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OFF-GRID PRODUCTIVE USE OF ENERGY 2020 CATALOG

Côte d'Ivoire

Browse

ACRONYMS AND ABBREVIATIONS

AC	alternating current
Ah	ampere hours
ALPS	aquaculture, livestock, and poultry solutions
AMMA	Modern and Handcrafted Carpentry Workshop *(Atelier de Menuiserie Moderne et Artisanal)*
ASG	African Solar Generation
C	Celsius
CAC	Crop Aggregation Center
CDA	controlled droplet application
CDARMA	Center for the Development of Rural Crafts and Agricultural Machinery *(Centre de Développement de l'Artisanat Rural et du Machinisme Agricole)*
CPF	Mbouo-Bandjoun Polyvalent Training Center *(Centre Polyvalent de Formation de Mbouo-Bandjoun)*
DC	direct current
DENG Ltd.	Danish Engineering Limited
DIN	Deutsches Institut für Normung
EBZ	Electro Education and Technology Center Dresden *(Elektro Bildungs- und Technologiezentrum Dresden)*
EDA	Energy of Africa *(Energie d'Afrique)*
EN	European Standard
ESP	Higher Polytechnic School of Dakar *(Ecole Supérieur Polytechnique de Dakar)*
F	Fahrenheit
FBO	farmer-based organizations
FES	Free Engineering Services
GAM	Group of Metal Artisans *(Groupement des Artisans du Métal)*
GIE	Global International Energy
GIMAFOR	Engineering, Management, Training, and Research Group *(Groupe d'Ingénierie, de Management, de Formation et de Recherche)*

ACRONYMS AND ABBREVIATIONS

GMACI	Business Marketing and International Brokerage Group *(Groupe Marketing des Affaires et Courtage International)*
GSM	global system for mobile communications
h	hours
HP	horsepower
IEC	International Electrotechnical Commission
IP	international protection
ISO	International Organization for Standardization
KCIC	Kenya Climate Innovation Center
kg	kilograms
kW	kilowatts
kWh	kilowatt hours
kWp	kilowatt peak *(kilowatt crête)*
L	liters
LCB	linear current booster
LV	low volume
m	meter
ml	milliliter
m^2	square meters
m^3	cubic meters
MFI	microfinance institution
min	minute
mm	millimeter
MPPT	maximum power-point tracking
MSBHD	mobile solar biomass hybrid dryer
PAYGO	pay-as-you-go
PV	photovoltaic
PUE	productive use of energy
RESEDA	Network for the Development of Crafts *(Réseau pour le Développement de l'Artisanat)*
SACCO	savings and credit cooperative

ACRONYMS AND ABBREVIATIONS

SARL	incorporated business *(Société A Responsabilité Limitée)*
SAS	Simplified Joint-Stock Company *(Société par Actions Simplifiée)*
SATECH	African Society of Technology *(Société Africaine de Téchnologies)*
SEV	Sun Water Life *(Soleil Eau Vie)*
SI2E ENR	Ivorian Society of Energy Efficiency and Renewable Energies *(Société Ivoirienne d'Efficacité Energétique et des Energies Renouvelables)*
SNV	Netherlands Development Organization
T / Tel	telephone number
ULV	ultra-low volume
V	volts
V DC	volts direct current
V AC	volts alternating current
W	watts
Wp	watt peak
ZECI	Zola EDF Côte d'Ivoire

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DISCLAIMER

BACKGROUND

Power Africa is a U.S. Government-led partnership that brings together the collective resources of over 170 public and private sector partners to double access to electricity in sub-Saharan Africa. Power Africa's goal is to add more than 30,000 megawatts of new electricity generation capacity and connect 60 million new homes and businesses to power by 2030. Read more: www.usaid.gov/powerafrica.

Reliable supply of energy is one of many important requirements for significant growth and increased productivity in African agriculture. For farmers in most African countries, access to fuel or electricity for farm operations, crop processing, and food storage is limited and costly. Rapid growth in agricultural production can stimulate rural and overall economic development.

Power Africa Off-grid Project provides technical assistance to private sector companies, agriculture cooperatives, agribusinesses, and government stakeholders to increase the uptake of off-grid energy solutions, such as solar home systems (SHS), mini-grids, and productive use of energy (PUE) technologies. Under its cross-cutting work stream, the Project plays a vital role in the adoption of PUE technologies by supporting off-grid companies to:

- Expand their product portfolios to include PUE
- Access finance to facilitate company growth, enter new markets, and pilot PUE business models across agricultural value chains
- Leverage innovation as the sector matures

INTRODUCTION

What is Productive Use of Energy (PUE)?

For the purposes of this catalog, PUE refers to any electrical and thermal equipment and technology that serves as a direct input for the production of goods or provision of services for income-generating activities.

Objectives

The main objective of this catalog is to increase awareness and uptake of the off-grid PUE appliances that are available in Côte d'Ivoire. The catalog provides stakeholders (including manufacturers, suppliers, nongovernment and community organizations, and government policymakers) with insight into PUE products and innovations.

This catalog is part of a collection aiming to:

- Increase the knowledge base of off-grid PUE equipment
- Address the PUE needs of the East and West Africa regions
- Identify sectors for which greater adoption of PUE products can stimulate economic development

Selected Countries

The collection of catalogs covers ten countries:

- **East Africa:** Ethiopia, Kenya, Rwanda, Tanzania, and Uganda
- **West Africa:** Cameroon, Côte d'Ivoire, Ghana, Niger, and Senegal

INTRODUCTION

Contents

The catalog includes technical and financial information for a range of PUE technologies with a focus on the economic activities of agriculture, fishing, livestock, and poultry.

The catalog presents the following information:

- The existing terms of sale for PUE products
- Pay-as-you-go (PAYGO) integration capabilities
- Manufacturer, distributor, and supplier channels

Target Audience

A wide range of participants in the off-grid energy sector can leverage insights from the catalog to inform their decisions, including government policymakers, private-sector practitioners, stakeholders from nongovernment and community organizations, investors, financial institutions, and end users.

CRITERIA FOR SELECTION OF PUE PRODUCTS

The catalog's scope is limited to off-grid PUE products for agriculture, fishing, livestock, and poultry and does not include other uses of energy, such as phone charging. Featured technologies include photovoltaic (PV) solar and those that combine electrical and thermal power, such as food dryers.

Applications and value chains include the following:

Category	Examples
Agriculture production	Water pumping solutions, solar spraying
Agriculture conservation	Fridges and freezers
Agriculture processing	Grain mills, threshing and husking machines, and food dryers
Livestock and poultry	Egg incubators, milk chillers, and fodder preparation (i.e. chaff cutters)
Fishing and aquaculture	Cold storage units (i.e. ice machines), fishing lights

HOW TO READ THE CATALOG

The catalog has two sections:

Section 1: Company Information

Provides an overview of local companies supplying PUE products in the targeted countries and outlines general information about the companies, such as contact information and current product offerings.

Classifies companies into four categories:

1. **Manufacturer** – a company that builds, design, and packages products for a market
2. **Distributor** – a company that buys products or product lines from a manufacturer and sells them directly to end users or supplies them to other retailing companies
3. **Brand Representative** – an international company's in-country subsidiary or partner company that fulfills sales and other services for end users
4. **Reseller/Retailer** – a company (or entity) that receives products from a distributor and sells them directly to end users

Classifies distribution channels into ten categories:

1. Direct retail
2. Online retail
3. On order
4. Large distributors
5. Retail through farmer cooperatives/producer groups and savings and credit cooperatives (SACCOs)
6. Retail through kiosks and similar outlets
7. Retail through microfinance institutions (MFIs)
8. Retail through outgrower schemes
9. Retail through sales agents
10. Retail through women's groups

Classifies payment models into six categories:

1. PAYGO
2. Flexible installments (hire purchase agreement, leasing, etc.)
3. Cooperation with local banks or MFIs
4. Cash payment or cash and carry
5. Product only sold as part of a package
6. Fee for service

HOW TO READ THE CATALOG

Section 2: Product Information

Provides detailed technical information on PUE products and further categorizes products into six sections by type of solutions:

1. **Agro-Processing** – mills, hullers, threshers, crushers, paste makers, and oil presses
2. **Cooling** – cold rooms, freezers, ice-making machines, milk tanks, and refrigerators
3. **Food Dryers** – thermal and ventilation-based solutions
4. **Aquaculture, Livestock, and Poultry** – fishing lights and egg incubators
5. **Pumping** – surface pumps and submersible pumps
6. **Sprayers** – animal medical treatments, disinfectants, fungicides, herbicides, insecticides, and pesticides

HOW TO READ THE DATASHEETS

The following reference table explains the product information and technical specifications for the product categories of pumps, fridges, mills, dryers, and ALPS (aquaculture, livestock, and poultry solutions) and country-specific data:

Datasheet Heading	Explanation	Unit of Measure	Product Category
Product Information			
Product Name	Product brand name and model	--	All
Manufacturer	The company that manufactures the product	--	All
Picture	Image of the product	--	All
Product Description	Characteristics of the product	--	All
Target Use	How the product is used and its target group	--	All
Technical Specifications			
Models	Specific model type, series, and number if applicable	--	Pumps, Mills
Product Type	Submersible or surface pump	--	All
Load	The power required to operate the solution	W	Pumps
Pump Type	Operational category of the pump, based on its mechanics: centrifugal, helical, and piston	--	Pumps

HOW TO READ THE DATASHEETS

Datasheet Heading	Explanation	Unit of Measure	Product Category
Automation	Process by which an equipment operates an action or a process operated automatically by an electronically controlled system and often without human assistance	--	ALPS
Electrical Output	Electrical energy produced by the product	kW	Dryers
Thermal Output	Thermal energy produced by the product	kW	Dryers
Mechanical Output	Mechanical energy produced by the product	kW	Dryers
AC/DC Coupled	Type of electric current	AC or DC or both	All
Electrical Efficiency	Measurement of the ratio between the energy input and the electrical-energy output	%	Dryers
Thermal Efficiency	Measurement of the ratio between the energy input and the thermal-energy output	%	Dryers
Voltage Range	Operating voltage range of the product	V DC or V AC	Pumps, Fridges, Mills, ALPS
Throughput	Processing-capacity output of the product	kg/h	Mills

HOW TO READ THE DATASHEETS

Datasheet Heading	Explanation	Unit of Measure	Product Category
Egg Capacity	Number of eggs the incubator can hold in one batch	eggs	ALPS
Power Rating	Highest approved power input of the product motor	W	Pumps, Fridges, Mills, ALPS
Required Solar Panel Size	Required PV-panel capacity required to power the product	W or Wp	Pumps
Storage Capacity	Volume of available storage	L	Fridges
Operating Temperature	Operating temperature of the product	°C (°F)	Fridges
Capacity of PV Modules Required	Required PV panel capacity that is required to power the product	Wp or W	Fridges, Mills, ALPS

HOW TO READ THE DATASHEETS

Datasheet Heading	Explanation	Unit of Measure	Product Category
Holdover Time	The time taken by the product to raise the inside cabinet's temperature from its cut-off temperature to the maximum temperature limit of its recommended range. For example, for a fridge with an operating temperature of 4 °C (39.2 °F) and a maximum operating temperature of 8 °C (46.4 °F), the holdover time is the time taken to reach 8 °C (46.4 °F) from 4 °C (39.2 °F) in case of a power loss	h or min	Fridges
Power (Energy Consumption)	Daily energy consumption of the product	W or Wh/day	Fridges
Product Dimensions	External measurements of the product (recorded as length × width × height, unless otherwise noted)	length x width x height	Fridges, ALPS
Total Dynamic Head	Maximum height at which a pump can raise water, inclusive of friction losses	m	Pumps
Max Discharge Rate	Maximum rated volume of water pumped per hour	m^3/h	Pumps
Controller Requirements	Requirement for an external pump controller	--	Pumps

HOW TO READ THE DATASHEETS

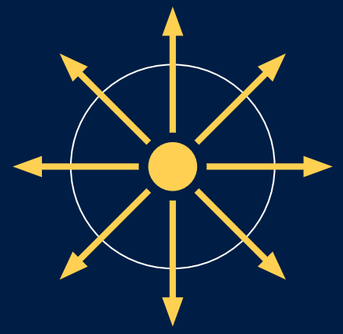
Datasheet Heading	Explanation	Unit of Measure	Product Category
Lamp Display/Output	Amount of light produced	lumens	ALPS
Lighting Duration	Length of time that the product produces light	hours	ALPS
Battery Size	Type, size, and specifications of the battery	Ah	ALPS
PAYGO Integration Capabilities	Compatibility with PAYGO	--	All
Product Link	Product website or datasheet link	--	All
Distribution Channels	Channels listed under the following categories: • Direct retail • Online retail • On order • Large distributors • Retail through farmer cooperatives/producer groups and savings and credit cooperatives (SACCOs) • Retail through kiosks and similar outlets • Retail through microfinance institutions (MFIs) • Retail through outgrower schemes • Retail through sales agents • Retail through women's groups	--	All

HOW TO READ THE DATASHEETS

Datasheet Heading	Explanation	Unit of Measure	Product Category
Payment Models / Terms of Sales	Models and terms listed under the following categories: • PAYGO • Flexible installments (hire purchase agreement, leasing, etc.) • Cooperation with local banks or MFIs • Cash payment or cash and carry • Product only sold as part of a package • Fee for service	--	All

SECTION 1

COMPANY INFORMATION



COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
AD Solar +225 59 96 80 52 achidavid@yahoo.fr	**Pumps** • Lorentz • Futurepump	Distributor	Direct retail	Cash & carry
Africool Plateaux, Avenue Noguès – Abidjan +225 89 70 96 98 contact@africool.fr	**Fridges** • Keco Fridges BCD-Series • Keco Fridges LC-Series • Keco Fridges BC-70, BD-80 • Keco Solar Freezer SD/SC-268Y	Distributor	Direct retail Online retail	Cash & carry
Beeshop +225 57 62 57 57 info@beeshop.ci	**Fridges** • Leap Solar Eco AC/DC Chest Freezer	Distributor	Direct retail On order	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
Caprari West and Central Africa Opposite the Roadside High School, next to Drocolor *(En face du Lycée de l'Autoroute, à côté de Drocolor)* Treichville - 08 BP 2924 Abidjan +225 58 62 47 07	**Pumps** • Caprari Submersible Pump Series • Caprari Surface Pump Series	Distributor	Direct retail	Cash & carry
Eco Solar +225 89 55 55 90 eco.solar.energie@gmail.com	**Fridges** • Leap Solar Eco AC/DC Chest Freezer	Distributor	Direct retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
ED Service +225 07 24 00 29 +225 01 17 39 85 +225 21 00 17 71 edservicesmail@yahoo.fr contact24@edservicessolaire.com	**Pumps** • Grundfos SQ Flex Pump Series • Lorentz Pumps **Fridges** • Nasco 1250M **Agro-processing** • Cassava Grinder	Distributor	Direct retail Retail through women's groups Retail through cooperatives/ SACCOs Retail through women's empowerment project across regional councils	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
EHUABO SAS +225 21 32 52 62 adams.etrin@socilog.net	**Fridges** • Coldinnov 3-Way Refrigerator and Freezer • Coldinnov Autonomous Solar Cold Room • Coldinnov Combined Fridge Freezer • Coldinnov fridge CSV185 – CSV260 • Coldinnov Mobile Fridge • Coldinnov PST60 • Coldinnov RCSI 180 Chest Fridge / Freezer • Coldinnov RCSI 180+ & 300 Chest Fridge and Freezer • Coldinnov RCVI 360 Refrigerator and Freezer • Coldinnov Solar Ice-Making Room • Coldinnov TAL300	Distributor	Direct retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
GMACI (Business Marketing and International Brokerage Group) - *Groupe Marketing des Affaires et Courtage International* kouassinguessan1273@yahoo.fr +225 78 35 50 86	**Fridges** • Coldinnov 3-Way Refrigerator and Freezer • Coldinnov Autonomous Solar Cold Room • Coldinnov Combined Fridge Freezer • Coldinnov fridge CSV185 – CSV260 • Coldinnov Mobile Fridge • Coldinnov PST60 • Coldinnov RCSI 180 Chest Fridge / Freezer • Coldinnov RCSI 180+ & 300 Chest Fridge and Freezer • Coldinnov RCVI 360 Refrigerator and Freezer • Coldinnov Solar Ice-Making Room • Coldinnov TAL300	Distributor	Direct retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
Mady Koanda +225 09 37 68 84 +225 60 61 907 +225 41 51 41 56	**Fridges** • Supergreensolar DC Chest Freezer • Supergreensolar DC Refrigerator • Supergreensolar Icecream Freezer	Distributor	Direct retail	Cash & carry
NOA Trading +225 87 49 79 76 +225 04 72 96 91 jackie.bertho@noatrading.com	**Pumps** • Grundfos Pumps • Lorentz Pumps	Distributor	Direct retail	Cash & carry Flexible installments
PEG Côte d'Ivoire +225 67824589 ckolosinski@pegafrica.com	**Pumps** • Dayliff SUNFLO A Pump Series **Fridges** • Nilo 100 L, DC Solar Fridge	Distributor	Direct retail	Cash & carry Flexible installments

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
Schneider Electric Côte d'Ivoire Rue du Docteur Blanchard, BP 2027 Abidjan 18 +225 21 75 00 10 +225 07 32 89 80	**Pumps** • Villaya Solar Water Pumping System	Distributor	Direct retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
SI2E ENR - Ivorian Society of Energy Efficiency and Renewable Energies (Société Ivoirienne d'Efficacité Energétique et des Energies Renouvelables) +225 07 38 58 07 +225 01 02 11 33 ediboraud@gmail.com	**Fridges** • Coldinnov 3-Way Refrigerator and Freezer • Coldinnov Autonomous Solar Cold Room • Coldinnov Combined Fridge Freezer • Coldinnov fridge CSV185 – CSV260 • Coldinnov Mobile Fridge • Coldinnov PST60 • Coldinnov RCSI 180 Chest Fridge / Freezer • Coldinnov RCSI 180+ & 300 Chest Fridge and Freezer • Coldinnov RCVI 360 Refrigerator and Freezer • Coldinnov Solar Ice-Making Room • Coldinnov TAL300	Distributor	Direct retail Online retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
SIV Energy +225 78 55 55 46 jek.saintivoire@gmail.com	**Fridges** • Coldinnov 3-Way Refrigerator and Freezer • Coldinnov Autonomous Solar Cold Room • Coldinnov Combined Fridge Freezer • Coldinnov fridge CSV185 – CSV260 • Coldinnov Mobile Fridge • Coldinnov PST60 • Coldinnov RCSI 180 Chest Fridge / Freezer • Coldinnov RCSI 180+ & 300 Chest Fridge and Freezer • Coldinnov RCVI 360 Refrigerator and Freezer • Coldinnov Solar Ice-Making Room • Coldinnov TAL300	Distributor	Direct retail Online retail	Cash & carry

COMPANY LIST

Companies	Distributed Technologies	Category	Distribution Channels	Payment Models
Yandalux +225 52 10 28 67 sblankson@yandalux.ci	**Fridges** • Steca Fridge	Distributor	Online retail	Cash & carry
ZECI SAS Lot 150, ilot 18 Rue 01747472, Quartier Millionnaire BP 2196, Yamoussoukro, Côte d'Ivoire +225 30 00 15 15 +225 05 73 33 33 eric.lehouelleur@edf.fr	**Pumps** • SunCulture Rainmaker 2S • SunCulture Rainmaker 2C	Distributor	Direct retail	Cash & carry

SECTION 2

PRODUCT INFORMATION

QUALITY STANDARDS

Product	Quality Standards	VeraSol-tested / Certified
Pumping Solutions		
Caprari Submersible Pumps Series	Management and production process meet International Organization for Standardization (ISO) 9001 Multisite Quality Management System, ISO 14001 Environmental Management System and BS OHSAS 18001 Occupational Health and Safety Management System	--
Caprari Surface Pumps Series		
Futurepump SF2	ISO 9001:2015-certified factory	VeraSol-tested
Grundfos CR Flex Series	International Electrotechnical Commission (IEC) and Deutsches Institut für Normung (DIN)	--
Grundfos SQ Flex Series, centrifugal	IEC, DIN, ISO	--
Grundfos SQ Flex Series, helical	IEC, DIN, ISO	VeraSol-tested (SQFlex 2.5-2)
Lorentz PS2 Series	IEC, EN, ISO	VeraSol-tested (PS2-600 HR-04H, PS2-600 C-SJ8-5)
SunCulture Rainmaker 2C	IEC and ISO	VeraSol-tested
SunCulture Rainmaker 2S	IEC and ISO	VeraSol-tested

QUALITY STANDARDS

Product	Quality Standards	VeraSol-tested / Certified
Cooling Solutions		
Coldinnov Chambre Froide Solaire Autonome (Autonomous Solar Cold Room)	EN	--
Coldinnov Combiné Réfrigérateur Congélateur (Combined Fridge Freezer)		
Coldinnov FrigoMobile (Mobile Fridge)		
Coldinnov Solar Ice-Making Room		
Coldinnov CSV185 – CSV260		
Coldinnov RCSI 180+ & 300		
Coldinnov RCSI 180		
Coldinnov RCVI 360		
Coldinnov 3-Way Refrigerator and Freezer		

QUALITY STANDARDS

Product	Quality Standards	VeraSol-tested / Certified
Cooling Solutions		
Coldinnov PST60	EN	--
Coldinnov TAL300		
Embraco, Nilo 100 L, DC Solar Fridge	IEC	VeraSol-tested (NILO100)
LEAP Solar Eco AC/DC Chest Freezer	--	VeraSol-tested (LP-110Q)
Steca PF 166-H | PF 240-H	IEC, ISO	VeraSol-tested (PF166-H)
Supergreensolar DC Chest Freezer	ISO	--
Supergreensolar DC Refrigerator		
Supergreensolar Ice Cream Freezer		

AGRO-PROCESSING SOLUTIONS

Agro-Processing Solutions – List of Featured Products

1. ED Solar Cassava Grinder

QUALITY STANDARDS

READ MORE ABOUT AGRO-PROCESSING SOLUTIONS

AGRO-PROCESSING SOLUTIONS

Agro-Processing Solutions – Introduction

Solar-powered mills for agro-processing are available in different types, including rice mills, cassava graters, paste makers, crushers, flour mills, and more. This section details appropriate off-grid milling technologies that are financially viable PUE solutions for project developers as well as communities, smallholder farmers, agro-processing enterprises, and other end users. This section also includes technical information to help practitioners operationalize milling technologies and notes the complexities of doing so.

In sub-Saharan Africa, most agriculture-based economies produce grains as their top staple-food crops—especially corn/maize. Current non-solar off-grid milling solutions, such as diesel-powered mills, are not viable in small communities, because they are too large and expensive to run. For this reason, off-grid solar milling solutions have the potential to increase farming efficiency, increase farmers' revenues, and promote food security. PAYGO models of digital finance use embedded internet-connected hardware to give smallholder farmers and communities the ability to pay with greater ease and flexibility. Solar mills also give farmers the opportunity to generate income immediately after installation, have lower upkeep costs, and provide sound returns on investments.

TERMS OF SALE
Cash & carry

PRODUCT SPECS

ED SOLAR CASSAVA GRINDER

A grinder.

Target use: Smallholder farms, rural communities, and cooperatives.

Manufacturer:
ED Solar Industry

Distributor(s):
ED Service

Distribution channels:
Retail through women's groups

Retail through cooperatives/SACCOs

Retail through rural women's empowerment project across regional councils

SPECS | ED Solar Cassava Grinder

Product information	
Product type	Cassava grinder
AC/DC coupled	AC
Throughput	4–29 kg/h
Capacity of PV modules required	1,600 Wp
PAYGO integration capabilities	No

COOLING SOLUTIONS

Cooling Solutions – List of Featured Products

1. Coldinnov 3-Way Refrigerator and Freezer
2. Coldinnov Autonomous Solar Cold Room
3. Coldinnov Combined Fridge Freezer
4. Coldinnov Fridge CSV185 – CSV260
5. Coldinnov Mobile Fridge
6. Coldinnov PST60
7. Coldinnov RCSI 180 Chest Fridge/Freezer
8. Coldinnov RCSI 180+ & 300 Chest Fridge & Freezer
9. Coldinnov RCVI 360 Refrigerator & Freezer
10. Coldinnov Solar Ice-Making Room
11. Coldinnov TAL300
12. Ⓥ Nilo 100 L, DC Solar Fridge
13. Keco Fridges BC-70, BD-80
14. Keco Fridges BCD-198, BCD-142, BD-198, BCD-108, BCD-295
15. Keco Fridges LC-300, LC-218
16. Keco Solar Freezer SD/SC-268Y
17. Ⓥ LEAP Solar Eco AC/DC Chest Freezer
18. Nasco Autonomous Solar Cold Room 1250M
19. Ⓥ Steca PF 166-H | PF 240-H
20. Supergreensolar DC Chest Freezer
21. Supergreensolar DC Refrigerator (Bottom freezer)
22. Supergreensolar DC Refrigerator (Double door, top freezer)
23. Supergreensolar DC Refrigerator (Single door, top freezer)
24. Supergreensolar Ice Cream Freezer

Ⓥ = VeraSol-tested/-certified

QUALITY STANDARDS

READ MORE ABOUT COOLING SOLUTIONS

COOLING SOLUTIONS

Cooling Solutions – Introduction

The cooling solutions vary from solar fridges and freezers to solar cold rooms, solar ice-cube makers, and solar milk tanks.

Solar Fridges and Freezers

Solar fridges and freezers provide various solutions and applications, including the preservation of juices, meat, fish, and milk, as well as cooling and ice production. The medical sector can use them for drug and vaccine storage. In this catalog, all solar fridges and freezers are solar products, powered by solar panels, with a voltage system of 12 and 24 V DC. Most solar fridges use batteries to ensure continuous energy service; however, some have very effective insulation capabilities, which allow them to function without battery power. If powered by PV panels, the equipment may not draw enough solar energy to maintain low refrigeration temperatures in severe cloud cover or at night; therefore, the equipment must preserve low temperatures with high-efficiency insulation, draw reserve power, or couple with another source of power (e.g., a battery).

The capacity of the fridges and freezers is expressed in volume capacity (liters), which manufacturers usually indicate. Freezers operate only at negative temperatures in Celsius (up to -18 °C [-0.4 °F]), while some fridges or refrigerators can operate dually.

In most cases, solar fridges and freezers are imported from Europe and the United States of America.

Solar Cold Rooms

Solar cold rooms have a variety of applications. Their cooling temperatures can be adjusted and monitored.

COOLING SOLUTIONS

The structure of their cooling chambers enables the preservation of fruits and vegetables (usually at positive temperatures) and the preservation of meat and fish (usually at negative temperatures) over long periods. In general, most cold rooms are large industrial units, but smaller sizes are also manufactured locally. In this catalog, all cold rooms are powered by solar panels with varying voltage systems (AC and DC).

Solar Ice-cube Makers

The solar ice-cube makers are machines that produce ice in large quantities. These machines are useful for people who need ice in large quantities daily, such as fishers or fish sellers who need to preserve and transport fish. Ice-cube makers are powered by solar panels but run with AC voltage.

Solar Milk Tanks

Solar milk tanks, which are generally in the shape of a tank or a cistern, allow the refrigeration of raw milk from animal milking to slow down the degradation of milk quality. Such tanks usually operate at a positive temperature of approximately 4 °C (39.2 °F). The capacity of these tanks (measured in liters) varies by model.

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV 3-WAY REFRIGERATOR & FREEZER

These products can be connected simultaneously to three different power supply sources: PV solar panels, the electrical grid, and an external battery. Switching from one source to another is automatic, with priority for photovoltaics. In 100 % solar photovoltaic power, they guarantee up to three days of refrigeration in complete autonomy with poor sunshine conditions. Their main advantage, however, lies in their small width of 0.475 m. This extreme compactness adapts perfectly to all domestic and leisure applications.

Target use: Preservation of juices, meat, fish, and milk; cooling and storage of drugs and vaccines.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI (Business Marketing and International Brokerage Group *[Groupe Marketing Des Affaires Et Courtage International]*)
SIV Energy
SI2E ENR (Ivorian Society of Energy Efficiency and Renewable Energies *[Société Ivoirienne D'efficacité Energétique Et Des Energies Renouvelables]*)

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov 3-Way Refrigerator & Freezer

Product information	RFO-85	CFO-65
Product type	Refrigerator	Freezer
AC/DC coupled	AC/DC	AC/DC
Voltage range	12–24 V DC	12–24 V DC
Storage capacity	85 L	65 L
Operating temperature	-10 °C to +12 °C (14 °F to 53.6 °F)	-25 °C to +12 °C (14 °F to 53.6 °F)
Power (energy consumption)	45 W	60 W
Capacity of PV modules required	180 WP	180 WP
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV AUTONOMOUS SOLAR COLD ROOM *(CHAMBRE FROIDE SOLAIRE AUTONOME)*

FREECOLD has cold rooms that are powered by photovoltaic solar panels. Modular in design, they are available in standardized sizes from 10 to 20 m3. Tailor-made projects are also possible, such as the FREECOLD cold room at Cotonou airport (Benin), which is capable of refrigerating 12 metric tons of pineapples every day on over 100 m^3. Products meet the requirements of different agro-food sectors. In particular, they adapt easily to the storage conditions of fruit and vegetable crops, meat, fish, and even frozen products. Between 200 kg and 800 kg of food can be refrigerated daily. Specially designed to operate in extreme temperature conditions, up to 43 °C (109.4 °F).

Target use: Farmers, agro-food cooperatives, and agri-businesses.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov Autonomous Solar Cold Room

Product models	**10m³**	**20m³**
Product type	Cold storage	Cold storage
AC/DC coupled	AC/DC	AC/DC
Voltagerange	230 V AC	400 V AC
Storage capacity	10,000 L	20,000 L
Operating temperature	-18 °C to +12 °C (-0.4 °F to 53.6 °F)	-18 °C to +12 °C (-0.4 °F to 53.6 °F)
Power (energy consumption)	2,210 W	4,500 W
Capacity of PV modules required	2,480 WP	6,200 WP
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV COMBINED FRIDGE FREEZER *(COMBINÉ RÉFRIGÉRATEUR CONGÉLATEUR)*

The combined refrigerator/freezers combine refrigeration and freezer compartments in a single unit. Powered by solar batteries, the fridge/freezer combinations are intended for different household uses. Robust and reliable, they offer high-quality thermal insulation and very practical accessories, such as adjustable glass shelves and transparent drawers. Its energy class is A++ and A+.

Target use: Preservation of juices, meat, fish, and milk.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov Combined Fridge Freezer

Product models	**CRC 195**	**CRC 295**
Product type	Refrigerator/Freezer	Refrigerator/Freezer
AC/DC coupled	AC/DC	AC/DC
Voltage range	12–42 V DC	24–42 V DC
Storage capacity	195 L	295 L
Operating temperature	-24 °C to +8 °C (-11.2 °F to 46.4 °F)	-24 °C to +8 °C (-11.2 °F to 46.4 °F)
Power (energy consumption)	72 W	125–180 W
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV FRIDGE CSV185 - CSV260

Powered by two solar panels, the energy required for operation at night and on non-sunny days is supplied by 12, 24, or 36 V batteries. They can be used as a fridge or freezer by adjusting the interior temperature on the digital thermostat. Its cold power is programmable to adapt to the operating and usage conditions. It has two sliding windows that allow customers to see the goods inside.

Target use: Preservation of juices, meat, fish, and milk; production of ice; cooling and storage of drugs and vaccines.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov Fridge CSV185-CSV260

Product models	CSV 185	CSV 260
Product type	Refrigerator/Freezer	Refrigerator/Freezer
AC/DC coupled	AC/DC	AC/DC
Voltage range	10.5–42 V DC	24–42 V DC
Storage capacity	185 L	260 L
Operating temperature	-18 °C to +12 °C (-0.4 °F to 53.6 °F)	-18 °C to +12 °C (-0.4 °F to 53.6 °F)
Power (energy consumption)	61 W	130–180 W
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV MOBILE FRIDGE

A solar-powered street vending cart is the ideal solution for developing a micro-enterprise in rural or peri-urban areas without a reliable electricity grid. This wheeled refrigerator is especially adapted to the street vending of fresh or frozen products in markets and tourist places. Wall insulation is designed to limit heat loss. It has up to four days of autonomy in poor sunshine conditions. The product easy to clean, maintenance-free, and cost-free in operation. The FREECOLD Ecotainer integrated into the heart of the evaporator accumulates the cold and diffuses it in order to maintain an optimal quality of cold, even at night and on days with little sunshine. This battery-less solar refrigeration technology maintains a suitable temperature for 75 hours. It is energy Class A++. It is particularly suitable for transport and the selling of meat, fish, and ice. It also comes with a solar energy kit to create a lightning point and a kit for charging phones.

Target use: Transport and selling of meat, fish, and ice; street vending.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov Mobile Fridge

Product information	
Models	Frigomobile 1
Product type	Mobile refrigerator/freezer
AC/DC coupled	AC/DC
Voltage range	10.5–42 V DC
Storage capacity	155 L
Operating temperature	0 °C to +23 °C (32 °F to 73.4 °F)
Power (energy consumption)	72 W
Capacity of PV modules required	240 WP
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV PST60

The pasteurizer is powered 100 % by solar energy. The pasteurizer performs the heat treatment of the milk with a 1,950 Wp solar installation that allows bringing milk to a configurable temperature of up to 95 °C (203 °F). The solar pasteurizer is easily attached to the FREECOLD milk tank TAL300. With stainless materials. The pasteurizer comes with 6 photovoltaic modules to increase the power of the FREECOLD milk tank solar plant. The pooling of available energy between the pasteurizer and the milk tank gives access to the solar batteries of the tank to smooth the intermittences of the solar source.

Target use: Milk industry, farmers.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov PST60

Product information	
Models	PST60
Product type	Solar pasteurizer
AC/DC coupled	AC/DC
Storage capacity	60 L
Capacity of PV modules required	1,950 WP
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV RCSI 180 CHEST FRIDGE / FREEZER *(RÉFRIGÉRATEUR / CONGÉLATEUR COFFRE)*

Directly connected to one PV panel without the need for batteries or inverters.
The FREECOLD Ecotainer integrated into the heart of the evaporator accumulates the cold and diffuses it in order to maintain an optimal quality of cold, even at night and on days with little sunshine. It can maintain the quality of the cold in autonomy for two or three days, depending on the temperature outside. Robust and reliable, it is energy class A++.

Target use: Preservation of juices, meat, fish, and milk; production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):
Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:
Direct retail
Online retail

SPECS | Coldinnov RCS180 Chest Fridge/Freezer

Product information	
Models	RCSI 180
Product type	Refrigerator/Freezer
AC/DC coupled	DC
Voltage range	10.5–42 V DC
Storage capacity	155 L
Operating temperature	-18 °C to +12 °C (-0.4 °F to 53.6 °F)
Power (energy consumption)	72 W
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV RCSI 180+ & RCSI 300 CHEST FRIDGE / FREEZER *(RÉFRIGÉRATEUR / CONGÉLATEUR COFFRE)*

Powered by two solar panels, the energy required for operation at night and on non-sunny days is supplied by 12, 24, or 36 V batteries. They can be used as a fridge or freezer by adjusting the interior temperature on the digital thermostat. Its cold power is programmable to adapt to the operating and usage conditions. Its energy class is A++.

Target use: Preservation of juices, meat, fish, and milk; production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):
Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:
Direct retail
Online retail

SPECS | Coldinnov RCSI 180+ & RCSI 300 Chest Fridge/Freezer

Product models	**RCSI 180**	**RCSI 180+**	**RCSI 300**
Product type	Refrigerator/Freezer		
AC/DC coupled	AC/DC	AC/DC	AC/DC
Voltage range	10.5–42 V DC	24–42 V DC	24–42 V DC
Storage capacity	175 L	175 L	300 L
Operating temperature	-18 °C to +12 °C (-0.4 °F to 53.6 °F)	-18 °C to +12 °C (-0.4 °F to 53.6 °F)	-18 °C to +12 °C (-0.4 °F to 53.6 °F)
Power (energy consumption)	61 W	130–180 W	130–180 W
PAYGO integration capabilities	No		

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV RCVI 360 REFRIGERATOR & FREEZER *(RÉFRIGÉRATEUR ET CONGÉLATEUR ARMOIRE)*

It can be used as a refrigerator or as a freezer. The evaporator installed in the wall is embedded in an insulating foam on all sides of the device. This allows for constant temperatures, freezing in all drawers, easy maintenance, defrosting, and significant energy savings. Transparent drawers and intermediate glass shelves can be removed to freeze large pieces of food. On each of the seven glass shelves, an unbreakable plastic drawer makes it possible to preserve the cold when the door is open. It is 100 % solar-powered and uses 24 or 36 V batteries for energy storage. An integrated digital controller allows users to adjust and program the temperature. It is energy class A++.

Target use: Preservation of juices, meat, fish, and milk.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov RCVI 360 Refrigerator & Freezer

Product information	
Models	RCVI 360
Product type	Refrigerator/Freezer
AC/DC coupled	DC
Voltage range	24–42 V DC
Storage capacity	360 L
Operating temperature	-24 °C to +8 °C (-11.2 °F to 46.4 °F)
Power (energy consumption)	125–180 W
Capacity of PV modules required	480 WP
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV SOLAR ICE-MAKING ROOM

Energy can be supplied by PV panels and battery storage. It incorporates intelligent energy-management possibilities. It has a minimum autonomy of 30 hours with external temperatures of 35 °C (95 °F). It has a modular design for easy and quick assembly. It is capable of producing 200 kg of ice bags a day. The ice-making room can serve new economic activities for villages or roadside sales. This high-profitability activity guarantees a quick return on investment of less than two years.

Target use: Small businesses, fishermen, and fish sellers.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail
Online retail

SPECS | Coldinnov Solar Ice-Making Room

Product information	
Models	5m^3
Product type	Ice-making room
AC/DC coupled	AC/DC
Voltage range	230 V AC
Storage capacity	5,000 L
Operating temperature	35 °C (95 °F)
Power (energy consumption)	2,200 W
Capacity of PV modules required	4,800 WP
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

COLDINNOV TAL300

The FREECOLD solar-powered milk tank is designed to preserve milk in sunny areas that are poorly connected to the electric grid. It can perfectly adapt to the climatic conditions present in sub-Saharan Africa. It is useful for the production of quality local milk to increase farmers' incomes. It can store about two milkings and allow enough time to process or sell the milk. Its thermal insulation and high cooling capacity allow it to cool the volume of a 125 L milking to the temperature of 4 °C (39.2 °F) within two hours with a 35 °C (95 °F) outside temperature. The FREECOLD electrical cabinet optimizes power management according to the power available at the input (solar PV panels, batteries, or the electrical grid) and output requirements (milk tank, battery charging). This guarantees a high-quality power supply by prioritizing solar energy before using other sources. The stainless milk tank is according to the standards EN 13732 and ISO 5708.

Target use: Milk industry.

Manufacturer:

Coldinnov
1 Impasse De Lisieux
31300 Toulouse – France
+33 (0)5 34 35 03 49
info@coldinnov.com

Distributor(s):

Ehuabo SAS
GMACI
SIV Energy
SI2E ENR

Distribution channels:

Direct retail

Online retail

SPECS | Coldinnov TAL300

Product information	
Models	TAL300
Product type	Milk tank
AC/DC coupled	AC/DC
Storage capacity	330 L (also available with a 125 L milk tank)
Power (energy consumption)	1,700 W
Capacity of PV modules required	2,560 WP
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

NILO 100 L DC SOLAR FRIDGE

This fridge has an autonomy of 14 hours at full charge.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Youmma Solar
Rui Barbosa 1020
PO Box 91
ZIP Code 89219-901
Joinville-SC, Brazil
contact@yoummasolar.com

Distributor(s):
PEG Côte d'Ivoire

Distribution channels:
Direct retail

SPECS | Nilo 100 L DC Solar Fridge

Product information	
Models	NILO 100 L
Product type	Refrigerator/Freezer
AC/DC	DC
Voltage range	9–16 V DC
Storage capacity	96 L
Operating temperature	6 °C (42.8 °F)
Power (energy consumption)	17.8 W
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

KECO BC-70, BD-80 FRIDGES

Created in 2002, Africool is the flagship brand of the KECO Group, which specializes in the manufacture and distribution of solar-powered home appliances. The ventilated cooling system helps maintain an optimal humidity level in the refrigerator and, therefore, prolongs the freshness of food. It has LED lights. Its energy class is A+ and A++.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
KECO Group Holdings
Tchimbamba, Pointe-Noire, Congo
242 05 799 98 20
contact@kecogroup.com

Distributor(s):
Africool

Distribution channels:
Direct retail
Online retail

SPECS | KECO BC-70, BD-80 Fridges

Product models	BC-70	BD-80
Product type	Refrigerator	Refrigerator
AC/DC coupled	DC	DC
Voltage range	12–24 V DC	24 V DC
Storage capacity	70 L	80 L
Operating temperature	-18 °C to +10 °C (-0.4 °F to 50 °F)	160 W
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

KECO FRIDGES BCD-198, BCD-142, BD-198, BCD-108, BCD-295

Created in 2002, Africool is the flagship brand of the KECO Group, which specializes in the manufacture and distribution of solar-powered home appliances. The ventilated cooling system helps maintain an optimal humidity level in the refrigerator and, therefore, prolongs the freshness of food. It has LED lights. Its energy class is A+ and A++.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
KECO Group Holdings
Tchimbamba, Pointe-Noire, Congo
242 05 799 98 20
contact@kecogroup.com

Distributor(s):
Africool

Distribution channels:
Direct retail
Online retail

SPECS | KECO Fridges BCD-198, BCD-142, BD-198, BCD-108, BCD-295

Product models	**BCD-198**	**BCD-142**	**BD-198**	**BCD-108**	**BCD-295**
Product type	Refrigerator/Freezer				
AC/DC coupled	DC	DC	DC	DC	DC
Voltage range	12–24 V DC	12–24 V DC	24 V DC	12–24 V DC	12–24 V DC
Storage capacity	198 L	142 L	198 L	108 L	295 L
Operating temperature	-18 °C to +10 °C (0.4 °F to 50 °F)	-18 °C to +10 °C (0.4 °F to 50 °F)	-18 °C to +10 °C (0.4 °F to 50 °F)	-18 °C to +10 °C (0.4 °F to 50 °F)	-18 °C to +10 °C (0.4 °F to 50 °F)
PAYGO integration capabilities	No				

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

KECO LC-300, LC-218 FRIDGES

Created in 2002, Africool is the flagship brand of the KECO Group, which specializes in the manufacture and distribution of solar-powered home appliances. The ventilated cooling system helps maintain an optimal humidity level in the refrigerator and, therefore, prolongs the freshness of food. It has LED lights. Its energy class is A+.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
KECO Group Holdings
Tchimbamba, Pointe-Noire, Congo
242 05 799 98 20
contact@kecogroup.com

Distributor(s):
Africool

Distribution channels:
Direct retail
Online retail

SPECS | KECO LC-300, LC-218 Fridges

Product models	**LC-300**	**LC-218**
Product type	Refrigerator	Refrigerator
AC/DC coupled	DC	DC
Voltage range	12–24 V DC	12–24 V DC
Storage capacity	300 L	218 L
Operating temperature	0 °C to +10 °C (32 °F to 50 °F)	0 °C to +10 °C (32 °F to 50 °F)
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

KECO SD/SC-268Y FREEZER

Created in 2002, Africool is the flagship brand of the KECO Group, which specializes in the manufacture and distribution of solar-powered home appliances. No frost, uniform temperature. It maintains an optimal humidity level and preserves the quality of even the most sensitive foods. Its energy class is A+ and has a quick-freezing system.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
KECO Group Holdings
Tchimbamba, Pointe-Noire, Congo
242 05 799 98 20
contact@kecogroup.com

Distributor(s):
Africool

Distribution channels:
Direct retail
Online retail

SPECS | KECO SD/SC-268Y Freezer

Product information	
Models	SD/SC-268Y
Product type	Freezer
AC/DC coupled	DC
Voltage range	12–24 V DC
Storage capacity	268 L
Operating temperature	-18 °C to 0 °C (-0.4 °F to 32 °F)
Power (energy consumption)	120–130 W
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

LEAP SOLAR ECO AC/DC CHEST FREEZER

Fast cooling. AC/DC 12V/24V. Low consumption. Indoor and outdoor use. Digital display control panel and AC adaptor are optional.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
LEAP China
Zhangqi Town, Cixi 315313, Ningbo, P.R.China
+86 18605746936 (Jimmy Wei)
info@leap-solar.com

Distributor(s):
Beeshop
Eco Solar

Distribution channels:
Direct retail
On order

SPECS | LEAP Solar ECO AC/DC Chest Freezer

Product models	**LP-68**	**LP-98**	**LP-110**	**LP-160**	**LP-208**	**LP-258**	**LP-308**	**LP-358**	**LP-188 (double door)**
Product type	Refrigerator / Freezer								
AC/DC coupled	AC/DC								
Voltage range	12–24 V DC								
Storage capacity	50 L	70 L	115 L	150 L	200 L	250 L	300 L	350 L	175 L
Operating temperature	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +23 °C (32 °F to 73.4 °F)	0 °C to +10 °C (32 °F to 50 °F)	0 °C to +10 °C (32 °F to 50 °F)
Power (energy consumption)	81 W	81 W	93 W	81 W	93 W	93 W	105 W	105 W	93 W
PAYGO integration capabilities	No								

TERMS OF SALE

Cash & carry

PRODUCT SPECS

NASCO AUTONOMOUS SOLAR COLD ROOM (*CHAMBRE FROIDE SOLAIRE AUTONOME*)

A solar cold room for agriculture

Target use: Farmers, agro-food cooperatives, and agri-businesses.

Manufacturer:
Nasco

Distributor(s):
ED Service

Distribution channels:
Direct retail
Retail through women's groups
Retail through cooperatives/SACCOs
Retail through women's empowerment project across regional councils

SPECS | Nasco Autonomous Solar Cold Room

Product information	
Models	Nasco 1250M
Product type	Cold storage
AC/DC coupled	AC
Voltage range	220/240 V AC
Storage capacity	1,000 L
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

STECA PF 166-H | PF 240-H

Steca PF Solar Refrigerators are highly efficient DC energy-saving refrigerators, specially designed for off-grid solar-powered applications, including medical clinics, camps, and residential homes. They can be used either as refrigerators or freezers due to their fully programmable temperature controls.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Steca
Katek Memmingen GMBH
Mammostraße 1
87700 Memmingen
Germany

Distributor(s):
Yandalux

Distribution channels:
Online retail

SPECS | Steca PF 166-H | PF 240-H

Product models	PF 166-H	PF 240-H
Product type	Refrigerator/Freezer	Refrigerator/Freezer
AC/DC coupled	DC	DC
Voltage range	12/24 V DC automatic battery voltage detection	12/24 V DC automatic battery voltage detection
Storage capacity	166 L	240 L
Power (energy consumption)	70 W	100 W
Operating temperature	Refrigerator temperature : +2 °C to +12 °C ; Freezer temperature : -20 °C to -10 °C	Refrigerator temperature : +2 °C to +12 °C ; Freezer temperature : -20 °C to -10 °C
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUPERGREENSOLAR DC CHEST FREEZER

These solar refrigerators/freezers operate with high-quality battery, solar controller, and solar panels. The refrigerators use 24 V DC compressors and motors and solar controllers, and they do not require extra inverters. They use pure DC power and are available from 88 L to 468 L in capacity.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Supergreensolar
No.17-19, Building 1, No. 2, Kang'an Street, Shapingba District, Chongqing, China
86-23-86058256
86 18512385103
info@supergreensolar.com

Distributor(s):
Mady Koanda

Distribution channels:
Direct retail

SPECS | Supergreensolar DC Chest Freezer

Product models	BD/BC-88	BD/BC-108	BD/BC-158	BD/BC-208	BD/BC-268	BD/BC-358	BD/BC-408
Product type	Freezer						
AC/DC coupled	DC						
Voltage range	12–24 V DC	12–24 V DC	12–24 V DC	12–24 V DC	12–24 V DC	12–24 V DC	12–24 V DC
Storage capacity	88 L	108 L	158 L	208 L	268 L	358 L	408 L
Operating temperature	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)
Power (energy consumption)	45 W	47 W	49 W	68 W	80 W	100 W	130 W
PAYGO integration capabilities	No						

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUPERGREENSOLAR DC REFRIGERATOR (BOTTOM FREEZER)

These solar refrigerators operate with high-quality battery, solar controller, and solar panels. The refrigerators use 24 V DC compressors and motors and solar controllers, and they do not require extra inverters. They use pure DC power and are available from 88 L to 468 L in capacity.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Supergreensolar
No.17-19, Building 1, No. 2, Kang'an Street, Shapingba District, Chongqing, China
86-23-86058256
86 18512385103
info@supergreensolar.com

Distributor(s):
Mady Koanda

Distribution channels:
Direct retail

SPECS | Supergreensolar DC Refrigerator (Bottom Freezer)

Product models	BCD-168	BCD-198T
Product type	Refrigerator/Freezer	Refrigerator/Freezer
AC/DC coupled	DC	DC
Voltage range	12–24 V DC	12–24 V DC
Storage capacity	168 L, 75 L	198 L, 68/42 L
Operating temperature	-18 °C to +10 °C (-0.4 °F to 50 °F)	-18 °C to +10 °C (-0.4 °F to 50 °F)
Power (energy consumption)	90 W	100 W
PAYGO integration capabilities	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUPERGREENSOLAR DC REFRIGERATOR (DOUBLE DOOR WITH TOP FREEZER)

These solar refrigerators/freezers operate with high-quality battery, solar controller, and solar panels. The refrigerators use 24 V DC compressors and motors and solar controllers, and they do not require extra inverters. They use pure DC power and are available from 88 L to 468 L in capacity.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Supergreensolar
No.17-19, Building 1, No. 2, Kang'an Street, Shapingba District, Chongqing, China
86-23-86058256
86 18512385103
info@supergreensolar.com

Distributor(s):
Mady Koanda

Distribution channels:
Direct retail

SPECS | Supergreensolar DC Refrigerator (Double-Door with Top Freezer)

Product models	BCD-108	BCD-128	BCD-142	BCD-178	BCD-198	BD/BC-218	BD/BC-268
Product type	Refrigerator/Freezer						
AC/DC coupled	DC						
Voltage range	12–24 V DC						
Storage capacity	108 L / 38 L	128 L / 8 L	142 L / 48 L	178 L / 39 L	198 L / 80 L	218 L / 45 L	216 L / 52 L
Operating temperature	-18 °C to +10 °C (-0.4 °F to 50 °F)						
Power (energy Consumption)	60 W	65 W	70 W	75 W	80 W	90 W	100 W
PAYGO Integration Capabilities	No						

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUPERGREENSOLAR DC REFRIGERATOR (SINGLE-DOOR WITH TOP FREEZER)

These solar refrigerators/freezers operate with high-quality battery, solar controller, and solar panels. The refrigerators use 24 V DC compressors and motors and solar controllers, and they do not require extra inverters. They use pure DC power and are available from 88 L to 468 L in capacity.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Supergreensolar
No.17-19, Building 1, No. 2, Kang'an Street, Shapingba District, Chongqing, China
86-23-86058256
86 18512385103
info@supergreensolar.com

Distributor(s):
Mady Koanda

Distribution channels:
Direct retail

SPECS | Supergreensolar DC Refrigerator (Single-Door with Top Freezer)

Product models	BC-50	BC-70	BC-90
Product type	Refrigerator/Freezer		
AC/DC coupled	DC		
Voltage range	12–24 V DC	12–24 V DC	12–24 V DC
Storage capacity	50 L, 5 L	70 L, 6 L	90 L, 8 L
Operating temperature	-18 °C to +10 °C (-0.4 °F to 50 °F)	-18 °C to +10 °C (-0.4 °F to 50 °F)	-18 °C to +10 °C (-0.4 °F to 50 °F)
Power (energy consumption)	60 W	65 W	70 W
PAYGO integration capabilities	No	No	No

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUPERGREENSOLAR ICE CREAM FREEZER WITH DOUBLE GLASS DOOR

DC 12V/24V power. No need for an extra power inverter. Low power consumption. With lock. More than 24 hours of off-grid use.

Target use: Preservation of juices, meat, fish, milk, and production of ice; cooling and storage of drugs and vaccines.

Manufacturer:
Supergreensolar
No.17-19, Building 1, No. 2, Kang'an Street, Shapingba District, Chongqing, China
86-23-86058256
86 18512385103
info@supergreensolar.com

Distributor(s):
Mady Koanda

Distribution channels:
Direct retail

SPECS | Supergreensolar Ice Cream Freezer with Double Glass Door

Product models	SD/SC-150Y	SD/SC-258Y
Product type	Freezer	Freezer
AC/DC coupled	DC	DC
Voltage range	12–24 V DC	12–24 V DC
Storage capacity	150 L	258 L
Operating temperature	-18 °C (-0.4 °F)	-18 °C (-0.4 °F)
PAYGO integration capabilities	No	No

FOOD DRYERS

Food Dryers – List of Featured Products

Currently no listings for Côte d'Ivoire

QUALITY STANDARDS

READ MORE ABOUT FOOD DRYERS

FOOD DRYERS

Food Dryers – Introduction

Off-grid food dryers are generally used for the preservation and transformation of food (e.g., fruits and vegetables, meat, fish, and medicinal herbs) and can be operated on site immediately after a harvest. For the majority of the ten targeted countries in this catalog, off-grid communities face a particular challenge: Large quantities of agricultural products can spoil due to inadequate infrastructure and insufficient processing capacities, even during the traditional process of open-air drying. For such communities, solar food dryers have the potential to prevent food losses, generate income, and promote food security.

Food dryers are mostly produced locally and come in different sizes and shapes, often tailored to customer needs. Some are solely thermal, while others have ventilation systems powered by small PV panels.

In this catalog, solar food dryers fall into several categories:

Category	Examples
Direct drying	Solar box dryers
Indirect drying	Solar cabinet dryers
Mixed-mode drying	Solar tunnel dryers
Hybrid drying	Hybrid solar/biomass cabinet dryers
Natural air convection	Small-scale solar box dryers
Forced convection *(with air circulation fans)*	Solar tunnel dryers

Special Considerations

Some models are simple and inexpensive. More sophisticated types have temperature and humidity monitoring. For protection and hygiene, air filters and insect screens are useful. Manufacturers usually specify product-drying times in days or hours, which vary from food to food.

AQUACULTURE, LIVESTOCK, AND POULTRY SOLUTIONS

Aquaculture, Livestock, and Poultry Solutions – List of Featured Products

Currently no listings for Côte d'Ivoire

Ⓥ = VeraSol-tested/-certified

QUALITY STANDARDS

READ MORE ABOUT AQUACULTURE, LIVESTOCK, AND POULTRY SOLUTIONS

AQUACULTURE, LIVESTOCK, AND POULTRY SOLUTIONS

This section consists of solar products for fishing lights, livestock, and poultry. Solar-powered egg incubators vary by size and capacity, depending on the needs of smallholder farmers to provide chick-hatching solutions to farmers, especially in rural areas without electricity. Incubators ensure that eggs hatch in bulk, which is an efficiency that many farmers prefer to the natural hatching process. Because incubators boost poultry production, they often result in greater income generation for communities and empower women and youth in rural communities. For example, through new poultry-raising opportunities facilitated by the NGO Tanager in Burkina Faso, local women improved their decision-making skills, gained market inclusion, and increased their societal status (Agrilinks 2019).

Special Considerations

In selecting an incubator, it is useful to consider a product's automation capabilities. For example, many incubators automate egg turning, temperature and humidity controls, and more.

PUMPING SOLUTIONS

Pumping Solutions – List of Featured Products

1. Caprari Submersible Pumps Series
2. Caprari Surface Pumps Series
3. Dayliff SUNFLO-B Series
4. Ⓥ Futurepump SF2
5. Grundfos CR Flex Series
6. Grundfos SQ Flex Series Centrifugal
7. Ⓥ Grundfos SQ Flex Series Helical
8. Ⓥ Lorentz PS2 Series
9. Ⓥ SunCulture Rainmaker 2C
10. Ⓥ SunCulture Rainmaker 2S
11. Villaya Solar Water Pumping System

Ⓥ = VeraSol-tested/-certified

QUALITY STANDARDS

READ MORE ABOUT PUMPING SOLUTIONS

PUMPING SOLUTIONS

While solar water pumps vary in size, this catalog focuses on solar pumps with a power rating between 150 watts (W) to 10 kilowatts (kW) (13 horsepower [HP]). Solar pumps are one part of the pumping system that involves three key components: the pumping mechanism itself, the pump controller, and the solar energy-generating technology (i.e., solar panels and inverters, when needed).

Pumps are classified either as surface pumps or submersible pumps depending on the depth of their submersion in a water source. **Surface pumps** are designed to pump water from surface sources, such as rivers, ponds, and shallow wells. They are placed above the surface of the water and should not be submerged. They are designed to draw water to a maximum depth of eight meters, beyond which submersible pumps are used. **Submersible pumps** are fully submerged in water and include a hermetically sealed motor which is close-coupled to the body of the pump.

Direct current (DC) pumps draw power directly from solar panels without inverting. **Alternating current (AC) pumps** require an inverter to transform the DC power from the panels into AC power. Both types of solar pumps require an electronic-pump controller. One of the key features of the controller, the Linear Current Booster (LCB), boosts the current from the solar array by lowering the voltage, which translates the current and voltage available from the PV panels into a combination that better serves the pump's power requirements. The LCB enables pumping to operate even in the low-light conditions of early mornings, late evenings, and cloudy days. A pump's control box also protects it from current and voltage spikes and enables its sensors, such as the float switch, to activate and deactivate the pump. Some controllers also have remote monitoring capabilities.

PUMPING SOLUTIONS

DC pumps can operate without a controller while connected to a battery system. External power-storage systems, such as batteries, allow pumping to occur at night and in low-light conditions. Such storage systems allow pressure boosting to provide a continuous water supply at any time for optimal output. Most solar water-pumping systems, however, do not have energy storage and, therefore, can only operate within daylight hours.

Pump Sizing

The process of selecting the best pump system for a specific purpose involves several steps, the first of which is sizing. During the sizing process, a user must evaluate several parameters, such as flow rate and total dynamic head. Sizing is a technical process that requires the analysis of qualified personnel and technicians to get an accurate fit.

Various online resources are available to assist in determining the correct pump for a particular application, including pump-sizing resources on the websites of many manufacturers. Some manufacturers also sell complete plug-and-play solar systems, as featured in this catalog, which come equipped with solar panels, pump controllers, and solar pumps. In most cases, because companies sell pumps as singular units, users must complete the process of sizing.

Special Considerations

Because it is essential to seek the advice of qualified technical experts to achieve correct sizing, this catalog does not delve into the technical details of pump sizing.

PUMPING SOLUTIONS

However, in general, the sizing process involves the following steps:

	Objective	Considerations
Step 1	Determine if a surface or submersible pump is suitable for a particular application	What is the source of water, river, water pan, shallow well, borehole.
Step 2	Determine the daily water requirement	How many liters is the pump required to move during the day within prime daylight hours?
Step 3	Determine if the water source can produce enough water to supply the pump system	For example, the required water amount may be 100 liters per hour (L/h); however, the water source may only supply 50 liters per hour. For boreholes, wells, or streams, if flowrates are unknown, end users can conduct test-pumping
Step 4	Determine the effective dynamic head	How high does the pump need to move the water? Measurements must account for the margin of friction loss
Step 5	Determine the correct pump make and model by referencing the pump flow chart, as provided by the manufacturer	--
Step 6	Estimate the balance of the system	This includes the wiring, piping, and necessary fittings

PUMPING SOLUTIONS

Pump Controllers

The primary function of the controller is to boost the current of solar modules in low-light conditions while holding the voltage of the solar modules at the maximum power point (i.e., the point of highest power output). This allows a pump to start earlier in the morning and stay running late into the evening.

A variety of controllers meet the specific needs of individual pumps, allowing them to maximize their output. DC pump controllers, also known as converters, maximize both the DC current and voltage. AC pump controllers invert the DC current to AC for use by the AC motors. It is also possible to use a solar-pump inverter to convert a grid-powered AC pump to use solar panels without changing the AC pump.

Related Resources

For calculation sheets, checklists and guidelines, see the Toolbox on Solar Powered Irrigation Systems by the Water and Energy for Food (WE4F) program.

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

CAPRARI SUBMERSIBLE PUMPS SERIES

Caprari submersible pumps series.

Target use: Farmers, pools.

Manufacturer:
Caprari
41123 Modena - Italy

Distributor(s):
Caprari West and Central Africa

Distribution channels:
Direct retail

SPECS | Caprari Submersible Pumps Series

Product models	DESERT E4X-E6X	ES	E20S-E22S	MC4	MAC6
Product type	Submersible pump				
Pump type	Centrifugal				
Load	370 W	370,000 W	240,000 W	7,500 W	45,000 W
AC/DC coupled	AC	AC	AC	AC	AC
Voltage range	230 V AC	400 V AC	400 V AC	230/400 V AC	400 V AC
Total dynamic head	30 m	600 m	130 m	150 m	460 m
Max discharge rate	5 m^3/h	900 m^3/h	1,260 m^3/h	–	–
PAYGO integration capabilities	No				

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

CAPRARI SURFACE PUMPS SERIES

Surface pumps.

Manufacturer:

Caprari

41123 Modena - Italy

Distributor(s):

Caprari West and Central Africa

Distribution channels:

Direct retail

SPECS | Caprari Surface Pumps Series

Product models	MEC D	MEC A	NC	CVX	MD
Product type	Surface mounted pump				
Pump type	Centrifugal				
Load	12,000 W	132,000 W	355,000 W	30,000 W	18,500 W
AC/DC coupled	AC	AC	AC	AC	AC
Voltage range	230 V AC	400 V AC	400 V AC	230/400 V AC	230V AC
Total dynamic head	17 m	140 m	110 m	260 m	85 m
Max discharge rate	50.4 m^3/h	468 m^3/h	1512 m^3/h	43 m^3/h	216 m^3/h
PAYGO integration capabilities	No				

TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

DAYLIFF SUNFLO-B SERIES

Dayliff SUNFLO-B pumps are specifically designed for PV solar-powered water supply from wells and boreholes. They are of centrifugal and rotary-screw design. The construction materials for the rotary-screw design are principally stainless steel with rubber stators. The centrifugal design fea-tures Noryl impellers and stainless-steel chambers. Pumps are supplied complete with a controller, cable connectors, water level sensor, solar PV connecting cables, and spare rotor for helical type.

Manufacturer:
Davis & Shirtliff Head Office
Dundori Rd, Industrial Area
Nairobi, Kenya.

+254 206 968 000

Distributor(s):
PEG Côte d'Ivoire

Distribution channels:
Direct retail

SPECS | Dayliff Sunflo-B Series

Product models	Sunflo-B 1000 C	Sunflo-B 500CEF	Sunflo-B 1000CEF	Sunflo-B 2200CEF
Product type	Submersible pump			
Pump type	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Power rating	1,000 W	-	-	-
Required solar panel size	200 W	660 W (2 × 330W)	1,350 W (5 × 270W)	2,800 W (14 × 200W
AC/DC coupled	DC	DC	DC	DC
Voltage range	100 V DC	-	-	-
Total dynamic head	80 m	35 m	33 m	38 m
Max discharge rate	4.0 m^3/h	5.5 m^3/h	16.5 m^3/h	32 m^3/h
PAYGO integration capabilities	No			

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

FUTUREPUMP SF2

A portable reciprocating piston water pump suitable for smallholder irrigation farming.

Target use: Smallholder farmers.

Manufacturer:
Futurepump Limited
support@futurepump.com

Distributor(s):
AD Solar

Distribution channels:
Direct retail

SPECS | Futurepump SF2

Product information	
Product type	Surface mounted pump
Pump type	Piston
Power rating	80–120 W
Required solar panel size	120 W
AC/DC coupled	DC
Voltage range	60 V DC
Total dynamic head	15 m
Max discharge rate	3.6 m^3/h
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

GRUNDFOS CR FLEX SERIES

Grundfos CR Flex is a high-technology multi-stage centrifugal in-line non-self-priming surface pump, specifically designed for water transfer, irrigation, and pressure boosting in solar-powered applications. It is fitted with the advanced MG Flex permanent magnet variable frequency-driven motor.

Target use: Small-scale irrigation, livestock, fish farming, and water supply.

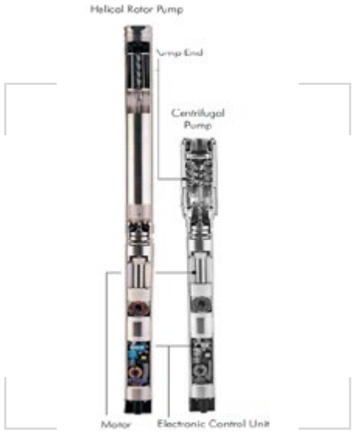
Manufacturer:
Grundfos
Poul Due Jensens Vej 7
Dk-8850 Bjerringbro,
Denmark

Distributor(s):
NOA Trading

Distribution channels:
Direct retail

SPECS | Grundfos CR Flex Series

Product information	
Product type	Surface pump
Pump type	Centrifugal
Load	1,730 W
AC/DC coupled	DC
Voltage range	30–300 V DC
Total dynamic head	150 m
Max discharge rate	13 m^3/h
Controller requirements	Required
PAYGO integration capabilities	No



TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

GRUNDFOS SQ FLEX SERIES CENTRIFUGAL

The SQFlex system is a reliable water-supply system, based on renewable energy sources, such as solar and wind energy. Thanks to its flexible energy supply and performance, the SQFlex system can be combined and adapted to meet any need at an installation site. The SQFlex system has a wide voltage range, built-in maximum power-point tracking (MPPT), as well as dry-running, voltage, and overload protection. The complete SQFlex pump range consists of 11 different pump sizes: five helical rotor pumps for medium to high heads and low to medium flows, and six centrifugal pumps for shallow heads and high flows.

Target use: Medium to high heads and low to medium flows, and 6 centrifugal pumps for shallow heads and high flows.

Manufacturer:
Grundfos
Poul Due Jensens Vej 7
Dk-8850 Bjerringbro,
Denmark

Distributor(s):
NOA Trading

Distribution channels:
Direct retail

SPECS | Grundfos SQ Flex Series Centrifugal

Product information	
Product type	Submersible pump
Pump type	Centrifugal
Power rating	1,400 W
AC/DC coupled	AC and DC
Voltage range	30–300 V DC and 90–240 V AC
Total dynamic head	200 m
Max discharge rate	1.79 m^3/h
Controller requirements	External controller
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

GRUNDFOS SQ FLEX SERIES HELICAL

The SQFlex system is a reliable water supply system based on renewable energy sources, such as solar and wind energy. Thanks to its flexible energy supply and performance, the SQFlex system can be combined and adapted to meet any need on the installation site. The SQFlex system has a wide voltage range, built-in maximum power-point tracking (MPPT), as well as dry-running, voltage, and overload protection. The complete SQFlex pump range consists of 11 different pump sizes: five helical rotor pumps for medium to high heads and low to medium flows, and six centrifugal pumps for shallow heads and high flows.

Target use: Medium to high heads and low to medium flows.

Manufacturer:
Grundfos
Poul Due Jensens Vej 7
Dk-8850 Bjerringbro,
Denmark

Distributor(s):
ED Service
NOA Trading

Distribution channels:
Direct retail

SPECS | Grundfos SQ Flex Series Helical

Product information	
Product type	Submersible pump
Pump type	Helical
Power rating	1,400 W
Required solar panel size	1,000–4,000 W
AC/DC coupled	AC and DC
Voltage range	30–300 V DC and 90–240 V AC
Total dynamic head	120 m
Max discharge rate	Max 2.8 m^3/h
Controller requirements	External controller
PAYGO integration capabilities	No

TERMS OF SALE

Cash & carry,
Flexible installments

PRODUCT SPECS

PRODUCT LINK

LORENTZ PS2-SERIES

Solar submersible pump system for 4-inch wells.

Target use: Farmers, water utility companies, manufacturing companies, ngos, international organizations.

Manufacturer:
Lorentz
Bernt Lorentz GmbH & Co. KG
Siebenstuecken 24
24558 Henstedt-Ulzburg, Germany

+49 (0)4193 8806-700

Distributor(s):
AD Solar
ED Service
NOA Trading

Distribution channels:
Direct retail

SPECS | Lorentz PS2-Series

Product models	PS2-150 HR-07S	PS2-150 C-SJ5-8	PS2-200 HR -07	PS2-600 C-SJ8-5	PS2-4000 C-SJ8-15	PS2-4000 C-SJ8-15
Product type	Submersible pump					
Pump type	Helical	Helical	Helical	Helical	Helical	Helical
Load	300 W	300 W	300 W	700 W	4,000 W	1,00 W
Required solar panel size	250 Wp	250 Wp	250 Wp	-	-	660 Wp
AC/DC coupled	DC	DC/AC	DC	DC	DC	DC
Voltage range	50 V DC	17–50 V DC and 220–240 V AC	34–100 V DC	238–375 V DC	102–200 V DC	102–200 V DC
Total dynamic head	60 m	20 m	40 m	15 m	80 m	70 m
Max discharge rate	1.4 m^3/h	4.6 m^3/h	1.3 m^3/h	15 m^3/h	13 m^3/h	7.6 m^3/h
Controller requirements	Controller required					
PAYGO integration capabilities	No					

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUNCULTURE RAINMAKER 2C

A solar-powered submersible pump packaged with a solar-pump controller with PAYGO capabilities. It is offered in two versions: one with and one without a battery. It is applicable for smallholder farmers with less than one acre.

Target use: Farmers.

Manufacturer:
Sunculture
236 Washika Road
Lavington, Nairobi, Kenya
+254 700 327 002
info@sunculture.com

Distributor(s):
ZECI SAS

Distribution channels:
Direct retail

SPECS | SunCulture Rainmaker 2C

Product information	
Product type	Submersible pump
Pump type	Centrifugal
Required solar panel size	310 W
AC/DC coupled	DC
Total dynamic head	30 m
Max discharge rate	Max flow rate 2.75 m^3/h
PAYGO integration capabilities	Yes

TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

SUNCULTURE RAINMAKER 2S

A solar-powered submersible pump packaged with a solar pump controller with PAYGO capabilities. It is offered in two versions: one with and one without a battery. It is applicable for smallholder farmers with less than one acre.

Target use: Farmers.

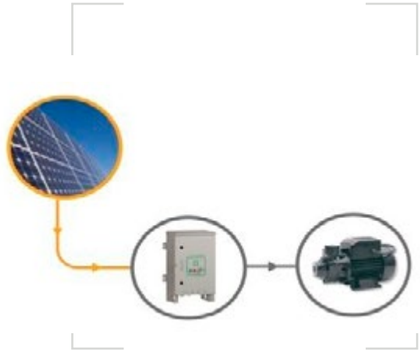
Manufacturer:
Sunculture
236 Washika Road
Lavington, Nairobi, Kenya
+254 700 327 002
info@sunculture.com

Distributor(s):
ZECI SAS

Distribution channels:
Direct retail

SPECS | SunCulture Rainmaker 2S

Product information	
Product type	Submersible pump
Pump type	Centrifugal
Required solar panel size	160–310 W
AC/DC coupled	DC
Total dynamic head	40 m and 30 m
Max discharge rate	Max flow rates of 1.1 m^3/h and 2.75 m^3/h, respectively
PAYGO integration capabilities	Yes



TERMS OF SALE

Cash & carry

PRODUCT SPECS

PRODUCT LINK

VILLAYA SOLAR WATER PUMPING SYSTEM

A solar-powered submersible pump packaged with a solar pump controller with PAYGO capabilities. It is offered in two versions: with a battery and without a battery. Applicable for smallholder farmers with less than one acre.

Target use: Smallholder farmers.

Manufacturer:
Schneider Electric Industries Sas
35 Rue Joseph Monier
92506, Rueil Malmaison, France

Distributor(s):
Schneider Electric Côte d'Ivoire

Distribution channels:
Direct retail

SPECS | Villaya Solar Water Pumping System

Product information	
Product type	Submersible pump
Pump type	Centrifugal
Power rating	180–5,500 W
AC/DC coupled	AC
Voltage range	200 V AC single phase / 200 V AC 3 phase / 400 V AC 3 phase
Total dynamic head	45 m
Max discharge rate	2.7 m^3/h
PAYGO integration capabilities	Yes

SOLAR SPRAYERS

Solar Sprayers – List of Featured Products

Currently no listings for Côte d'Ivoire

QUALITY STANDARDS

READ MORE ABOUT SOLAR SPRAYERS

SOLAR SPRAYERS

Solar Sprayers – Introduction

Sprayers diffuse liquid chemicals into mists through a process known as atomizing. Farmers and other users operate these products to spray a variety of chemicals, such as disinfectants, fungicides, herbicides, insecticides, and pesticides. Farmers often apply them to row crops (e.g., cotton, cowpeas, groundnuts, tobacco, vegetables, sugarcane, sisal, and maize) and for the control of migrant pests (e.g., locusts, grasshoppers, and armyworms). In some cases, farmers use sprayers as medical solutions to strengthen the immune systems of poultry and the treat mange in pigs and other animals.

Many varieties of sprayers are available in sub-Saharan Africa. This catalog presents solar-powered, handheld models of the spinning-disc type, which are designed for smallholder farmers and low volumes of liquid. Some sprayers come equipped with integrated light-emitting diode (LED) lights to allow spraying at night. Solar sprayers can replace other varieties of sprayers that use disposable batteries, thus reducing long-term environmental impacts and costs.

Special Considerations

In selecting the most appropriate sprayer for an activity, it is useful to compare data on run times and charging times as well as battery lifespans. Users may also consider the types of liquids (e.g., water-based products or CDA formulations) that the sprayer is designed to dispense. Other points of reference for decision-making include the volume capacity, flow rate range (measured in ml/min), and time needed to treat one hectare of land. It is essential to observe the precautions indicated by the manufacturer to minimize risks and promote the safety of operators.