

# Ice Bear® 30 Hybrid Air Conditioner

## PRODUCT OVERVIEW

Preliminary - For Release May 2008



ICE ENERGY®

## DESCRIPTION

The Ice Bear® 30 Hybrid Air Conditioner provides efficient cooling using only a fraction of the energy required by conventional systems, dramatically lowering electricity costs and reducing greenhouse gas emissions.<sup>1</sup> Air conditioning electrical demand, typically 40-45% of the total building electricity use during expensive peak hours, is cut by 95%!

Hybrid cooling combines conventional air conditioning with Ice Energy's patented Ice Bear® technology, using each when it's most efficient and cost-effective - saving money and reducing impact on the environment.

The Ice Bear® unit cools efficiently during the day by circulating refrigerant through coils in its ice storage tank, eliminating the need to run an energy-intensive compressor during peak daytime hours. Ice is then re-frozen each night when electricity generation is cleaner, more efficient and less expensive. During off-peak hours, the conventional HVAC system operates as usual.

Together, this unique hybrid system surpasses the overall efficiency of conventional equipment alone, reducing energy consumption from as much as 6,000 watts to less than 300!



## KEY BENEFITS

### For Your Business

- Saves \$1,000s off your electric bill every year
- Qualifies for a growing number of utility rebate programs
- Provides improved comfort to your employees and customers
- Enables compliance with California's Title 24 2005 Building Code
- Assists LEED certification by earning up to 5 points
- Lowers a building's carbon footprint<sup>2</sup>
- Improves solar PV payback by reducing daytime air conditioning load

### For Your Community

- Reduces the need to build new power plants to address the growing electricity demand for air conditioning
- Reduces the possibility of blackouts and brownouts

### For The Environment

- Uses less polluting nighttime power, reducing CO<sub>2</sub> emissions as much as 40% and NO<sub>x</sub> by up to 55%<sup>1</sup>
- Reduces dependence on fossil fuels

## KEY FEATURES

### High Reliability

- 15 year design life
- Cooling mode uses two long-life pumps
- Extends compressor life by eliminating stop-start operation during hottest hours of the day

### Widely Compatible

- For commercial and residential rooftop and split systems from 3 to 10 Tons, and mini-splits from 3 to 5 Tons
- 30 Ton-hours of cooling at a load of up to 5 Tons
- Each Ice Bear® 30 unit can be applied to a 3 – 5 Ton system, or a single 5 ton stage of a 7.5 - 10 Ton system

### Easy Installation

- Can be installed on the roof or ground by an Ice Energy certified local HVAC contractor
- CoolData® controller programmed for utility savings

### Low Maintenance

- Simple 1 hour annual maintenance procedure

<sup>1</sup>Emissions reductions from a study requested by the California Energy Commission, performed by independent environmental engineering firms on source energy fuel and emissions savings from shifting electricity usage to off-peak. Values represent potential savings in California. <sup>2</sup>A 40% reduction in CO<sub>2</sub> emissions related to air conditioning translates to as much as 10% of a total building's carbon footprint associated with electricity use.

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## TECHNICAL SPECIFICATIONS



### SPECIFICATIONS

#### Cooling Capability

- Maximum Cooling Load 5 Tons
- Total Storage Module Capacity 30 Ton-hours

#### Daytime Peak Power Reduction

- On-Peak Demand Reduction Up to 7kW
- On-Peak Electric Demand 300 watts maximum
- On-Peak Energy Efficiency ~200 EER 60,000 BTU / 300 watts
- Energy Shifted to Off-Peak 35 kWh

#### Nighttime Ice Make

- Copeland Scroll Compressor 4.3 Ton
- Ice Make Time (full make) @ 55° F 9.25 hours
- Ice Make Time (full make) @ 75° F 10.25 hours

#### Line Set Restrictions

- Length (Ice Bear to airside coil) 75 feet
- Height (Ice Bear to max. line height) 15 feet

#### Ice Storage Section

- Tank Capacity (tap water) 475 gallons
- Thermal Storage Capacity (latent) 360,000 BTU

#### Refrigerant Management System (RMS) & Compressor

- Refrigerant R-410A

#### CoolData® SmartGrid Controller

- Built-In Web Server & Data Logging
- NI LabVIEW On-Board Application Layer
- OSIsoft. Historian
- MAXIM 1-Wire Dallas Sensor Network

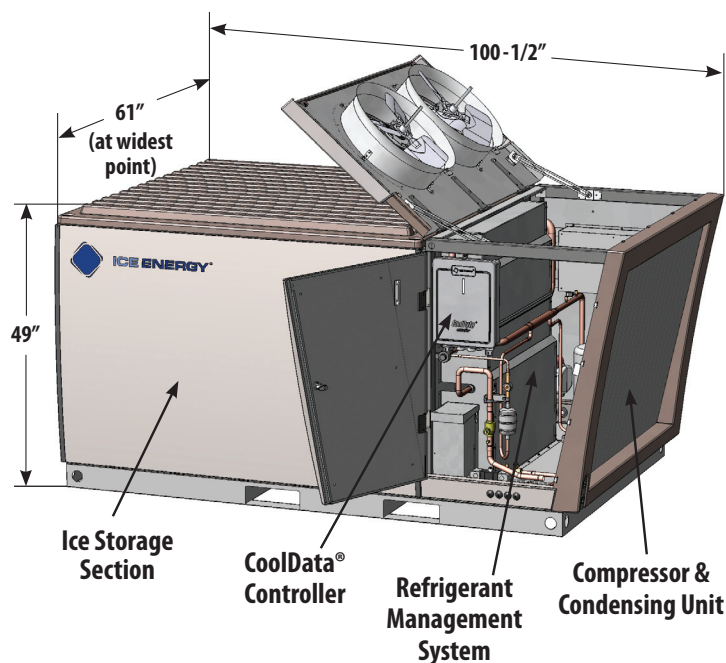
#### Physical Properties

- Size 101" W x 60" D x 48" H
- Weight (dry) 1,500 lb. (approx.)
- Weight (filled) 5,500 lb. (approx.)
- Load Distribution (filled) 155 lbs. per ft<sup>2</sup>

#### Electrical Requirements (by model #)

- #IB30A-521: 208/230 VAC, 1Φ, 50A min. service
- #IB30A-523: 208/230 VAC, 3Φ, 30A min. service
- #IB30A-543: 460 VAC, 3Φ, 20A min. service

### Ice Bear® 30 Hybrid Air Conditioner



### WARRANTY

Ice Energy products are provided with a limited warranty against defects in workmanship and materials. Complete warranty details are provided with the product.

- Tank & Ice Heat Exchanger: 5 years
- Compressor: 5 years
- Other Components: 1 year parts and labor

### SUPPORT

For assistance with technical or sales support questions contact your Ice Energy representative, call us at 877-542-3232 or visit us on the web at [www.ice-energy.com](http://www.ice-energy.com).

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