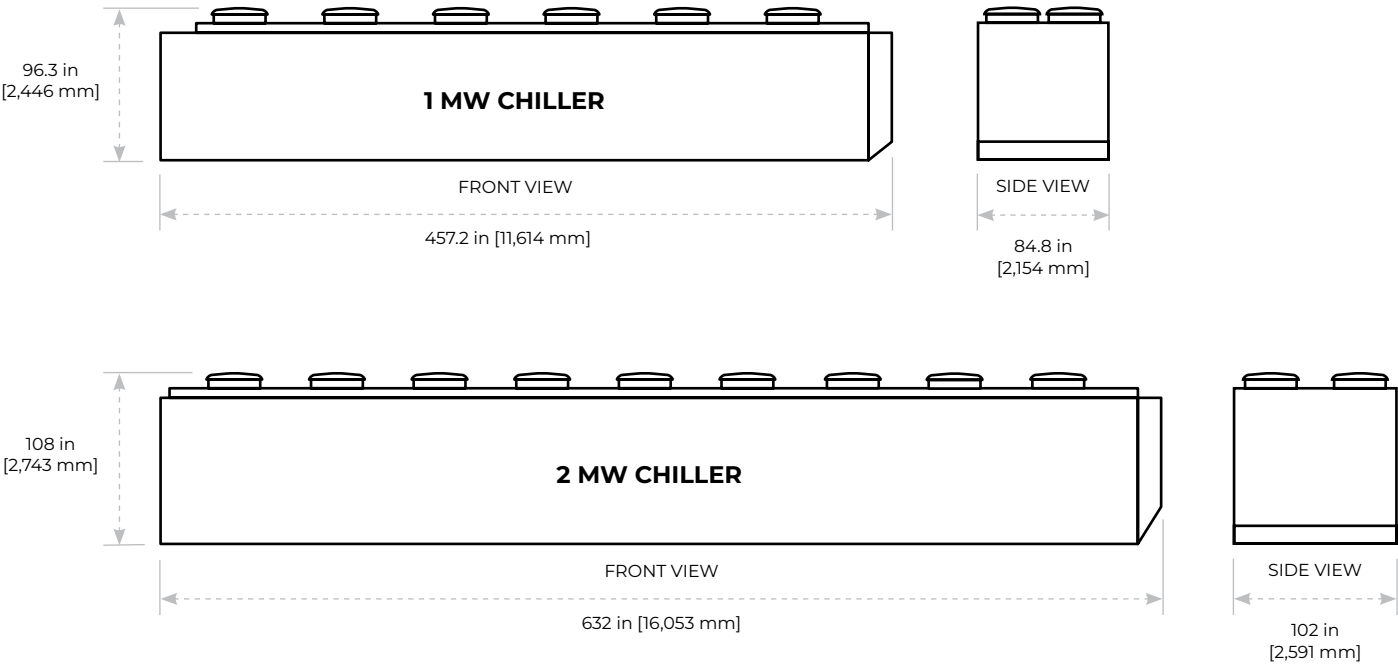
Note: Table not to be used for engineering. Performance will vary under different operating conditions and specifications are subject to change without notice. Please consult with ThermalWorks for engineering support.

Cooling Capacity Derating and Input Power

Graph shows the estimated relationship of Total Cooling Power vs Input Power as temperature increases (131 A Current Limit).



Dimensional Drawings



Minimum Required Service Clearances and Mounting Height

Clearances are identical for both C1000 and C2000

