

Electric Steering Oil Pump Product Introduction



Electric steering oil pump product display



Electric Steering Oil Pump Product Introduction

The power steering oil pump project was established by Ruili Group in March 1999 with an investment of 120 million yuan. It mainly develops and produces power steering oil pumps for cars, light buses and trucks. After nearly two decades of development, the production scale of power steering oil pumps with an annual output of 1.2 million units has been formed.

The company has introduced internationally advanced production and testing equipment from Germany, Switzerland, Japan, and internationally renowned technicians, determined to manufacture first-class power steering oil pump products. The parts are processed by CNC machine tools, and the self-made rate of parts is as high as 95%. The entire processing process is carried out under high precision, high efficiency and strict control. The company has passed the IATF16949 international standard quality assurance system certification of TÜV Rheinland Technology Company, and has a product development laboratory. The test equipment adopts computer control, and has the functions of automatic collection and printing of test data, automatic judgment, automatic control of oil temperature, automatic detection of oil pollution and alarms. At the same time, there is a quality control center, which adopts microcomputer management to implement real-time control and tracking of online products, laying a solid foundation for improving product quality. Power steering oil pumps are mainly used for FAW, Foton, Jinlong, Weichai, Xichai, Chery, Sivo, India Tata, South Korea's Daewoo, etc. At present, our company is the only supplier of steering pumps for FAW MV3 military vehicle project.

Electric Steering Oil Pump Product Introduction

The electric power steering oil pump was developed in 2010, and it was successfully equipped with Shenzhen Wuzhoulong in 2012. So far, more than 60 electric power steering oil pumps have been successfully developed. The power classification mainly includes 5kW, 4kW, 3kW, 2.2kW, 1.5kW, etc.; the motor type classification mainly includes permanent magnet synchronous motor drive steering oil pump, three-phase asynchronous motor drive steering oil pump, DC brushless motor drive steering oil pump, etc., which can meet the requirements of different vehicle configuration.

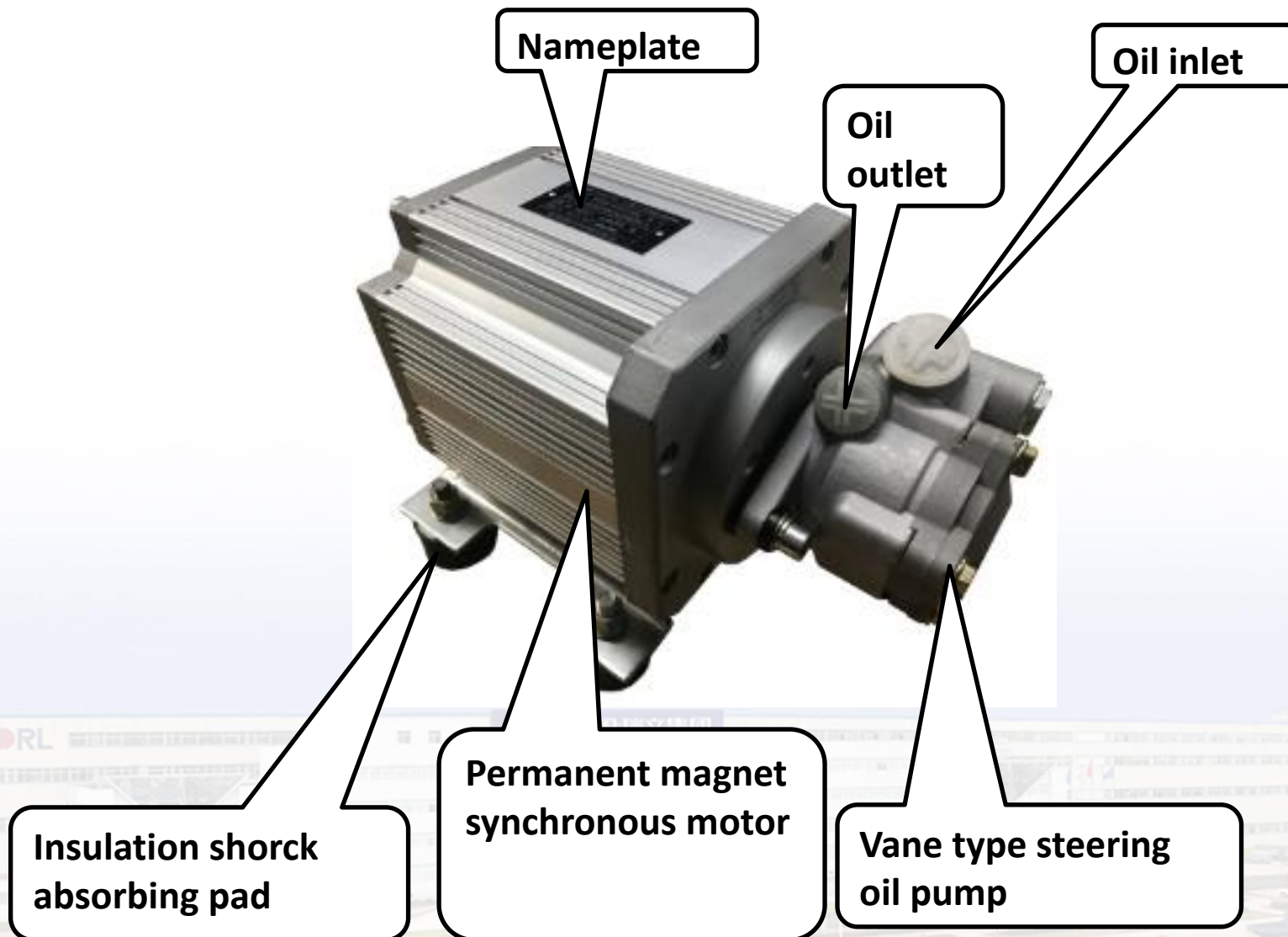
SORL is OEM supplier for Shenzhen Wuzhoulong Motors, Yantai Shuchi Bus, Zhengzhou Yutong, Zhuhai GT Bus, GAC Group, Jinhua YoungMan, Anhui ANKAI, Chongqing Wuzhoulong Motors, Chongqing Hengtong, Yuchai Group, Shaolin Bus etc.



Characters

- **Adopt permanent magnet synchronous steering motor, featuring high operating efficiency, simple structure, reliable operation, strong overload capacity, small current, low energy consumption, etc.;**
- **Adopt the vane type steering oil pump that has been fully verified by the market, the price is low, the service life is long and the stability is good;**
- **Motor directly connected to the oil pump, this lead to high transmission efficiency, compact structure, secure and reliable installation;**
- **Oil pump and motor housing are made of high strength Al alloy, this decreases weight and ensures robustness;**
- **100% noise test at end of line testing with high standards (noise shall be tested at 150mm away from the PSP and be less than 68dBA in empty load)**
- **The motor speed can be controlled in real time by obtaining the vehicle speed and steering wheel speed signals through the car CAN bus, or the current feedback of the controller, thereby increasing the output flow of the oil pump; when power steering is not required (straight or high-speed driving), the controller reduces the motor speed to below safe speed to reduce energy consumption.**
- **After-sales maintenance is simple and low cost.**

Structure



This product is suitable for 8~12m electric bus, heavy truck, etc.



Product type Permanent magnet synchronous motor

Rated power 3~4(kW)

Rated voltage 220V~380V(AC)

Rated current 7.5~9(A)

Rated speed 1000~1200r/min

Insulation class H

Protection IP67

cooling method Natural cooling

Weight 26~32kg

Max flow 12~25L/min

Max Pressure 12~18MPa

The hydraulic steering part adjusts the flow and pressure according to the parameters of the steering machine to meet the matching requirements.



The product is suitable for 6-8m electric bus, truck, logistics vehicle, etc.



Product type Permanent magnet synchronous motor

Rated power 2.2(kW)

Rated voltage 220V~380V(AC)

Rated current 4.5~7.5(A)

Rated speed 1000~1500r/min

Insulation class H

Protection IP67

cooling method Natural cooling

Weight 15kg

Max flow 8~15L/min

Max Pressure 10~15MPa

The hydraulic steering part adjusts the flow and pressure according to the parameters of the steering machine to meet the matching requirements.

The product is suitable for 6-8m electric bus, truck, logistics vehicle, etc.



Product type Permanent magnet synchronous motor

Rated power 1.5(kW)

Rated voltage 220V~380V(AC)

Rated current 3.5~5.5(A)

Rated speed 1000~1500r/min

Insulation class H

Protection IP67

cooling method Natural cooling

Weight 12kg

Max flow 7~12L/min

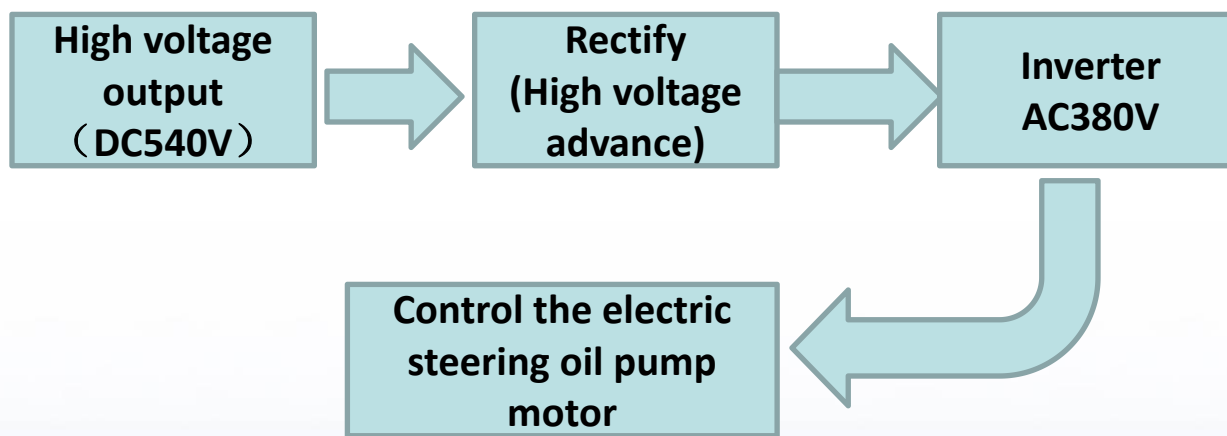
Max Pressure 10~15MPa

The hydraulic steering part adjusts the flow and pressure according to the parameters of the steering machine to meet the matching requirements.

Main product specifications

Project	4~5kW (Permanent magnet synchronization)		3kW (Permanent magnet synchronization)		2.2kW (Permanent magnet synchronization)		1.5kW (Permanent magnet synchronization)	
Motor frame No.	□180		□180		□130		□130	
Number of poles	4 pairs		4 pairs/5 pairs		5 pairs		5 pairs	
Installation size	150*164		190*140/190*100		145*117		145*87	
Appearance size	370*200*205		350*220*205		300*175*151		270*175*151	
Weight	32kg		26kg		15kg		12kg	
Rated voltage	380V		380V	220V/245V	380V	220V	380V	220V
Rated current	9A		7.5A	12A	4.5A	7.8A	3.5A	5.5A
Rated frequency	66~80Hz		66~80Hz		83~125Hz		83~125Hz	
Rated speed	1000~1200r/min		1000~1200r/min		1000~1500r/min		1000~1500r/min	
Insulation class	H level		H level		H level		H level	
Protection	IP67		IP67		IP67		IP67	
Thermal range of application	-40°C~85°C		-40°C~85°C		-40°C~85°C		-40°C~85°C	

Electric steering oil pump controller---control principle diagram



Note: The start and stop of the electric steering pump is directly controlled by the inverter, and the start and stop signal of the inverter is controlled by the vehicle control unit, and the electric steering oil pump works at a constant speed.

Parameters and application of 4kW electric steering oil pump

Pressure: 14 Mpa
Flow rate: 20 L/min
Application: Shenzhen pure electric bus
Length: 11.5m
Maximum load: 18T
Bore of steering wheel: 117mm



Parameters and application of 3kW electric steering oil pump

Pressure: 14 Mpa

Flow rate: 16 L/min

Application: Jinhua pure electric bus

Length: 12m

Maximum load: 15T

Bore of steering wheel: 117mm



Parameters and application of 3kW electric steering oil pump

Pressure: 14 Mpa

Flow: 18 L/min

Application: Auv pure electric bus

Length: 12m



Parameters and application of 3kW electric steering oil pump

Pressure: 15 Mpa

Flow rate: 16 L/min

Application: Shenzhen bus

Length: 11.5m



Parameters and application of 1.5kW electric steering oil pump

Pressure: 10 Mpa

Flow rate: 12 L/min

Application: Zhongtong bus

Length: 8.1m



2017-6-

Parameters and application of 2.2kW electric steering oil pump

Pressure: 14 Mpa

Flow rate: 15 L/min

Application: Asiastar bus

Length: 12m



Parameters and application of 1.5kW electric steering oil pump

Pressure: 10 Mpa

Flow rate: 12 L/min

Application: Shenzhen bus company

Length: 7m

Maximum load: 10T

Bore of steering wheel: 95mm



Parameters and application of 1.5kW electric steering oil pump

Pressure: 10 Mpa
Flow rate: 8 L/min
**Application: Shaanxi
Automobile Pure Electric
Logistics Vehicle**
Length: 7m
Maximum load: 7T
Bore of steering wheel: 95mm



Parameters and application of 1.5kW electric steering oil pump

Pressure: 8 Mpa
Flow rate: 8 L/min
Application: Shaanxi Automobile Pure Electric Sanitation Vehicle
Length: 7m
Maximum load: 4.5T
Bore of steering wheel: 95mm



Parameters and application of 1.5kW electric steering oil pump

Pressure: 10 Mpa

Flow rate: 8 L/min

**Application: Dayun
Electric Logistics
Vehicle**

Length: 7.1m

Maximum load: 4.5T

**Bore of steering wheel:
90mm**



Parameters and application of 1.5kW electric steering oil pump

Pressure: 10 Mpa

Flow rate: 10 L/min

Application: XCMG Pure Electric Logistics Vehicle


Length: 7m


Maximum load: 4.5T

Bore of steering wheel: 95mm



Tripartite Report-Life Test Report





中国认可
合格
TESTING
CNAS L0666
2016 国家认监委(2017)号 180008111111

报告编号: 17-WT-DDJ-N016

检 验 报 告


产品名称: 214911130001 汽车动力转向油泵

委托单位: 瑞立集团瑞安汽车零部件有限公司

检验类别: 委托检验

发送日期: 2017年1月24日


国家机动车质量监督检验中心(重庆)



国家机动车质量 报告编号: 17-WT-DDJ-N016

监督检验中心(重庆) 检 验 报 告 共 3 页 第 1 页

样品名称	汽车动力转向油泵	型号规格	214911130001
		商 标	—
委托单位	瑞立集团瑞安汽车零部件有限公司	检验类别	委托检验
生产单位	瑞立集团瑞安汽车零部件有限公司	样品等级	—
送样地点	国家机动车质量监督检验中心(重庆)	送样日期	2016年11月14日
样品数量	1件	送样者	高攀
抽样单位	—	抽样者	—
抽样基数	—	原编号或生产日期	—
检验依据	GB/T 299.1-2014《汽车液压转向助力泵第1部分:技术要求》 GB/T 299.2-2014《汽车液压转向助力泵第2部分:试验方法》 企业提供技术条件		
检验项目	1 定转速冲击		
检验结论	经检验, 214911130001 汽车动力转向油泵样品所检项目的检验结果符合 GB/T 299.1-2014《汽车液压转向助力泵第1部分:技术要求》中相应的要求。		
备 注	—		



报告专用章

签发日期: 2017年1月24日

复核: 吴璋 审核: 柳行 主检: 李皓

Tripartite report-IP68 report




中国认可
国际互认
检测
TESTING
CNAS L0668




Q2715 国家认证字(2017)号 180008111111

报告编号: 18-WT-00J-9245

检 验 报 告

产品名称: 214914169001 电动转向油泵

委托单位: 瑞立集团瑞安汽车零部件有限公司

检验类别: 委托检验

发送日期: 2018年 5月 21日

国家机动车质量监督检验中心(重庆)




国家机动车质量 报告编号: 18-WT-00J-9245

监督检验中心(重庆) 检 验 报 告 共 2 页 第 1 页

样品名称	电动转向油泵	型号规格	214914169001
		商 标	—
委托单位	瑞立集团瑞安汽车零部件有限公司	检验类别	委托检验
生产单位	瑞立集团瑞安汽车零部件有限公司	样品等级	—
送样地点	国家机动车质量监督检验中心(重庆)	送样日期	2018年 05月 14日
样品数量	1件	送样者	周育鹏
抽样单位	—	抽样者	—
抽样基数	—	原编号或生产日期	—
检验依据	GB 4208-2008《外壳防护等级(IP代码)》; 企业提供技术要求。		
检验项目	防护等级(IP68)		
检 验 结 论	经检验, 214914169001 电动转向油泵样品所检项目的检验结果符合 GB 4208-2008《外壳防护等级(IP代码)》及企业提供技术要求中的要求。		
备 注	—		

签发日期: 2018年 5月 21日



批准: 李承红 审核: 张承红 主检: 詹伟洪

Tripartite report-prohibited substances in automobiles

Pony Testing International Group
160920340809

中国合格评定
国际认可组织
检测 TESTING
CNAS L3061

扫码即见检测报告
关注请速注册

检测报告 报告编号: BMHJRSUE22935717P 日期: 2018.08.07 第1页, 共8页

申请单位: 瑞立集团瑞安汽车零部件有限公司

委托单位提供样品信息如下:

样品名称: 1. 电动转向油泵-泵体 2. 电动转向油泵-定子 3. 电动转向油泵-转子 4. 电动转向油泵-前配 5. 电动转向油泵-叶片 6. 电动转向油泵-泵轴 7. 电动转向油泵-进油管总成 8. 电动转向油泵-O形密封圈 9. 电动转向油泵-绝缘垫 10. 电动转向油泵-绝缘减震垫

代号: 1. 3407 0616 101 2. 3407 0602 101 3. 3407 1006 105 4. 3407 1006 103 5. 3407 1006 202 6. 3407 0607 201 7. 3407 0628 350 8. 3407 1006 324 9. 2149 06106 407 10. 2149 0628 388

材料: 1. ZL111 2. 铁基粉末冶金 3. 20CrMo 4. YL117 5. W6Mo5Cr4Y2 6. 20CrMnTi 7. 冷拔钢管 8. 氟橡胶 H117435 9. PA66 33% 10. NR/45

型号: 1. 电动转向油泵 2. 电动转向油泵 3. 电动转向油泵 4. 电动转向油泵 5. 电动转向油泵 6. 电动转向油泵 7. 电动转向油泵 8. 电动转向油泵 9. 电动转向油泵 10. 电动转向油泵

接收日期: 2018.08.01
检测日期: 2018.08.01 至 2018.08.07

参考要求: 参照 GB/T30512-2014 《汽车禁用物质要求》

检测依据: QC/T 941-2013 汽车材料中汞的检测方法
QC/T 942-2013 汽车材料中六价格的检测方法
QC/T 943-2013 汽车材料中铅、镉的检测方法
QC/T 944-2013 汽车材料中多溴联苯(PBBs)和多溴二苯醚(PBDEs)的检测方法
(1) 用能量色散X射线荧光分析仪进行筛选
(2) 化学检测方法
a. 用电感耦合等离子体发射光谱仪测定汞的含量
b. 用紫外可见分光光度计测定六价格的含量/用点滴试法/沸水萃取法测定六价格的含量
c. 用原子吸收光谱仪测定铅、镉的含量
d. 用气相色谱-质谱仪测定多溴联苯和多溴二苯醚的含量

检测结果: 请参见下页

编制人: 顾强 审核人: 肖青青

批准人: 张强

Code: ci9vcz

Pony Testing International Group

扫码即见检测报告
关注请速注册

检测报告 报告编号: BMHJRSUE22935717P 日期: 2018.08.07 第8页, 共8页

检测流程图


样品按照下述流程被完全分解（六价格和二溴联苯/多溴二苯醚除外）。

报告结束

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 上海实验室: (021)64851999 长春实验室: (0431)85150908 西安实验室: (029)89608785 合肥实验室: (0551)63842474
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 天津实验室: (022)27360730 郑州实验室: (0371)69350670 杭州实验室: (0571)871219006 厦门实验室: (0592)5560048
 苏州实验室: (0512)62997900 聊城实验室: (0691)8684386 宁波实验室: (0574)87726499 成都实验室: (028)8702708

Tripartite report-electromagnetic compatibility-EMC test report


中国认可
国际互认
EMC ETC2018-4-679
联系 57116
CNAS L1145

检验报告


Test Report

产品名称: 电动转向油泵
Name of products: _____

型号: 1.5kW, 2.2kW, 3.0kW, 4.0kW
Type: _____

委托单位: 瑞立集团瑞安汽车零部件有限公司
Client: _____

检验类别: 委托检验
Kind of test: _____



上海电器设备检测所有限公司
Shanghai Testing & Inspection Institute for Electrical Equipment

No. ETC2018-4-679 共 31 页 第 1 页

上海电器设备检测所有限公司

检 验 报 告

产品名称	电动转向油泵	商 标	/		
型 号	1.5kW, 2.2kW, 3.0kW, 4.0kW				
硬件版本	/	软件版本	/		
检验类别	委托检验	技术参数	/		
委托方	瑞立集团瑞安汽车零部件有限公司	地 址	浙江省瑞安市经济开发区开发大道 2666 号		
制造厂	瑞立集团瑞安汽车零部件有限公司	地 址	浙江省瑞安市经济开发区开发大道 2666 号		
抽样地点	/	抽样者	/	抽样基数	/
送样数量	1	送样者	罗仁	产品编号	/
抽样日期	/ 年 / 月 / 日		到样日期	2018 年 04 月 25 日	
试品编号	#01				
检验依据	GB/T 18655-2010 CISPR 25 2016 欧规汽车零部件电磁兼容性 (EMC) 试验规范				
检验日期	2018 年 05 月 05 日-2018 年 05 月 30 日				
检 验 结 论					
备注	批准 <u>刘振</u> 审核 <u>陈林</u> 编制 <u>惠敏</u> 签发日期 2018 年 06 月 06 日				

Patent certificate

证书号第583794号

发

发明名称: 配流盘改
发明人: 罗生明;石
专利号: ZL 2008 1
专利申请日: 2008年1
专利权人: 瑞立集团

授权公告日: 2009年12

本发经过本局依照
并在专利登记簿上予以登
本专利的专利权期限为
则规定缴纳年费。本专利
专利权自应当缴纳年费期
专利证书记载专利权的
专利权人的姓名或名称、

局长 申长雨

证书号第3084262号

实用新

实用新型名称: 电控转向油泵
发明人: 石山;高攀;杨晓虎;
专利号: ZL 2013 2 0137065
专利申请日: 2013年03月25日
专利权人: 瑞立集团瑞安汽车零

授权公告日: 2013年08月07日

本实用经过本局依照中华人
发本证书并在专利登记簿上予以登
本专利的专利权期限为十年,自
规定缴纳年费。本专利的年费应当
利权自应当缴纳年费期满之日起终
专利证书记载专利权的法律状
专利权人的姓名或名称、国籍、地

局长 申长雨

证书号第3861753号

实用新

实用新型名称: 直流无刷电机驱动的
发明人: 高攀;卢德龙;林安
专利号: ZL 2014 2 0196625.5
专利申请日: 2014年04月22日
专利权人: 瑞立集团瑞安汽车零

授权公告日: 2014年10月22日

本实用经过本局依照中华人
发本证书并在专利登记簿上予以登
本专利的专利权期限为十年,自
规定缴纳年费。本专利的年费应当
利权自应当缴纳年费期满之日起终
专利证书记载专利权的法律状
专利权人的姓名或名称、国籍、地

局长 申长雨

证书号第3126526号

外观设


外观设计名称: 电动转向油泵
设计人: 卢德龙;林安;高攀;林旭
专利号: ZL 2014 3 0331265.0
专利申请日: 2014年09月09日
专利权人: 瑞立集团瑞安汽车零

授权公告日: 2015年03月04日

本外观设计经过本局依照中华人民
发本证书并在专利登记簿上予以登
本专利的专利权期限为十年,自申
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局长 申长雨

证书号第3946571号



实用新型专利证书

实用新型名称: 电机与油泵绝缘的电机驱动液压式动力转向油泵

发明人: 高攀;卢德龙;林安

专利号: ZL 2014 2 01966882.9

专利申请日: 2014年04月22日

专利权人: 瑞立集团瑞安汽车零部件有限公司


授权公告日: 2014年12月03日

本实用经过本局依照中华人民共和国专利法进行初步审查,决定授予专利权,颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为十年,自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年04月22日前缴纳。未按照规定缴纳年费的,专利权自应当缴纳年费期满之日起终止。

专利证书记载专利权的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

局长 申长雨



第1页 (共1页)

质量保证—体系保证

质量管理体系

认证证书



环境管理体系



职业健康安全管理体系



测量体系



Test equipment-type test

Comprehensive performance test bench at room temperature



Test items:

1. Running-in test;
2. Maximum pressure test;
3. Impact test;
4. Volume efficiency test;
5. Power test;
6. Input torque test;
7. Flow characteristic test;
8. Pressure characteristic test;
9. Pressure switch test;
10. Noise test.

Test equipment-type test

Electric steering oil pump (double station) comprehensive performance test bench



Electric steering oil pump:

1. Control flow test
2. Maximum working pressure test
3. Volumetric efficiency test
4. Operating characteristic curve
5. Impact test
6. Running-in test

Test equipment-type test

Power steering oil pump durable impact comprehensive performance test bench



Test items:

1. Constant speed impact test;
2. Variable speed cycle durability test;
3. Wear durability test;
4. Low temperature test;
5. Vibration test;
6. Cut-off test.

Test equipment-type test



Noise test of electric steering oil pump noise test bench



Test guarantee

Establishment of the laboratory

The experimental center implements and complies with CNAS-CL52 "Testing and Calibration Laboratory Competence Accreditation Guidelines"



Test guarantee

Customer acceptance



供应商试验验证及检测能力认可证书

SGMW 上海通用五菱

兹证明: **SGMW-CA-296**

瑞立集团瑞安汽车零部件有限公司
地址: 浙江省瑞安市经济开发区开发区大道2666号

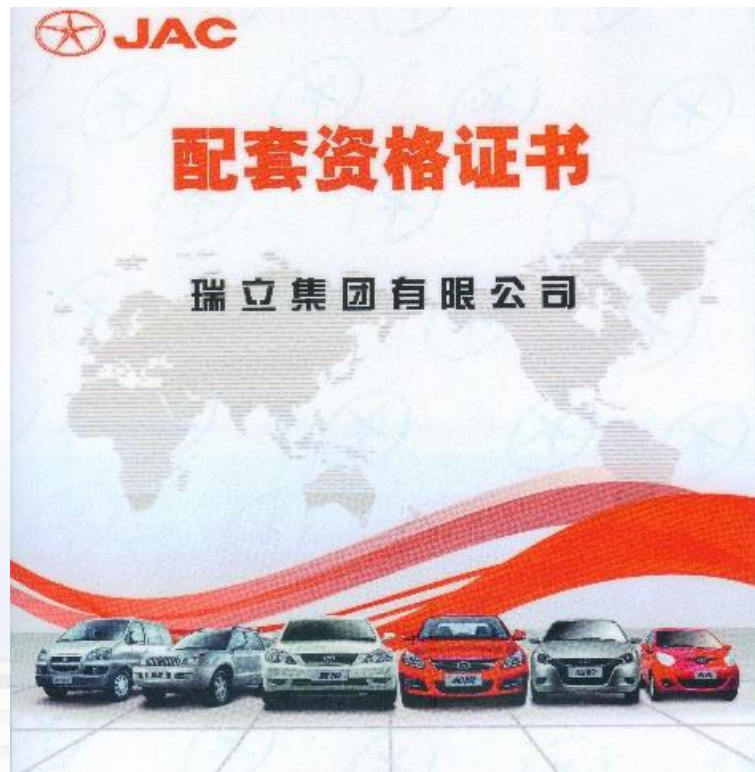
符合上汽通用五菱汽车股份有限公司《供应商试验验证及检测能力评审与认可》的要求, 具备承担本证书及附件所列试验项目的检测、验证能力, 予以认可。
按试验验证及检测能力等级划分规则, 各零件按相应等级管理。
获认可能力范围见本证书及相同认可证书编号的证书附件, 证书附件是本证书的组成部分。

零件名称(类别)	车型	等级
离合器总泵/分泵	ALL	C

发证日期: 2017-07-26
有效期至: 2019-07-26
初次认可: 2017-07-26

上汽通用五菱汽车股份有限公司
采购及供应链管理中心

评审人员: 李仁英
认可授权人: 李仁英



JAC

配套资格证书

瑞立集团有限公司

Background features: World map, JAC logo, and a row of JAC cars at the bottom.

Test guarantee

Verification ability

Test equipment

The experimental center of Ruili Group has complete testing capabilities for auto parts: salt spray, high and low temperature, high and low temperature mutation, temperature and humidity, vibration, dustproof, rain, aging, waterproof, metallography, spectrum, stretching, shearing, strength.

Dustpro
of test
chamber



High and
low
temperature
test
chamber



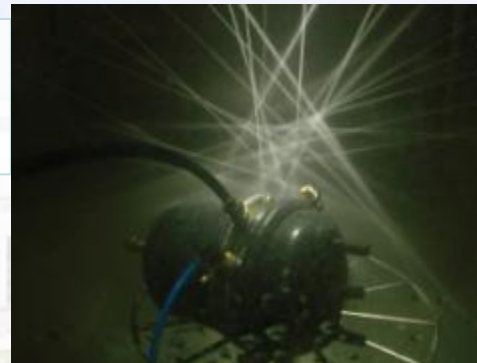
Salt spray
test
chamber



Mechanic
al spring
fatigue
testing
machine



Waterpro
of test
chamber



Mechani
cal
spring
fatigue
testing
machine



Test guarantee

Verification ability

Test equipment

The experimental center of Ruili Group has complete testing capabilities for auto parts: salt spray, high and low temperature, high and low temperature mutation, temperature and humidity, vibration, dustproof, rain, aging, waterproof, metallography, spectrum, stretching, shearing, strength.



橡胶低温实验机



金属光谱仪

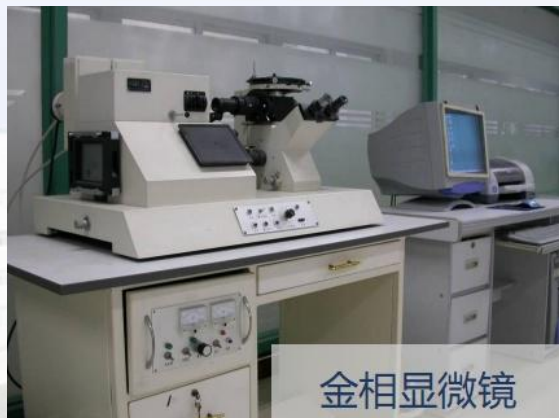


显微硬度计

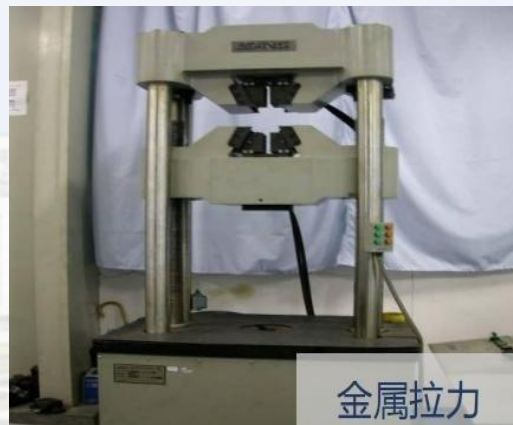


非金属检测

- ➔ FTIR
- ➔ DSC
- ➔ TGA



金相显微镜



金属拉力

Test guarantee

Verification ability

Test vehicle



Test guarantee

Verification ability

Test vehicle



Brief introduction of double power electric steering oil pump technology



Ruili Group Ruian Auto Parts Co.,Ltd

Product background and features

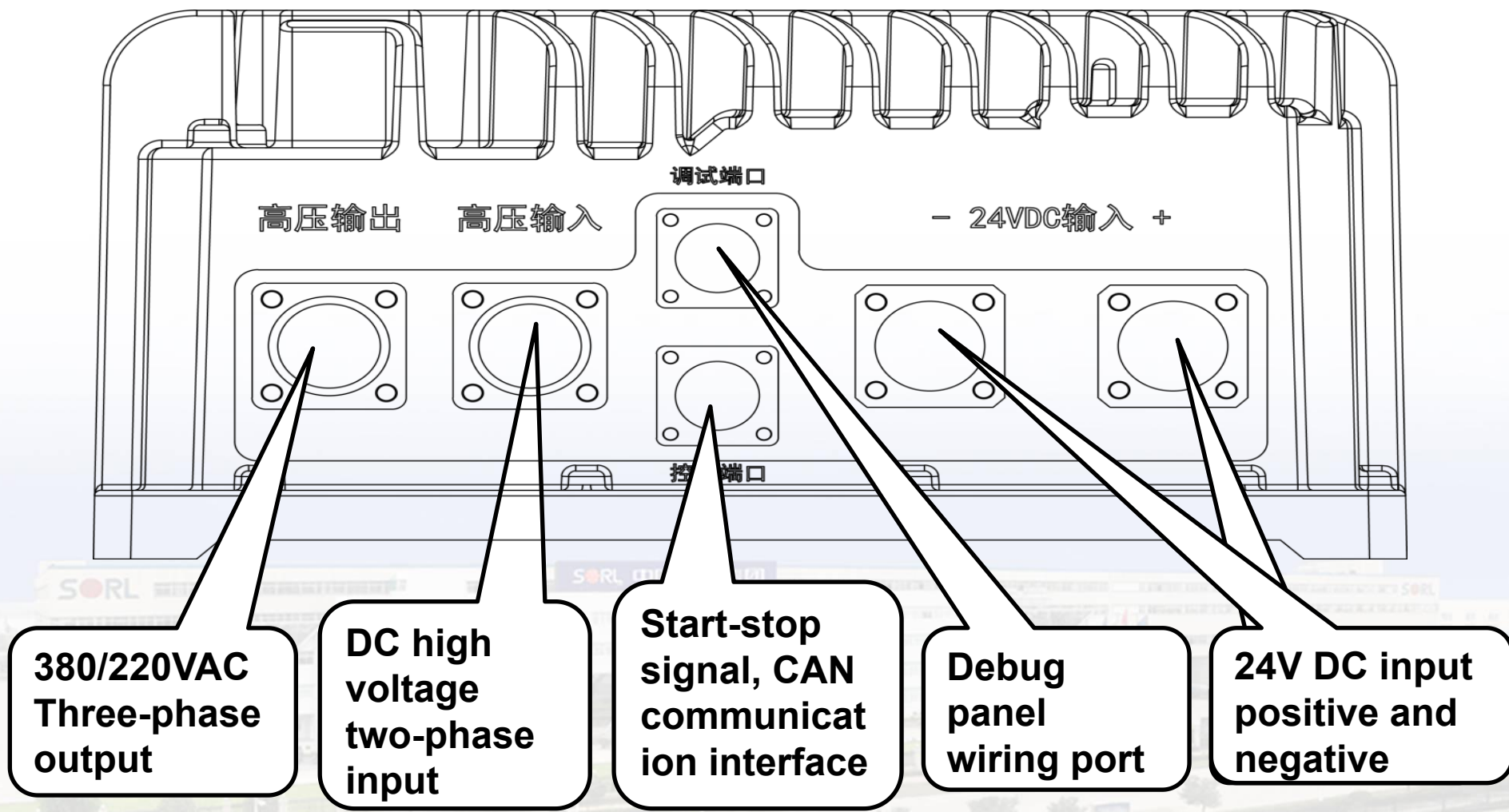
- In November 2016, the Ministry of Industry and Information Technology promulgated the 4.5.2 requirements of the "Safety Technical Requirements for Pure Electric Passenger Vehicles": When the vehicle is running, when there is an abnormal situation in which the vehicle needs to actively cut off the B-level high-voltage power, the speed is greater than 5km/h, the steering system should be maintained in the assisted state or at least the steering assisted state should be maintained for 30s before turning off the Class B power.

In response to regulatory requirements, our company has developed two 24V emergency steering solutions.

1. Double power electric steering oil pump
2. Double winding electric steering oil pump



Double power electric steering oil pump controller-wiring diagram



Products Show I:

Double power electric steering oil pump controller-boost solution

- The dual power supply design enables seamless switching after high-voltage power failure and low-voltage power failure to ensure the effectiveness of the steering system in the event of emergency power failure.
- No changes are made to the vehicle control system, and the matching is better.
- The protection level reaches IP67, and the body layout is more flexible.
- Use conventional motor power steering oil pump, high stability.
- The controller supports terminal control and CAN bus control to meet customer needs.
- Various parameters can be fed back through the communication terminal, and the running status of the product can be monitored in real time. At the same time, it has various protection functions, such as undervoltage, overheating, overload, overcurrent, phase loss, short circuit, etc.



Electric hydraulic power steering controller



Conventional electric hydraulic power steering oil pump

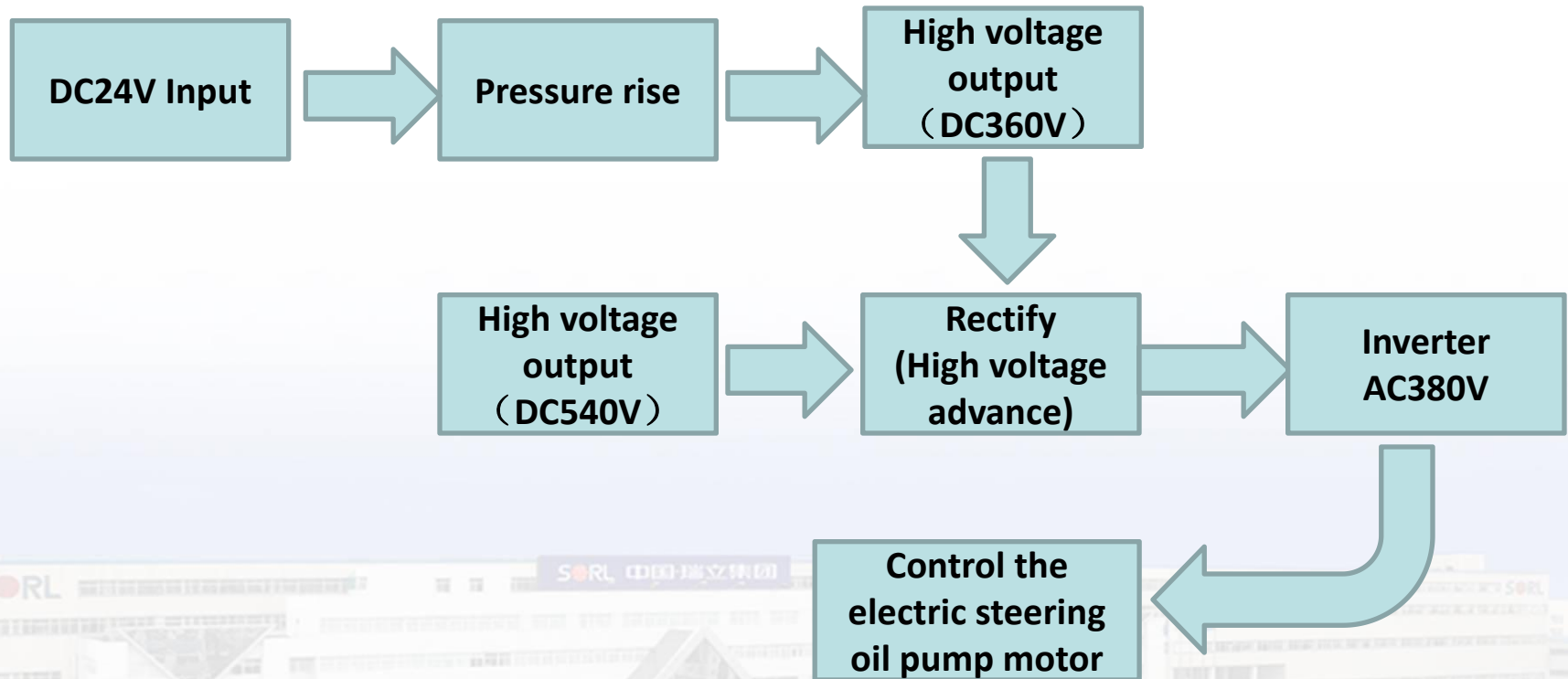
Double power electric steering oil pump controller-control strategy

The controller is connected to high-voltage and low-voltage storage groups at the same time, and 24VDC is enabled.

- When the output voltage of the high-voltage battery pack is less than 400VDC, the dual-power controller is in the power supply state of the low-voltage battery pack, and the controller outputs 100-300VAC three-phase power to drive the motor to rotate, ensuring that the motor can run for a short time under full load conditions.;
- When the output voltage of the high-voltage battery pack is restored to more than 400VDC, the dual-power controller is in the state of supplying power from the high-voltage battery pack, and the controller outputs 180-400VAC three-phase power to drive the motor to rotate, ensuring that the motor can run for a long time under full load conditions. The low-voltage power supply module has no output and is in a boost state.



Double power electric steering oil pump controller --- control principle diagram



Double power electric steering oil pump --- technical parameters



Oil pump	Flow	16L/min
	Max pressure	15MPa
	Speed range	500-3500rpm
	Rotation	Right
Motor	Rated power	3KW
	Protection	IP67
	Insulation level	H
	Weight	23KG
Motor controller	Rated voltage	DC24V/DC540V
	Rated power	4KW
	Protection	IP67

Parameters and application of double power electric steering oil pump

Pressure: 15 Mpa

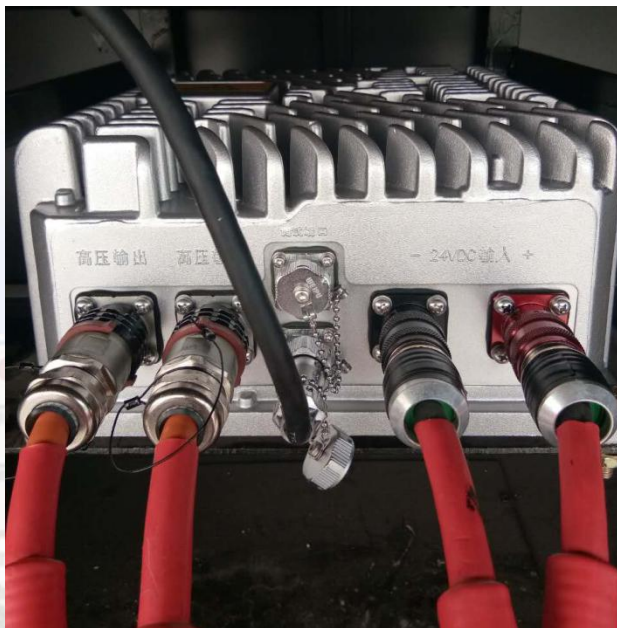
Flow rate: 16 L/min

Application: Shenzhen Bus

Length: 11.5m

Maximum load: 16.8T

Bore of steering wheel: 110mm



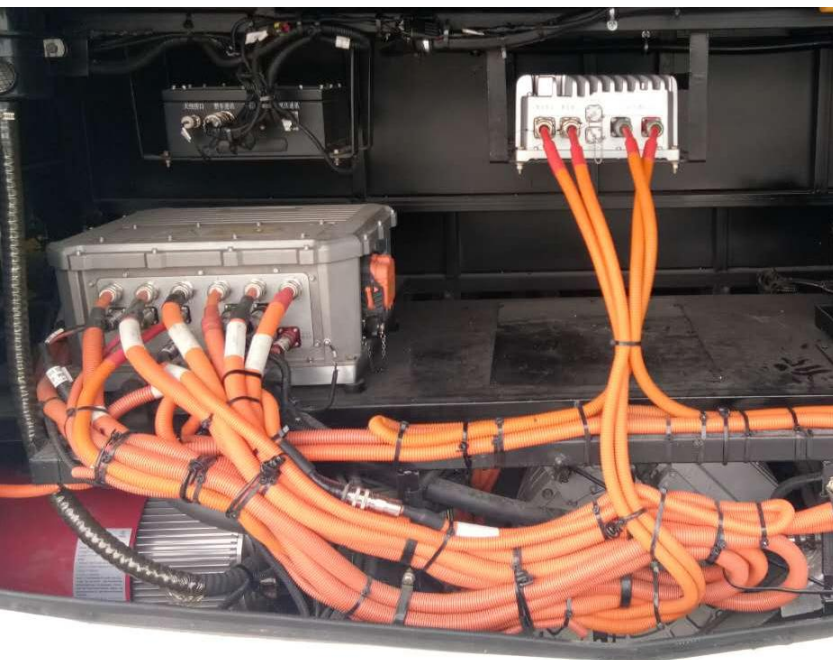
Parameters and application of double power electric steering oil pump

Pressure: 10 Mpa

Flow rate: 12 L/min

Application: Zhongtong Bus

Length: 8.1m



2017-6-

Parameters and application of double power electric steering oil pump

Pressure: 15 Mpa

Flow rate: 16 L/min

Application: Asiastar Bus

Length: 12m



Products Show II: Double winding electric steering oil pump --- technical characteristics

- With dual power supply design, after high-voltage power failure, low-voltage realizes seamless switching, and the output power of low-voltage circuit can reach 2kW, ensuring the effectiveness of the steering system in case of emergency power failure.
- The high voltage circuit and the low voltage circuit are completely independent, safe and redundant, and fully backed up.
- The protection level reaches IP67, and the body layout is more flexible.
- The low-pressure circuit only intervenes when the high-pressure is abnormal, which guarantees safety without increasing energy consumption.
- The controller supports terminal control and CAN bus control to meet customer needs.
- Various parameters can be fed back through the communication terminal, and the running status of the product can be monitored in real time. At the same time, it has various protection functions, such as undervoltage, overheating, overload, overcurrent, phase loss, short circuit, etc.



Low voltage steering motor controller



Double winding electric hydraulic power steering oil pump

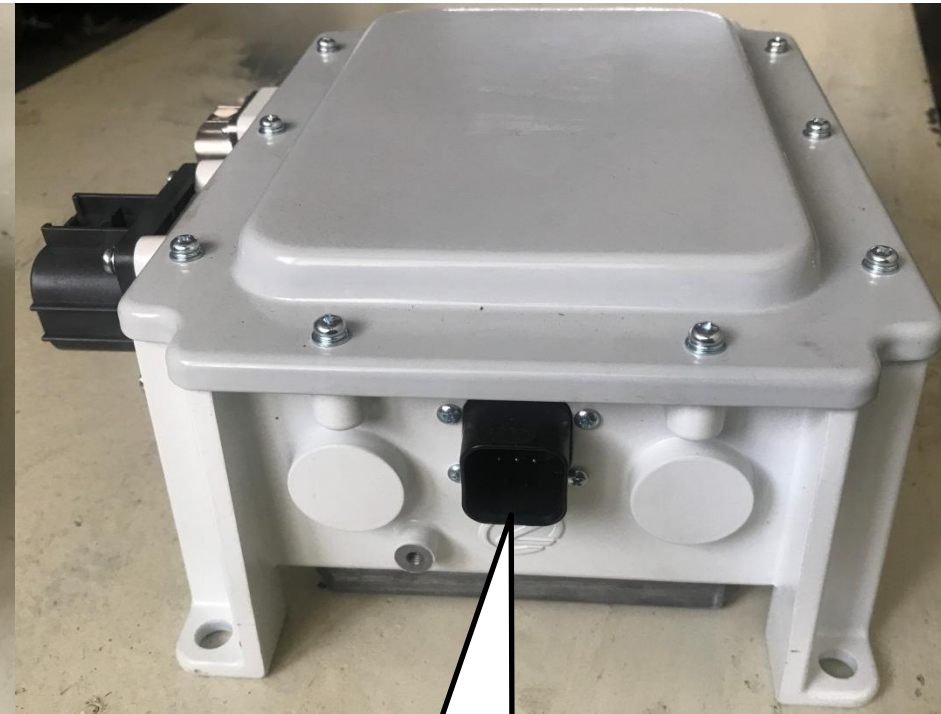
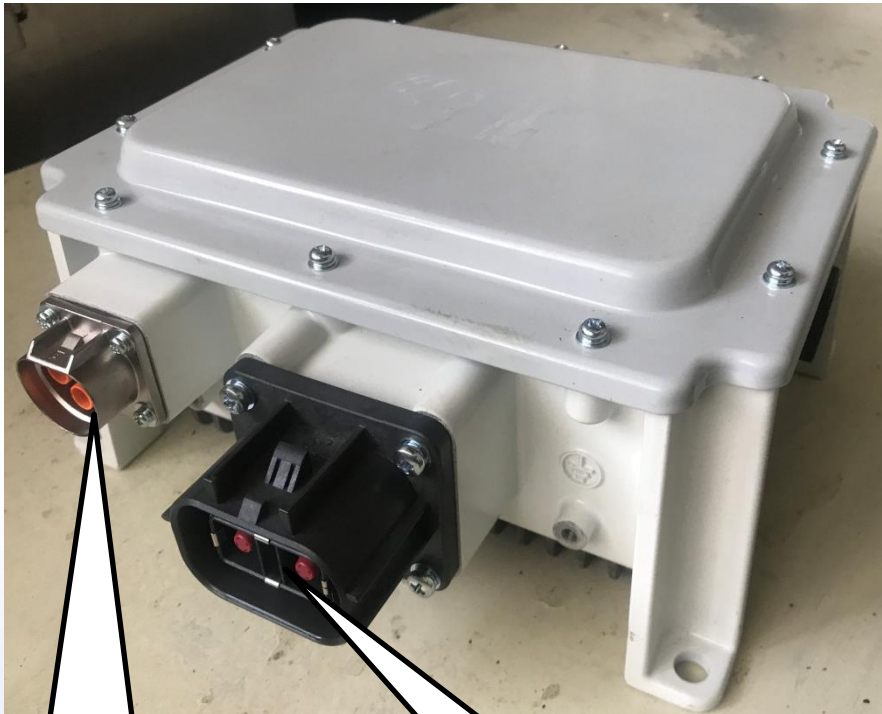
Double winding electric power steering oil pump --- working principle



The drive motor of the dual-winding electro-hydraulic power steering pump assembly integrates high and low voltage coil windings, and the structures between the two windings are independent of each other. The dual-power motor controller uses two power sources, a high-voltage power battery and a low-voltage battery pack, as input power sources to independently control the high and low voltage windings in the dual-winding motor.

Under normal circumstances, the high-voltage circuit drives the motor to provide steering, and the low-voltage controller tracks the motor speed in real time. When the high-voltage circuit is abnormal, the high-voltage controller will report the abnormal information to the low-voltage controller, and the low-voltage motor drive circuit will immediately intervene to provide steering assistance.

Double winding electric steering oil pump---low voltage steering motor controller



Low-voltage motor three-phase output interface

Low voltage controller power input interface

Control signal interface

Double winding electric steering oil pump---low voltage steering motor controller



Peak power 2(kW)

Working time Max 2min at peak power

Rated voltage DC24V

Voltage range DC 18~32V

Peak current 120A

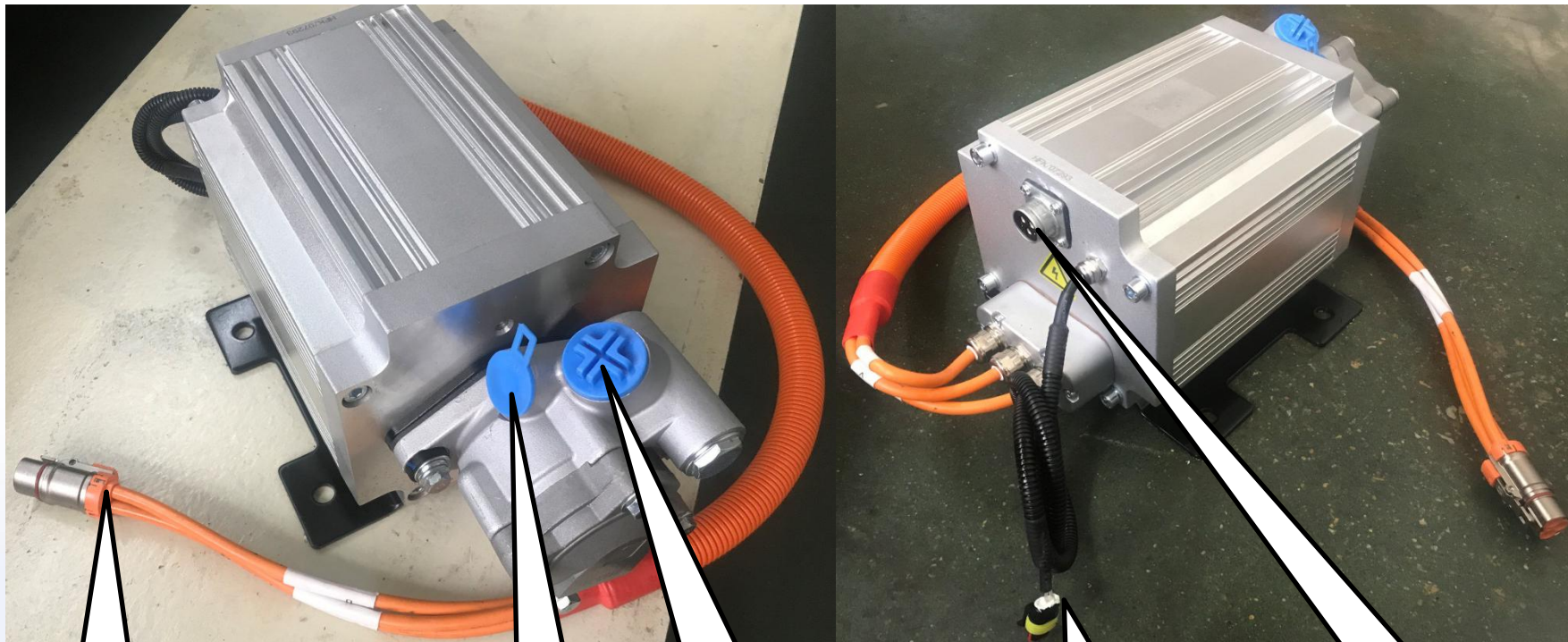
Protection IP67

Cooling method Natural cooling

Weight 2.3kg

Safety protection Input over and under voltage protection, phase loss protection, over current protection, over temperature protection

Double winding electric steering oil pump---double winding electric steering oil pump



Low-voltage motor
three-phase input
interface

Oil pump oil
outlet

Oil pump oil inlet

Temperature sensor
interface

High-voltage motor
three-phase input
interface

Double winding electric steering oil pump---double winding electric steering oil pump

High voltage module motor parameters			Low voltage module motor parameters	
No.	Name	Spec.	Name	Spec.
1	Rated power (kW)	3	Peak power (kW)	2
2	Peak power (kW)	7.5	Rated voltage (VDC)	24
3	Rated voltage (VAC)	247	Vehicle voltage platform range (VDC)	18~32
4	Rated current (A)	8	Peak current (A)	120
5	Rated frequency (Hz)	100	Rated frequency (Hz)	86.7
6	Rated speed (r/min)	1500	Rated speed (r/min)	1300
7	Rated torque (N.m)	19.1	Working frequency (Hz)	86.7
8	Peak torque (N.m)	48	Working speed (r/min)	1300
9	Number of poles	8	Peak torque (N.m)	13
10	Cooling method	Natural cooling	Number of poles	4
11	Efficiency	89.94%	Cooling method	Natural cooling
12	Isulation level	H level	Isulation level	H level

Thank you !

