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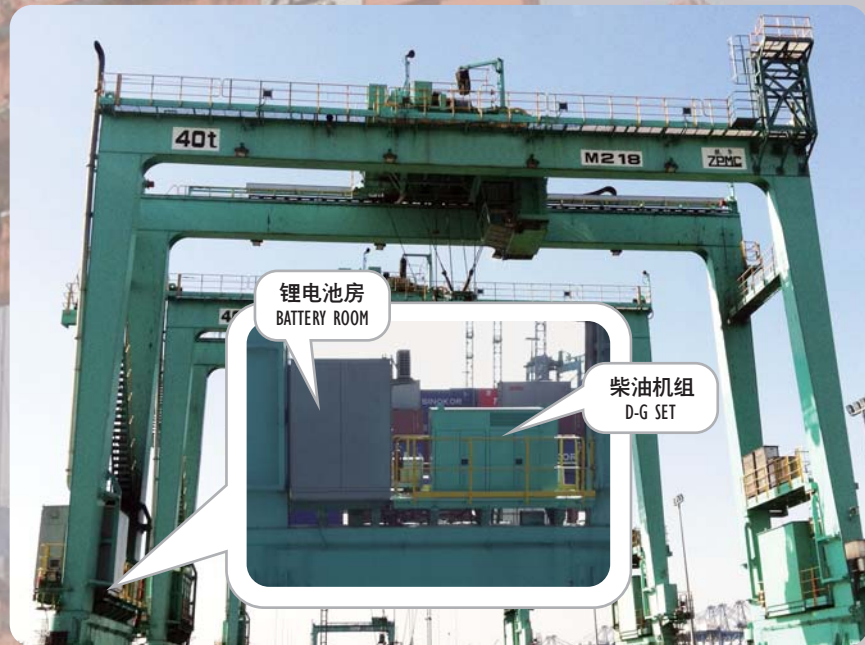
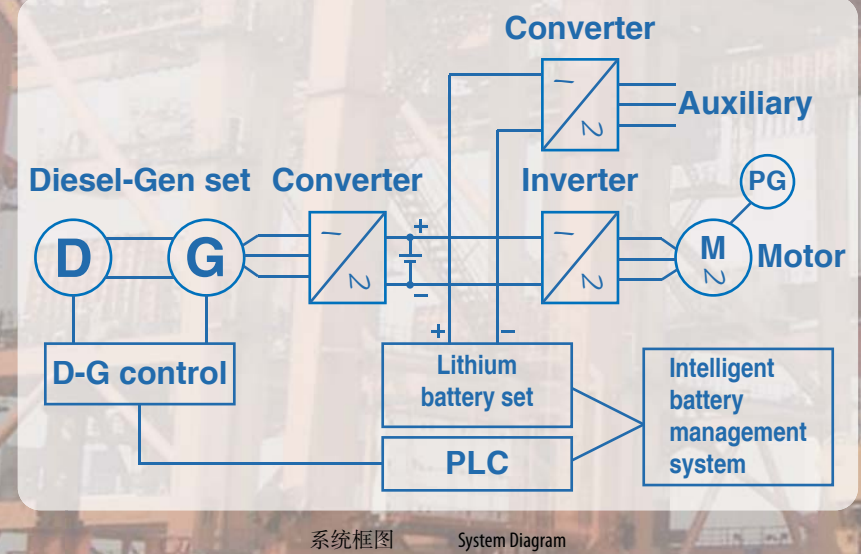


## 公司介绍 About us

上海振华重工（集团）股份有限公司为进一步提高轮胎吊节能减排效果，研发出了由大功率锂电池供电的轮胎吊。该轮胎吊采用大功率锂电池作为动力源，具有节能环保、维护成本低等优点。本产品保留了常规轮胎吊的操作特性和灵活机动性，随着锂电池技术的不断发展，性价比将进一步提升，其使用前景非常广阔，将取得巨大的经济效益和社会效益。

In order to further improve the RTG energy-saving and emission reduction effect, the high-power lithium battery RTG has been developed by Shanghai Zhenhua Heavy Industries Co., Ltd. The new RTG carried the electric high power lithium batteries as its power unit, which is a design of environment protection and low maintenance cost. As a new option keep the traditional RTG of operation characteristics and hanging mobility, with lithium battery technology development, further improve the performance to price ratio, and its use is very wide prospect, will get the huge economic efficiency and the social efficiency.

## 系统原理 System principle



节能装置概览 Energy-saving sets Overview

本系统将大功率锂电池作为轮胎吊的主要动力源，大幅度地将柴油发电机组的功率配备从传统 400 多千瓦降低到 50 千瓦或更低，可配备小柴油机组用于为锂电池充电，如有其它充电方式，甚至可以取消发电机组。电池能够吸收起升下降和机构制动产生的再生能量，并提供给下次作用。不启动柴油发电机组，轮胎吊仍能进行装卸作业和等待。

This system use the high-power lithium battery as power supply of RTG, reduce the power of D-G set from 400kW to 50kW or lower, the small diesel-engine is only for lithium batteries charging. If there are other charging ways, even can cancel D-G set. In lifting down and institutions brake produce renewable energy, the battery can absorb the regenerative power when hoist down and deceleration. The RTG can work and wait without engine working.

## 系统优点 System advantage

大功率锂电池组的采用，使轮胎吊具有以下优点：

- 保留了常规轮胎吊的灵活性和机动性
- 与常规轮胎吊相比，减少的转场时的切换环节，提高了工作效率，减少故障点
- 特别适用于堆场形状不规则或电力缺乏的码头
- 节能减排效果显著，明显优于市场上现有的节能轮胎吊
- 锂电池应用前景广泛，使用成本将日益降低
- 低能耗、低污染、低噪音和低维护成本

Because of the using of high power lithium batteries, the new ERTG has the advantage as follows :

- Keep the flexible and versatile of traditional RTG
- Compared with city power RTG, reduce the power connection when yard transfer, improve work efficiency, reduce fault point
- Especially suitable for irregular stack yard or lack of city power of terminal
- Better energy saving and emission reduction, obviously better than other energy-saving model RTG on market
- Lithium battery broad prospect of application, use cost is reduced
- Low energy consumption, low environment pollution, low noise and low maintenance cost.



锂电池组  
Lithium Battery



锂电池房  
Battery Room

## 智能管理控制系统 Intelligent Battery management system(BMS)

通过智能电池管理系统，实时监控每一组电池状态（电压，温度）。如电池电量低于一定范围时，通过 PLC 采集数据后控制小柴油组启停，给电池适当的能量补偿。

Each battery condition (voltage, temperature etc.) will be monitored by the IBMS in real time. When any of batteries capacity decrease to the setting data, the related information will be transmitted to PLC, by which the small size diesel engine will be controlled to compensate for the capacity decreasing.

## 节油效果 Fuel consumption

测试机型参数 (Test RTG parameters)

- 南通基地电动试验轮胎吊  
Test RTG in Nantong Base
- 起升电机功率  
Hoist motor capacity: 170kw
- 起升速度 Hoist speed: 23/46 m/min
- 起升高度 Hoist height: 18m
- 小车电机功率  
Trolley motor capacity: 15kw X2



节油效果 Test result

Test Method	Tradition GTR (L)	Hybird RTG (L)	Fuel Savings (%)
Standby (30 min)	5.35 L	3.3 kwh = 0.95 L	82.20%
No Load (10 cycles)	13.25 L	17.14 kwh = 4.94 L	62.70%
15 Ton (10 cycles)	13.9 L	16.38 kwh = 4.72 L	66.04%
30 Ton (10 cycles)	15.44 L	18.04 kwh = 5.02 L	66.32%