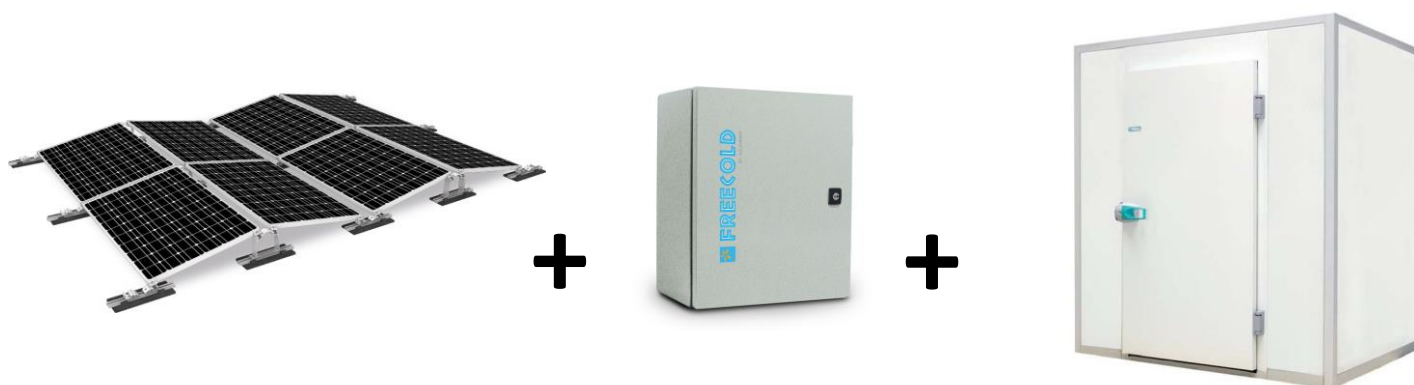


# Independent solar freezer-room to make 200 kg of ice in pouch per day

*Including photovoltaic power supply and smart management of energy*



The need for ice is daily in Africa, storekeepers or people buy it every day, for business use or for their families;

In market towns and villages that are not connected to the electricity grid, ice is a very valuable product; It is used to refresh drinking water and beverages, but it is also essential to preserve food such as meat and fish;

The small pouch of 1kg is sold between \$0.18 and \$0.9 depending on the periods of the year and guarantees a high profitability and a rapid return on investment of less than 2 years.

The FREECOLD solar freezer-room responds to this need for accessible cold and creates a new trade activity of ice production for a village or roadside sale.

## *The solar freezer-room*

A modular design including 100mm thickness insulating panels equipped with housings - quick to assemble and to lock - profiles and accessories for a neat finish;

Reduced thermal losses with the reinforced insulation of 100mm and a door equipped with a strip curtain to limit the heat inputs;

A daily freezing capacity of 200 kg of ice in pouches;

The split refrigeration unit with a capacity of 3,000 W is delivered ready to install, charged with R410A refrigerant and wired ;

A tough non-slip and easy-to-clean floor and shelving to complete the equipment;

An installation and a commissioning in few hours;

A guarantee of compliance with the strictest hygiene and safety rules ;

An efficient response to the essential quality, insulation and strength criteria in the professional refrigeration sector

## 5m<sup>3</sup> solar freezer-room / 200 kg of ice in pouch /day

4,8 kW<sub>p</sub> solar plant, battery storage and smart management of energy

### A smart management of energy

Coupled to the photovoltaic modules, the FREECOLD boxed set guarantees the quality of the electrical supply and prioritizes the solar source before any other possible source, power grid or generator.

Solar batteries, with a capacity of 9,6 kWh, make it possible to smooth out peaks and troughs as well as intermittent energy from the photovoltaic power source.

The installation is secured by DC disconnect and lightning arrester devices, and a AC 30mA differential switch. The whole installation, including the photovoltaic field is grounded.

### Solar plant

15 photovoltaic panels made in Europe come with their support to be ballasted and preinstalled wiring for easy and rapid commissioning.

The solar plant with a capacity of 4,8 kW<sub>p</sub>, powers directly the freezer-room and simultaneously recharges the battery to ensure the autonomy of the installation.

### Technical data

- ✓ Negative cold room with 100 mm high-performance insulation
- ✓ Freezing capacity : 200 kg/day
- ✓ Minimum autonomy : 30 hours with 35°C outside temperature
- ✓ Interior dimensions : 1.40 x 1.80 x H 2.00 m
- ✓ Swing door 0.80 x 2.00 m with strip curtain
- ✓ Split refrigeration unit 230V single-phase 50Hz
  - Cooling power : 3,000 W at -15°C - Maximum power demand : 2.200W
- ✓ Tough non-slip and easy-to-clean floor, shelving 120kg/rack, 4 levels, 1.7 m height, 3.8 m length
- ✓ 4.8 kW<sub>p</sub> solar plant including 15 photovoltaic modules (320 Wp, 72 polycrystalline 6" cells, 25-years performance warranty)
- ✓ Supports of photovoltaic modules delivered in kit; 10° angle of inclination
- ✓ Electrical security box including DC/AC surge protectors; DC disconnect and AC 30mA/16A differential switch
- ✓ Energy storage by sealed AGM solar batteries (maintenance-free) : 9.6 kWh (200Ah-48V); Service life of 1600 cycles @ 30% DOD
- ✓ Energy management and power sources coupling optimized in relation with available power in entry (PV, batteries, AC input) and loads (refrigeration, recharge of batteries)
- ✓ Battery recharge possible by 2nd power source (grid or generator)

