

Ice Bear 20



Thermal energy storage (TES) and air conditioning for medium and large sized homes

The Ice Bear 20 combines Ice Energy's proven thermal energy storage (TES) and smart-grid technology with air conditioning in a ready-to-install unit. During off-peak hours, it stores cooling energy by freezing water in an insulated tank while providing air conditioning to the home. 4 hours of ice cooling are delivered each day with a 95% reduction in power usage.

Efficient: Reduces typical peak cooling load by 95% without compromising the homeowner's comfort.

Flexible: Supports homes with ductless mini split systems and traditional ducted systems.

Versatile: Provides an all-in-one thermal storage AC and traditional AC solution.

Green: Lowers peak generation CO₂ emissions.

Environmentally Friendly & Safe: No fire or hazardous chemical risks. Runs on tap water, all parts are recyclable.

SEER Rating: 14.56 SEER in Direct Cooling mode and 150 EER in Ice Cooling mode.

Ice Bear Advantage for Utilities

- Provides a dispatchable energy storage solution to address solar overgeneration
- Transforms residential AC load into a flexible and responsive grid resource
- Cost-effective alternative to new peaking generation, transmission and distribution investments
- Improves system efficiency and grid reliability
- Reduces greenhouse gas emissions
- Easy, rapid deployment at megawatt scale
- Creates local economic development opportunities

Ice Bear Advantage for Homeowners

- Significantly reduces peak demand and increases energy efficiency
- Delivers consistent cooling performance independent of ambient temperature
- Superior dehumidification
- Excess solar generation can be stored for later use
- Greatly reduced system cost with rebates and utility incentives
- Reduces home carbon footprint by 10% or more

Ice Bear 20

Technical Specifications

Modes of Operation

- Air conditioning
- Ice cooling
- Thermal Energy Storage (TES)

Cooling and TES Characteristics

- AC and ice cooling capacity..... 5 Tons
- Charge time @ 75° F..... up to 7.5 hours
- Storage capacity.....up to 20 Ton-hours/up to 28 kWh
- Discharge duration.....up to 4 hours @ 5T

Peak Power Reduction

- On-peak demand reduction up to 7kW
- On-peak electric demand..... 250 watts
- Efficiency 14.56 SEER
- Energy shifted off-peak 28 kWh

Line Set Restrictions

- Length (Ice Bear to airside coil)..... 150 feet
- Height (Ice Bear to coil above/max) 35 feet
- Height (Ice Bear to coil below/max) 20 feet



Ice Storage

- Tank capacity (tap water) 265 gallons
- Thermal storage capacity (latent) 240,000 BTU

Refrigerant Management System (RMS) & Compressor

- Refrigerant R-410A
- Scroll compressor..... 4.3 T

CoolData® SmartGrid Controller

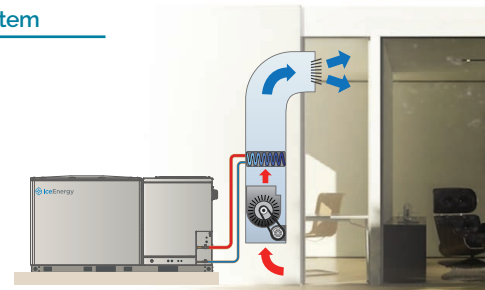
- Built-in web server & data logging
- Historian 
- Onewire sensor network..... 

Electrical Requirements

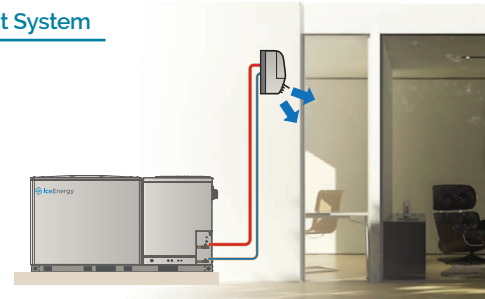
Model/Specifications MCA ... FLA MOCP

IB20-521:	208/230V, 1 phase, 60 Hz ...	39.6A ...	36.0A ...	50A
IB20-523:	208/230V, 3 phase, 60 Hz ...	25.1A ...	24.4A ...	30A
IB20-525:	200/220V, 3 phase, 50 Hz ...	25.1A ...	24.4A ...	30A
IB20-543:	460V, 3 phase, 60 Hz	13.6A... 13.1A ..		20A
IB20-545:	460V, 3 phase, 50 Hz	13.6A... 13.1A ..		20A

Residential Split System



Residential Mini-Split System



Physical Properties

- Size 86" L x 48" W x 46" H
- Weight (dry)..... 990 lb. (approx.)
- Weight (filled)..... 3,500 lb. (approx.)

Warranty

Ice Energy products are warranted to be free from defects in workmanship and materials under normal use and service per the terms below. See full warranty for details.

- Tank & Ice Heat Exchanger 5 years
- Compressor 5 years
- Condensing unit heat exchanger 5 years
- Other Components 1 year

Manufactured under the following U.S. Patents: 5,647,225 - 7,124,594 - 7,162,878 - 5,255,526 - D501,490 - 7,363,772 - D540,452 - D538,412. Additional patents pending.

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Designed & Built
in the USA