



About TWS


Dynamic Leadership in Innovative Rechargeable Lithium-ion Battery Solutions

TWS, a dynamic and global industry leader focused on providing innovative Lithium-based battery technology solutions, was founded in 1998. With 25 years development, we have now grown to over 2,000 global employees to service the worldwide markets. TWS always follows the practice of customer-focused values and we're committed to providing innovative solutions in response to the rapid growth of new lithium-ion battery applications.

Vision & Mission

 A Better Life through Innovation

 **Vision:** Create a better life for people

 **Mission:** To be the industry leader in rechargeable energy solutions

Founded in 1998	Tech Centers 7	Factories 4	Annual production capacity 13 GWh
Patents 80+	Active SKUs 500+	Batteries Sold 300,000,000+	ISO & IATF Certified

**TWS ESS
Battery
Solutions**





As a professional ESS integrator, TWS Technology has been enormously engaged in the ESS field for many years and owns a complete portfolio of battery module, PACK, to RACK and container system. Our ESS battery products have been successfully applied to many benchmarking projects from domestic and overseas ESS leading enterprises, realizing the full application scenario coverage of power-side, grid-side and user-side.

With large-scale production capacity, TWS Technology can provide more efficient ESS solutions for customers and the market continuously and helping the large-scale industrialization and high-quality development of energy storage industry.

TWS Standard and Customized ESS Solutions

◆ Technical type

- Air-cooling
- Liquid-cooling

◆ Product type

- Module
- PACK
- RACK
- Container system



◆ Application scenarios

- Power-side
- Grid-side
- User-side

TWS Standard ESS Products

Air-cooling products

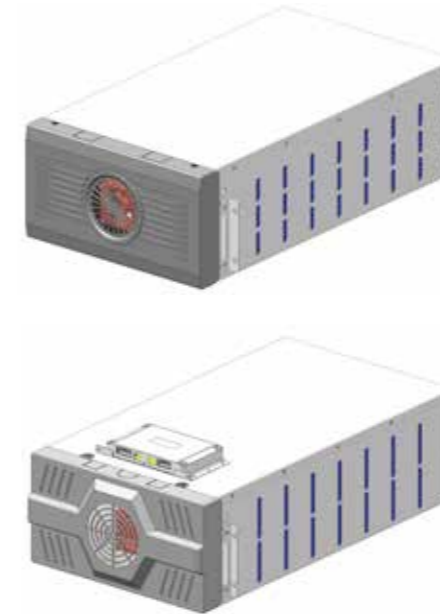
- Air-cooling PACK
- Air-cooling RACK

Liquid-cooling products

- Liquid-cooling PACK
- Liquid-cooling RACK

TWS Standard ESS Products

◆ Air-cooling PACK: CTP-1P16S



Model	TWS-AP-1P16S-280-A	TWS-AP-1P16S-280-B
Customer	NARI GROUP	CRRC
C-rate	≤1C	≤1C
Cell type	LFP	LFP
Configuration	1P16S	1P16S
Nominal capacity	14.3 kWh	14.3 kWh
Nominal power	≤14.3 kWh	≤14.3 kWh
Nominal voltage	51.2 Vdc	51.2 Vdc
Operating voltage range	40.0~58.4 Vdc	40.0~58.4 Vdc
Dimensions(W*H*D)	455*250*770 mm	470*225*765 mm
Weight	≈105 kg	≈105 kg

- * Excellent air duct design with temperature difference less than 3°C
- * Cell-to-Pack design with high integration
- * Suitable for 1500V system
- * Compatible with mainstream 280 cell

◆ Air-cooling RACK: 1P416S (Based on 1P16S)

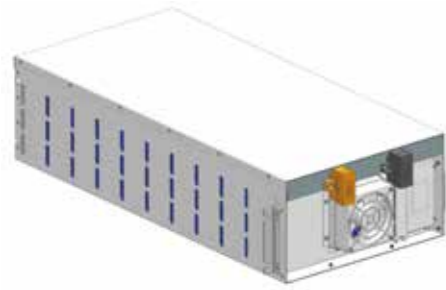


Model	TWS-AR-1P416S-280
Customer	CRRC
C-rate	≤1C
Cell type	LFP
Configuration	1P416S (26 PACKs in 3 columns 9 layers)
Nominal capacity	372.7 kWh
Nominal power	≤372.7 kWh
Nominal voltage	1331.2 Vdc
Operating voltage range	1123.2~1497.6 Vdc
Dimensions(W*H*D)	1500*2250*770 mm
Weight	≈3000 kg

- * High energy density (A 40-foot container can carry capacity of up to 4.4 MWh)
- * Two levels of short-circuit protection and rapid current limiting with different levels
- * Online estimation of SOC and SOH based on real-time situation and big data
- * Support cloud platform, remote real-time monitoring and failure recognition

TWS Standard ESS Products

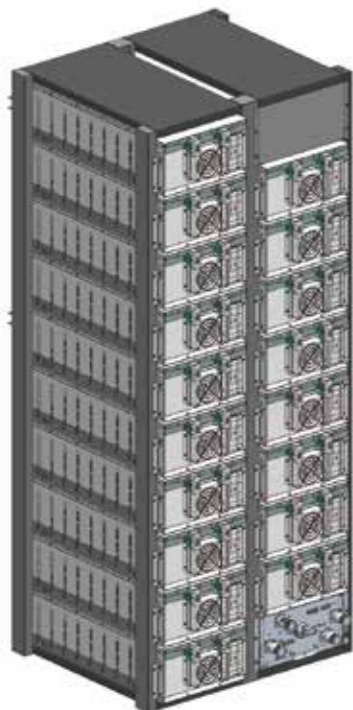
◆ Air-cooling PACK: CTP-1P20S



Model	TWS-AP-1P20S-280
Customer	RHBESS
C-rate	≤1C
Cell type	LFP
Configuration	1P20S
Nominal capacity	17.9 kWh
Nominal power	≤17.9 kWh
Nominal voltage	64.0 Vdc
Operating voltage range	50.0~73.0 Vdc
Dimensions(W*H*D)	470*250*915 mm
Weight	≈130 kg

- * Excellent air duct design with temperature difference less than 3°C
- * Cell-to-Pack design with high integration
- * Suitable for 1500V system
- * Compatible with mainstream 280 cell

◆ Air-cooling RACK: 1P350S (based on 1P20S)

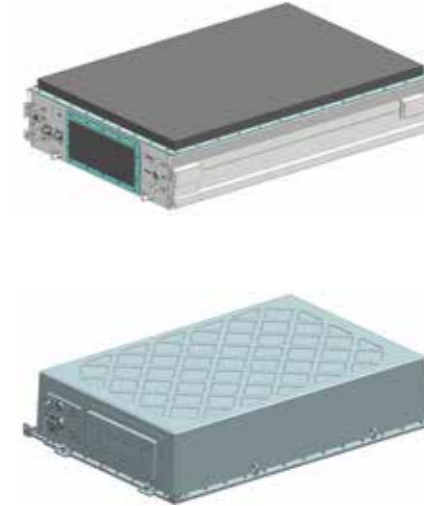


Model	TWS-AR-1P350S-280
Customer	RHBESS
C-rate	≤1C
Cell type	LFP
Configuration	1P350S (18 PACKs in 2 columns 10 layers)
Nominal capacity	313.6 kWh
Nominal power	≤313.6 kWh
Nominal voltage	1120.0 Vdc
Operating voltage range	980.0~1260.0 Vdc
Dimensions(W*H*D)	1000*2400*920 mm
Weight	≈2500 kg

- * Two levels of short-circuit protection and rapid current limiting with different levels
- * Online estimation of SOC and SOH based on real-time situation and big data
- * Support cloud platform, remote real-time monitoring and failure recognition

TWS Standard ESS Products

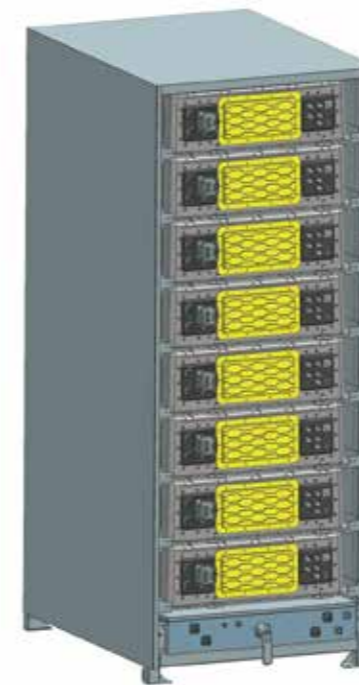
◆ Liquid-cooling PACK: 1P52S



Model	TWS-LP-1P52S-305	TWS-LP-1P52S-280
Customer	ENVISION ENERGY	NARI GROUP, CRRC
C-rate	≤1C	≤1C
Cell type	LFP	LFP
Configuration	1P52S	1P52S
Nominal capacity	50.7 kWh	46.5 kWh
Nominal power	≤50.7 kWh	≤46.5 kWh
Nominal voltage	166.4 Vdc	166.4 Vdc
Operating voltage range	130.0~189.8 Vdc	130.0~189.8 Vdc
Dimensions(W*H*D)	808*1160*240 mm	808*1160*240 mm
Weight	≈350 kg	≈330 kg

- * Excellent flow channel design with temperature difference less than 3°C
- * Suitable for 1500V system
- * Compatible with mainstream 280 cell

◆ Liquid-cooling RACK: 1P416S (based on 1P52S)



Model	TWS-LR-1P416S-280
Customer	CRRC
C-rate	≤1C
Cell type	LFP
Configuration	1P416S (8 PACKs in 1 column 9 layers)
Nominal capacity	372.7 kWh
Nominal power	≤372.7 kWh
Nominal voltage	1331.2 Vdc
Operating voltage range	1123.2~1497.6 Vdc
Dimensions(W*H*D)	930*2300*1170 mm
Weight	≈3300 kg

- * High energy density
- * Two levels of short-circuit protection and rapid current limiting with different levels
- * Online estimation of SOC and SOH based on real-time situation and big data
- * Support cloud platform, remote real-time monitoring and failure recognition

TWS ESS Manufacturing Capacity

Workshop area: 15,000 m²

Site area: 20,000 m²

Production line:

- > **3** fully flexible and automated production lines for square aluminum shell lithium battery module (10ppm, 8ppm)
- > **2** production lines for CTP modules & PACK
- > **2** pilot-scale product lines
- > **3** PACK assembly lines
- > Satisfy the group machining demand of market mainstream 148mm and 174mm cells

Designer,
integrator and
manufacturer of
ESS solutions

Production capacity:

39,000+ cells of daily welding; **10 GWh** of annual production capacity

Other facilities:

20 Module charge and discharge test equipment channels
24 PACK charge and discharge test equipment channels

Shipment: ~2GWh

Delivered products: Air-cooling and liquid-cooling ESS PACK, RACK and Container system

Product footprint: China, Singapore, US, Germany

Application scenarios: Power-side, Grid-side, User-side

2022 projects

Projects:

- > Electrochemical energy storage project of 5 photovoltaic power stations(over 4700 meters above sea level)
- > China's first "Source-Grid-Load-Storage" project (WGE+PV connected to the grid)
- > The first demonstration project of power-side energy storage in Zhejiang Province



2022 ESS Projects

Xiaoshan Energy Storage Power Station Project



Completion Time: July 2022
Project Address: Hangzhou, Zhejiang, China
Product: Air-cooling RACK, 1P224S/1P240S
Application Scenario: Power-side
Installed capacity: 126 MWh

The first demonstration project of power-side energy storage in Zhejiang Province

Gorges Ulanqab Demonstration Project of Source-Grid-Load-Storage



Completion Time: April 2022
Project Address: Ulanqab, Inner Mongolia, China
Product: Air-cooling PACK, 2P12S
Application Scenario: Grid-side
Installed capacity: 70 MW/140 MWh

China's first "Source-Grid-Load-Storage" project (WGE+PV connected to the grid)

Singapore 140 MWh Project



Completion Time: August 2022
Project Address: Singapore
Product: Liquid-cooling PACK, 1P52S
Application Scenario: Grid-side
Installed capacity: 140 MWh

SPIC 30MWh Industrial and Commercial Container ESS Project

Completion Time:
August 2022

Project Address:
Xiangyang, Hubei, China

Product: TITAN Container ESS Air-cooling, 4P350S

Application Scenario:
User-side

Installed capacity:
30 MWh

