储能电池系统产品规格书

Specification of Battery Energy Storage System

编写 Preparation	审核 Review	批准 Approval	版本 Version
Yuchen	Liusi	Houmin	1.8

瑞浦兰钧能源股份有限公司

REPT BATTERO Energy Co., Ltd

上海市浦东新区金海路 1255 号 / No. 1255, Jinhai Road, Shanghai, China

浙江省温州市龙湾区滨海六路 205 号 / No. 205, Binhai Six Road, Longwan District, Wenzhou, China

更新履历 Update History

储能电池系统产品规格书 Battery Energy Storage System Product Specification				
Versions 版本	ECN No. ECN 编号	Revision history 变更履历	Author 作者	Revision date 更新日期
Ver 1.0		New release (first edition)新版发行（初版）	Yuchen 郁辰	2022/4/21
Ver1.1		Add contents of power map, DC cabinet, packaging, storage and transportation 新增功率 map，直流柜，包装储运部分的内容	Yuchen 郁辰	2022/6/16
Ver1.2		6.3.2.2Update LV pin definition of BJB 高压盒低压接口定义更新 Add section 6.4 DC Cabinet introduction 新增 6.4 直流汇流柜介绍 Add section 7 Installation of the container 新增 7 集装箱安装说明	Yuchen 郁辰	2022/7/1
Ver1.3		修订第 5 节功率 map 的使用范围；Revised the scope of use of power map in section 5; 修订表 6-1 中 FSS 的内容 Revise the FSS content in Table 6-1	Yuchen 郁辰	2022/7/8
Ver1.4		Update 6.3.2.2 connector definitions 更新 6.3.2.2 引脚定义 增加电箱规格参数表 Added the battery pack specification table	Yuchen 郁辰	2022/7/26

V1.5		更新 7 集装箱安装部分说明 Update section 7 Installation of the container 更新 5 充放电 map Update section5 Charging and discharging Map 更新 6 直流柜相关内容 DC Cabinet information 更新公司 logo Update company logo 更新 6 中的产品图片 Update product pictures in section 6	Yuchen 郁辰	2023.4.19
V1.6		更新产品部分参数信息 Update partial parameter information of the product 更新功率 MAP Update power MAP 更新高压插件信息 Update HV plug-in information	Li 李伟	2023.12.14
V1.7		更新集装箱 IP 等级 Update Container IP Class	Li 李伟	2023.12.15
V1.8		更新重量 Update weight 更新标准充放电流程 Update the standard charging and discharging process 更新耐压值 Update the withstand		

		voltage value		

目 录

1. 范围 Application Range 5
2. 执行标准 Implementation Standards 5
3. 舱外适用环境 External Applicable Environment 5
4. 产品参数 Product Parameters 5
5. 充放电参数 Specification of Charge and Discharge 8
6. 产品介绍 Product Introduction 10
7. 安装 Installation 20
8. 质保申明 Warranty Statement 22
9. 产品出货状态 Shipment Status 23
10. 产品安全使用指南 Safety Guidelines and Use Restriction 23
11. 产品包装、运输和存储 Product packaging, Transportation and Storage 24

1. 范围 Application Range

本产品规格书规定了瑞浦兰钧能源股份有限公司（以下简称瑞浦兰钧）生产的用于储能场景的磷酸铁锂电池直流侧系统的性能指标、运输存储要求、使用条件及注意事项及风险警示等。This product specification specifies the performance indicators, transportation and storage requirements, use conditions, precautions and risk warnings of the lithium iron battery power station produced by REPT BATTERO Energy Co., Ltd (hereinafter referred to as REPT BATTERO) for energy storage scenarios.

2. 执行标准 Implementation Standards

凡是注日期的引用文件，仅注日期的版本适用于本文件。凡是不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。For dated references, dated versions only apply to this document. For undated references, the latest version (including all amendments) of this document applies.

GB/T 36276-2018、IEC62477、IEC62619、IEC 62933-5-2、IEC63056、UL1973、UL9540A

3. 舱外适用环境 External Applicable Environment

No.	项目内容/Item	范围/Range	备注/Remark
1	环境温度 Environment temperature	-30℃~60℃	/
3	环境湿度 Environment humidity	10%~90%RH	/
4	海拔高度 Altitude	≤3000m	/

4. 产品参数 Product Parameters

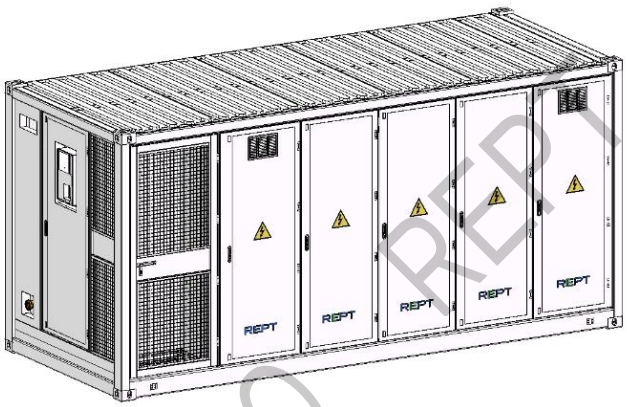


图 4-1 MATRIX 20 储能集装箱系统/Fig. 4-1 MATRIX 20 Energy storage container system

No.	项目内容/Item	规格参数/Spec.	备注/Remark
1	产品代号 Product Code	Y52R08-C10-3.727MWh	MATRIX 20
2	成组方式 Configuration	416S10P	
3	额定能量 Rated Energy	3727.36kWh	100%DOD， 25℃，0.5C
4	额定电压 Rated Voltage	1331.2V	
5	工作电压范围 Operating Voltage Range	1040~1500V	For cell 2.5V~3.65V
6	尺寸 Dimension	6058mm×2438mm×2896mm	
7	质量 Mass	~36000kg	
8	标准充电方法 Standard charging method	以 1400A 恒流充电至单体 3.65V，依次按前一过程的 1/2 电流值充电至单体截止电压 3.65V，最后一次充电电流值为 175A Charge at 1400A constant current until any cell reaches 3.65V, then charge to 3.65V according to 1/2 current value of the previous process, the last charging current is 175A	25℃±2℃
9	标准放电方法 Standard discharging method	以 1400A 恒流放电，至单体截止电压 2.5V Discharge at 1400A until any cell reaches a cutoff voltage of 2.5V	25℃±2℃
10	额定充电功率	0.5P(1863.5KW)	According to

	Rated charge power		current map（5.1~5.4）
11	额定放电功率 Rated discharge power	0.5P(1863.5KW)	According to current map（5.1~5.4）
12	短时过载充电电流 Short overload charging current（≤1min）	2800A（for 0.5P system）	According to current map（5.1~5.4）
13	短时过载放电电流 Short overload charging current（≤1min）	2800A（for 0.5P system）	According to current map（5.1~5.4）
14	舱内温度 Temperature range in cabin	-20~50℃	
15	舱防护等级 IP level of cabin	Bat. Room IP55 Electric room IP54	
16	工作效率 Efficiency	≥93%	
17	绝缘 Insulation standard	≥1000Ω/V	Test voltage 1000Vdc
18	耐压 Resistant to high voltage	4500VDC，漏电流≤5mA，不发生击穿或闪络 4500VDC, leakage current ≤5mA, no breakdown or flashover	
19	热管理方式 Cooling and heating type	液冷/液热 Liquid cooling / heating	
20	制冷功率 Refrigerating Capacity	40kW @ 35℃Et 35kW @ 45℃Et	
21	加热功率 Heating Capacity	16kW	
22	辅助电源功率 Auxiliary power supply	20kW@Ambient temp 35C 22.5kW@Ambient temp 45C	Including BMS and cooling system

23	通信协议 Communication agreement	CAN, RS485, TCP/IP	
24	执行标准 Implementation criteria	UN38.3, UL1973, IEC62619, UL9540A, GB/T 36276	For cell
		IEC62619, IEC63056, IEC 60730,UL1973,UL9540A, UL9540,UN38.3,GB/T 36276	For system

5. 充放电参数 Specification of Charge and Discharge

5.1 电池模组&簇持续充电 Continual Charging Current of Bat. Module & Rack (A)

SOC/℃	Vmin ≤ 1.8V	Vmin ≤ 2.5V	=0%	≥ 5%	≥ 10%	≥ 20%	≥ 30%	≥ 40%	≥ 50%	≥ 60%	≥ 70%	≥ 80%	≥ 90%	≥ 95%	Vmax ≥ 3.45V	Vmax ≥ 3.55V
=-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
≥0	0.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	0.0	0.0	0.0
≥5	0.0	28.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	0.0	0.0	0.0
≥10	0.0	28.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	0.0	0.0	0.0
≥15	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥20	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥25	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥30	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥35	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥40	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥45	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
≥50	0.0	28.0	168	168	168	168	168	168	168	168	168	168	168	84.0	56.0	28.0
=55	0.0	28.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	56.0	56.0	28.0
=56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5.2 电池模组&簇持续放电 Continual Discharging Current of Bat. Module & Rack (A)

SOC/℃	Vmin ≤ 2.7 V	Vmin ≤ 2.8 V	>0%	≥5%	≥10%	≥20%	≥30%	≥40%	≥50%	≥60%	≥70%	≥80%	≥90%	= 100%
=-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
≥-30	0.0	0.0	0.0	0.0	0.0	0.0	28.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-25	0.0	0.0	0.0	0.0	0.0	28.0	28.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-20	0.0	0.0	0.0	0.0	28.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-15	0.0	0.0	0.0	0.0	28.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-10	0.0	0.0	28.0	28.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-5	28.0	28.0	28.0	28.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥0	28.0	28.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥5	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥10	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥15	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥20	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥25	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥30	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥35	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥40	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥45	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥50	28.0	56.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
>55	28.0	28.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
=60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5.3 电池模组&簇脉冲充电 Pulse Charging Current of Bat. Module & Rack (A)

SOC/℃	=0%	≥5%	≥ 10%	≥ 20%	≥ 30%	≥ 40%	≥ 50%	≥ 60%	≥ 70%	≥ 80%	≥ 90%	≥ 95%	≥ 98%	= 100%
=-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
≥0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	0.0	0.0	0.0
≥5	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	0.0	0.0	0.0
≥10	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	0.0	0.0	0.0
≥15	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	84.0	84.0	0.0
≥20	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥25	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥30	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥35	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥40	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥45	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
≥50	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	168	84.0	0.0
=55	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	84.0	84.0	0.0
=56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5.4 电池模组&簇脉冲放电 Pulse Discharging Current of Bat. Module & Rack (A)

SOC/℃	>0%	≥5%	≥10%	≥20%	≥30%	≥40%	≥50%	≥60%	≥70%	≥80%	≥90%	=100%
=-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
≥-30	0.0	0.0	0.0	0.0	56.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-25	0.0	0.0	0.0	56.0	56.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-20	0.0	0.0	56.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-15	0.0	0.0	56.0	56.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
≥-10	28.0	56.0	56.0	84.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥-5	28.0	56.0	84.0	84.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥0	84.0	84.0	84.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥5	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥10	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥15	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
≥20	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥25	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥30	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥35	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥40	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥45	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
≥50	168.0	168.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
>55	84.0	84.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
=60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6. 产品介绍 Product Introduction

6.1 总成概述 Summary of Assembly

MATRIX 20 储能电池系统是由电池簇、电池管理系统(BMS)、灭火系统(FSS)、HVAC 热管理系统和辅助配电系统组成的一体化高能量密度系统。MATRIX 20 battery energy system is an integrated high energy density system, which is in consisting of battery rack, battery management system (BMS), fire suppression system (FSS), thermal management system and auxiliary distribution system.

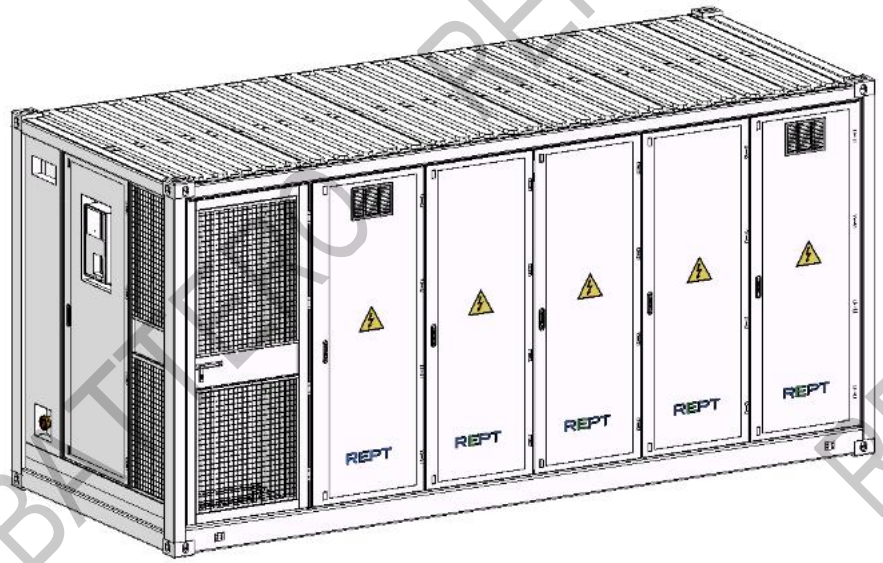


Fig. 6-1 Outside overview of MATRIX 20 battery cabin system

系统组件如下：The components of the system is list as following:

Table 6-1 Components list

System	Sub Components	Amount	Remark
Bat. rack	20 fts container	1	HQ
	Y52 bat. pack	80	BMU inside
	Bat. junction box	10	SBCU inside
Electrical cabinet	MBCU	1	
	AC & DC power distribution	1	3 phase 380～480Vac± 5%
	UPS	1	
	Main switch	1	
Cooling system	Cooling device	1	40kW
	Pipeline system	1	
FSS	Smoke detector	5	
	Gas detector	2	
	Novec® 1230 device	80	Module level
	Fire fighting cylinder	1	Container level

	Fire suppression control panel	1	Container level
	Fire fighting water pipeline	1	Container level

6.2 电箱（电池模块）Pack（Battery module）

Each battery packs is composed of 52 cells in series connection, and each battery rack contains 8 battery modules, so each rack contains 416 battery cells. Totally, configuration of MATRIX 20 battery power station is 10P416S. The battery pack is integrated with liquid cooling plate.

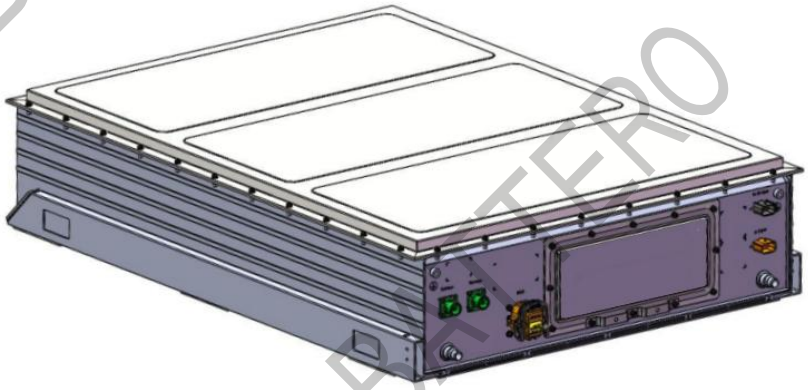


Fig. 6-3 Y52 battery pack

No.	项目内容/Item	规格参数/Spec.	备注/Remark
1	产品代号 Product Code	Y52	
2	成组方式 Configuration	1p 52s	
3	额定能量 Rated Energy	46.59kWh	100%DOD，25℃，0.5C
4	额定电压 Rated Voltage	166.4V	
5	许用电压范围 Allowable voltage range	130V~189.8V	For cell 2.5V~3.65V
7	尺寸 Dimension	1133.5±5mm×812±2mm×238.5±2mm	

8	质量 Mass	~335kg	
9	额定充电功率 Rated charge power	0.5P	According to current map（5.1~5.4）
10	额定放电功率 Rated discharge power	0.5P	According to current map（5.1~5.4）
11	短时过载充电电流 Short overload charging current（≤1min）	280A	According to current map（5.1~5.4）
12	短时过载放电电流 Short overload charging current（≤1min）	280A	According to current map（5.1~5.4）
13	电池工作温度 Battery operating temperature	-30~60℃ for discharge 0~55℃ for charge	
14	防护等级 IP level	IP67	
15	绝缘 Insulation standard	≥1000Ω/V	Test voltage 1000Vdc
16	耐压 Resistant to high voltage	4500VDC，漏电流≤5mA，不发生击穿或闪络 4500VDC, leakage current ≤ 5mA, no breakdown or flashover	
17	热管理方式 Cooling and heating type	液冷/液热 Liquid cooling / heating	

6.3 电池管理系统和直流控制组件 BMS and DC Control Device

6.3.1 电池管理系统 Battery Management System

电池管理系统用于监控电池电压、电流、温度，管理能量的吸收和释放，热管理，低压供电，高压安全监控，故障诊断和管理，对外与 PCS 和 EMS 通信，确保电池电站的稳定运行。Battery Management System is used to monitor the battery voltage, current, temperature, managing energy absorption and release, thermal management, low voltage power supply, high voltage security monitoring, fault diagnosis and management, external communication with PCS and EMS, ensure the stable operation of the battery power station.

电池管理系统由 1 个置于直流柜的 MBCU、10 个置于接线盒的 SBCU、80 个置于电池包的 BMU 组成。The BMS is composed of 1 MBCU placed in the electric cabinet, 10 SBCUs placed in the junction boxes, and 80 BMUs placed in battery packs.

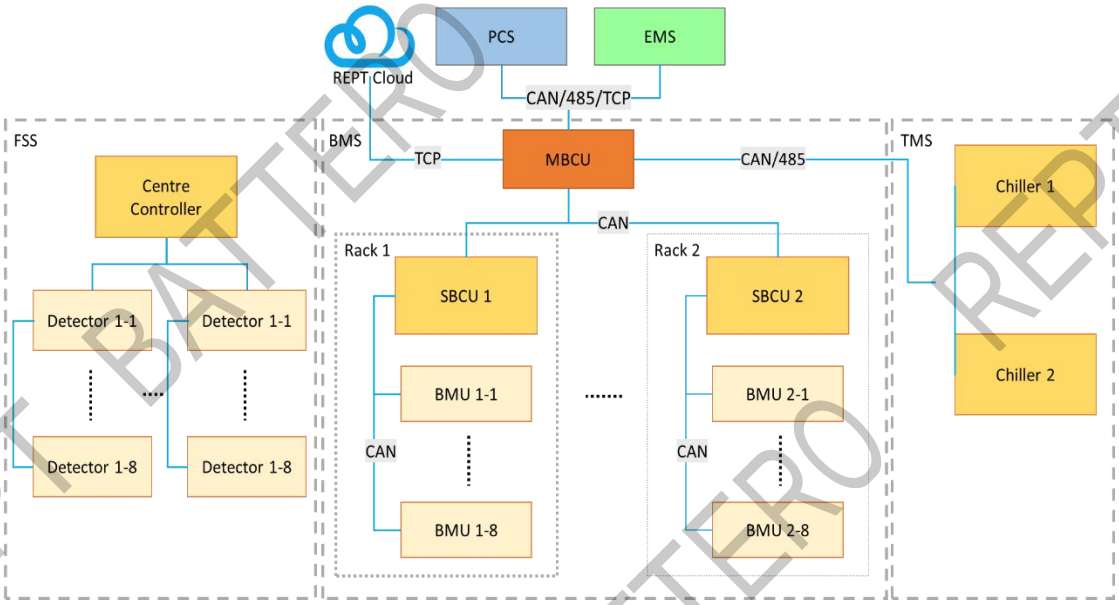


Fig. 6-4 Three-level BMS architecture for battery power station

6.3.2 分布式直流控制组件 Distributed DC control Unit

每个电池簇设置 1 套接线盒，将电池簇内支路电池组与电控柜相连接。接线盒内部将继电器、熔断器、手动隔离开关等装置连入主回路；Each battery rack has one junction box which is used to connect the battery packs in series to the electric cabinet. Inside the junction box, relays, fuses and the mannul disconnecting switch are connected in series in the main circuit.

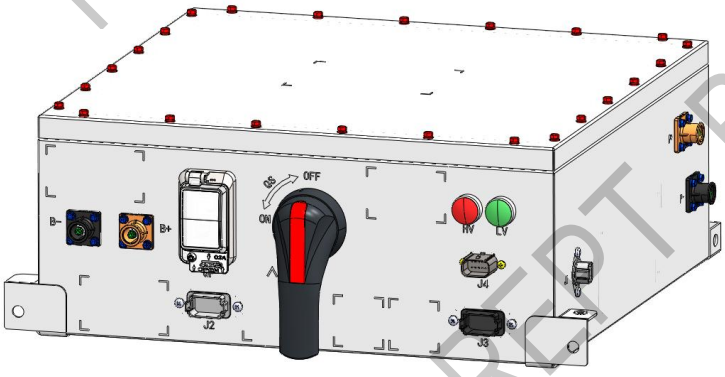


Fig. 6-5 Battery junction box for each rack

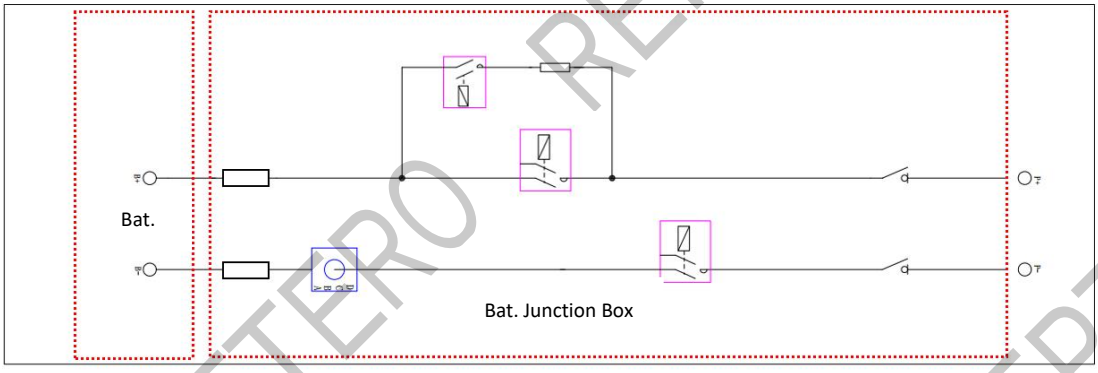


Fig. 6-6 electrical schematic diagram of battery junction box

6.3.2.1 高压控制盒规格参数 Specification of bat. junction box

No.	项目内容/Item	规格参数/Spec.	备注/Remark
1	尺寸 Dimension	601W×682D×231H mm	
2	质量 Mass	≤30kg	
3	输入电压 Input Voltage	24Vdc	Range 9～32Vdc
4	工作温度 Operating temperature	-30℃～60℃	
5	电流采样误差 Current sampling error	±1%FSR	
6	电压采样误差 Voltage sampling error	±1%FSR	
7	功耗 Power dissipation	≤35W	电池簇总功耗，含 8 个电池模组和 1 个接线盒 Total power dissipation of bat. rack including 8 bat. module and 8 junction box.

6.3.2.2 接口定义及功能说明 Interface definition and function description

- 高压接口 HV connector

名称及代号 Name and Code	型号 Model	功能说明 Function description
正极输入/输出（B+/P+） Positive input/output	Socket：FSPC22180P-M8A1 Plug：FSPC80180P-50A3	DC power input/output
负极输入/输出（B-/P-） Negative input/output	Socket：FSPC22180Q-M8B1 Plug：FSPC80180Q-50B3	DC power input/output

➢ 诊断接口 Debug connector

名称及代号 Name and Code	型号 Model	功能说明 Function description
诊断接口（J1） Debug connector（J1）	Socket：AT04-4P-PM11 Plug：AT06-4S-RD01	Debug for BMS
引脚号 Pin No.	定义 Function	功能说明 Function description
1	诊断 EXT_CANL	Debug for SBCU
2	诊断 EXT_CANH	Debug for SBCU
3	诊断 INT_CANL	Debug for BMU
4	诊断 INT_CANH	Debug for BMU

➢ SBCU 通信输入/输出 SBCU communication input/output

名称及代号 Name and Code	型号 Model	功能说明 Function description
SBCU 通信输入（J2） SBCU communication input	Socket：AT04-12PA-PM05 Plug：AT06-12SA-RD01	Communication between each SBCU
引脚号 Pin No.	定义 Function	功能说明 Function description
1	电源- Power supply-	Power supply for LV system

2	电源- Power supply-	
3	NA	
4	电源+ Power supply+	
5	电源+ Power supply+	/
6	SBCU 编码 DI3	SBCU ID automatic calibration
7	NA	/
8	CANR-	Configurable terminal
9	CANR+	
10	EXT_CANG	Communication between each SBCU
11	EXT_CANL	
12	EXT_CANH	

名称及代号 Name and Code	型号 Model	功能说明 Function description
SBCU 通信输出（J3） SBCU communication output（J3）	Socket：AT04-12PB-PM11 Plug：AT06-12SB-RD01	Communication between each SBCU
引脚号 Pin No.	定义 Function	功能说明 Function description
1	电源- Power supply-	Power supply for LV system
2	电源- Power supply-	
3	NA	
4	电源+ Power supply+	
5	电源+ Power supply+	/
6	SBCU 编码 DO3	SBCU ID automatic calibration

7	NA	/
8	CANR-	Configurable terminal
9	CANR+	
10	EXT_CANG	Communication between each SBCU
11	EXT_CANL	
12	EXT_CANH	

➢ BMU 通信输入 BMU communication input

名称及代号 Name and Code	型号 Model	功能说明 Function description
BMU 通信输入（J4） BMU communication input（J4）	Socket：477259040 Plug：1600746009	Communication between SBCU and BMU
引脚号 Pin No.	定义 Function	功能说明 Function description
1	BMU 电源+ Power supply for BMU+	/
2	Wake up	/
3	BMU 编码 DO1	BMU ID automatic calibration
4	BMU 电源- Power supply for BMU-	/
5	INT_CANG	/
6	INT_CANL	/
7	INT_CANH	Communication to BMU
8	NA	
9	NA	
10	NA	/
11	NA	/
12	NA	/

6.4 直流柜 DC Cabinet

6.4.1 直流柜概述 Summary of DC Cabinet

直流柜主要功能包括：电池簇输出回路汇流、系统辅助电源的接入与分配、不间断电源供给、主回路短路保护、系统数据监控与显示等。The main functions of the DC cabinet include: output convergence of each battery rack, access and distribution of system auxiliary power supply, uninterruptible power supply, short circuit protection, system data monitoring and display, etc.

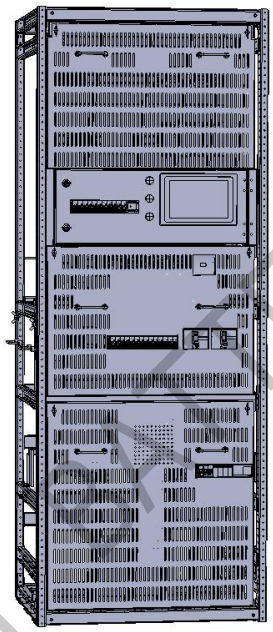


Fig. 6-6 Electric cabinet appearance

Sub Components	Amount	Remark
MBCU	1 pcs	Communication with EMS
Auxiliary AC power distribution	1 set	3 phase 380～480Vac
Auxiliary DC power distribution	1 set	24V
UPS	1 set	
Disconnector	1 pcs	
Fuse	2 pcs	

State lamp	3 pcs	
Battery connection busbar	2 set	

6.4.2 直流柜对外接口 External interface of DC Cabinet

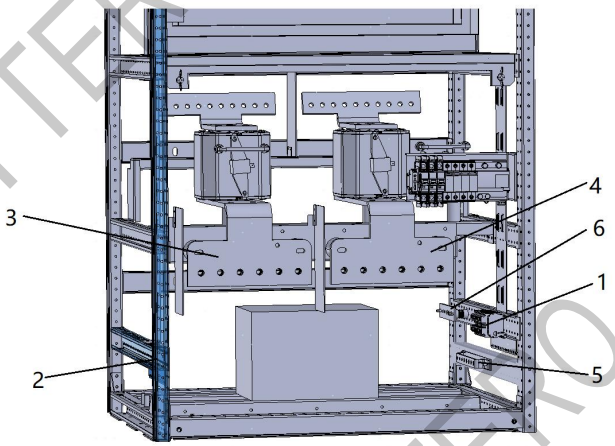
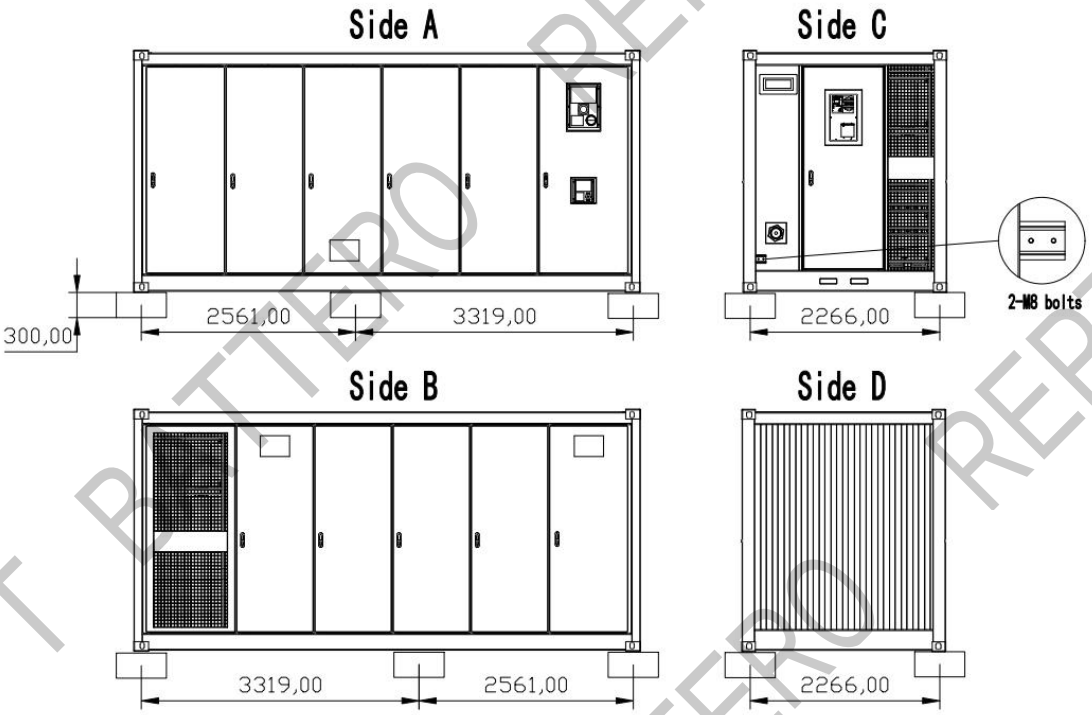


Fig 6-7 Electric cabinet inside

功能 No.	定义 Function
1	AC input interface 交流进线接口
2	Communication interface 通信接口（485&CAN&TCP/IP）
3	DC+ output bus 正极输出接线排
4	DC- output bus 负极输出接线排
5	GND bus 接地排
6	Null bus 零线排

7. 安装 Installation

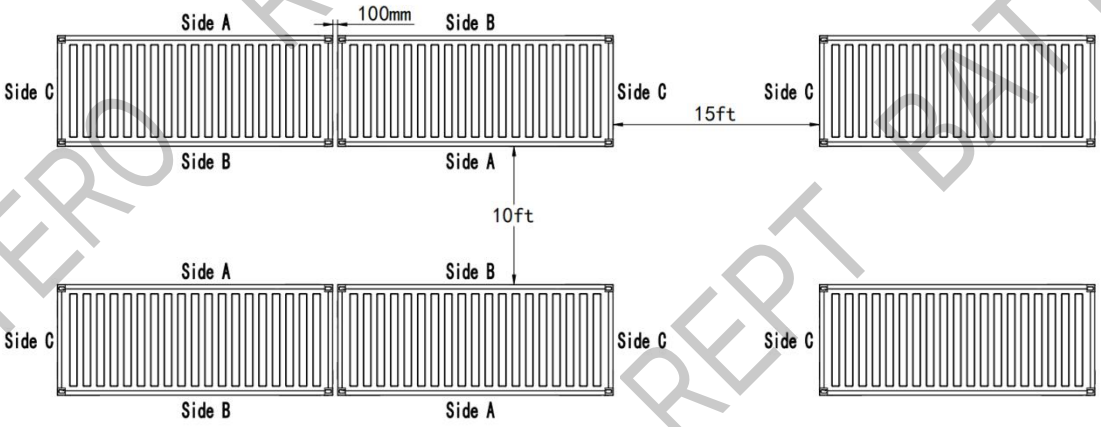
推荐的集装箱安装：Recommended container installation：



说明 Note：

1）集装箱地基参考上图，推荐地基高度≥300mm，地基水平高差≤3mm；Refer to the above figure for container foundation, and the recommended foundation height shall be ≥ 300mm, and the foundation horizontal height difference shall be ≤ 3mm;

2）接地排位于 Side C 左侧底部，用 2 个 M8 螺栓与接地网络连接；The grounding bar is located at the bottom of the left side of Side C and is connected to the grounding network using 2 M8 bolts;



3）建议的集装箱布置如上图；The recommended container layout is shown in the figure above.

其他安装内容详见安装维护手册。See the installation and maintenance manual for other

installation contents.

8. 质保申明 Warranty Statement

产品的保质期限依商务合同而定。在此期限内，如果因非厂商的设计、制程及品质管控原因造成的安全、性能下降、不正常衰减等各种问题，瑞浦兰钧仅可提供技术咨询类支持和有偿更换或维修服务，不承诺免费维修、更换等服务。The warranty period of the products depends on the commercial contract. During this period, if safety, performance degradation, abnormal attenuation and other problems are not caused by the manufacturer's design, manufacturing process and quality control, REPT BATTERO can only provide technical consulting support and paid replacement or maintenance services, but does not promise to provide free repair and replacement services.

未经瑞浦兰钧许可，不可擅自拆装电池插箱及附属零部件。如发生客户擅自拆装，瑞浦兰钧将不承担有关的事故责任和质保服务；Do not disassemble the battery box and accessory parts without the permission of REPT BATTERO. In case of customer's unauthorized disassembly, REPT BATTERO will not bear the relevant accident liability and quality assurance services.

瑞浦兰钧对以下几种非授权人员操作、或非产品本身异常，造成的问题及事故不承担任何责任：REPT BATTERO does not assume any responsibility for the following problems and accidents caused by the operation of unauthorized personnel and abnormalities other than the product itself:

违反法规、行业标准、技术协议、本文所述的安全使用指南和使用限定条件所产生的各类问题及事故。Problems and accidents arising from violations of regulations, industry standards, technical agreements, safety guidelines and use restrictions described herein.

安装使用过程中，非瑞浦兰钧人员的行为造成的异常。During installation and use, exceptions are not caused by the actions of REPT BATTERO.

使用不当的电气装置与本产品搭配使用所产生的问题。Problems arising from improper use of electrical devices in combination with the product.

超出了电池性能指标边界，即超范围使用所产生的问题。Beyond the boundary of the battery performance index.

将本品与其他种类、型号、生产厂家的电池产品直接电气连接。Connect the product directly with battery products of other types, models and manufacturers.

未经厂家许可，对本产品擅自改造。Modification of the product without permission of

the manufacturer.

9. 产品出货状态 Shipment Status

本产品出厂时的电量为 27%±3%。本品发货时，将断开所有电力回路的手动断开装置，以确保运输过程的安全。本品运输方式包括两种：（1）总成运输；（2）拆分运输（将电箱单独包装运输，其他部分安装在集装箱内运输）The SOC of this product is 27%±3%. When this product is shipped, the manual disconnecting devices of all power circuits will be disconnected to ensure safety during transportation. There are two modes of transportation :(1) assembly transportation; (2) Split transportation (transport the bat. pack separately and install other parts in containers for transportation)

10. 产品安全使用指南 Safety Guidelines and Use Restriction

10.1 产品安全使用指南 Product Safety Guide

为避免滥用方形组离子电池模块造成的电池损害或人身伤害，在使用方形锂离子电池之前，请认真阅读下面的安全指南：To avoid battery damage or personal injury caused by misuse of lithium-ion battery products, please read the following safety guidelines carefully before using lithium-ion batteries:

电池非正确使用和存放，具有火灾、爆炸和烧伤的风险，勿将电池分解、压碎、焚化、加热和投入火中。Improper use and storage of batteries may cause fire, explosion and burn. Do not decompose, do not crush, do not incinerate, do not heat or throw batteries into fire.

如需更换电池，应使用同一制造商生产的电池，混用不同厂商的电池可能造成性能下降，甚至起火和爆炸的风险。If batteries need to be replaced, use batteries from the same manufacturer. Mixing batteries from different manufacturers may cause performance deterioration, and even risk of fire and explosion.

勿将电池投入水中或将其弄湿。Do not immerse the battery in water or allow it to get wet.

勿将电池短路、过充或过放。Do not short-circuit, overcharge or over discharge the battery.

勿在热源（如火或加热器）附近安装、使用或存储电池储能装置。Do not install, use or store battery storage devices near heat sources (such as fire or heater).

勿刺穿电池壳体，禁止撞击、投掷、击打、踩踏、重压、翻滚电池。Do not pierce the battery shell. Do not hit, throw, strike, trample, weigh or roll the battery.

勿擅自以任何方式拆卸、修整或改装电池产品。Do not dismantle, repair or modify battery products in any way without authorization.

如果电池发出异味、发热、变形、变色或出现其它任何异常现象时，立即停止使用并

将异常的电池组件转移至应急处置场地。If the battery emits peculiar smell, heat, deformation, discoloration, or any other abnormal phenomenon, stop using the battery immediately and transfer the abnormal battery component to the emergency disposal site.

如果电池起火，应立即切断高低压回路，并优先需用干粉灭火器、沙子等熄灭。如采用水进行灭火，务必使用绝对足量的水进行长时间淹没，禁止使用不足量的水泼洒电池装置。If the battery catches fire, cut off the high and low voltage circuit immediately and use dry powder fire extinguisher or sand to extinguish the fire. If water is used for fire extinguishing, be sure to use an absolutely sufficient amount of water for a long time. It is strictly forbidden to use an insufficient amount of water to sprinkle battery devices.

10.2 产品安全使用条件 Product Safety Conditions for Use

客户应当确保严格遵守以下与电池相关的应用条件：The customer shall ensure strict compliance with the following battery application conditions:

产品使用时，应配置可靠的电池管理系统，严密监控、管理与保护每个电池。应保存完整的电池工作的监测数据，参考用于质量责任划分。The product should be equipped with a reliable battery management system to closely monitor, manage and protect each battery. Complete monitoring data of battery operation shall be kept for reference and quality responsibility division.

未经瑞浦兰钧同意，禁止擅自拆开电池装置、修改或者改变电池管理系统的设计和架构，以免影响电池的使用性能。It is forbidden to dismantle the battery unit, modify or change the design and architecture of the battery management system without the consent of REPT BATTERO, so as not to affect the performance of the battery.

11. 产品包装、运输和存储 Product packaging, Transportation and Storage

产品包装和储运应满足 GB/T 36276-2018、UN38.3 有关要求；Product packaging, storage and transportation shall meet the relevant requirements of GB/T 36276-2018, UN38.3;

11.1 产品包装 Product Packaging

集装箱无额外包装；No additional packaging for containerized products.

电池模组包装形式如下：Module packaging requirements are as follows：

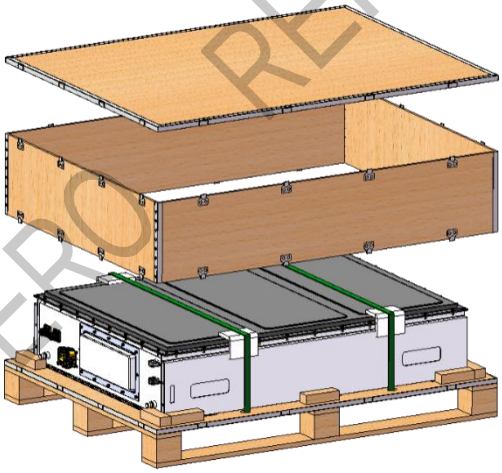


Fig. 12-1 Packaging for battery module

栈板四角位置的限位块对电池模块进行水平固定，绑带用于电池模块在竖直方向的固定。The limit blocks at the four corners of the pallet are used to fix the battery module horizontally, and the straps are used to fix the battery module vertically.

包装后毛重 Gross weight after packing	360kg
包装箱外尺寸 External dimensions of packing	1210mm×920mm×260mm
堆叠高度限制 Stack height limit	3 layers
材质执行标准 Material execution standard	GB/T 24311，Class 1 level

11.2 产品运输 Product Transportation

集装箱总成运输应满足 UN3536 的有关要求；Container assembly transportation shall meet relevant requirements of UN3536；

集装箱总成的专用吊装点位于底部或顶部角铁，吊装设备载荷能力满足要求；The special lifting point of the container assembly is located at the bottom or top angle iron, and the load capacity of the lifting equipment meets the requirements;

电池模组在运输过程中应防止倒置、剧烈的振动、外力冲击和挤压；The battery module shall be prevented from inversion, violent vibration, external force impact and extrusion during transportation；

电池模组运输过程应防止曝晒、雨淋、碰撞、挤压、跌落、翻滚等。可以使用卡车、火车、轮船等交通工具进行运输。The battery module shall be protected from exposure to the sun, rain, collision, extrusion, falling, rolling, etc. during transportation. It can be transported by trucks, trains, ships and other means of transportation.

11.3 产品存储

产品存储必须远离火源和热源。产品存储前电量建议调整至 25%~40%。需连续静置存储超过 2 个月时，每 2 个月应进行一次维护。Products must be stored away from fire and heat sources. It is recommended to adjust to 25%~40% SOC before storage. If static storage is required for more than two months, perform maintenance every two months.