



百年银轮 世界银轮

商用车新能源热管理系统

COMMERCIAL VEHICLE NEW ENERGY THERMAL MANAGEMENT SYSTEM



商用车

COMMERCIAL VEHICLE



工程机械

CONSTRUCTION MACHINERY

使命

振兴民族热交换产业

创造美好生活!

价值观

诚信 卓越 拼搏 创新



商用车新能源热管理系统

COMMERCIAL VEHICLE NEW ENERGY THERMAL MANAGEMENT SYSTEM

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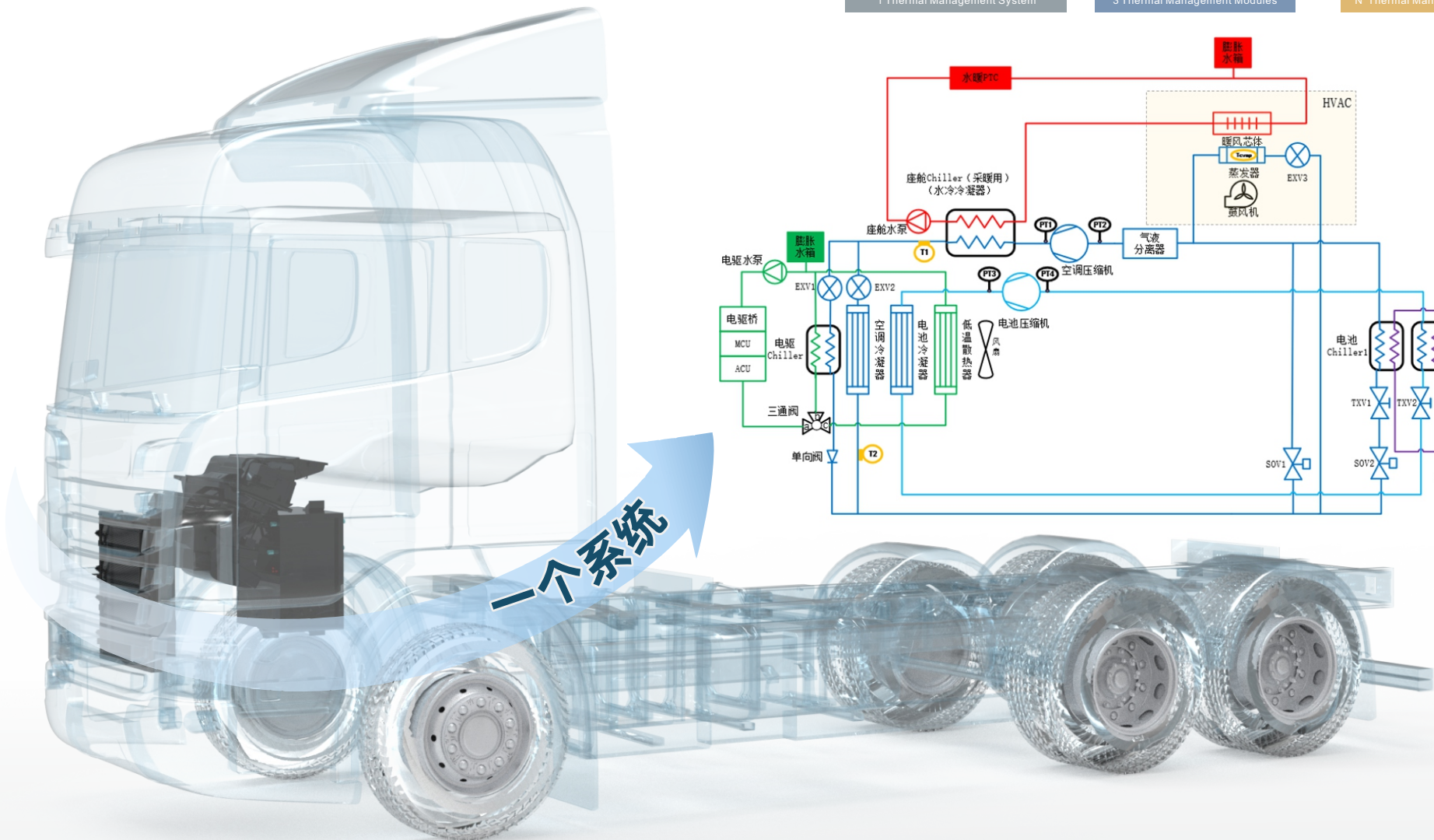
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一个整车热管理系统
1 Thermal Management System

三个热管理模块
3 Thermal Management Modules

N个热管理产品
N Thermal Management Products



使命：振兴民族热交换产业，创造美好生活！

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HVAC模块
/HVAC Module

智能冷却模块
/Intelligent Cooling Module

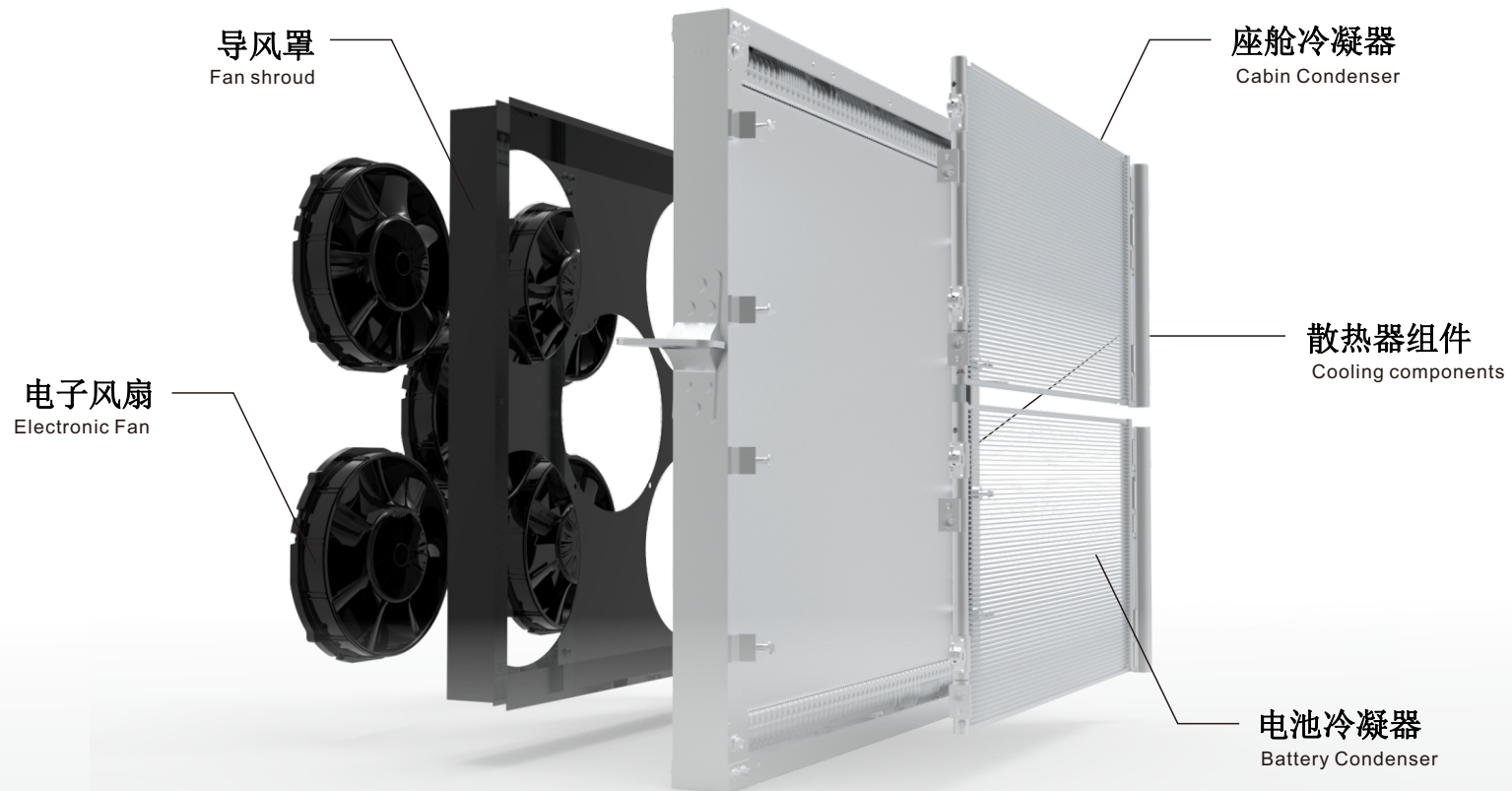
TMS热管理模块
/TMS Thermal management module(TMS TMM)

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智能冷却模块 / Intelligent Cooling Module

集成化供货，散热器冷却驱动电机及电器原件，座舱冷凝器冷却或加热乘员机舱，电池冷凝器冷却或加热动力电池，风扇通过控制器智能调节转速，满足不同工况需求；使用场合：商用车新能源车型，如纯电重卡、燃料电池重卡等。

Integrated supply, radiator cooling driver motor and electrical components, cockpit condenser cooling or heating passenger cabin, battery condenser cooling or heating power battery, fan intelligent adjustment speed through the controller to meet different operating needs. Occasions: Commercial vehicle new energy models, such as pure electric heavy trucks, fuel cell heavy trucks, etc.

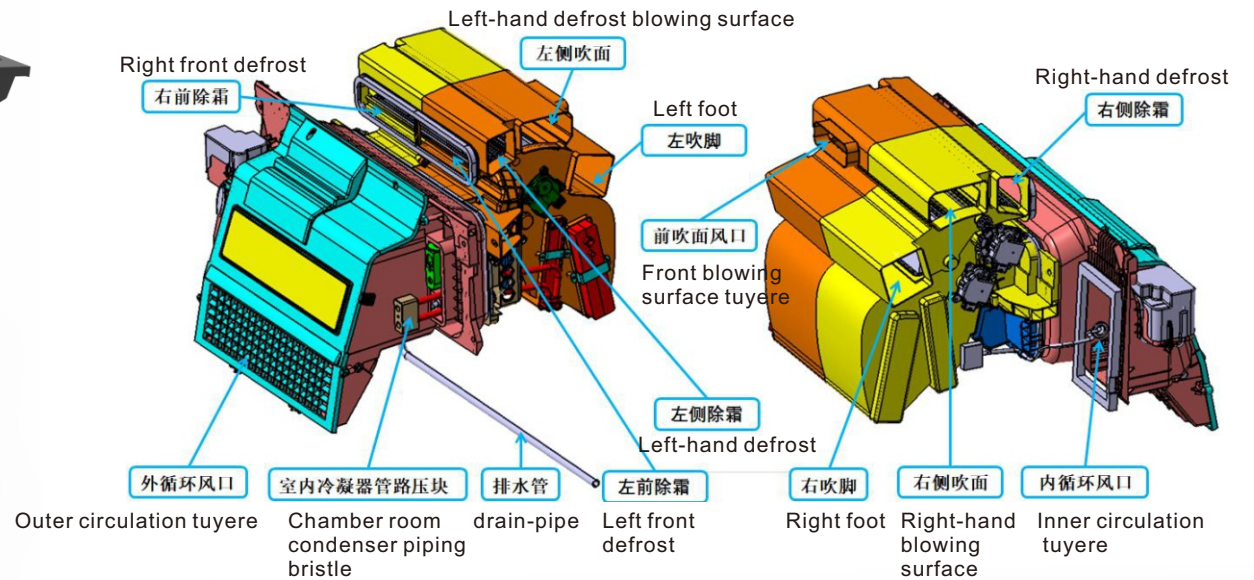
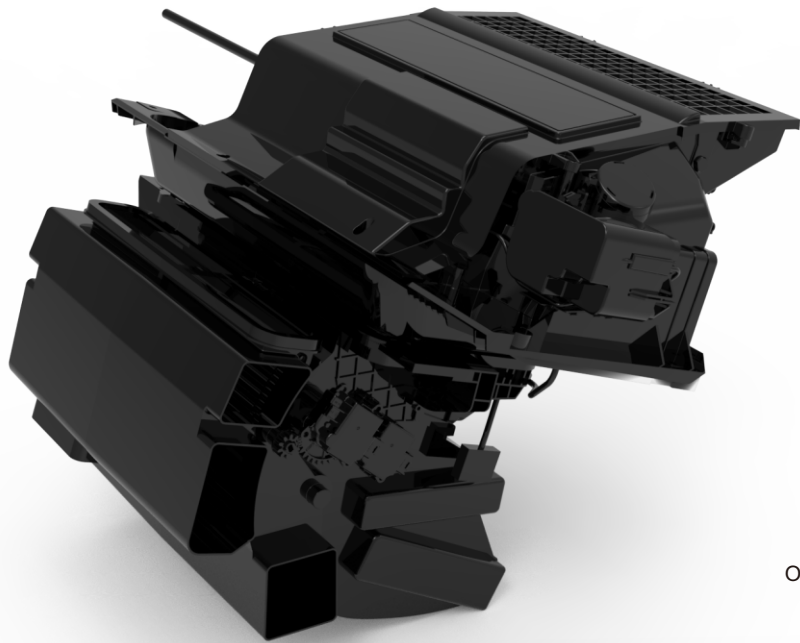




HVAC 模块 /HVAC Module

该空调箱体可以实现驾驶舱制冷、制热、通新风、过滤净化等功能，同时该箱体内部采用了可变功率电加热风暖PTC，具有加热速度快、出风温度高、结构简单、箱体兼容性好等优点。

The AHU(air handling unit) can achieve the cockpit cooling, heating, fresh air, filtration and purification functions, etc., while the interior AHU adopts the variable power electric heating air heating PTC, which has the advantages of fast heating speed, high air temperature, simple structure and good compatibility and so on.



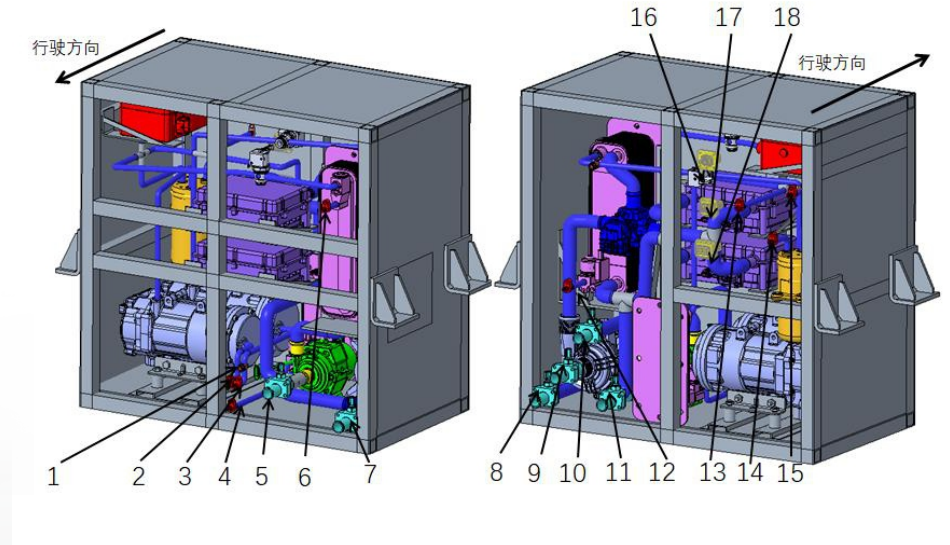
TMS 热管理模块/TMS Management Products

适用于车用动力电池、电机的温度控制，可用于纯电动车、混合动力车的整车热管理中，主要功能是保证电池、电机在正常温度范围之内高效、可靠工作。

It is suitable for the temperature control of vehicle power batteries and motors. It can be used in the thermal management of pure electric vehicles and hybrid vehicles. The main function is to ensure that the battery and motors work efficiently and reliable within the normal temperature range.

接口说明 Interface Description

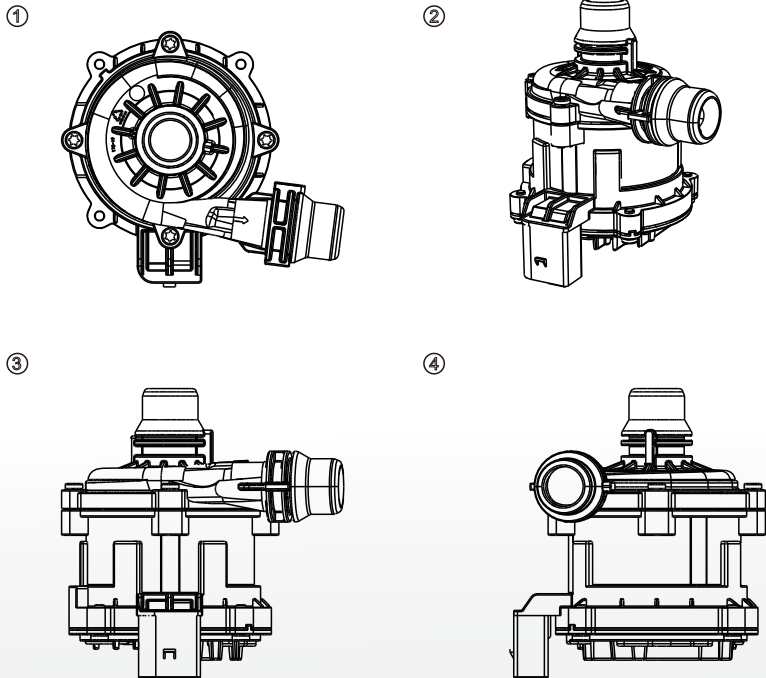
- 1:冷媒充注口
Refrigerant filler port
- 2:空调压缩机冷媒出口
Air conditioning compressor refrigerant export
- 3:电池压缩机冷媒出口
Battery compressor refrigerant export
- 4:电驱chiller冷媒进口
Electric drive chiller refrigerant import
- 5:低温水箱冷却液进口
Low temperature radiator coolant import
- 6:电池chiller1冷媒进口
Battery chiller1 refrigerant import
- 7:低温水箱冷却液出口
Low temperature radiator coolant export
- 8:电驱水路冷却液进口
Electric drive waterway coolant import
- 9:电池水路冷却液进口
Battery waterway coolant import
- 10:电驱水路冷却液出口
Electric drive waterway coolant export
- 11:电池水路冷却液出口
Battery waterway coolant export
- 12:电池chiller2冷媒出口
Battery Chiller2 refrigerant export
- 13:空调冷凝器冷媒进口
Air conditioning condenser refrigerant import
- 14:空调蒸发器冷媒进口
Air conditioning evaporator refrigerant import
- 15:空调蒸发器出口
Air conditioning evaporator export
- 16:高压接口
High-voltage interface
- 17:低压接口
Low-voltage interface
- 18:控制器接口
Controller interface







产品视图 Product View



EP150i系列电子水泵/Ep150i Series Electronic Water Pump

EP150i系列电子水泵是集成了电机、电机控制器的离心式电子水泵，水泵采用模块化的结构设计方案，定子组件采用塑料材料整体包胶，PCBA通过内部水冷冷却的设计方案；水泵既可单独使用，也可适用于集成式安装需求；

电子水泵可应用于以下场合：

PTC加热器的介质回路，电池、电子控制单元、驱动电机的冷却回路等；

性能：额定工作点--22L/min @ 160kPa

额定功率范围--120W~200W

最大工作效率--42%

EP150i series electronic water pump is a centrifugal electronic water pump integrated with motor and motor controller. It adopts modular structure design scheme. The stator component adopts the overall glue of the plastic material, and the PCBA is cooled by internal water cooling. The pump can be used individually or for integrated installation.

Electronic water pumps can be applied to the following occasions:

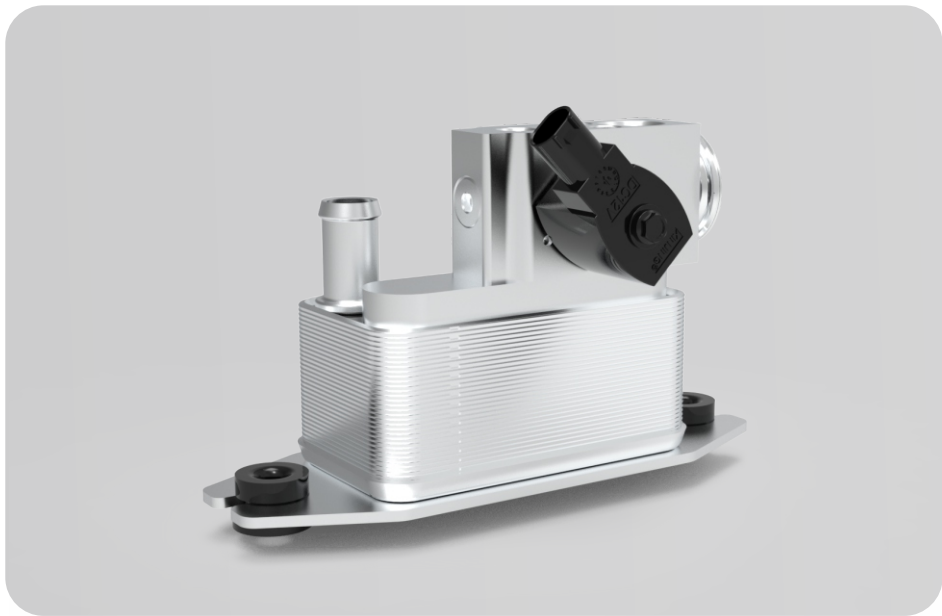
The medium circuit of the PTC heaters, battery, electronic control units, cooling circuits of drive motors, etc.

Performance:

Rated operating point: 22L/min @ 160kPa

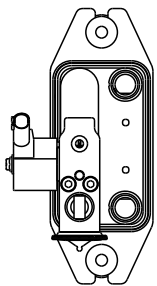
Rated power range: 120W~200W

Maximum efficiency: 42%

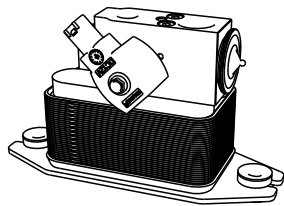


产品视图 Product View

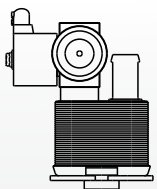
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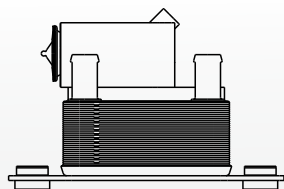
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电池冷却器/Chiller

电池冷却器，用于电动车动力电池的冷却，通过制冷剂带走冷却液热量，进而确保动力电池工作温度在20~30°C范围内，最高不能超过40°C。随着超级快充技术的发展，对chiller制冷功率的要求也进一步提高。

Chiller, used for electric vehicle power battery cooling, through the refrigerant to remove the coolant heat, and ensure that the power battery operating temperature in the range of 20~30°C, the maximum can not exceed 40°C. With the development of super fast charging technology, the requirements for chiller refrigerator power are further improved.

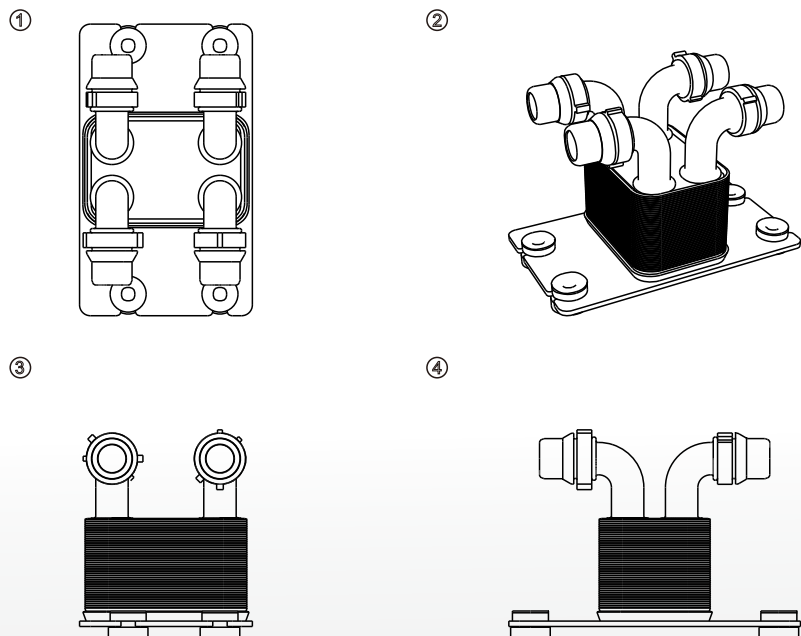


水水换热器/Water-Water Heat Exchanger

在氢燃料电池系统或混合动力电池系统中，存在两个独立的冷却液回路，在不同的温度范围内运行。热量将从温度较高一侧传递到温度较低的电池回路，起到余热回收作用。

In a hydrogen fuel cell system or hybrid battery system, there are two independent coolant circuits that operate in different temperature ranges. The heat will be transferred from the warmer side to the cooler battery circuit, which plays a role in waste heat recovery.

产品视图 Product View





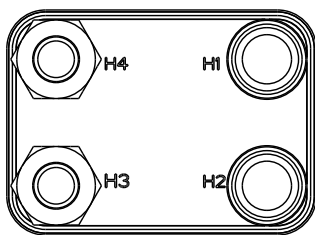
氢气加热器/Hydrogen Heater

应用于氢燃料电池系统，氢气与冷却液热交换。质子交换膜的理想工作温度为60~80°C，此温度区间内能源利用率可达最佳。为此采用的技术措施之一是在氢气喷射器前配置一个换热器，在冷启动阶段预热低温氢气至60°C以上。

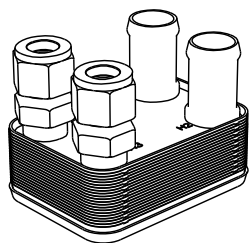
Applied to hydrogen fuel cell systems, hydrogen and coolant heat exchange. The ideal operating temperature of proton exchange membrane is 60~80°C, and the energy efficiency is best in this temperature range. One of the technical measures adopted for this purpose is to configure a heat exchanger in front of the hydrogen ejector to preheat the low-temperature hydrogen to above 60°C during the cold start phase.

产品视图 Product View

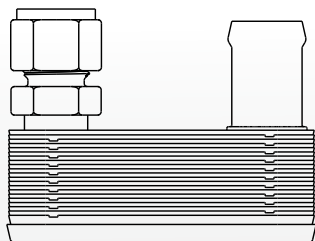
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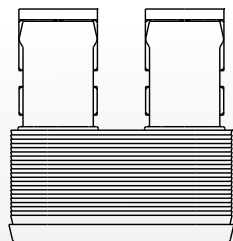
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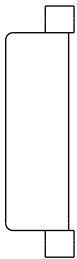
ATS控制器/ATS Controller

监控散热回路温度，智能调节散热风扇转速，控制器精度高，散热效率高，同时还具备故障诊断功能。使用场合：传统燃油车与新能源车车型前端散热模块。

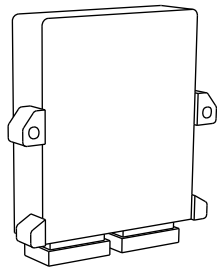
Monitor the temperature of the cooling circuit, intelligently adjust the speed of the cooling fan, the controller has high precision, high heat dissipation efficiency, and also has fault diagnosis function. Application: front-end heat dissipation module of traditional fuel vehicles and new energy vehicle models.

产品视图 Product View

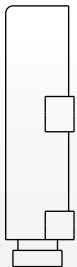
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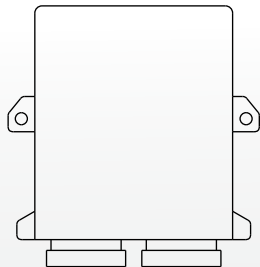
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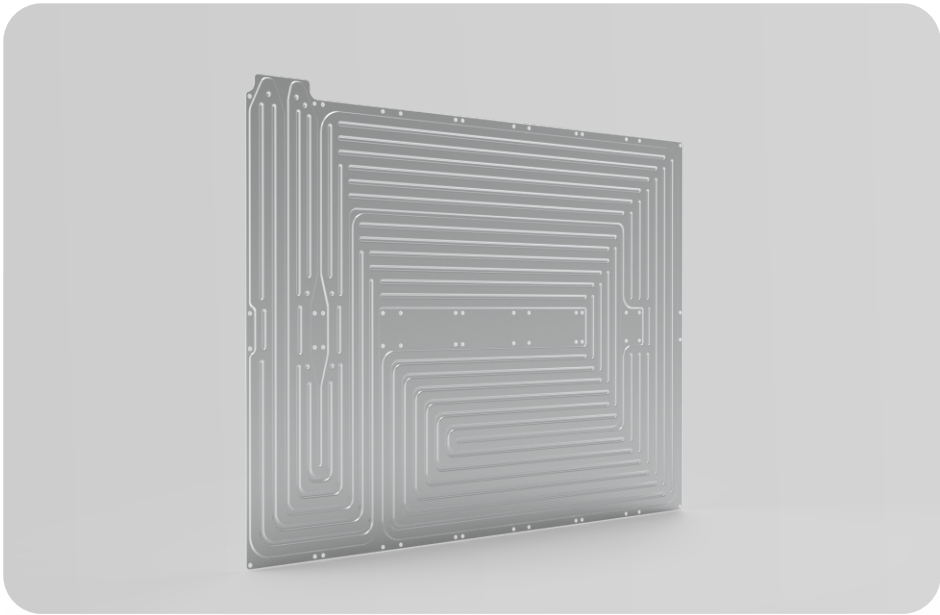


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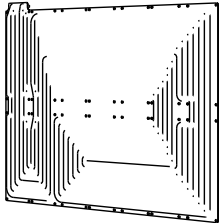
电池冷却板/Battery Cooling Plate

动力总成电气化和汽车自动化是汽车行业的技术趋势之一，为了将动力电池和功率电子器件等的工作温度区间维持在舒适的区间，需要通过冷却板对其进行热管理，从而提升电池和功率电子器件等寿命和工作效率。

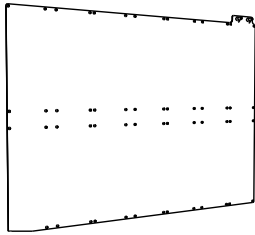
Powertrain electrification and automotive automation are one of the technical trends in the automotive industry. In order to maintain the working temperature range of power batteries and power electronic devices in a comfortable range, it needs to be thermal management through the cooling plate, to improve the service life and work efficiency of batteries and power electronic devices.

产品视图 Product View

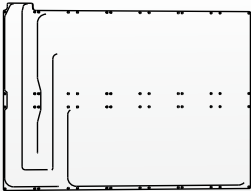
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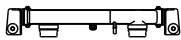
散热器/Radiator

在燃料电池车中，散热器的主要功能是实现燃料电池电堆的散热，确保燃料电池保持在65~90°C的工作温度范围内，另外能够给暖风空调等提供热源。我们采用管带式或者封条式结构，实现少钎或无钎钎焊工艺，具有高散热效率，低电导率。

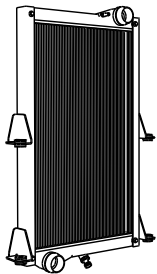
In fuel cell vehicles, the main function of the radiator is to realize the heat dissipation of the fuel cell stack, ensure that the fuel cell is maintained in the working temperature range of 65~90 °C, and provide heat source for heating air conditioning. We adopt tube belt type or seal type structure to achieve less or no brazing process, with high heat dissipation efficiency, low conductivity.

产品视图 Product View

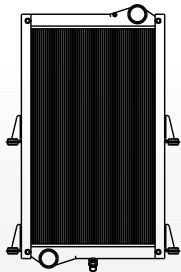
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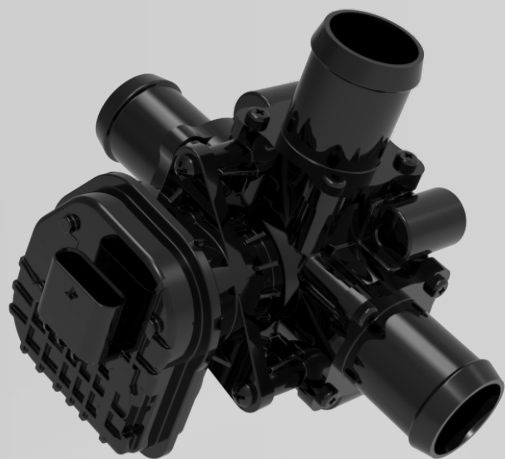


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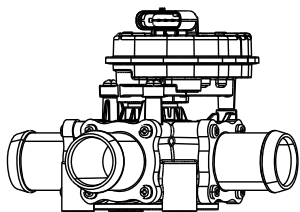
商用车水阀/Commercial Vehicle Hydrovalve

根据商用车新能源低压24V系统设计的一款水阀，基本款采用PWM通信控制方式（可以开发CAN通信）目前有2通/3通/4通产品，可实现开关和流量调节功能；标准款内径为 $\Phi 25\text{mm}$ ，满足最大水流量约100L/min；产品B10寿命为40万次位置变化（估算整车寿命为50万~80万公里）。

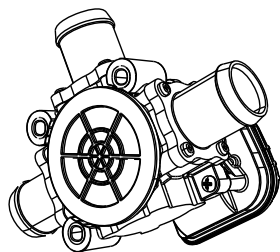
A hydrovalve designed according to the commercial vehicle new energy low-voltage 24V system, the basic model adopts PWM communication control mode (CAN communication can be developed). At present, there are 2 /3 /4 pass products, which can realize switching and flow regulation functions. The inner diameter of the standard model is 25mm, meeting the maximum water flow of about 100L/min; Product B10 has a life of 400,000 position changes (estimated vehicle life is 500,000-800,000km).

产品视图 Product View

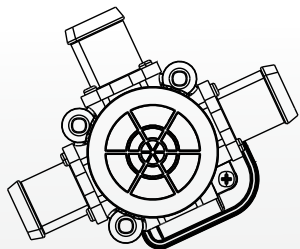
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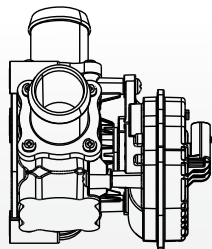
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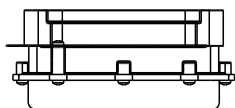
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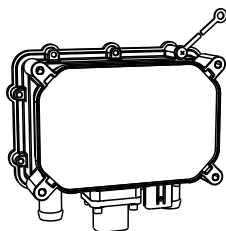


产品视图 Product View

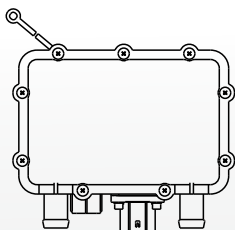
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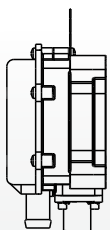
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PTC加热器/PTC Heater

高压工作范围: 550-850V

加热功率: 7kW

产品优点: 使用钛酸钡陶瓷片为加热元件，以电能转换为热能，耐高压、自控温、稳定性好、寿命长产品功能；通过CAN信号实现与整车的通讯，可以做到过压、欠压、过温、过流、干烧等多项自我保护功能应用范围；可广泛应用于纯电动汽车的电池热管理、空调采暖、氢燃料电池冷启动以及其他需要额外热量补充的场景。

High pressure working range: 550-850V

Heating power: 7KW

Advantages: Barium titanate ceramic plate is used as the heating element, the electric energy is converted into heat energy, high pressure resistance, temperature control, good stability, long life.

Product functions: Through CAN signal to achieve communication with the vehicle, can achieve over voltage, under voltage, over temperature, over current, dry burning and other self-protection functions.

Application: It can be widely used in battery thermal management of pure electric vehicles, air conditioning heating, cold start of hydrogen fuel cells and other scenarios requiring additional heat supplement.

无刷电动风扇/Brushless electric fan

产品名称: 无刷电动风扇

标称电压: DC12/24

额定功率: 500W

叶轮直径: 305mm

111系列电动风扇是一款: 密封等级满足IP68和IP6K9K; 高效率; 无电火花; 智能驱动无刷轴流风机;

主要运用场合: 商用车, 工程机械, 储能等冷却中。

Product Name: Brushless electric fan

Nominal voltage: DC12/24V

Rated power: 500W

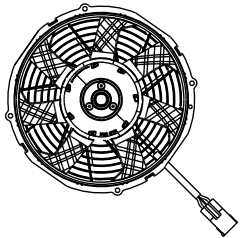
Impeller diameter: 305mm

111 series electric fan is one type: seal grade meets IP68 and IP6K9K; High efficiency; No electric spark; Intelligent driven brushless axial fan;

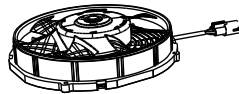
Main applications: commercial vehicles, construction machinery, energy storage and other cooling.

产品视图 Product View

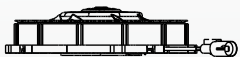
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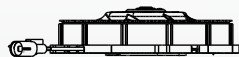
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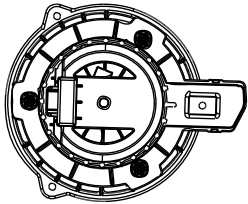
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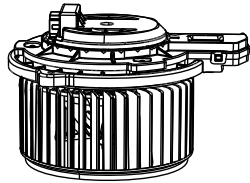


产品视图 Product View 

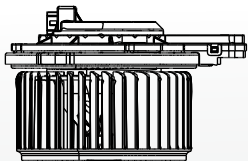
①



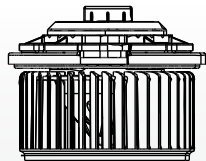
②



③



④



无刷鼓风机/Brushless blower

无刷鼓风机是集成了电机、电机控制器及贯流式叶轮的机电一体化产品，电机采用优化的电磁设计方案可实现低噪声运行；在法兰内部设计有橡胶隔振圈，可根据不同应用场合灵活调整隔振的性能优化产品的NNH指标；

产品具有：过/欠电压，过温度，堵转，信号错误等故障诊断及反馈功能；可实现PWM或LIN通信；

性能：

--额定转速

3580±200 rpm

--额定功率范围

200W~350W

Brushless blower is an electromechanical product integrating motor, motor controller and tubular impeller. The motor can operate with low noise by adopting optimized electromagnetic design scheme; A rubber vibration isolator is designed inside the flange, which can flexibly adjust the vibration isolation performance according to different applications to optimize the NNH index of the product;

The product has the following fault diagnosis and feedback functions: over/under voltage, over temperature, locked rotor, signal error, etc; PWM or LIN communication can be realized;

Performance:

--Rated speed

3580±200 rpm

--Rated power range

200W~350W



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