

ROBESTEC

ROBESTEC

**Smarter Energy
Better Electricity**

Shanghai Robestec Energy Co., Ltd.

en.robestec.com

gm@robestec.com



Smarter Energy
Better Electricity

CONTENTS

- 01 - About Robestec
- 02 - Products
- 03 - Cases



About Robestec

OVERVIEW

Shanghai Robestec Energy Co., Ltd. (abbreviated as "Robestec") was established in June 2019 and is a technology company specializing in energy storage products under the State Power Investment Corporation (SPIC).

SPIC is the world's largest solar power generation enterprise, covering all the power generation types: solar, wind, hydro, thermal, and nuclear power generation. It covers business in 47 countries, with over 120,000 global employees and 64 affiliated companies, ranking 260 among the world's top 500 companies.

SPIC aims at becoming a clean energy enterprise with international influence by 2025, with 220GW total installed capacity; and developing into a world-class clean energy enterprise with global competitive EES, with 275GW total installed capacity.

As a crucial part of SPIC's international green energy ecosystem, Robestec researches, develops, produces and manufactures large-scale energy storage system integration products, green energy products for transportation, and digital energy products. It also invests in, develops, and operates energy storage power stations to provide value-added services throughout the entire

Top 10 Domestic Cumulative Shipment Volume

Top 10 Domestic ESS Suppliers in Chinese Solar Storage and Charging Industry

Top Influential Brands in Chinese Solar Storage and Charging Industry 2022

Global Leader in Energy Storage Solutions

Advanced Energy Storage System Integrator

Equipped with highly standardized, modular air-cooled and liquid-cooled products with the mass production and fast delivery capabilities.

Supplier of Innovative Power Products

Possessed the R&D and manufacturing capability of the full industry chain of green energy transportation vehicle power supply products.

Expert in Digitalized Intelligent Operations

Possessed core capabilities such as digital operation and maintenance, power market assisted decision-making, and full life-cycle operation of energy storage assets.

Expert in Financial Solutions

Possessed comprehensive financial solutions such as financing leasing, supply chain factoring, insurance, etc. in the field of new energy.

Mission

Make the scenery more friendly,
make the electric energy smarter

Vision

To build an ecosystem integrator that integrates finance,
products, and operations in the energy storage field

Business Scope



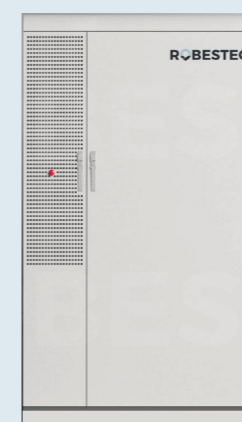
- Coordinated Frequency Regulation Station
- Wind-solar Energy Storage Power Station
- Grid-side Independent Energy Storage Power Station
- C&I Energy Storage Power Station

Utility Energy Storage System



- Engineering Machinery Power Products
- Electric Locomotive Power Products
- Swappable Heavy-duty Truck/Marine Power Products

Energy Storage Battery System

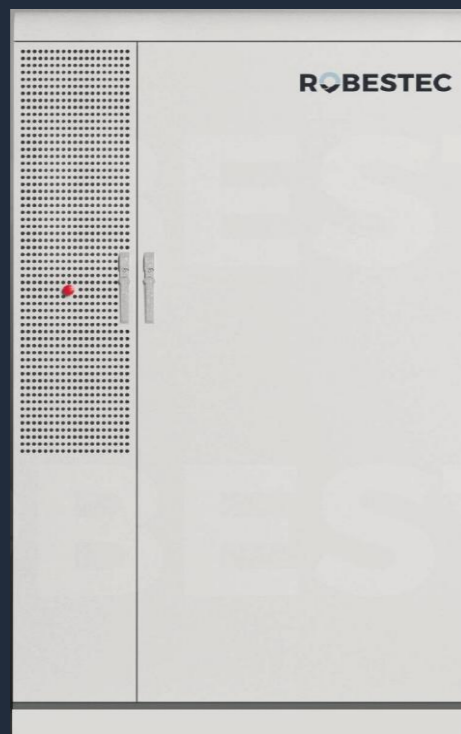
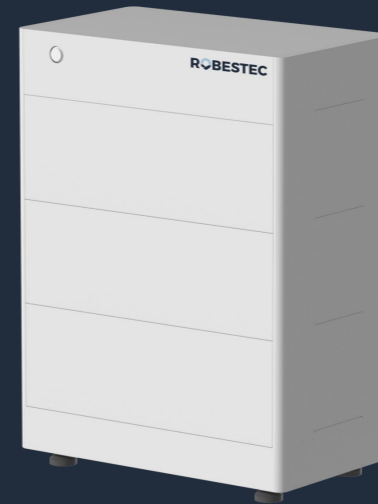


- Overseas Residential Energy Storage Products
- C&I Energy Storage Products
- Communication Base Station Energy Storage Products
- Mobile Emergency Power Products

Commercial and Industry Energy Storage System

Product Portfolio

ROBESTEC



Pack-1P16S



Pack-1P52S



Core Features

- Unique Air Duct Heat Transfer
- Long Cycle Life
- Outstanding Safety
- Fully Automated Process

Model	1P16S Air-cooled PACK
Cell	
Cell Type	LFP
Nameplate Voltage	280 Ah
Rated Voltage	3.2 V
Voltage Range	2.8~3.6 V
Battery PACK	
PACK Configuration	1P16S
Dimensions (W*H*D)	422*808*232 mm
Weight	114 kg
Nominal Energy	14.33 kWh
Nominal Voltage	51.2 Vdc
Voltage Range	44.8-57.6 Vdc
C-Rate	0.5 C
Cooling	Air cooled

Core Features

- High Energy Density
- Total System Safety
- High Protection Level
- High Standard Process

Model	1P52S Liquid-cooled PACK
Cell	
Cell Type	LFP
Nameplate Voltage	280 Ah
Rated Voltage	3.2 V
Voltage Range	2.8~3.6 V
Battery PACK	
PACK Configuration	1P52S
Dimensions (W*H*D)	810*1,207*255 mm
Weight	340 kg
Nominal Energy	46.59 kWh
Nominal Voltage	166.4 Vdc
Voltage Range	145.6-187.2 Vdc
C-Rate	0.5 C
Cooling	Liquid cooled

20ft Air-cooled Integrated Container



Core Features

- Convenient Transportation: 20ft ISO container, easier transportation and lower shipping cost;
- Outstanding Safety Design: Multiple security design based on prevention and control combined;
- Quick Installation: Non walk-in highly integrated design, lower installation costs;
- Flexible Configuration: Able to apply to both small businesses and small-scale grid connection.

Model	20ft Air-cooled Integrated Container
Cell	LFP, 280 Ah, 3.2 V
Battery PACK	1P10S
Battery Rack	7P340S
Battery Capacity	2,132 kWh
Rated Voltage	1,088 V
Voltage Range	952~1,224 V
C-rate	0.5 C
IP Rating	IP54
Ambient Temperature	-30~45 °C
Cooling	Air cooled
Fire Suppression System	Novec1230 extinguishment system
Dimensions (W*H*D)	Standard 20 foot container, 6,058*2,438*2,896 mm
Weight	26.6 T
Communication Interfaces	Ethernet
Communication Protocol	Modbus TCP/IP
Compliance	UL1973, UL9540A, IEC62619, IEC61000

40ft Air-cooled Integrated Container

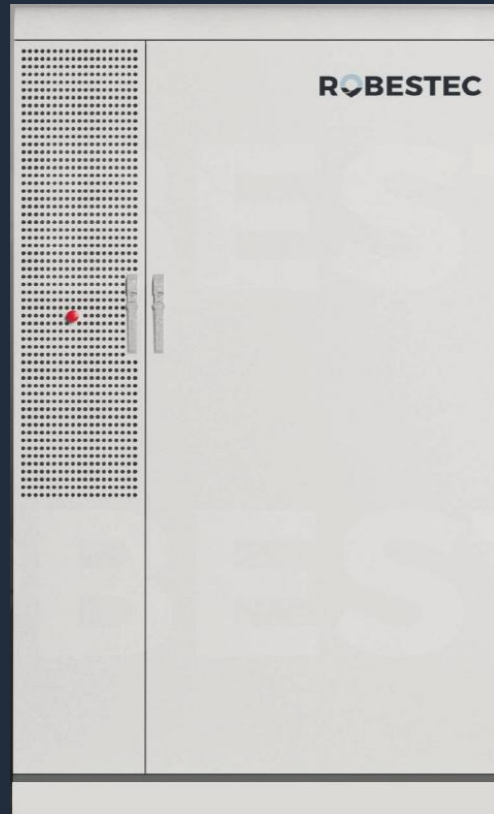


Core Features

- High Voltage System: Non walk-in 1500V high voltage system, higher energy density;
- Efficient Air Cooling: Forced efficient air cooling heat transfer, thermal simulation optimization and verification, lower risk of heat accumulation;
- Safety and Reliability: Multiple security design based on prevention, effective electrical isolation and short circuit protection combined;
- High Adaptability: Adaptable to cluster level management solutions, less circulation, better charging and discharging capacity.

Model	40ft Air-cooled Integrated Container
Cell	LFP, 280Ah, 3.2V
Battery PACK	1P16S
Battery Rack	14P400S
Battery Capacity	5,017 kWh
Rated Voltage	1,280 V
Voltage Range	1,120-1,440 V
C-rate	0.5 C
IP Rating	IP54
Ambient Temperature	-30~45 °C
Cooling	Air cooled
Fire Suppression System	HFC (Perfluorohexanone and water firefighting adoptable)
Dimensions (W*H*D)	Standard 40 foot container, 12,192*2,438*2,896 mm
Weight	60 T
Communication Protocol	Modbus TCP/IP
Compliance	UL1973, UL9540A, IEC62619, IEC61000, IEC62477, IEC63056 (application stage)

Liquid-cooled Integrated Container

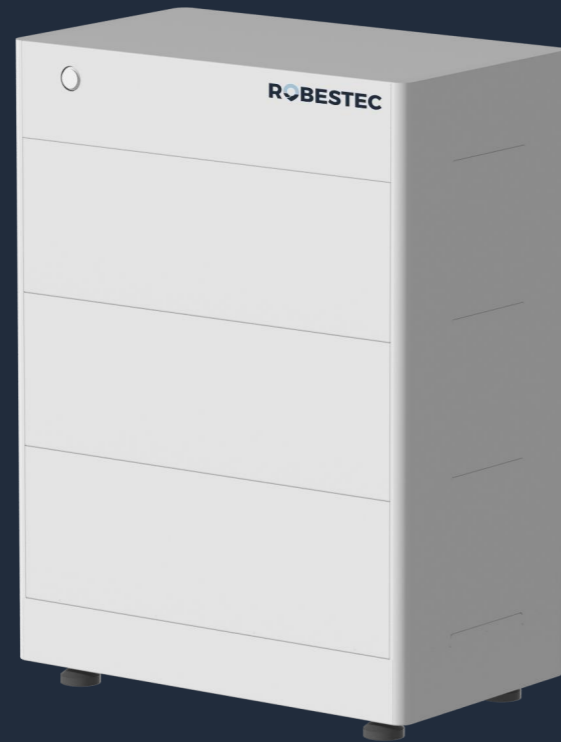


Core Features

- Intelligent Temperature Control: Unique liquid cooling pipeline design and efficient thermal management balance temperature distribution in the chamber;
- Flexibility and Convenience: Modular design, flexible expansion and layout, less difficulty of construction and installation;
- Outstanding Safety: Electrical safety design, independent fire protection system, lower accident risks;
- Advanced Batteries: High safe LFP and long cycle battery technology prolong the usable life of the system.

Model	Liquid-cooled Integrated Cabinet	
	High-voltage Version	Low-voltage Version
Cell	LFP, 280 Ah, 3.2 V	
Battery PACK	1P52S	
Battery Rack	1P416S	1P260S
Battery Capacity	372 kWh	232 kWh
Rated Voltage	1,331.2 V	832 V
Voltage Range	1,164.8-1,497.6 V	728-936 V
C-rate	0.5 C	
IP Rating	IP54	
Ambient Temperature	-30~45 °C	
Cooling	Liquid cooled	
Fire Suppression System	aerosol and water firefighting	
Dimensions (W*H*D)	1,400*1,300*2,375 mm	
Weight	3.5 T	2.6 T
Communication Protocol	Modbus TCP/IP	
Compliance	UL1973, UL9540A, IEC62619, IEC61000, IEC62477, IEC63056 (application stage)	

E-Safe Household Box



Core Features

- Flexibility and Convenience: Modular design enables easy expansion and installation;
- Economic Intelligence: Smart combination of optics and storage and peak-to-valley arbitrage saves on electricity expenses;
- Integrated Design: High integration and home style design;
- High Compatibility: Adaptable to market mainstream inverter brands.

Item	Specification		
System Model	ESHB2P 30S2B	ESHB2P 30S3B	ESHB2P 30S4B
One System Specification			
Battery Chemistry	ASIB (aqueous sodium ion battery)		
Number of Modules	2	3	4
Rated Voltage	49.50 V		
Voltage Range	42 ~ 58.5 V		
Charge/Discharge Current	60 A	90 A	120 A
Nominal Power	3 kW	5 kW	6 kW
Nominal Capacity	2.97 kWh	4.45 kWh	5.94 kWh
Dimensions (W*H*D)	450*695*810 mm	450*920*810 mm	450*1,145*810 mm
Weight	160 kg	230 kg	300 kg
Communication Protocol	CAN/RS485		
IP Rating	NEMA 3R/IP54		
Working Temperature	-20~45 °C		
Storage Temperature	-40~55 °C		
Relative Humidity	0~95 %		
Max. Working Altitude	< 2,000 m		
Cooling	Natural air		
Installation	Floor stand		
Design Life	10 years@ 1 cyc per day		
Warranty	Standard Warranty: 5 year Performance Warranty: ≥4,000 cycles (90 %DOD, 25 °C Working condition)		
Compliance	UL 1973,CE,UN38.3		
Compatible Inverters	GOODWE/GINLONG/HUASI		

Cases



12.5MW/100MWh Tibet-Shuifa Xingye
Photovoltaic Plant Project



9MW/4.5MWh Huadian International Laicheng
Power Plant Project



15MW/30MWh SPIC-Haiyang
Offshore Wind Plant



18MW/9MWh SPIC-Xinchang
Power Plant Project

Cases

