PROFESSIONALISM INNOVATION AND EXCELLENCE

|专业|创新|卓越|

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3码关注雄韬氢雄公众号 了解更多





DITION XT_X90930504



公司简介 COMPANY PROFILE

雄韬氢雄由深圳市雄韬电源科技股份有限公司(股票代码:002733) 投资成立,是一家拥有完整国产化产业链的、提供燃料电池综合解决方案的公司。公司汇聚十余位从业10年以上的氢能行业领军人物和资深技术专家,联合数所国内知名高校,共同打造先进、安全、可靠的燃料电池产品与服务。由雄韬氢雄自主研发的30~130KW发动机,各项性能处于国内领先水平,并已实现在公交车、物流车、环卫车、重卡等多种车型以及工程机械上的应用。以自建大数据平台为支撑,雄韬氢雄燃料电池产品全部装配远程数据终端,实时追踪产品状态并进行智能化管控,确保客户问题快捷解决。

雄韬氢雄在武汉、大同、广州、阳泉、青岛等地设立了分公司,在深圳、武汉、大同、广州投建了产业园。深圳首条自动化燃料电池电堆产线年产能5000套,武汉、大同,广州三地的首条规楼化燃料电池发动机产线已落成,总年产能达25000套。在青岛国际院士港设立燃料电池发动机产线,年产能为5000套。

目前,搭载公司产品的450余辆不同类型的氢能源商用车已投入示范运营。运营状态良好。另有多款燃料电池车辆正在配套交付中。同时,公司积极推进氢能基础设施建设在武汉、大同、阳泉投资建设的三座加氢站均已投入使用。

秉持"专业、创新、卓越"的核心价值观,雄韬氢雄将持续深耕氢能源领域,成为受人尊敬的大功率燃料电池服务商。

HydraV was founded in 2017 by VISION GROUP (SZSE: 002733). Aiming at deliveringreliable and remarkable fuel cell products and services, HydraV lays out acomprehensive domestic supply chain, builds an experienced and expertized team, and collaborates with several renowned universities. The fuel cell stacks, systems, and othercore components independently developed by HydraV exhibit excellent performanceand have been applied to various FCEVs and construction machinery. To manage theproducts effectively, all HydraV fuel cell systems are connected to a self-built big dataplatform to track their real-time status.

HydraV owns four industrial parks respectively in Shenzhen, Wuhan, Datong, and Guangzhou and establishes branch offices in Shanghai, Yangquan, and Qingdao. Theassembly lines of HydraV are capable of mass production of fuel cell stacks and systems.

At present, more than 450 FCEVs powered by HydraV fuel cell products are under servicethroughout China. To support the FCEV operation, HydraV also actively promotes the construction of hydrogen infrastructure.

Guiding by the core value of Professionalism, Innovation, and Excellence, HydraV isdevoted to providing efficient zero-emission fuel cell solutions to build a cleaner world.

产业布局 **INDUSTRY PROSPECT**

华中区域

武汉氢能产业园

HydraV Industrial Park, Wuhan

规划年产能:10万套燃料电池发动机系统、10万套电堆、50万㎡膜电极 Planned Annual Capacity: 100,000 units of fuel cell engine system、 100,000 units of fuel cell stack, 500,000 m² MEA

规划整车推广:全省范围内5,000台

Planned FCV Promoting: no less than 5,000 at provincial level





华北区域

大同氢能产业园

HydraV Industrial Park, Datong

规划年产能:5万套燃料电池发动机系统、5万套电堆 Planned Annual Capacity: 50,000 units of fuel cell engine system. 50,000 units of fuel cell stack

规划整车推广:全市范围内3,000台、全省范围内5,000台 Planned FCV Promoting: no less than 3,000 at municipal level. no less than 5,000 at provincial level





阳泉分公司

华东区域

上海产品监控中心&同济大学联合实验室

HydraV Product Remote Monitoring Center& Laboratory Collaborated with Tongji University

车辆运行与发动机状态实时反馈 24 hours, 365 days a year monitoring of FCEV and FCE operation

燃料电池控制器产业化

Manufacturing of Vehicle Control Units

金属板电堆研发

R&D of fuel cell stack with coated metallic bipolar plates





青岛国际院士港厂区

QIAP HydraV, Qingdao

规划年产能:5,000套燃料电池发动机 Planned Annual Capacity: 5,000 units of fuel cell engine





华南区域

青岛

广州氢能产业园

HydraV Industrial Park, Guangzhou

规划年产能:5000套燃料电池发动机

5000套燃料电池电堆

Planned Annual Capacity: 5,000 units of fuel cell engine 5,000 units of fuel cell stack

深圳氢能科技园

HydraV Science Park, Shenzhen

规划年产能:5,000套燃料电池发动机

28,000套燃料电池电堆

Planned Annual Capacity: 5,000 units of fuel cell engine

28,000 units of fuel cell stack

规划整车推广:全省范围内3,000台

Planned FCV Promoting: no less than 3,000 at provincial level

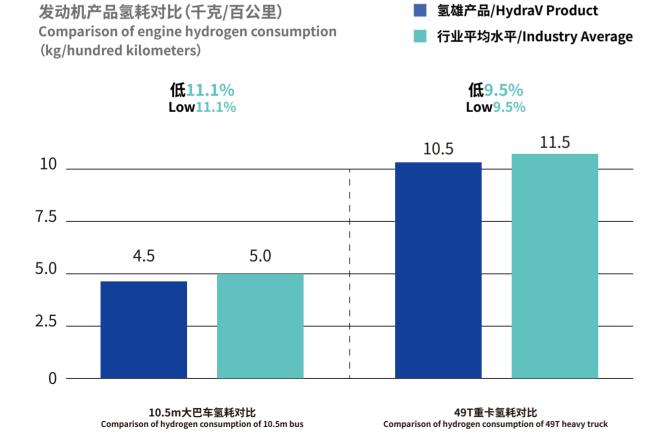




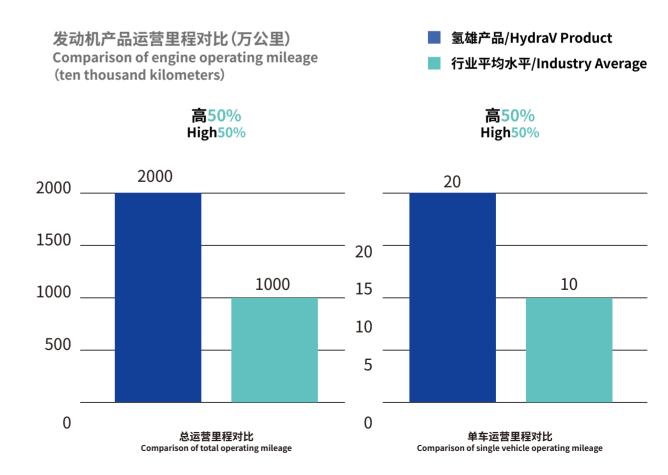
产品核心优势 PRODUCT CORE ADVANTAGES



发动机氢耗低(极致氢耗) low hydrogen consumption



发动机运营里程长 Long engine operating mileage



核心产品 **CORE PRODUCT**

燃料电池发动机 FUEL CELL ENGINE

性能优异



长寿命 高功率密度 稳定高效功率输出 -30℃低温冷启动

Long-lasting High power density Stable & high-efficient output -30°C freeze start capability

稳定可靠

Decent Durability



防护等级 抗震性能符合 SAE-J2380 冗余容错设计 完整故障保护 防火防腐蚀

Enclosure IP67 Vibration Durability SAE-J2380 Fault-tolerance design Multi-faceted fault protection Corrosion & Fire Protection

低使用成本

Low-cost



关键零部件国产化 高氢气利用率 维护简便

Localization of core components High hydrogen utilization rate Low-maintenance



型号 Product Serial Number	VISTAH-30A
额定功率 Rated Power Output	30 kW
额定电流 Operating Current	540 A
工作电压范围 Operating Voltage	80~125 VDC
质量 Weight	120 kg
功率体积比 Power Density by Volume	300 W/L
功率质量比 Power Density by Weight	285 W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions (L/W/H)	911/511/657 mm

特点&创新点



Features & Innovation

①技术特点:

- 1) 氢锂混动:自研氢锂混合控制策略,系统动态响应快; 2) 远程监测:支持远程数据监测功能,实时监测车辆运 行数据,实现高效管理;
- 3) 超长续航:续航时长较同行增加10%-15%;
- ②产品优势:适配30kW级小功率应用场景;
- 3 发明专利:已授权1篇发明专利(ZL2021101527892);
- 4 **竟品对比:** 竞品公司中30kW级小功率产品较少。

Technical features: 1) Hydrogen lithium hybrid: self-developed hydrogen lithium hybrid control strategy, with fast dynamic response of the system. 2) Remote monitoring: Support remote data monitoring function, real-time monitoring of vehicle operation data, and achieve efficient management. 3) Ultra Long Range: The range has increased by 10% -15% compared to its peers. Product advantage: It is suitable for 30kW level low-power application scenarios.

Invention patent: 1 invention patent has been authorized

Comparison of competitors: there are fewer 30kW level low-power products among competing companies.



型号 Product Serial Number	VISTAH-60A
额定功率 Rated Power Output	60 kW
额定电流 Operating Current	540 A
工作电压范围 Operating Voltage	130~260 VDC
质量 Weight	165 kg
功率体积比 Power Density by Volume	405 W/L
功率质量比 Power Density by Weight	400 W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions(L/W/H)	1000/560/700 mm

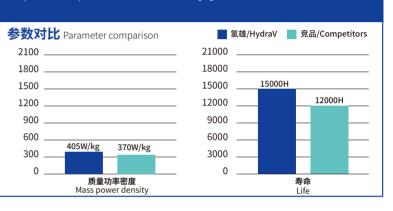


- ① 技术特点: 1) 低温启动:实现-30℃低温启动要求,畅行雪地;
- 2) 高防护等级:满足IP67防水防尘标准要求;
- 3) 可靠性稳定性: 国家检测中心强检认证, 可靠性高, 稳定性强;
- 4) 维护便捷性: 平台化、模块化设计维护保养便捷;
- 2 产品优势:几十余台订单验证;
- 3 发明专利:已授权1篇发明专利(ZL2019108763653);
- 4 竞品对比:如下图所示。

Technical features: 1) Low temperature start: achieve the requirement of -30 ℃ low temperature start, and travel smoothly in the snow. 2) High protection level: Meet the requirements of IP67 waterproof and dustproof standard. 3) Reliability and stability: Strong inspection and certification by the National Testing Center, with high reliability and strong stability. 4) Maintenance convenience: Platformized and modular design for convenient maintenance.

Product advantage: Over ten orders verified.

Invention patent: 1 invention patent has been authorized (ZL 2019108763653) Comparison of competitors: as shown in the following figure.





型号 Product Serial Number	VISTAH-80A
额定功率 Rated Power Output	80 kW
额定电流 Operating Current	570 A
工作电压范围 Operating Voltage	162~265VDC
质量 Weight	180 kg
功率体积比 Power Density by Volume	460 W/L
功率质量比 Power Density by Weight	450W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions (L/W/H)	913/645/700 mm

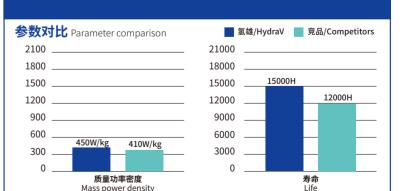
1 技术特点:

- 1) 低温启动:实现-30℃低温启动要求,畅行雪地;
- 2) 高防护等级:满足IP67防水防尘标准要求;

Comparison of competitors: as shown in the following figure.

- 3) 可靠性稳定性: 国家检测中心强检认证, 可靠性高, 稳定性强;
- 4) 维护便捷性: 平台化、模块化设计维护保养便捷;
- 2 产品优势:53项工程样件试验验证;
- 3 发明专利:已授权1篇发明专利(ZL2019104256626);
- 4 竞品对比:如下图所示。

Technical features: 1) Low temperature start: achieve the requirement of -30 ℃ low temperature start, and travel smoothly in the snow. 2) High protection level: Meet the requirements of IP67 waterproof and dustproof standard. 3) Reliability and stability: Strong inspection and certification by the National Testing Center, with high reliability and strong stability. 4) Maintenance convenience Platformized and modular design for convenient maintenance. Product advantage: 53 engineering sample tests and verifications. Invention patent: 1 invention patent has been authorized (ZL2019104256626).





型号 Product Serial Number	VISTAH-110B
额定功率 Rated Power Output	110 kW
额定电流 Operating Current	540 A
工作电压范围 Operating Voltage	260~460 VDC
质量 Weight	225 kg
功率体积比 Power Density by Volume	485 W/L
功率质量比 Power Density by Weight	500 W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions (L/W/H)	1100/671/677 mm



型号 Product Serial Number	VISTAH-130C
额定功率 Rated Power Output	130 kW
额定电流 Operating Current	540 A
工作电压范围 Operating Voltage	264~440 VDC
质量 Weight	225 kg
功率体积比 Power Density by Volume	630 W/L
功率质量比 Power Density by Weight	590 W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions(L/W/H)	1100/671/677 mm

① 技术特点:

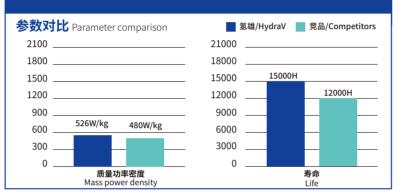
- 1) 高功率密度:功率密度500+,小体积,大能量;
- 2)低温启动:实现-30℃低温启动要求,畅行雪地;
- 3) 高防护等级:满足IP67防水防尘标准要求;
- 4) 可靠性稳定性: 国家检测中心强检认证,可靠性高,稳定性强;
- 5) 维护便捷性: 平台化、模块化设计维护保养便捷。
- ② 产品优势:与VISTAH-130C同平台开发,模块化设计,维护便捷;
- 3 发明专利:已授权1篇发明专利(ZL2022102366498);
- 4 竞品对比:如下图所示。

Technical features: 1) High power density: 500+power density, small volume, high energy. 2) Low temperature start: Achieve the requirement of -30 °C low temperature start and travel smoothly in the snow. 3) High protection level: Meet the requirements of IP67 waterproof and dustproof standard.4) Reliability and stability: Strong inspection and certification by the National Testing Center, with high reliability and strong stability. 5) Maintenance convenience:Platformized and modular design for convenient maintenance.

Product advantages: Developed on the same platform as VISTAH-130C, modular design, and convenient maintenance.

Invention patent: 1 invention patent has been authorized (ZL2022102366498).

Comparison of competitors: as shown in the following figure.



① 技术特点:

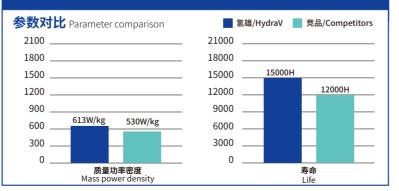
- 1) 高功率密度:功率密度600+,小体积,大能量;
- 2)低温启动:实现-30℃低温启动要求,畅行雪地;
- 3) 高防护等级:满足IP67防水防尘标准要求;
- 4) 可靠性稳定性: 国家检测中心强检认证, 可靠性高, 稳定性强;
- 5) 维护便捷性:平台化、模块化设计维护保养便捷。
- **2 产品优势:**1)53项工程样件试验验证;2)综合降本30%;
- 3 发明专利:已授权1篇发明专利(ZL2022102372535);
- 4 竞品对比:如下图所示。

Technical features: 1) High power density: 600+power density, small volume, high energy. 2)
Low temperature start: Achieve the requirement of -30 °C low temperature start and travel
smoothly in the snow. 3) High protection level: Meet the requirements of IP67 waterproof and
dustproof standard.4) Reliability and stability: Strong inspection and certification by the
National Testing Center, with high reliability and strong stability. 5) Maintenance convenience:
Platformized and modular design for convenient maintenance.

Product advantages: 1) Verification of 53 engineering sample tests; 2) Comprehensive cost reduction of 30%.

Invention patent: 1 invention patent has been authorized (ZL2022102372535).

Comparison of competitors: as shown in the following figure.





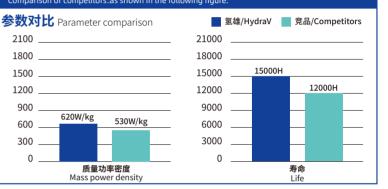
型号 Product Serial Number	VISTAH-130E
额定功率 Rated Power Output	130 kW
额定电流 Operating Current	540 A
工作电压范围 Operating Voltage	450~750 VDC
质量 Weight	220 kg
功率体积比 Power Density by Volume	650 W/L
功率质量比 Power Density by Weight	620 W/kg
效率 Efficiency	≥ 48%
尺寸(长/宽/高) Demensions (L/W/H)	1024/708/813 mm

① 技术特点:

- 1) 稳定高效率输出:额定点效率高达46%,行业领先水平;
- 2) 极致氢耗:氢气路引射器分水器一体化集成,氢耗降低10%;
- 3) 高防护等级: 高集成度: 基于零部件一体集成, 系统整体性提高;
- 4) 高功率密度:功率密度600+,小体积,大能量;
- 5) 低温启动:实现-30℃低温启动要求,畅行雪地;
- 6) 高防护等级:满足IP67防水防尘标准要求。
- 2 产品优势:额定点效率高达46%,氢耗降低10%;
- 3 发明专利:已授权1篇发明专利(ZL2022102372535);
- 4 竞品对比:如下图所示。

Technical features: (1) Stable and efficient output: The rated efficiency reaches 46%, which is a leading level in the industry. 2) Extreme hydrogen consumption: The hydrogen path injector and water separator are integrated, reducing hydrogen consumption by 10%. 3) High integration: Based on integrated components, the overall system is improved. 4) High power density: 600+power density, small volume, high energy. 5) Low temperature start: Achieve the requirement of -30 °C low temperature start and travel smoothly in the snow. 6) High protection level: Meet the requirements of IP67 waterproof and dustproof standard.

Product advantages: Up to 46% rated efficiency and 10% reduction in hydrogen consumption. Invention patent: 1 invention patent has been authorized (ZL2022102372535). Comparison of competitors:as shown in the following figure.



氢能叉车电源 PEMFC Forklift

低噪音 | 高效率 | 快速充能 | 持续输出

Low Noise | High Efficiency | Fast Refueling | Constant Output



性能参数 Specifications	
持续输出功率 Rated Output	5KW
峰值输出功率 Maximum Output	30KW
输出电压 Operating Voltage	48VDC
系统效率Efficiency	≧50%
尺寸Dimensions	845*636*784 (可定制) (Customizable)
系统重量Weight	≈400kg(可定制)(Customizable)
系统设计寿命 Designed Lifetime	≧ 3000H
储氢量H2 Tank Capacity	0.66kg
适用环境温度 Applicable Temperature	-10°C~ 45°C
适用环境湿度 Applicable Humidity	20%~ 100% RH

燃料电池电堆 PEMFC Stack



型号 Specifications	氢瑞A1电堆 Senergy A1 Stack	氢瑞A2电堆 Senergy A2 Stack(Inresearch
额定功率 Power Output (kW)	42-84kW	150-200kW
体积功率比 (不含端板) Power density(volumetric)	3.5kW/L	4.5kW/L
质量功率比 (含端板) Power density(gravimetric)	2.1kW/kg	2.5kW/kg
寿命 life span	15000h	20000h
核心优势 Core strengths • 电堆通过第三方多项检测:高低温、振动、冲击,低温启动 The stack has passed a number of third-party tests:high and low temperature, vibration, shock, low temperature startup • 搭配60kW系统压缩车运行3000公里零故 With 60kW system compressor car running 3000 kilometers without failure		

燃料电池—体化控制器 Fuel Cell Integrated Control Unit



高度集成

Highly integrated 燃料电池主控制器 FCU 电压变换器 DCF 空压机控制器 ACC 高压配电箱 PDU 氧泵控制器 OP

模块化控制

Modular control

高速内部数据总线 High speed internal data bus 智能功率发送 Intelligent power transmission 先进系统寻优 Advanced system optimization 高速大数据协同 High speed big data collaboration 先进系统诊断 Advanced system diagnosis

降低故障点,提高产品可靠性

Increase system stability performance

轻量化、小型化

System miniaturization

膜电极 / MEA *





超低铂用量,最低可达0.2mg/cm²

Ultra-low loading of platinum (as low as 0.2mg/cm²)

功率密度 1.4W/cm²

1.4W/cm² power density

产能20,000m²/年

Annual capacity: 20,000m²

寿命超过6500小时

Product lifetime surpasses 6500 hours

低湿高温条件下正常运行

Adaptable to high temperature and low humidity

抗反极能力

Reversal tolerant performance

低温冷启动能力

Cold start

已应用至国内外近千辆燃料电池汽车上

Applied to nearly 1,000 FCEVs worldwide

^{*} 膜电极产品由雄韬集团控股50.07%的武汉理工氢电科技有限公司研发制造 MEA is developed and manufactured by WUT HyPower, of which VISION GROUP holds a 50.07% share

解决方案 TECHNOLOGY SOLUTIONS

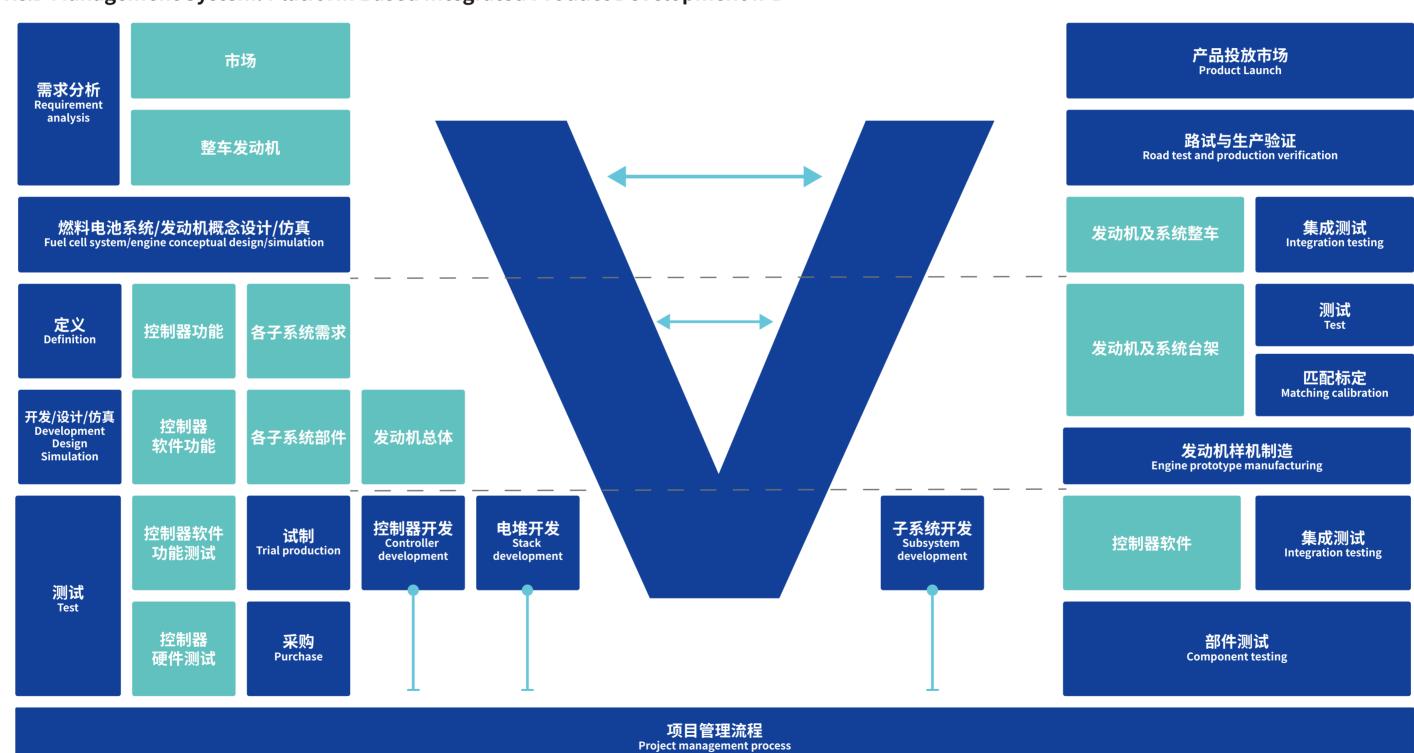


车规级研发流程

VEHICLE LEVEL R&D PROCESS

研发管理体系:基于平台的集成产品开发IPD

R&D Management System: Platform Based Integrated Product Development IPD



可靠性、稳定性试验验证 RELIABILITY AND STABILITY TEST VERIFICATION

发动机强检 Engine strong inspection

















CNAS实验室建设 CONSTRUCTION OF CNAS LABORATORY









CNAS标准化实验室建设 Construction of CNAS Standardization Laboratory

氢**车运营** FCEV PILOT PROJECTS







口高湿高盐等恶劣环境中得到验证。



装载雄韬氢雄燃料电池发动机系统的135辆氢能源公交车、100辆氢能源物流车、5辆氢能源重型卡车已在武汉、大同、上海、广州、佛山、京山、佛山、阳泉等地展开示范运营。系统可靠性在-30°C~42°C及港

At present, 240 FCEVs (bus, delivery truck, heavy truck) powered by HydraV fuel cell systems are under service throughout China. The system reliability has been verified in harsh environments such as high/low temperature (-30°C/42°C), high humidity, and high salinity.

氢能基建 INFRASTRUCTURE

汉南加氢站

Wuhan Off-site Hydrogen Refueling Station



华中地区首座固定式加氢站

The first stationary hydrogen refueling station in Central China

日供氢能力1000kg

Hydrogen storage and supply capacity of 1000 kg per day

大同制氢加氢一体站 Datong On-site Hydrogen Refueling Station



全国首座制氢加氢一体站

The first hydrogen station with production on-site in China

日制氢/供氢能力1000kg

Hydrogen production and supply capacity of 1000 kg per day

阳泉加氢站

Yangquan Off-site Hydrogen Refueling Station



日供氢能力500kg

Hydrogen storage and supply capacity of 500 kg per day

售后运维

AFTER-SALE OPERATION AND MAINTENANCE

我们拥有专业的产品售后维保团队,全程参与了2008北京奥运会、2010上海世博会燃料电池汽车大规模示范运行项目。

HydraV's professional operation and maintenance team has participated in FCEV pilot demonstration projects of Beijing Summer Olympics 2008 and Shanghai EXPO 2010.

技术培训

Driving Trainings

车辆上线前维保人员跟车路试半个月

Maintenance worker accompanied road test for two weeks

驾驶员专题培训及跟车培训

Practical & theoretical knowledge trainings

车辆运行

Vehicle Operation

产品远程监控中心实时监测车辆行驶及发动机状态

Real-time operating parameters feedback of vehicle and fuel cell engine

车辆日常巡检与维护(防冻液、电导率、水氢空三路管路等)

Daily vehicle checks and upkeeps (the status of hydrogen, air, and coolant pipelines and coolant, etc.)

配件供应

Accessories Supply

维保中心配件储备充足,燃料电池发动机系统故障零部件及时更换 Sufficient fuel cell engine spare parts supply at the maintenance center

非燃料电池发动机系统故障零部件主动联系相关厂家及时更换

Contact relevant OEMs for timely replacement of other fault spare parts

故障反馈与处理

Fault Management

经验丰富的专业维保人员24/7全天候服务

24/7 maintenance service

产品远程监控中心反馈问题预先检查处理,保障运营安全

Precheck instant alerts sent by the product remote monitoring center 客户反馈问题即时响应,故障当日解决

Instant respond to customer reported fault and resolve it on the same day









产学研合作 INDUSTRY UNIVERSITY RESEARCH COOPERATION

战略纵深/研发规划 Strategic Depth/Research Planning



合作伙伴 **OUR PARTNERS**

氢气供给 Hvdrogen Supply













关键零部件 System Components



氢能应用 Applications







































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