股票代码: 300237 Stock Code:300237

### MECHEN 环保+科技 Environmental Protection + Technology

# MEICHEN

### TECHNOLOGY LEADS THE FUTURE



# MEICHEN

山东美晨工业集团有限公司

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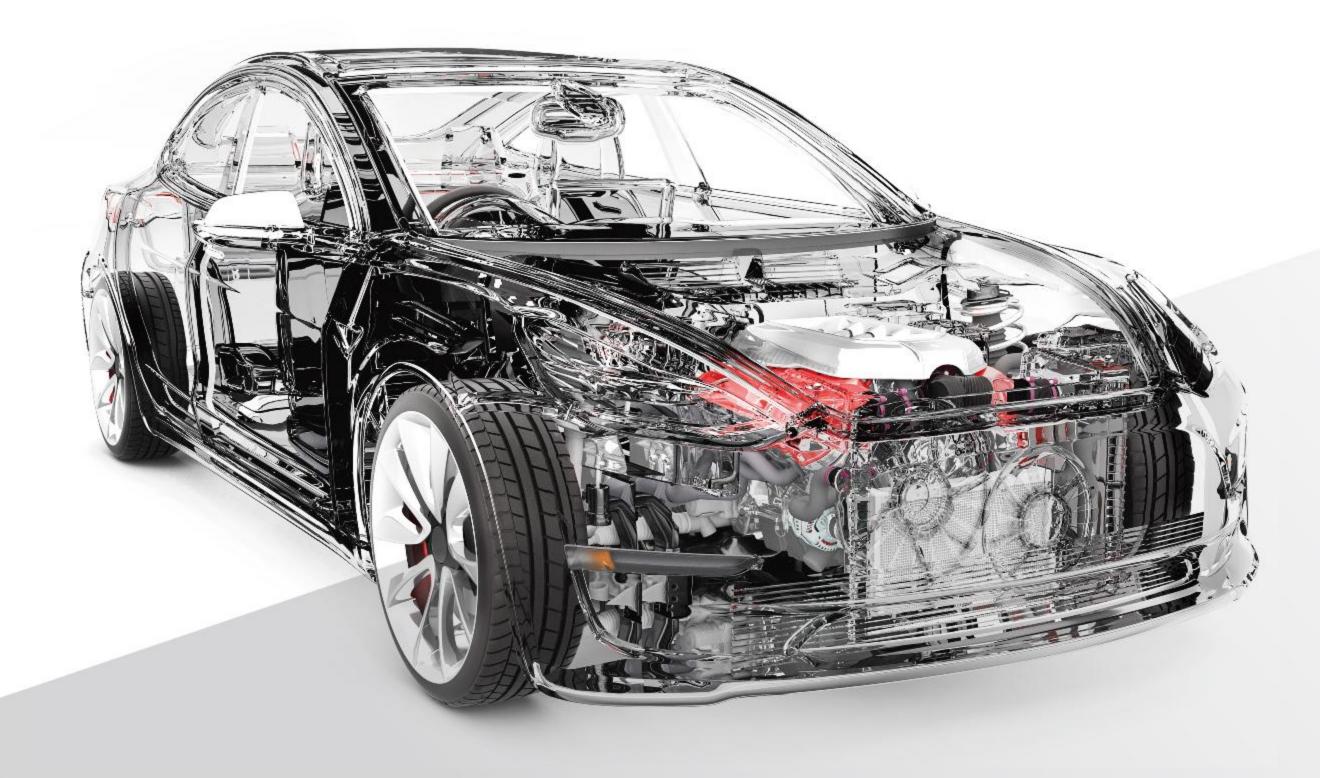
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### 服务客户 创造价值 SERVE CUSTOMER CREATE VALUE

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::: MEICHEN 美晨 成为全球行业引领者



### **COMPANY PROFILE** 公司概况》

山东美晨工业集团有限公司,位于山东省诸城 市,北邻风筝之都潍坊,毗邻青岛、日照,位于青 岛一小时都市圈,交通便利,地理位置优越。

公司成立于2004年,是一家全球化发展的国家 级高新技术企业、国有控股上市公司,股票代码 300237,是中国橡胶工业协会橡胶制品分会理事 长单位。被评定为"国家知识产权示范企业",自 2006年起连续每年荣获"全国百佳汽车零部件供 应商"称号。

美晨工业是国内汽车关键零部件行业领先企 业,专注于汽车悬架系统产品、减振系统产品、流 体输送系统产品的研发与生产。以服务客户、创造 价值为使命,为国内外一流客户提供专业的系统解 决方案,并形成重要战略合作关系。

技术超越,引领未来。公司拥有一支涵盖国内 外专家的高素质专业化队伍,先后与加拿大滑铁卢 大学、华南理工大学、青岛科技大学、北京理工大 学等国内外知名高校建立了合作关系, 引进多个专 家团队进行研发项目合作和人才培养。

Shandong Meichen Industry Group Co., Ltd. is located in Zhucheng city, Shandong Province, bordering Weifang, the capital of kites to the north, and nearing to Qingdao and Rizhao. Located in one hour of urban Qingdao circle, it has a convenient transportation with good location.

The company was founded in 2004, is a global development of state-level high-tech enterprises, state-owned holding listed company, stock code 300237, is the China Rubber Industry Association rubber products Branch chairman unit. Rated as "National Intellectual Property Rights Model Enterprise", Since 2006, it has been awarded the title of "Top 100 National Auto Parts Suppliers "annually.

Meichen Industry is a leading enterprise in domestic automobile key parts industry, focusing on the research and production of automotive suspension system products, vibration reduction system products and fluid delivery system products. With serving customers and creating value as a mission, the company provides professional system solutions for first-class customers both at home and abroad, forming an important strategic partnership.

Technology leads the future. The company has a high-quality professional team covering experts at home and abroad, has established cooperative relations with famous universities at home and abroad, such as University of Waterloo in Canada, South China University of Technology, Qingdao University of Science and Technology, Beijing Institute of Technology and so on, and has introduced multiple specialist teams to advance R&D project cooperation and talent development.













































































合作客户 COOPERATION WITH THE CUSTOMER



:::: MEICHEN 美晨 成为全球行业引领者

### **ENTERPRISE QUALIFICATIONS AND HONORS** 企业资质与荣誉 >>



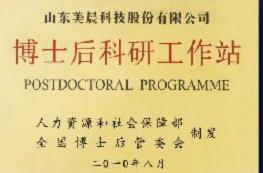






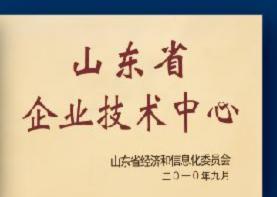


















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### **ENTERPRISE** CULTURE 企业文化 >>

使命、愿景、价值观

命: 服务客户、创造价值 景:成为全球行业引领者

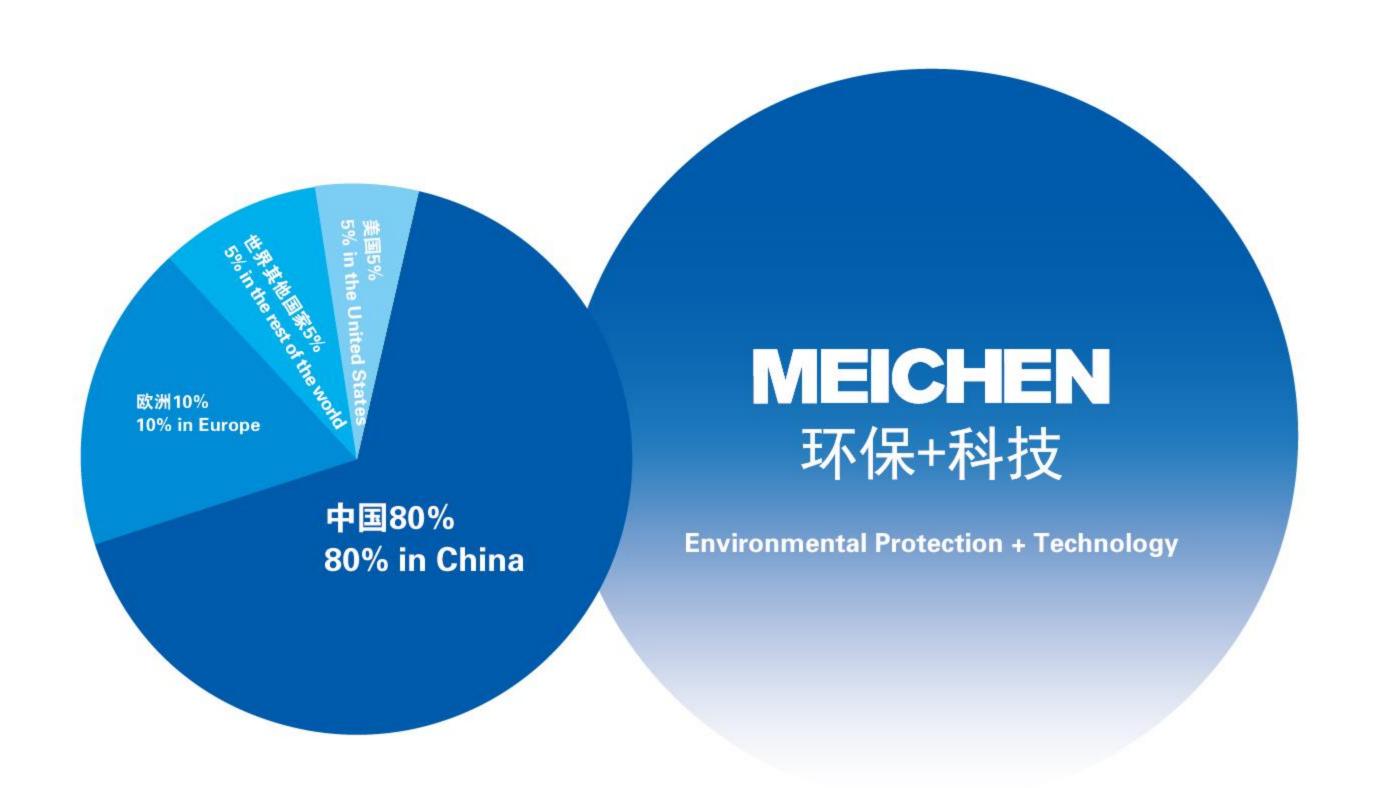
价值观:诚信、求变、创新、合作、共赢

Mission, vision, values

Mission: to serve customers and create value Vision: To become a global industry leader Values: integrity, change, innovation, cooperation,

win-win

THE DISTRIBUTION OF PRODUCTS AROUND THE WORLD 产品在世界各地的分布》



成为全球行业引领者 ::: MEICHEN 美晨

### >> 产品设计与研发

设计能力: 具备与客户进行前瞻性联合设计、开发的能力; 可提供系统化、模块化解决方案。

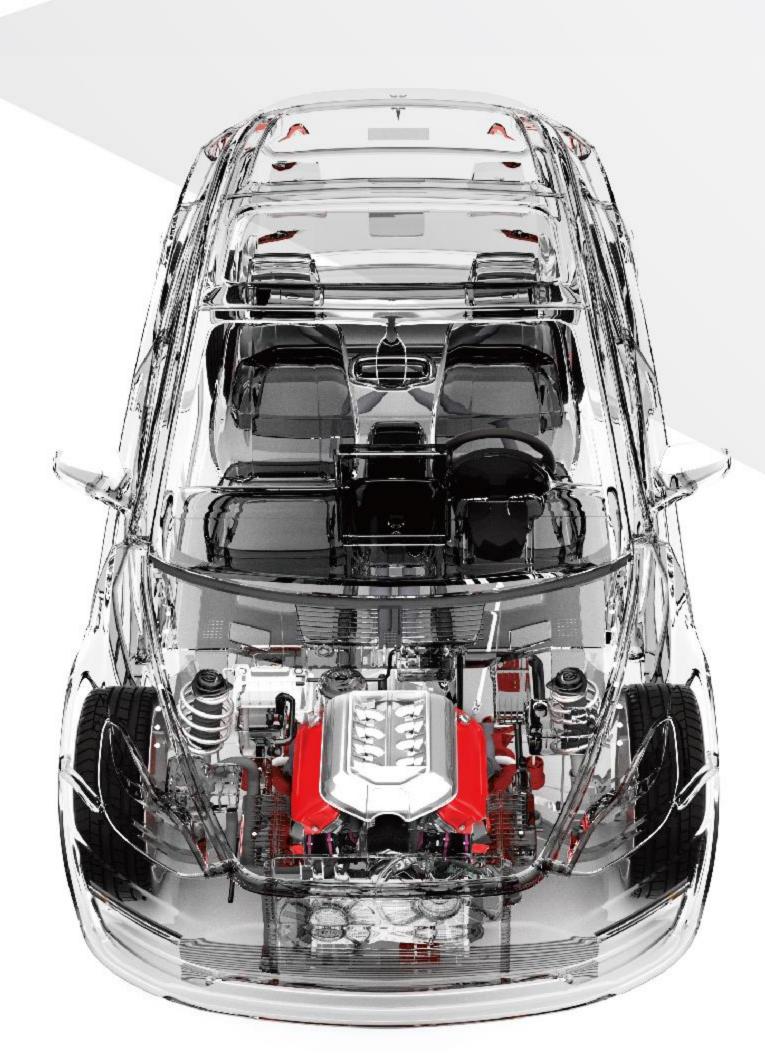
工程设计/分析: 浩辰CAD、ProE、CatiaV5、Solidworks、 Hypermesh, Abaqus, Adams,

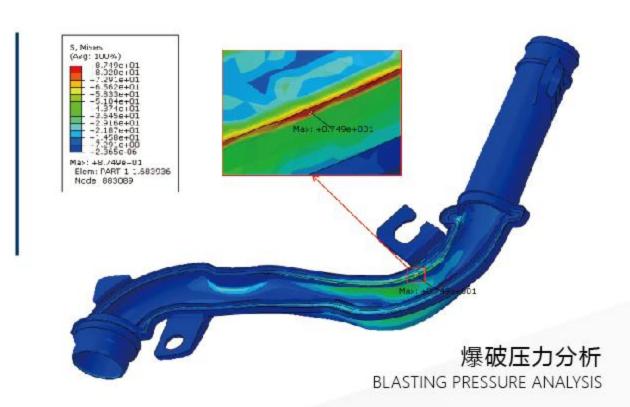
#### PRODUCT DESIGN AND R & D

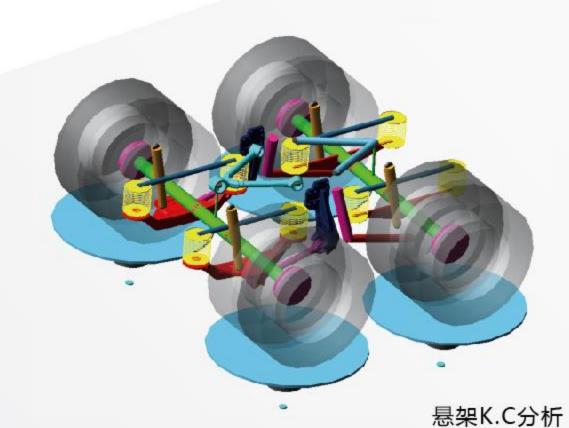
Designing Ability: Being capable of conducting prospective joint design with customers.

Development Ability: Provide systematic and modular solutions.

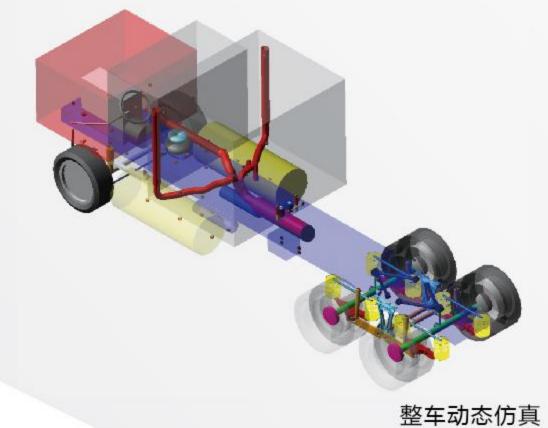
Engineering Design/Analysis: GstarCAD、ProE、CatiaV5、 Solidworks, Hypermesh, Abaqus, Adams.

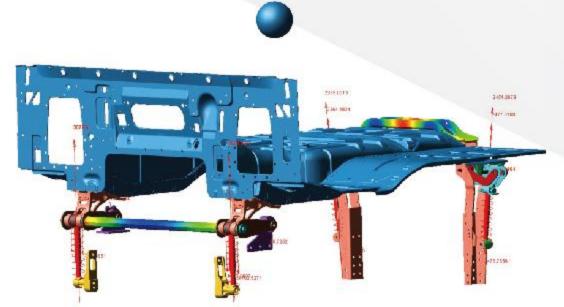






SUSPENSION K. C ANALYSIS





驾驶室模态解耦 CAB MODAL DECOUPLING

VEHICLE DYNAMIC SIMULATION

### TECHNICAL STRENGTH 技术实力 >>





涡轮增压技术目前是传统汽 车提高燃油动力、节能减排的有 效途径之一、美晨涡轮增压器软管 研发能力居国内领先水平。为规 范涡轮增压器软管的技术标准、美 晨作为主要起草单位制定了国际标 准ISO17324:2014《汽车涡轮增压器 橡胶软管规范》、填补了我国橡胶 行业国际标准的空白,提升了我国 汽车进气系统橡胶软管的国际化标 准水平。

Turbocharger technology is one of the effective ways to improve the fuel power, conserve energy and reduce emissions of traditional vehicle, Meichen's R&D technology of turbocharger rubber hose is the leading level in China. In order to regulate technology of turbocharger rubber hose standard, Meichen formulated the international standard ISO 17324:2014 《Rubber hoses for automotive turbochargers - Specification》 which made up the blank of international standard of rubber industry in China, and improved the international standard level of rubber hose of automobile intake system in China.



国家标准委国际合作部关于我国主导制定 ISO17324; 2014 国际标准的证明函

你公司《关于申请开据制定国际标准ISC17324; 2C14〈汽车 為轮增压器維胶软管 规范〉证明的函》( 选缘研标准[2015]6号) 收悉。经核实, ISO17324: 2014《汽车涡轮增压器橡胶软管-规范》 (Rubber hoses for automotive turbochargers—Specification) 于 C. 4年9月17日在ISO正式发布为国际标准。由东美晨科技股份有限 任ISO/TC45/SC1/MS2工作组申该项国际标准项目的项目负责人。主 木英和马景春、宁波三茂远东橡胶有限公司的曹有华、中国长春第 - 汽车集团公司的周宇飞、浙江三特科技有限公司的陈基昌作为 ESO/TC45/SCIANG2工作组专家参与了该项国际标准的制定工作。





**:::**: MEICHEN 美晨 ───────────────────────────────── 成为全球行业引领者

### >> 设计验证能力

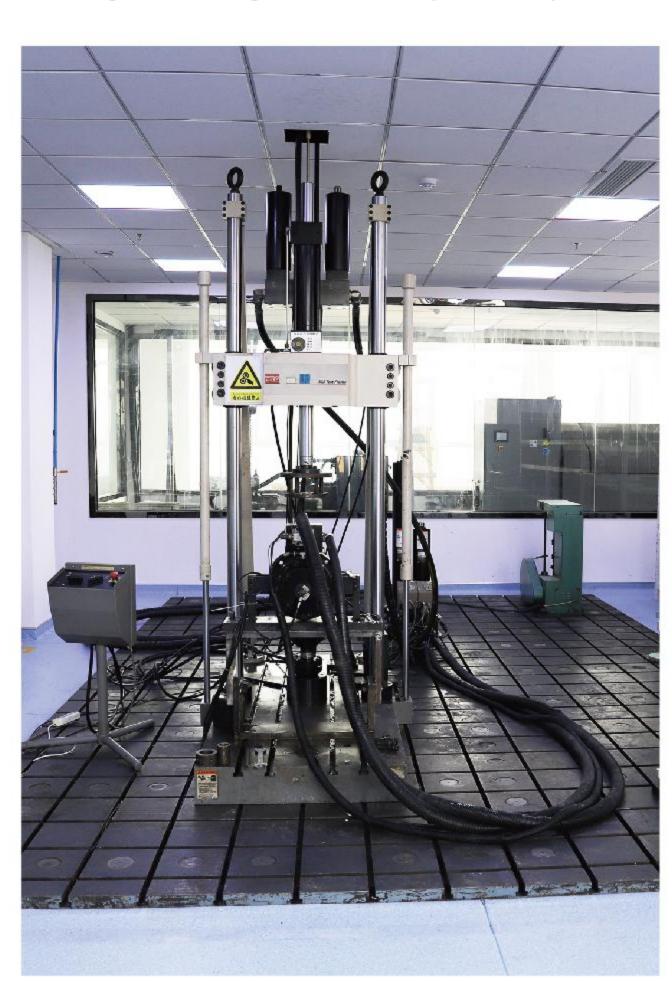
检测中心是国家CNAS认可实验室,具备汽车悬架系统产品、减振系统产品、流体输送系统产品三大产品系列原材料、半成品、成品的专业检测能力,同时具备对零部件在整车中的应力、位移、加速度、隔振率、温度、压力及整车的NVH等进行测试的能力。

拥有美国、德国、瑞士、意大利、日本、比利时等国家的120多台套高端检测设备,开展检测项目230余项,试验能力在国内汽车零部件企业当中始终保持领先水平。

# DESIGN VERIFICATION CAPABILITY

Test center is recognized by CNAS laboratory, with the automobile suspension system products, damping system, fluid conveying system, the three major products series of professional testing of raw materials, semi-finished products and finished products, at the same time capable of parts in the stress, displacement, acceleration, vibration isolation rate, temperature, pressure and harshness (NVH) of vehicles test ability.

With more than 120 sets of high-end testing equipment from the United States, Germany, Switzerland, Italy, Japan, Belgium and other countries, the company has carried out more than 230 testing projects, and its test capacity has always maintained a leading level among domestic auto parts enterprises.











检测中心 TEST CENTER

### 技术超越 引领未来

TECHNOLOGY LEADS THE FUTURI



**!::** MEICHEN 美晨 ───── 成为全球行业引领者

### >> 乘用车空气弹簧

产品功能:

乘用车空气悬架的重要部件,分集成减振器空气弹簧总成和独立空气弹簧;有单腔、双腔、三腔多种结构。

材料:可选NR、CR

#### AIR SPRINGS FOR PASSENGER CARS

Product function: An important part of passenger car air suspension, divided into integrated shock absorber air spring assembly and independent air spring; Single cavity, double cavities, three cavities structure can be selected.

Material: NR, CR



### >> 乘用车智能空气悬架系统

#### 产品功能:

应用于乘用车底盘系统,可根据车辆运动状态或前方路面信息,自适应地调节车身高度、空气弹簧刚度、减振器阻尼。主要由高度传感器、加速度传感器、ECU、供气单元、分配阀、储气罐、空气弹簧、可调阻尼减振器、气管路、电子线束等组成。

#### INTELLIGENT AIR SUSPENSION SYSTEM FOR PASSENGER CARS

Product function: This system applied to the chassis system of passenger cars, it can adjust the height of the body, the stiffness of the air spring and the damping of the shock absorber adaptively according to the motion state of the vehicle or the information of the road ahead. It is mainly composed of height sensor, acceleration sensor, ECU, gas supply unit, distribution valve, gas storage tank, air spring, adjustable damping shock absorber, gas pipe, electronic wiring harness, etc.



### >> 车辆集成式热管理系统

#### 产品功能:

应用于车辆热管理系统,该系统集成乘员舱热管理系统、电机热管理系统和电池热管理系统,可根据乘员舱及各电气设备的温度信息,结合外部环境信息,自适应调节乘员舱内温度,同时可以将电机、电控和电池温度控制在最佳工作温度范围内。主要由压缩机、冷凝器、电子膨胀阀、蒸发器、气液分离器、板式换热器、电子水泵、散热器、电子风扇、集成式多通阀、集成式水壶、ECU等组成。



#### VEHICLE INTEGRATED THERMAL MANAGEMENT SYSTEM

Product function: This system applied to the vehicle thermal management system, which integrates the crew cabin thermal management system, motor thermal management system and battery thermal management system. It can automatically control the cabin temperature, control the motor, electronic control and battery in the optimal operating temperature range through the integrated multi-way valve and the integrated kettle temperature, combined with the external environment information, It is mainly composed of compressor, condenser, electronic expansion valve, evaporator, gas-liquid separator, plate heat exchanger, electronic water pump, radiator, electronic fan, Integrated multi-way valve, Integrated kettle, ECU, etc.



### >> 冷却系统产品

产品功能:用于连接散热器、副水箱、电机、电控及电池温度控制系统,承担吸收以及散热功能,满足NVH、流阻、密封性要求。

介 质:冷却液。

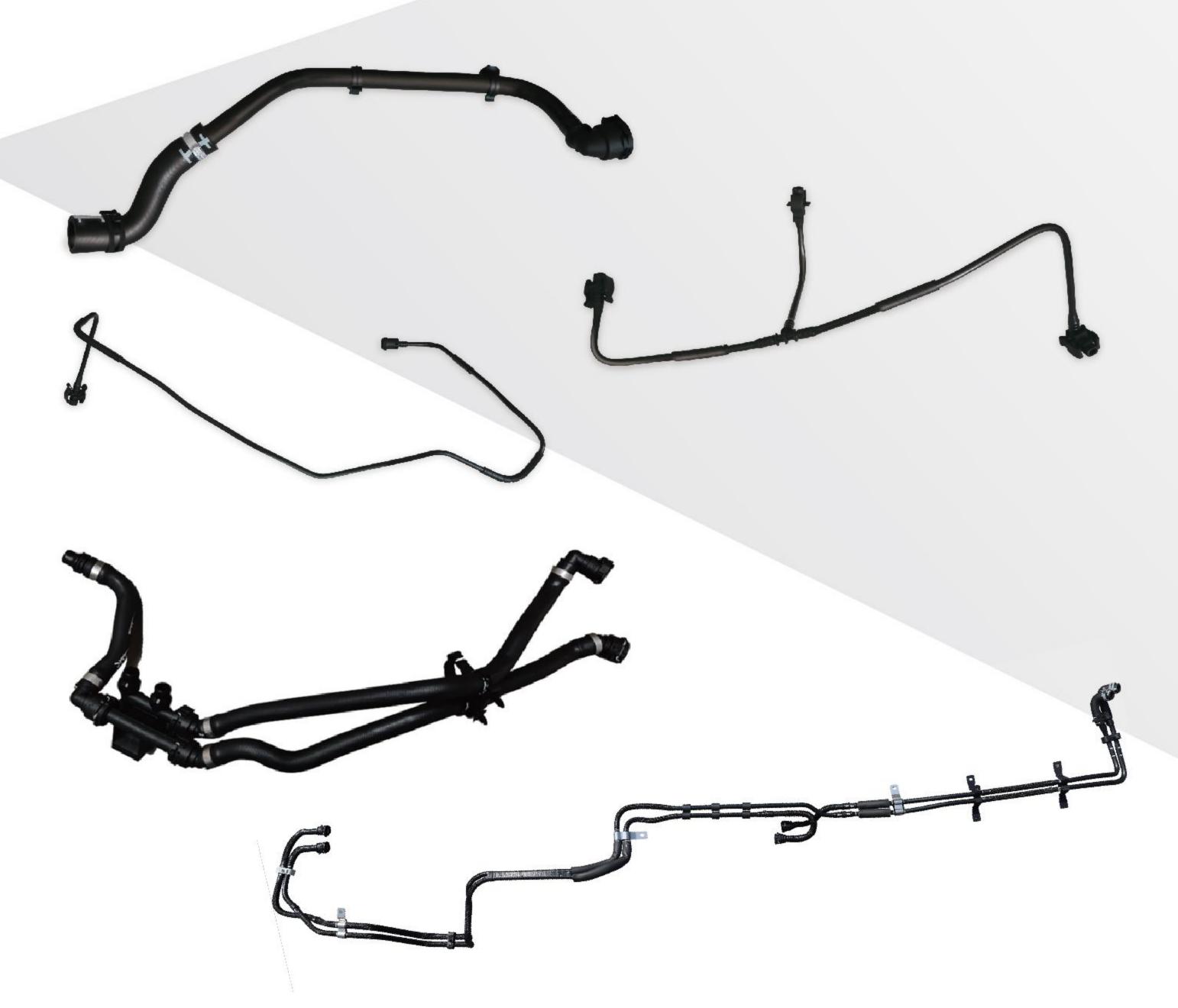
材料: EPDM、TPV、带增强层TPV、PA等。

应用范围: 乘用车、商用车、工程机械。

Product functions: Used for connecting radiator, auxiliary water tank, motor, electric control and battery temperature control system; Undertaking absorption and heat dissipation functions, to meet the requirements of NVH, flow resistance and sealing. Medium: Coolant.

Material: EPDM, TPV, TPV with reinforced layer, PA, etc.

Application range: Passenger cars, commercial vehicles and construction machinery, including: internal combustion engine vehicles and new energy vehicles.





### >> 进气系统产品

产品功能: 用于连接空滤器、涡轮增压器、中冷器以及发动机实现气体输送。

介 质:油气混合物。

材 料:橡胶材料涵盖FVMQ、FKM、VMQ、改性VMQ、HT-AEM、HT-ACM、CM、EPDM、NBR、NBR/PVC的进气管路配方,塑料材料有TEEE、PP、HDPE、TPV、PA66+PA6+GF15、PA66+GF35、PA6+GF15等,可根据客户的应用环境进行选择。

应用范围: 乘用车、商用车、工程机械。

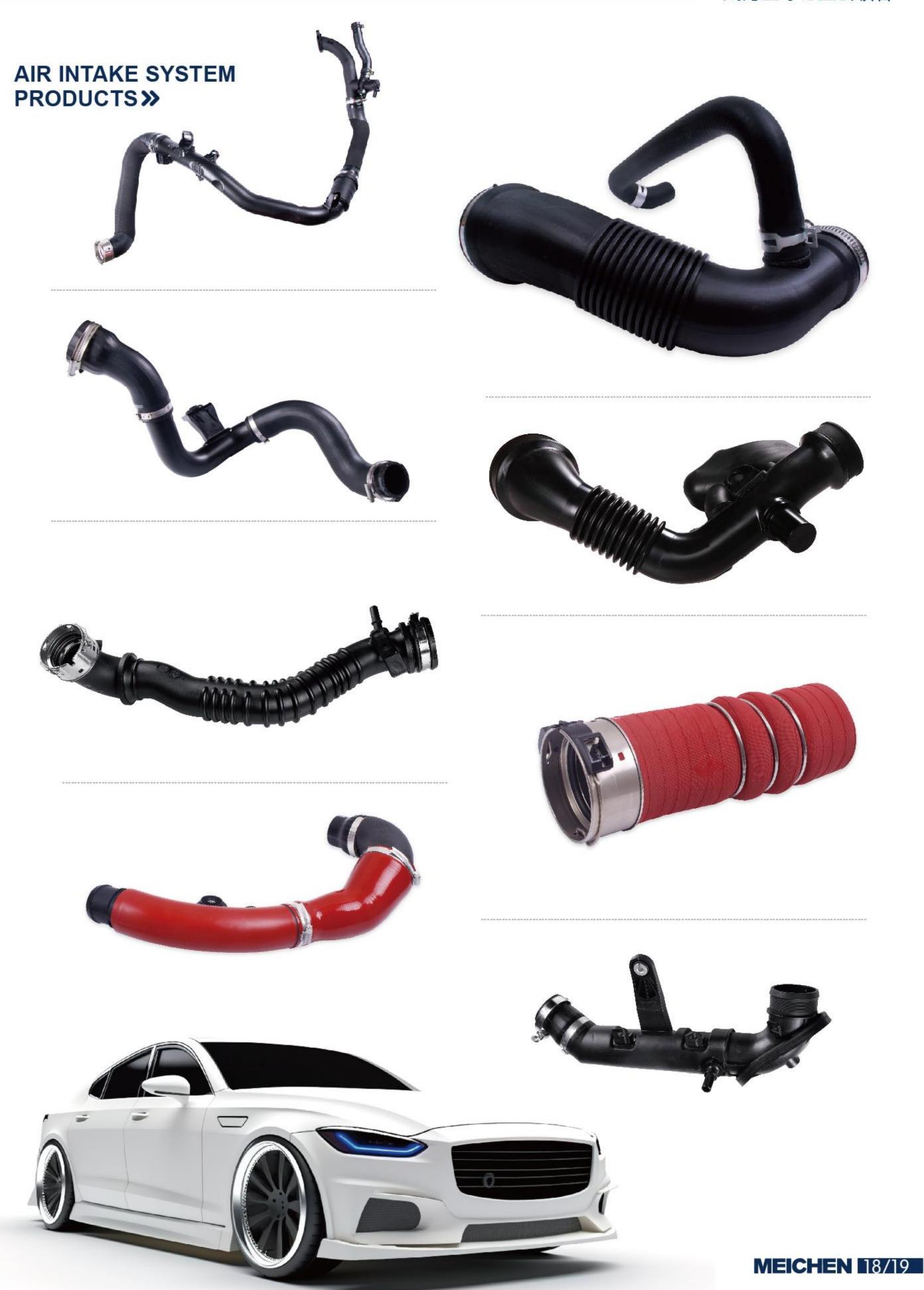
Product functions: Used to connect air filter, turbocharger, intercooler and engine for gas transmission.

Medium: Oil and gas mixture.

Material: Rubber materials include FVMQ, FKM, VMQ, modified VMQ, HT-AEM, HT-ACM, CM, EPDM, NBR, NBR/PVC inlet pipe formula, plastic materials include TEEE, PP, HDPE, TPV, PA66+PA6+GF15, PA66+GF35, PA6+GF15, etc., can be selected based on the application environment of clients.

Application range: Passenger cars, commercial vehicles and construction machinery.





**:::**: MEICHEN 美晨 ———— 成为全球行业引领者

### >> 燃油系统产品

产品功能:根据发动机运转工况的需要向发动机供给一定数量的、清洁的、雾化良好的汽油,以便与一定数量的空气混合形成可燃混合气。

介 质: 燃油

材 料: 涵盖了NBR/CSM、FKM/ECO、FKM/ECO/AR/ECO、NBR/THV/NBR/CSM、FKM/THV/ECO、NBR/THV/N-BR/AR/CSM(CM)、FKM/THV/ECO/AR/ECO、FKM/FTPV/ECO/AR/ECO。

应用范围: 乘用车、商用车、工程机械。

#### **FUEL SYSTEM PRODUCT**

Product functions: Supplying a certain amount of clean and well-atomized gasoline to the engine according to the requirements of engine operating conditions, so as to mix with a certain amount of air to form a combustible mixture.

Medium: Fuel oil.

Material:It covers NBR/CSM, FKM/ECO, FKM/ECO/AR/ECO, NBR/THV/NBR/CSM, FKM/THV/ECO, NBR/THV/N-BR/AR/CSM (CM) ,FKM/THV/ECO/AR/ECO, FKM/FTPV/ECO/AR/ECO.

Application range: Passenger cars, commercial vehicles and construction machinery.



### >> 排气系统产品

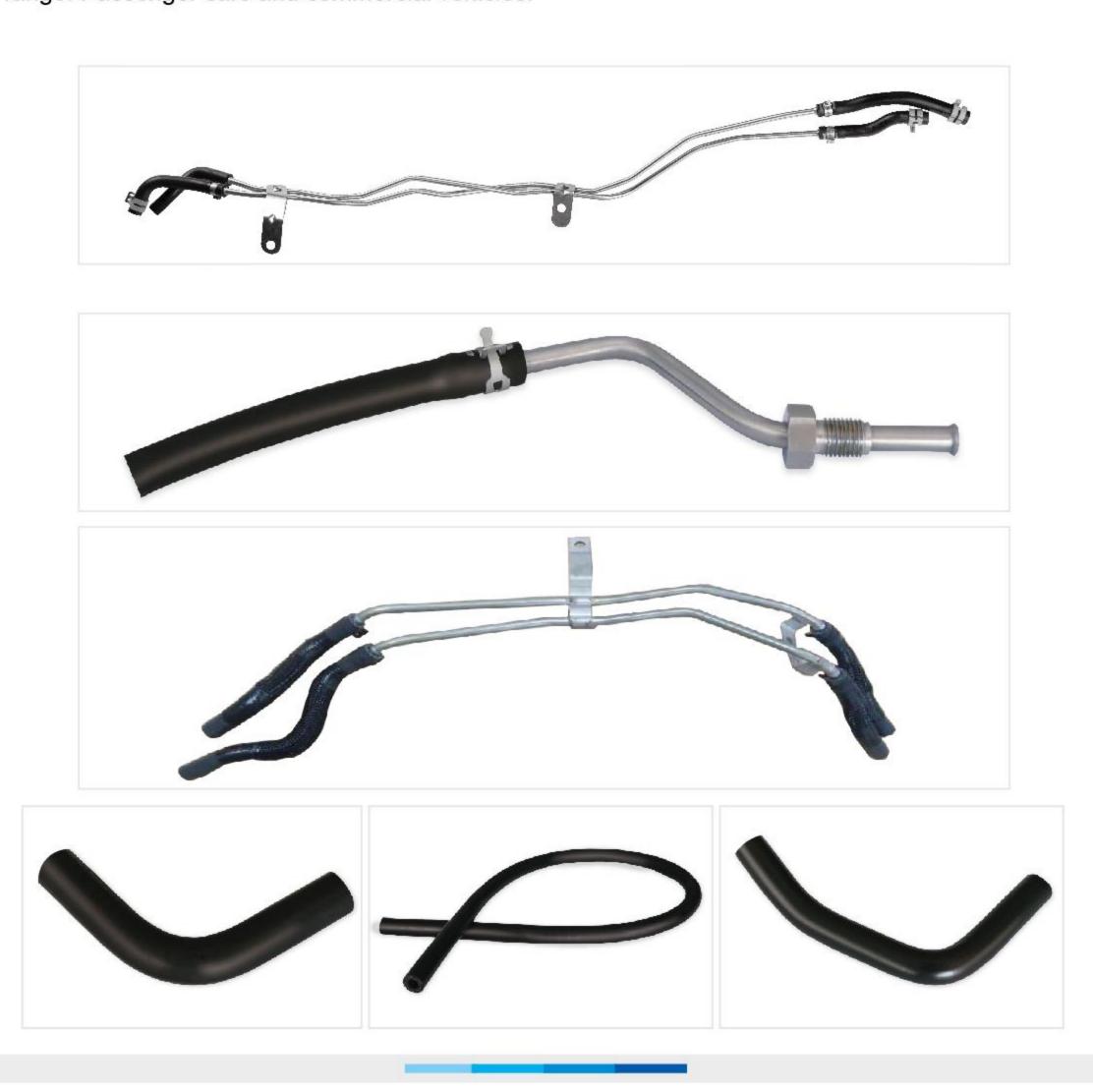
产品功能:压差管安装在DPF/GPF的两端,分为低压管和高压管,感应器通过检测两端管路内压力判断DPF/GPF内的废气流动压力差,超过一定压力向ECU传输信号,ECU根据信号判断是否对DPF/GPF进行喷油燃烧,减少内部颗粒物对废气排放的影响。

材 料:涵盖了FKM/AEM/AR/AEM、ACM/AR/ACM、AEM/AR/AEM、VMQ/AR/VMQ、FKM/VMQ/NOMEX/VMQ。 应用范围: 乘用车、商用车。

#### **EXHAUST SYSTEM PRODUCTS**

Product functions: The differential pressure pipeline is installed at both ends of DPF/GPF, which is divided into low pressure pipeline and high pressure pipeline. The sensor judges the flow pressure difference of exhaust gas in DPF/GPF by detecting the pressure in both ends of the pipelines. If the pressure exceeds a certain value, it will transmit signals to ECU. ECU judges whether to inject fuel into DPF/GPF or not according to the signal, so as to reduce the impact of internal particles on exhaust emission.

Material: It covers FKM/AEM/AR/AEM, ACM/AR/ACM, AEM/AR/AEM, VMQ/AR/VMQ, FKM/VMQ/NOMEX/VMQ. Application range: Passenger cars and commercial vehicles.





### >> 衬套产品

#### 产品功能:

1.支撑系统,提供扭转和侧倾的柔性,应用于轴向和径向的位移及扭转角度的控制;

2.具有低的轴向刚度使得互相连接系统具有良好的隔振性能,具有高的径向刚度使得系统具有良好的稳定性。

材 料:金属材料、工程塑料加橡胶。 应用范围:乘用车、商用车、工程机械。

#### LINER PRODUCT

#### Product function:

1.Support system providing flexibility in torsion and roll, which is applied to axial and radial displacement and control of torsional angle;

2.Low axial stiffness that makes the interconnected system have good vibration isolation performance, and high radial stiffness that makes the system have good stability.

Material: Metal materials, engineering plastics and rubber.

Application range: Passenger cars, commercial vehicles and construction machinery.













### >> 动力悬置产品

产品功能:连接车架与动力总成,支撑动力总成重量,控制动力总成的位移和转角,降低动力总成的振动向车身传递,衰减传递到动力总成的路面激励。

材 料:金属材料、工程塑料加橡胶。 应用范围:乘用车、商用车、工程机械。

#### POWER SUSPENSION PRODUCTS

Product functions: Connect the frame and the powertrain, support the weight of the powertrain, control the displacement and angle of the powertrain, reduce the transmission of vibration of the powertrain to the vehicle body, and attenuate the road excitation transmitted to the power assembly.

Material: Metal materials, engineering plastics and rubber.

Application range: Passenger cars, commercial vehicles and construction machinery.





























### >> 推力杆产品

产品功能:连接着车架与车桥,有I型、V型两种结构形式,其目的主要是为了克服钢板弹簧只能传递垂直力和侧向力而不能传

递牵引力、制动力及其相应的反作用力矩,V型推力杆还可承受侧向力。

材料: 合金钢、碳素钢、铝合金、橡胶、塑料等。

应用范围: 商用车、工程机械(包含汽车起重机、泵车、混凝土搅拌车、矿用卡车等)

#### THRUST ROD PRODUCT

Product functions: Connecting the frame and axle, there are two types of structure, type I and type V. The purpose is mainly to overcome the fact that the leaf spring can only transmit vertical force and lateral force, but cannot transmit traction force, braking force and corresponding reaction force moment. The V-type thrust rod can also bear lateral force.

Material: Alloy steel, carbon steel, aluminum alloy, rubber, plastics, etc.

Commercial vehicles, construction machinery (including truck cranes, pump trucks, concrete mixer trucks, mining trucks, etc.)





### >> 驾驶室空气弹簧产品

产品功能:连接车辆悬架与驾驶室,承载驾驶室的重量,缓冲行驶过程路面造成的冲击,衰减振动,提高车辆行驶平顺性。

材料: 金属材料、工程塑料加橡胶。

应用范围: 商用车、工程机械。

#### CAB AIR SPRING PRODUCTS

Product functions: Connect vehicle suspension and the cab, bear weight of the cab, buffer road impact during driving, attenuate vibration and improve vehicle ride comfort.

Material: Metal materials, engineering plastics and rubber.

Application range: Commercial vehicles and construction machinery





### >> 座椅空气弹簧产品

产品功能:座椅空气弹簧属于汽车座椅系统,它取消了座椅支撑板和汽车地板之间传统的弹簧悬挂,通过座椅空气弹簧来连接并承载座椅及驾驶员重量,缓冲来自驾驶室的震动,提高汽车驾驶人员的乘坐舒适性,减轻驾驶疲劳。

材料:金属材料、工程塑料加橡胶。

应用范围: 商用车、工程机械。

#### **SEAT AIR SPRING PRODUCTS**

Product functions: The seat air spring belongs to the automobile seat system. It eliminates the traditional spring suspension between the seat support plate and the automobile floor, connects and carries the weight of the seat and driver through the seat air spring, buffers the vibration from the cab, improves ride comfort of the driver and relieves driving fatigue.

Material: Metal materials, engineering plastics and rubber.

Application range: Commercial vehicles and construction machinery.



产品功能:底盘空气弹簧是空气悬架的重要部件,结构上分为膜式空气弹簧、囊式空气弹簧;功能上有悬架空气弹簧、提升桥空气弹簧两种。悬架空气弹簧主要起承载作用,提升桥空气弹簧主要起提升作用。

材料: SPHE、橡胶。 应用范围: 商用车。

#### **CHASSIS AIR SPRING PRODUCT**

Product functions: Chassis air spring is an important part of air suspension, which is divided into diaphragm air spring and bellows type air spring in structure; it is divided into suspension air spring and lifting axle air spring in function. Suspension air spring is mainly used for load bearing, while lifting axle air spring is mainly used for lifting.

Material: SPHE and rubber.

Application range: Commercial vehicles.











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#### >> 底盘空气悬架产品

#### 产品功能:

1.安装在车架与车桥之间,传递作用在车轮和车架之间的一切力和力矩,比如支撑力、制动力和驱动力等,以及由上述作用力产生的力矩;

2.采用空气弹簧作为弹性元件,缓和由不平路面传给车架的冲击载荷,衰减由此引起的振动,保证乘员的舒适性,减小货物和车辆本身的动载荷;

3.可选装智能控制系统,实时调节空气弹簧刚度和减振器阻尼,改善驾乘舒适性和整车操稳性。

材 料:铸铁、合金钢、碳素钢、橡胶、塑料等。

应用范围: 商用车、工程机械。

#### **CHASSIS AIR SUSPENSION PRODUCTS**

#### **Product Functions:**

- 1. Install between the frame and the axle, and transmit all forces and moments acting between the wheel and the frame, such as supporting force, braking force and driving force, etc., as well as the torque generated by the above forces;
- 2. Use air spring as elastic element to mitigate the impact load from uneven road to the frame, attenuate the vibration caused thereby, ensure the comfort of passengers and reduce the dynamic load of goods and vehicles;
- 3. Optional intelligent control system, real-time adjustment of air spring stiffness and shock absorber damping can improve driving comfort and vehicle handling stability.

Material: cast iron, alloy steel, carbon steel, rubber, plastics, etc.

Application range: commercial vehicle, construction machinery.



### >> 底盘橡胶悬架产品

#### 产品功能:

- 1.安装在车架与车桥之间,传递作用在车轮和车架之间的一切力和力矩,比如支撑力、制动力和驱动力等,以及由上述作用力产生的力矩;
- 2.采用橡胶弹簧作为弹性元件,缓和由不平路面传给车架的冲击载荷,衰减由此引起的振动,保证乘员的舒适性,减小货物和车辆本身的动载荷等;
- 3.免维护、重量轻、通过性好。
- 材料: 合金钢、碳素钢、橡胶、塑料等。

应用范围:汽车起重机、混凝土搅拌车、自卸车、泵车、港口重载移动机器人(AGV或IGV)。

#### CHASSIS RUBBER SUSPENSION PRODUCTS

#### **Product Functions:**

- 1. Install between the frame and the axle, and transmit all forces and moments acting between the wheel and the frame, such as supporting force, braking force and driving force, etc., as well as the torque generated by the above forces;
- 2. Use rubber spring as elastic element to mitigate impact load from uneven road to frame, attenuate vibration caused thereby, ensure comfort of passengers and reduce dynamic load of goods and vehicles;
- 3. Maintenance-free, light weight and good trafficability.

Material: alloy steel, carbon steel, rubber, plastics, etc.

Application range: truck crane, concrete mixer truck, dump truck, Pump trucks, port heavy-duty mobile robots (AGV or IGV).





### >> 驾驶室悬置产品

#### 产品功能:

- 1.用于连接驾驶室与车架,实现支撑驾驶室和衰减振动;
- 2.承载驾驶室重量、导向垂直运动;
- 3.确保驾乘人员舒适性能(隔离和衰减振动,降低噪音);
- 4.调平驾驶室(空气悬架);
- 5.提高撞击安全性(承受最大载荷,吸收撞击能量);
- 6.可选装半主动控制驾驶室悬置系统(增装传感器、ECU、可调阻尼 减振器空气弹簧)。

料:铸铁、铸钢、合金钢、碳素钢、铝合金、橡胶、塑料等。

应用范围: 商用车、工程机械。



#### Product function:

- 1. Be used to connect the cab and the frame to support cab and attenuate vibration;
- 2. Carry cab weight and oriented vertical movement;
- 3. Ensure comfort performance of drivers and passengers (isolation and attenuation of vibration and noise reduction);
- 4. Level cab (air suspension);
- 5. Improve impact safety (carry maximum load and absorb impact energy);
- 6. Optional semi-active control cab mount system (add sensor, ECU, adjustable damping shock abosorber air spring). Material: cast iron, cast steel, alloy steel, carbon steel, aluminum alloy, rubber, plastics, etc.

Application range: commercial vehicle, construction machinery.







