



金盘科技
JINPAN TECHNOLOGY

股票代码
688676

CAST RESIN DRY-TYPE TRANSFORMER

环氧树脂浇注

干式变压器

本产品样本, 产品型号及技术指标如有变更, 恕不另行通知, 敬请谅解!
The model, type and specification of this product catalog are subject to change without prior notice. Thanks for your understanding.



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SERIES OF PRODUCTS

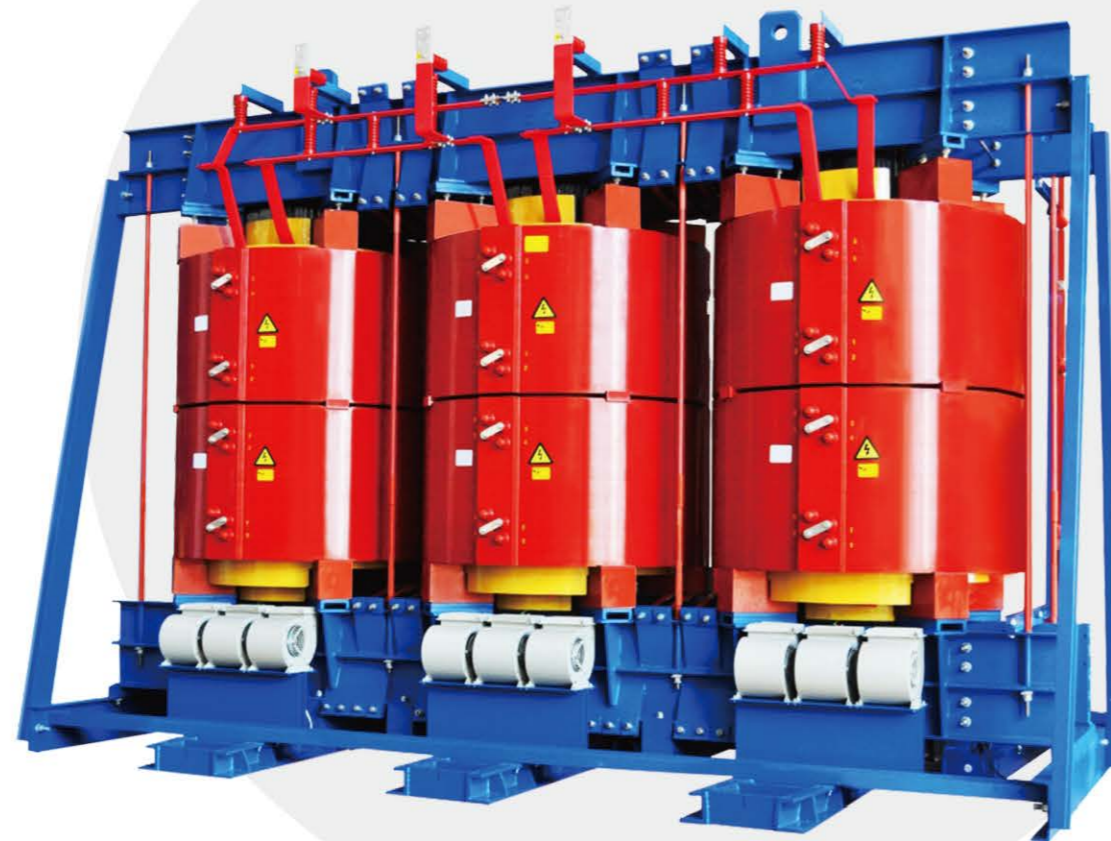
系列产品 /1

电力变压器 Power transformer

容量：50~45000kVA
Capacity: 50~45000kVA

随着城市用电负荷不断增加，城网区域性变电所越来越深入城市中心区、居民小区、大中型厂矿等负荷中心，大容量的区域供电干式电力变压器得到广泛应用。我公司成功研制35kV等级45000kVA和10kV等级35000kVA干式电力变压器已顺利投入运行。

As urban power load increases, regional substations of urban power system have reached load centers like central urban areas, residential communities, medium and large sized mines; as a result, high-capacity regional power supply dry-type transformers have been widely applied. JST has developed dry-type transformers with voltage classes of 35kV and capacity of 45000KVA as well as voltage classes of 10kV and capacity of 35000KVA which has been put into operation.



45000kVA干式变压器
Dry Transformer
(SC10-45000/35)

配电变压器 Power distribution transformer

容量：30~4000kVA
Capacity: 30~4000kVA

产品型号为SC(B) 12/14/18，该系列产品满足国家标准GB/T10228和GB20052的要求，并且通过能效等级认证，适合不同用户的节能需求。

Product series of SCB12/14/18 can meet the requirement of GB/T10228 and GB20052 and has passed energy efficiency standards, meeting energy conservation demands of different users.



非晶合金变压器 Amorphous transformer

容量：30~2500kVA
Capacity: 30~2500kVA

产品型号为SC(B) H15/17/19，该系列产品能显著降低能耗，空载损耗在普通硅钢变压器的基础上降低70%，负载损耗降低10%。目前我公司生产的35kV等级最大容量2500kVA非晶合金干式变压器已在新能源领域运行，运行情况良好。

Product series of SC(B) H15/17/19, this series of products can significantly reduce energy consumption, No-load loss and load loss are reduced by 70% and 10% respectively on the basis of silicon steel transformer. Now, amorphous dry-type transformer with voltage level of 35kV and largest capacity of 2500kVA are served in the new energy field with favorable operation conditions.



风力发电用变压器 Transformer for wind power

容量：30~12000kVA
Capacity: 30 ~ 12000 kVA

风力发电配套变压器可安装于塔外、塔底和塔顶，通过荷兰KEMA的C2E2试验充分验证了该系列产品适应海洋潮湿、盐雾的恶劣运行环境。变压器采用特殊的绝缘结构，能安装于塔筒狭小的空间内，并通过空气动力学的仿真精确设计通风结构，提高变压器的散热性能。该系列变压器已大量用于美国、欧洲及国内的海上、近海、内陆风电场，得到用户的广泛认可。

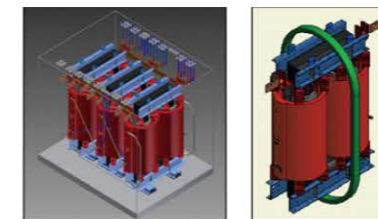
Transformer for wind power can be installed at the bottom and the top of a tower or outside a tower. The transformer has passed C2E2 of Netherlands KEMA, which proves that it is highly adaptive and can be operated in harsh conditions with oceanic humid and salt fog. The transformer is of special insulation structure and can be installed in the narrow space of a tower. Optimize the design of ventilation structure by using aerodynamics simulation, which improves the cooling performance of transformers. This series of transformers have been widely used in wind farms in the US, Europe, China off-shore area and inland.



机舱式风电变压器
Wind transformer in nacelle



塔筒式风电变压器
Tower-type wind transformer



三相双柱双分裂变压器组
Three - phase double - column double - split transformer set

SERIES OF PRODUCTS

系列产品 /2

截至2020年12月31日
公司干式变压器产品已应用于国内

As of December 31, 2020, dry-type transformer products have been widely applied in total 56 wind farm projects in China

50⁺

累计56个风电场项目
56 wind projects

110⁺

117个光伏电站项目
117 solar power plants.

环氧树脂浇注干式变压器
Cast Resin Dry-type Transformer

120⁺

43个城市的，126个轨道交通项目
126 rail transit projects in 43 cities



核能发电干式变压器

Dry-type transformer for nuclear power

容量: 100~20000kVA

Capacity: 100 ~ 20000 kVA

该系列产品主要用于核电厂励磁及供电系统，采用特殊的绝缘结构，具有更高的可靠性，使用寿命可达60年，满足核电站使用环境。

The products are mainly used for the excitation and power supply system for nuclear plants with special insulation structure, high reliability and over 60-year service life to adapt to the environment of nuclear plants.

整流励磁变压器

Excitation rectifier transformer

容量: 30~16000kVA

Capacity: 30 ~ 16000 kVA

采用单相/三相结构、高压带离相或共相母线进线、高低压线圈之间带屏蔽结构，满足用户谐波运行环境，同时将负载的谐波进行过滤，有效减小对电网的谐波污染。适用于水力发电厂、火力发电厂、燃机电厂的静态励磁系统。

The product adopts single phase/three-phase structure, HV with IPB and LV NSBD shield screen between HV and LV coil to meet user demand for harmonic operation. Meanwhile, it is able to filter harmonic load to reduce power grid pollution caused by harmonic. It is suitable for static excitation system of hydropower plant, thermal power plant and gas power plant.

变频启动隔离变压器

Variable frequency starting isolation transformer

容量: 1000~40000kVA

Capacity: 1000 ~ 40000 kVA

该变压器用于发电机/电机静态变频启动系统，适应高谐波和间歇性负载。广泛用于燃气发电、抽水蓄能电站的变频启动装置。

This type of transformer is applicable to power generator/dynamo static frequency startup system and can be used for high harmonic and intermittent load. It is widely applied in inverter frequency startup device for gas power generation and pumped storage power station.

能馈变压器

Energy feedback transformer

容量: 1000~4000kVA

Capacity: 1000 ~ 4000 kVA

配合轨道交通能馈系统使用，将机车制动过程中产生的制动能量回馈给电网，实现能量再生利用。该系列变压器通过谐波含量计算、仿真验证，并通过权威机构的机组系统全负荷试验。

Cooperate with rail transit feedback system, will be produced in the process of the locomotive brake braking energy back to the grid, using renewable energy. This series of transformer by harmonic content calculation, simulation, and through the authority of the unit system full load test.

牵引整流变压器

Traction rectifier transformer

容量: 1000~4400kVA

Capacity: 1000 ~ 4400 kVA

等效24脉波整流回路对电网的谐波污染比12脉波整流回路降低50%。用于地铁牵引变电站中，可降低交流侧的谐波含量及改善直流电压波形，在VI级重型牵引负载条件下可靠运行。该系列变压器通过谐波含量计算、仿真验证，并通过权威机构的机组系统全负荷试验。

24 pulse phase rectifier circuit of the equivalent capacity can reduce harmonic pollution to the grid by 50% compared with the 12 pulse rectifier circuit. Its use in metro traction substation can reduce the harmonic content of AC network and can improve the DC voltage waveform. It can be reliably operated under the condition of the VI grade heavy traction load. The series transformer has passed harmonic content calculation, simulation verification and the full load test of the unit system of some authoritative organizations.

光伏并网逆变用干式变压器

Dry-type transformer for PV grid-connected inverter

容量: 500~5000kVA

Capacity: 500 ~ 5000 kVA

该系列变压器采用特殊高爬距设计结构，满足最高IV级污秽等级的环境要求，并通过合理的电磁计算，保证在高温环境长期运行的情况下尽量压缩体积，使其占用空间小，降低用户初期投资。

Special long creepage distance structure is adopted on this type of transformer to meet highest pollution level IV. By scientific electromagnetic calculations, it is ensured that its size can be as small as possible when it runs in high temperature environment in a long period. The aim is to occupy smaller space and reduce the amount of initial investment of users.

多晶硅还原炉干式变压器

Polycrystalline silicon reduction furnace dry type transformer

容量: 500~25000kVA

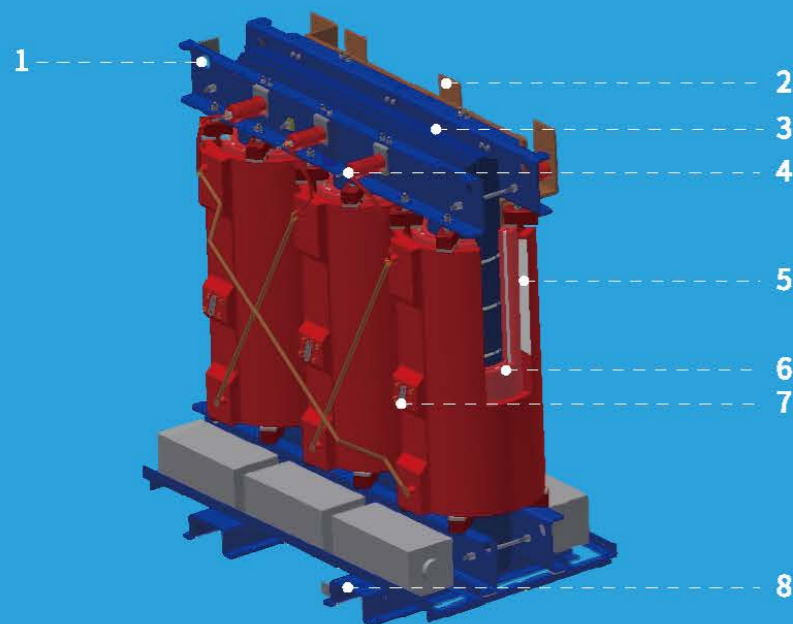
Capacity: 500 ~ 25000 kVA

该产品电压等级35kV及以下，应用于多晶硅生产，与调功柜配套使用，为多晶硅还原炉供电，具有良好的抗短路能力和抗系统负载谐波能力；并能多容量段、多电压输出，为调功柜提供分段电流和电压，满足缺相、过载等各种运行工况。

The product voltage grade 35 kV and below, used in polysilicon production, with adjustable power cabinet, power supply for polycrystalline silicon reduction furnace, it has good resistance to short circuit ability and the ability to resist the system load harmonic; And more capacity, voltage output, to provide adjustable power ark piecewise current and voltage, lack of phase, overload, etc. Various operating conditions.

PRODUCT FEATURES

产品特性



• 通过CEF（气候、环境、燃烧）试验

• 损耗低，噪声小

• 无污染，免维护

• 绝缘性能好，局部放电小，耐电冲击能力强

• 机械强度高，抗温度变化、抗短路能力强

• 耐潮湿，可在高温下运行

• 安装经济，可安装于负荷中心，无需特殊基础

- Passed CEF(Climate, Environment, Fire) tests (climate, environment, fire) test
- Low loss, low noise
- No pollution, free maintenance
- Insulation is perfect, free partial discharge, high strength to electrical stress
- High mechanical strength, resistance to temperature shock, anti-short circuit ability
- Moisture proof, can operate at high temperature
- Transformers can be installed economically close to the load center without any special foundation.

◎ 电压等级：35kV及以下（含双电压）

◎ 容量：50-45000kVA

◎ 分接范围：±2X2.5%（或根据用户要求）

◎ 频率：50Hz或60Hz

◎ 联结组别：Dyn11;Yyn0或其它

◎ 冷却方式：AN/AF

◎ 绝缘等级：F或H

◎ 绝缘水平：

电压等级 6kV 10kV 20kV 35kV

工频耐压 35kV 50kV 70kV

雷电冲击电压 75kV 125kV 170kV 200kV

◎ 防护等级：IP00, IP20, IP23 或其它

◎ 使用条件：海拔小于1000米，环境温度低于40℃。超过上述使用条件时，需按照标准做相应的调整。

◎ 适用标准：

GB1094 《电力变压器》

IEC60076 《电力变压器》及行业相关标准

有特殊要求的订货，可以进行专门设计，以满足用户需要。

IEEC57

◎ Voltage levels: 35 kV and below (including dual voltage)

◎ Capacity: 50-45000 kVA

◎ Tapping range: ±2X2.5% (or customer specify)

◎ Frequency: 50Hz or 60 Hz

◎ Connections: Dyn11;Yyn0 or other

◎ Cooling type: AN/AF

◎ Insulation class: F or H

◎ Insulation level:

Voltage 6kV 10kV 20kV 35kV

Power frequency withstand voltage 35kV 50kV 70kV

Lightning impulse voltage 75kV 125kV 170kV 200kV

◎ Protection grade: IP00, IP20, IP23 or other

◎ Application conditions: less than 1000 meters above sea level, the environment temperature is lower than 40 °C. Correction should be carried out in accordance with standards if the application is beyond the above conditions.

◎ Applicable standards:

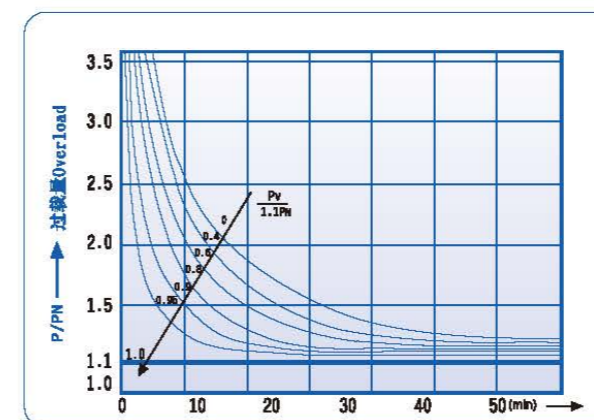
Gb1094 Power Transformers

IEC60076 power transformer and related standards

Customized design per customers' requirement

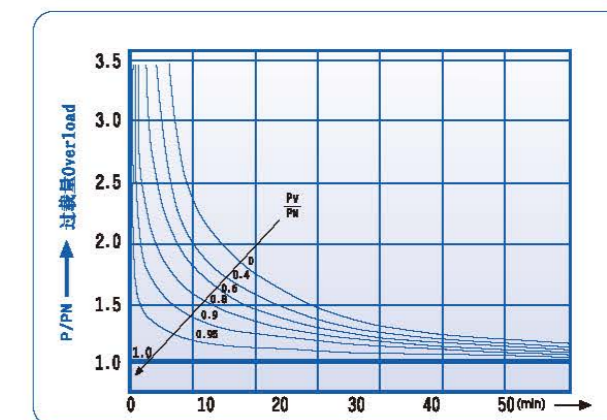
IEEC57

过载曲线 Overload curve



环境温度： $\theta_r = 20^\circ\text{C}$
Ambient Temperature: 20°C

允许过载时间
Max duration of overload



环境温度： $\theta_r = 40^\circ\text{C}$
Ambient Temperature: 40°C

允许过载时间
Max duration of overload

PN-额定容量
PN Rated capacity

PV-起始负载
PV Initial load

P-过载容量
P-overload capacity

NEW ENERGY

新能源业务

业务方向： 围绕清洁、低碳和能源互联网开展业务，为客户提供低碳、清洁能源系统的规划、建设，能源综合利用优化，清洁能源项目的开发、建设。

Business direction:
Embracing clean,low-carbon and IoT, we provide customers with the planning and construction of low-carbon and clean energy system,the optimization of integrated utilizations of energy and the development and construction of clean-energy projects.

主要业务:	Services:
一、新能源开发及建设	New energy development and construction
1、光伏发电项目	1. PV power generation
2、风力发电项目	2. Wind power generation
3、生物质发电项目	3. Biomass power generation

二、能源综合利用优化	Integrated utilization and optimization of energy
1、建筑节能项目	1. Energy conservation in building
2、工业节能项目	2. Energy conservation in industry
3、园区综合能源利用项目	3. Integrated utilization of energy in the park
4、工业放散废热回收利用项目	4. Industrial waste heat recycling

ENERGY STORAGE

储能业务

业界首创
最大单机容量
THE INDUSTRY INITIATIVE
MAXIMUM SINGLE
MACHINE CAPACITY

TECHNICAL ADVANTAGES

一、技术优势描述:

- 1

行业领先的架构模式、扩展方式、快速部署电站，创新的标准化、模块化集装箱设计，易集群，便于现场运输、安装、调试，业界首创最大单机容量；

Industry-leading structural mode, extensional method and rapid deployment of power stations, innovative standardized and modularized container design, easy clustering and site transportation, installation and commission, largest unit capacity in the industry.
- 2

电池只串不并，电池无环流，消除电池发热和热失控；采用液冷技术，电池温度一致性好，消除电池短板效应，降低故障率，提高储能系统的容量利用率。

By series-connection batteries without parallel and circulation, we eliminate the battery heat-up and thermal runaway. Leveraging liquid-cooling technology, we secure the battery consistency, eliminate barrel effect, reduce fault rate and increase the utilization of the capacity of the energy saving system.



电池系统寿命提升
BATTERY SYSTEM LIFE
20%

ENERGY STORAGE

储能业务

- 3

液冷散热，精准控制每个电芯温度差异，空调能耗降低20%以上

With liquid cooling, we make accurate control of temperature difference of all cells and lower air-conditioning energy consumption by over 20%
- 4

降低系统成本的同时，提高系统循环效率

We arrive at lower system cost but high efficiency in system circulation
- 5

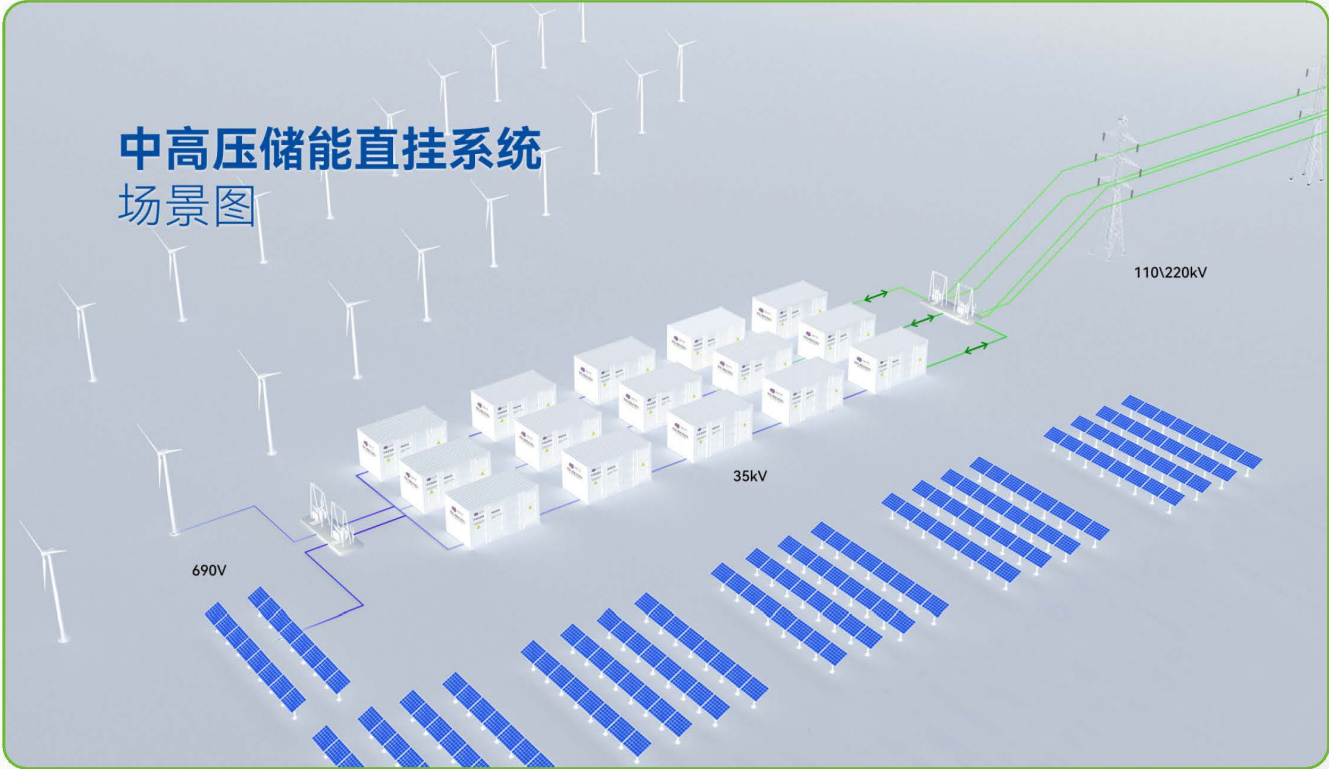
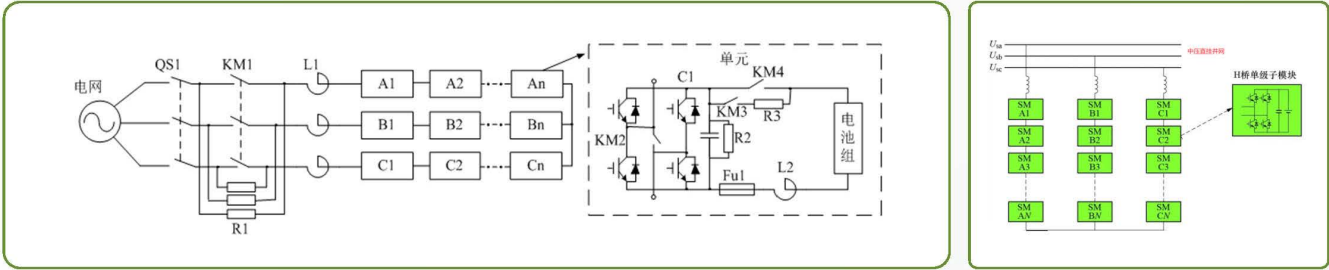
配置L型滤波装置可实现“绿色并网”

We attain "green grid connection" with L-shaped filter device

空调能耗降低

AIR CONDITIONING
ENERGY CONSUMPTION
REDUCTION

20%



二、系统参数如下:

参数	项次
电网电压	35kV
额定频率	50Hz/60Hz
额定功率	12.5MW
电网侧额定电流	206A
额定电量	25MW.h
电芯类型	LFP280Ah
拓扑结构	H桥级联
直流电压范围	680~979V
总电流畸变率 (THDi)	< 0.6%
总电压波形畸变率 (THDu)	< 0.6%
功率响应时间	< 10ms
PCS最佳转换效率	> 98.6%
就地调度模式	有功/无功独立可控
远程调度模式	有功/无功独立可控
自主运行模式	P/t, Q/V曲线可配置
通讯类型	RS485/CAN (备选104/IEC61850)
环境条件	IP54 (可定制)
颜色	RAL7035
冷却方式	液冷
安装方式	户外集装箱内
环境温度	-10℃~+45℃
相对湿度	10%~90%
海拔高度	2000m以内 (可定制)

2. System parameters

Item	Parameter
Grid voltage	35kV
Rated frequency	50Hz/60Hz
Rated power	12.5MW
Rated current at grid side	206A
Rated electricity quantity	25MW.h
Battery type	LFP280Ah
Topology	Cascaded H-bridge
Range of DC voltage	680~979V
THDi	< 0.6%
THDu	< 0.6%
Power response time	< 10ms
Power conversion efficiency (PCS)	> 98.6%
Local dispatching	Independent control of active/reactive power
Remote dispatching	Independent control of active/reactive power
Self-operation	Configurability of P/t and Q/V curves
Communication type	RS485/CAN (optional: 104/IEC61850)
Ambient condition	IP54 (custom)
Color	RAL7035
Cooling	Liquid cooling
Installation	In outdoor containers
Ambient temperature	-10℃~+45℃
Relative humidity	10%~90%
Altitude	Below 2km (custom)

- 6

级联方式直接输出高压，每相电流较小，有效降低线损

Characterized by low current per phase, the cascaded mode for direct high voltage output can effectively reduce line loss
- 7

系统响应速度快，简化储能电站协调控制，提升调度响应速度，功率响应时间≤10ms

With quick system response and simplified coordinated control of energy storage stations, we respond to dispatching at faster pace with power response times≤10ms
- 8

冗余容错设计，功率单元/电芯故障时快速切除故障部分，保证系统正常运行

Under redundant fault-tolerant design, we can prune the faulty immediately in case of breakdown in any power units/batteries, so as to ensure normal system operation

功率响应时间

POWER RESPONSE
TIME

≤10ms