

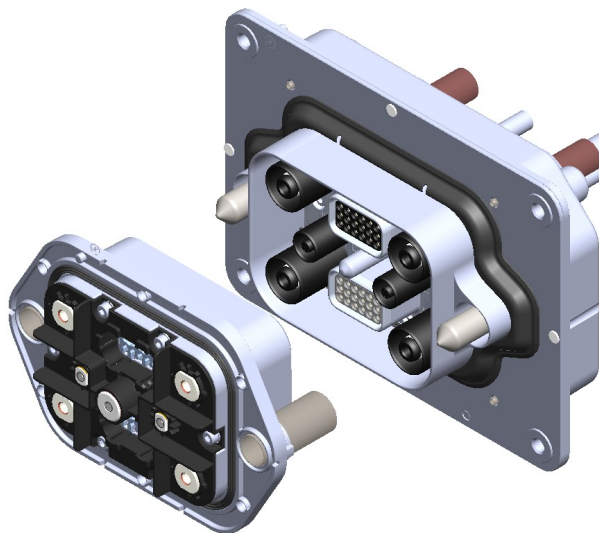
瑞可达

创新技术引领未来

Recodeal

36PIN 重卡换电连接器技术规格书

Technical Specification for 36PIN Heavy Truck Battery Swap Connector



版本 Rev.	变更描述/变更内容 Change Description	修改日期 Revise. Date	编制 Prepared By	批准 Approved By
S5	更新图示等信息 Update graphics and other information	2024. 9. 26	吴磊 Wu Lei	马海兵 Ma Haibing
S6	定义海拔高度要求、增加降额曲线 Define altitude requirements and increase derating curves	2025. 11. 6	吴磊 Wu Lei	马海兵 Ma Haibing

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一、常用物料型号（表 1）：

1、Common Material Models (Table 1):

序号 Serial Number	车端型号 Car end model	电池端型号 Battery end model	车端功率端子 Vehicle end performance Rate terminal	车端辅助 电源端子 Vehicle end assistance power terminal	车端低压端 子 Vehicle end low voltage terminal	车端功率端 子适配线径 Vehicle end power end Sub adaptive wire diameter	备注 notes
1	PFSC-KYA-BS36120	PFSC-KYA-C P3695	有/have	有/have	有/have	φ 22mm～φ 23mm	未开模 Unopened mold
2	PFSC-KYA-BS3695		有/have	有/have	有/have	φ 20.1mm～φ 21.1mm	
3	PFSC-KYA-BS3670		有/have	有/have	有/have	φ 19.2mm～φ 20mm	
4	PFSC-KYA-BS3670-10		有/have	有/have	有/have	φ 19.2mm～φ 20mm	
5	PFSC-KYA-BS3650		有/have	有/have	有/have	φ 15.2mm～φ 15.8mm	
6	PFSC-KYE-BS3695-MD		有/have	无/not have	选配 optional	φ 20.1mm～φ 21.1mm	
7	PFSC-KYE-BS3695-25		有/have	有/have	选配 optional	φ 20.1mm～φ 21.1mm	
8	PFSC-KYE-BS3695-10		有/have	有/have	选配 optional	φ 20.1mm～φ 21.1mm	
9	PFSC-KYE-BS3670-MD		有/have	无/not have	选配 optional	φ 19.2mm～φ 20mm	
10	PFSC-KYE-BS3670-25		有/have	有/have	选配 optional	φ 19.2mm～φ 20mm	
11	PFSC-KYE-BS3670-10		有/have	有/have	选配 optional	φ 19.2mm～φ 20mm	
12	PFSC-KYE-BS3650-MD		有/have	无/not have	选配 optional	φ 15.2mm～φ 15.8mm	
13	PFSC-KYE-BS3650-25		有/have	有/have	选配 optional	φ 15.2mm～φ 15.8mm	
14	PFSC-KYE-BS3650-10		有/have	有/have	选配 optional	φ 15.2mm～φ 15.8mm	
15	PFSC-KYE-BS36MD-25		无/not have	有/have	选配 optional		
16	PFSC-KYE-BS36MD-10		无/not have	有/have	选配 optional		

17	PFSC-KYE-BS3670 (LV216) -MD		有/have	无/not have	选配 optional	Φ 17.4mm~ Φ 18.2mm	
18	PFSC-KYE-BS3670 (LV216) -25		有/have	有/have	选配 optional	Φ 17.4mm~ Φ 18.2mm	
19	PFSC-KYE-BS3670 (LV216) -10		有/have	有/have	选配 optional	Φ 17.4mm~ Φ 18.2mm	
20	PFSC-KYA-BS3670-MD		有/have	无/not have	有/have	Φ 19.2mm~ Φ 20mm	

备注:

- 1、该系列连接器车端和电池端默认在瑞可达公司生产为线束出货，具体线束要求和我司技术确认。
- 2、表格中车端低压端子“选配”为制作换电线束时根据低压端子实际需要来匹配端子数量。
- 3、70方、95方、120方功率端子均采用超声波焊接接线方式。
- 4、上表中无功率端子及辅助电源端子、用盲堵封堵。
- 5、电池端为满PIN状态，无盲堵。

注：本文描述规格使用芯线材质为铜芯线；防尘盖在连接器内，无须单独购买。

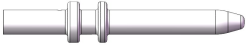
Remarks :

1. The car end and battery end of this series of connectors are produced and shipped as wire harnesses by Ruikeda Company by default. The specific wire harness requirements will be confirmed with our technical team.
2. The "optional" low-voltage terminals on the vehicle end in the table are matched according to the actual needs of the low-voltage terminals when making the wiring harness.
3. The 70 square, 95 square, and 120 square power terminals are all connected by ultrasonic welding.
4. There are no power terminals or auxiliary power terminals in the table above, and they are sealed with blind plugs.
5. The battery end is in a full PIN state without blind blockage.

Note: This article describes the use of copper core wire material for the specifications; The dust cover is inside the connector and does not need to be purchased separately.

1. 以下为电池端低压明细清单:

1.The following is a detailed list of low voltage at the battery end:

序号 Serial Number	名称 Name	料号 Material number	图例 Legend	数量 Number of matching	备注 Remark
1	Φ 3 互锁插针 Φ 3 interlocking pin	7.744.107115.04		2	单独购买 Buy alone
2	Φ 3 信号插针 Φ 3 signal pin	7.744.107116.04		34	单独购买 Buy alone

备注：此处为示例，插针可根据实际需求情况购买。

Note: This is an example, and the pins can be purchased according to actual needs.

2. 以下为车端低压明细清单:

2.The following is a detailed list of low voltage at the vehicle end:

序号 Serial	名称 Name	料号 Material number	图例 Legend	数量 Number of	备注 Remark
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Number				matching	
1	信号插孔 Signal jack	6.604.107131		36	单独购买 Buy alone

3. 以下为低压盲堵明细清单:

3.The following is a detailed list of low-pressure blind plugs:

序号 Serial Number	名称 Name	料号 Material number	图例 Legend	数量 Number of matching	备注 Remark
1	插孔盲堵 Blind plug of socket	8.070.180004.08		/	单独购买 Buy alone

备注: 根据实际需求情况购买, 产品自带防尘盖。

Note: Purchase according to actual needs, the product comes with a dust cover.

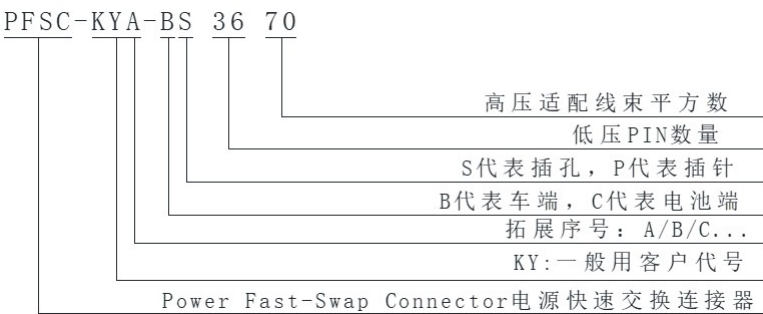
二、产品简介:

2、Product introduction:

- ◆ 本系列产品主要用于商用电动汽车以及储能等领域, 为设备之间提供稳定的功率和信号传输。
- ◆ 本系列产品外壳材料采用压铸铝合金, 满足阻燃、RoHS、耐高温的要求。且与同类型换电连接器相比, 具有载流能力强, PIN 数多等特点。
- ◆ 本系列产品车端可以实现 XY 方向 $\pm 8\text{mm}$, Z 方向 0-10mm, $\leq 3^\circ$ 浮动。
- ◆ 本系列产品接线范围为 $50\text{mm}^2 \sim 120\text{mm}^2$, 额定工作电流为 200A~400A, 满足客户不同电气参数的需求。
- ◆ 本系列产品插头及插座均带有防触电的功能, 能避免在使用时意外触电。
- ◆ 本系列产品也可以根据客户需要由我司做成线缆组件, 方便客户使用。
- ◆ 本系列产品可带屏蔽、高压互锁功能。
- ◆ This series of products is mainly used in commercial electric vehicles and energy storage fields, providing stable power and signal transmission between devices.
- ◆ The shell material of this series of products is made of die cast aluminum alloy, which meets the requirements of flame retardancy RoHS、Requirements for high temperature resistance. And compared with the same type of battery swapping connector, it has the characteristics of strong current carrying capacity and more PIN numbers.
- ◆ This series of products can achieve $\pm 8\text{mm}$ in XY direction, 0-10mm in Z direction, and $\leq 3^\circ$ floating at the vehicle end.
- ◆ This series of products has a wiring range of 50mm^2 to 120mm^2 and a rated working current of 200A to 400A, meeting the needs of customers with different electrical parameters.
- ◆ The plugs and sockets of this series of products are equipped with anti electric shock function, which can avoid accidental electric shock during use.
- ◆ This series of products can also be made into cable components by our company according to customer needs, making it convenient for customers to use.
- ◆ This series of products can be equipped with shielding and high-voltage interlock functions.

三、命名规则:

3、Name rules:



四、技术参数:

4、Technical Specifications:

1. 电气性能要求:
- 1.Electrical performance requirements:
- 1) 参数要求
- 1) Parameter requirements

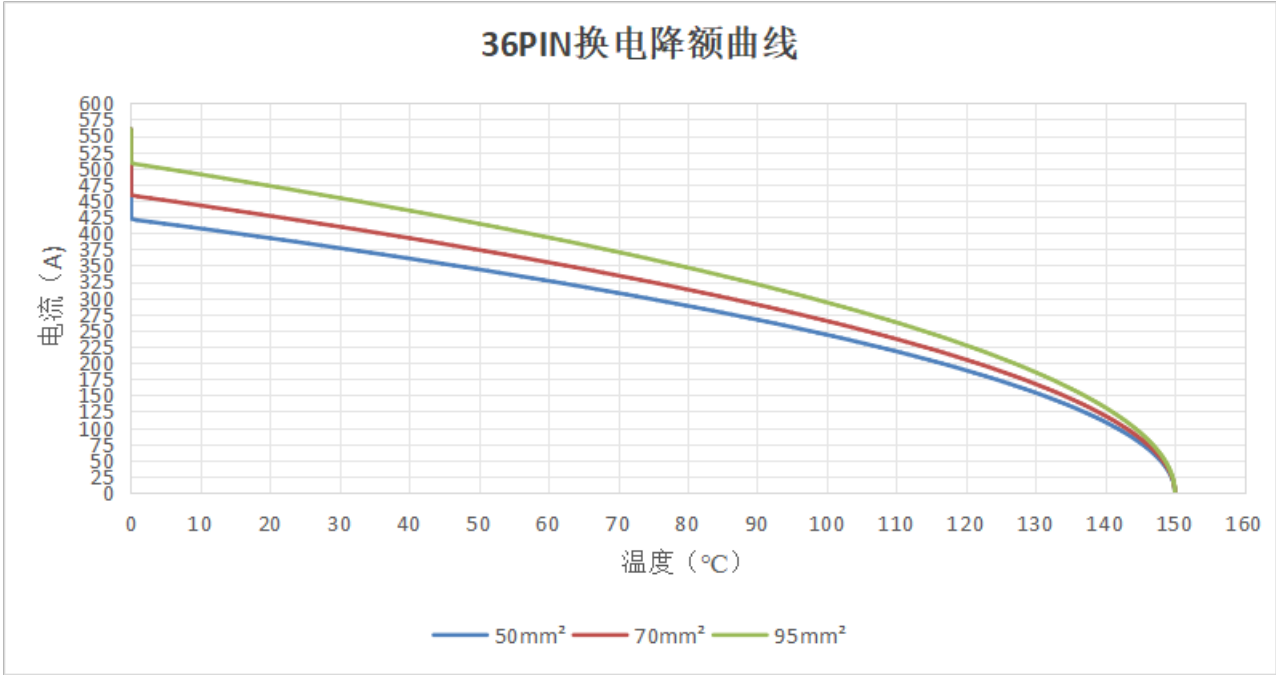
技术要求 Technical requirements	性能指标 Performance index
额定电压 rated voltage	1500V/DC(高压, 包含高压辅助电源) 60V/DC(低压信号) 1500V/DC(High voltage, including high-voltage auxiliary power supply) 60V/DC(Low voltage signal)
额定电流 rated current	400A(85℃, 适配 120 方电子线满足) 100A(高压辅助电源) 300A(接地最大值) 2A(低压信号) 400A(85℃, Suitable for 120 square electronic cables to meet) 100A(High voltage auxiliary power supply) 300A(Maximum grounding value) 2A(Low voltage signal)
冲击电流 inrush current	适配 95mm ² 线缆, 冲击电流 500A@60s, 不超过连接器工作温度。 适配 70mm ² 线缆, 冲击电流 400A@60s, 不超过连接器工作温度。 Compatible with 95mm ² cable, surge current 500A@60s Not exceeding the working temperature of the connector.

	Compatible with 70mm ² cable, surge current 400A@60s Not exceeding the working temperature of the connector.
绝缘电阻(针与壳体) Insulation resistance (pin to shell)	200MΩ/2500V.DC(高压, 正常状态) 20MΩ/2500V.DC(高压, 湿热状态) 100MΩ/500V.DC(低压, 正常状态) 20MΩ/500V.DC(低压, 湿热状态) 200MΩ/2500V.DC(High voltage, normal state) 20MΩ/2500V.DC(High pressure, humid and hot state) 100MΩ/500V.DC(Low voltage, normal state) 20MΩ/500V.DC(Low pressure, humid and hot state)
介电强度(针与壳体) Dielectric strength (needle and shell)	高压: 4000V/AC, 60s, 无击穿闪弧, 漏电流≤5mA (不含线缆) 低压、辅助电源: 1500V/AC, 60s, 无击穿闪弧, 漏电流≤5mA (不含线缆) High voltage: 4000V/AC, 60s, no breakdown flashover, leakage current ≤ 5mA (excluding cables) Low voltage, auxiliary power supply: 1500V/AC, 60s, no breakdown flashover, leakage current ≤ 5mA (excluding cables)
高压互锁 High Voltage Interlock	有 have
接地要求 Grounding requirements	车端及电池端外壳需接地 The casing of the vehicle and battery ends needs to be grounded
电磁屏蔽 electromagnetic shielding	高压和低压、低压与外壳全屏蔽 The casing of the vehicle and battery ends needs to be grounded
温度检测功能 Temperature detection function	车端和电池端高压端子带温度检测功能 Vehicle and battery high-voltage terminals with temperature detection function

备注:连接器使用环境, 空气中不宜含有腐蚀金属、破坏绝缘、导电和爆炸介质。

Note: The connector should not be used in environments where corrosive metals, insulation damage, conductive or explosive media are present in the air.

2) 降额曲线
2) Derating curve



2. 机械特性
2. Mechanical characteristics

技术要求 Technical requirements	性能指标 Performance index
主功率端子数量 Number of main power terminals	4
高压辅助电源端子数量 Number of high-voltage auxiliary power supply terminals	2
接地针数量 Number of grounding pins	1
低压针数量 Number of low-voltage needles	36(含高压互锁) 36(Including high voltage interlock)
机械寿命 mechanical life	≥10000 次(对中、空载插拔, 基于按手册维护实现) ≥ 10000 times (centered and unloaded insertion and removal, based on manual maintenance implementation)
浮动量 Floating quantity	X, Y 向: +8/-8mm Z 向: +0/-10mm 角度: ≤3° 尽量减小极限偏差和角度, 会影响插拔寿命和插拔力值。 X. Y direction:+8/-8mm Z-direction:+0/-10mm

	Angle: $\leq 3^{\circ}$ Minimize the maximum deviation and angle as much as possible, which will affect the insertion and extraction life and insertion force value.
插拔力 insertion and extraction force	$\leq 700\text{N}$ (对中插拔) $\leq 700\text{N}$ (center insertion and removal)
Z 向力 Z-direction force	0mm (未预压状态弹簧 1080N) -5mm (预压 5mm 状态弹簧 1440N) -10mm (预压 10mm 状态弹簧 1800N) 0mm (unpressed state spring 1080N) -5mm (preloaded 5mm state spring 1440N) -10mm (preloaded 10mm state spring 1800N)
高压/低压线保持力 High/low voltage line holding force	高压: $\geq 2400\text{N}$ (超声波焊接) 低压、辅助电源: $> 80\text{N}$ High voltage: $\geq 2400\text{N}$ (ultrasonic welding) Low voltage and auxiliary power supply: $> 80\text{N}$
高压/低压端子保持力 High voltage/low voltage terminal retention force	高压: $\geq 300\text{N}$ 低压、辅助电源: $\geq 60\text{N}$ High voltage: $\geq 300\text{N}$ Low voltage and auxiliary power supply: $\geq 60\text{N}$
振动冲击 vibration shock	满足 USCAR-2 V2 级 Meets USCAR-2 V2 level

3. 连接器的包络尺寸和重量要求

3. Requirements for envelope size and weight of connectors

项目 Project	要求 Requirements
电池端最大轮廓尺寸 Maximum outline size of battery end	218*145*84.5
电池端最大重量 Maximum weight of battery end	2.2kg
车端最大轮廓尺寸 The maximum contour size of the car end	274*200*133.5
车端最大重量 Maximum weight of the car end	3.5kg
车端与电池端配合后最大总高度 (不包含线缆) The vehicle end and the battery end are matched in place size	163mm

4. 工作环境

4. Working environment

技术要求 Technical Requirements	性能指标 performance index
工作温度 Operating Temperature	-40℃～+125℃
使用相对湿度 Use relative humidity	25℃时， 5%～95%
海拔高度 altitude	≤5000 m
耐盐雾 Salt spray resistance	480h (中性盐雾，满足试验后不影响功能) 480h (neutral salt spray, meeting the requirement of not affecting the function after the test)
防护等级 Protection level	IP67D (配合后) IP67D (after fitting)
针脚防护等级 Pin protection level	IPXXB (高压)——插头插座单体满足 IPXXB (high voltage) - the plug and socket unit meets the requirements

5. 引脚及适配线缆

5. Pin and adapter cable

连接器针脚号 Connector pin number	信号 signal	信号描述 Signal Description	导线截面积 Conductor cross-sectional area
DC1+	主电源正 (DC1+) Main power supply positive (DC1+)	400A	120mm ² (最大值) 120mm ² (maximum value)
DC1-	主电源负 (DC1-) Main power supply negative (DC1-)	400A	120mm ² (最大值) 120mm ² (maximum value)
DC2+	主电源正 (DC2+) Main power supply positive (DC2+)	400A	120mm ² (最大值) 120mm ² (maximum value)
DC2-	主电源负 (DC2-) Main power supply negative (DC2-)	400A	120mm ² (最大值) 120mm ² (maximum value)
DC3+	辅助电源正 (DC3+) Auxiliary power supply positive (DC3+)	100A	25mm ² (最大值) 25mm ² (maximum value)
DC3-	辅助电源负 (DC3-) Auxiliary power supply negative (DC3-)	100A	25mm ² (最大值) 25mm ² (maximum value)

PE	接地 grounding	300A	70mm ²
A-1	24V 低压辅助 24V low voltage auxiliary	2A	0.5mm ² ~ 1mm ²
A-2		2A	0.5mm ² ~ 1mm ²
A-3		2A	0.5mm ² ~ 1mm ²
A-4		2A	0.5mm ² ~ 1mm ²
A-5		2A	0.5mm ² ~ 1mm ²
A-6		2A	0.5mm ² ~ 1mm ²
A-7		2A	0.5mm ² ~ 1mm ²
A-8		2A	0.5mm ² ~ 1mm ²
A-9	互锁1 (LOCK1) Interlock 1 (LOCK1)	2A	0.5mm ² ~ 1mm ²
A-10	互锁2 (LOCK2) Interlock 2 (LOCK2)	2A	0.5mm ² ~ 1mm ²
A-11		2A	0.5mm ² ~ 1mm ²
A-12		2A	0.5mm ² ~ 1mm ²
A-13	24V 低压辅助 24V low voltage auxiliary	2A	0.5mm ² ~ 1mm ²
A-14		2A	0.5mm ² ~ 1mm ²
A-15		2A	0.5mm ² ~ 1mm ²
A-16		2A	0.5mm ² ~ 1mm ²
A-17		2A	0.5mm ² ~ 1mm ²
A-18		2A	0.5mm ² ~ 1mm ²
B-1		2A	0.5mm ² ~ 1mm ²
B-2		2A	0.5mm ² ~ 1mm ²
B-3		2A	0.5mm ² ~ 1mm ²
B-4		2A	0.5mm ² ~ 1mm ²
B-5		2A	0.5mm ² ~ 1mm ²
B-6		2A	0.5mm ² ~ 1mm ²
B-7		2A	0.5mm ² ~ 1mm ²
B-8		2A	0.5mm ² ~ 1mm ²
B-9		2A	0.5mm ² ~ 1mm ²
B-10		2A	0.5mm ² ~ 1mm ²
B-11		2A	0.5mm ² ~ 1mm ²
B-12		2A	0.5mm ² ~ 1mm ²
B-13	24V 低压辅助 24V low voltage auxiliary	2A	0.5mm ² ~ 1mm ²

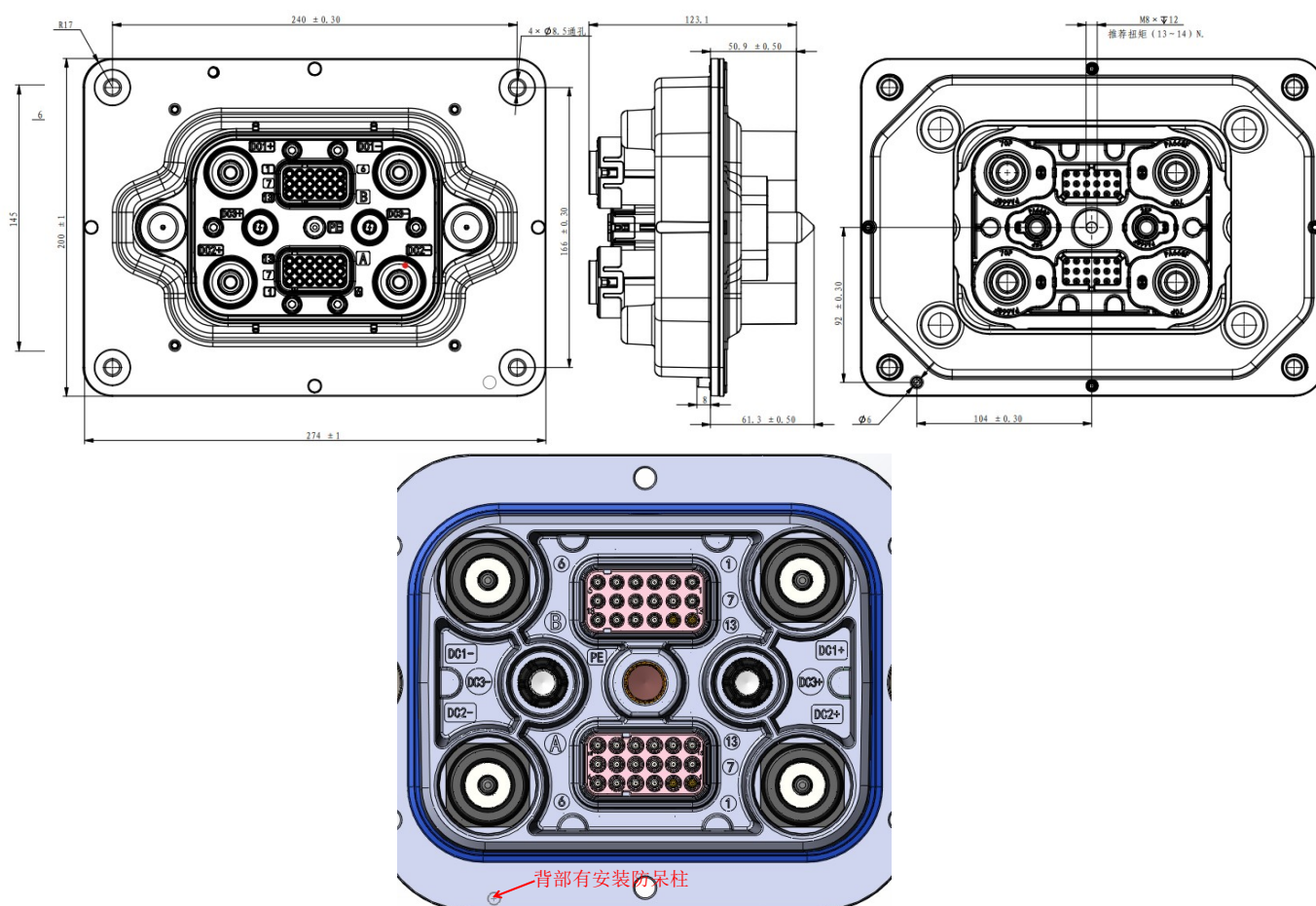
B-14		2A	0.5mm ² ~ 1mm ²
B-15		2A	0.5mm ² ~ 1mm ²
B-16		2A	0.5mm ² ~ 1mm ²
B-17		2A	0.5mm ² ~ 1mm ²
B-18		2A	0.5mm ² ~ 1mm ²

五、外形尺寸图：

5、 Outline dimension diagram:

1、 电池端外形尺寸

1、 External dimensions of battery terminals

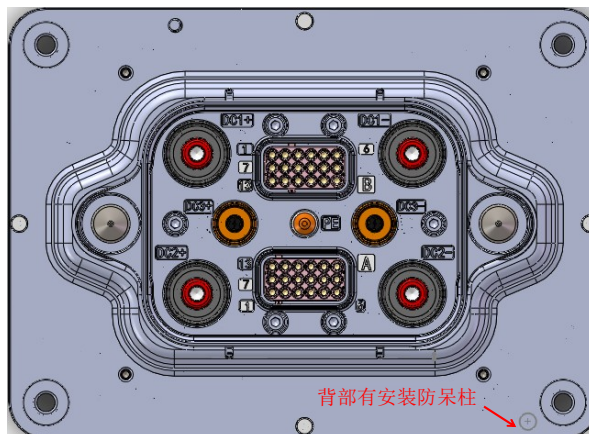


※电池端安装防呆柱 $\phi 6$

Installation of anti misoperation column with a diameter of 6 on the battery end

2、车端外形尺寸

2、Vehicle end dimensions

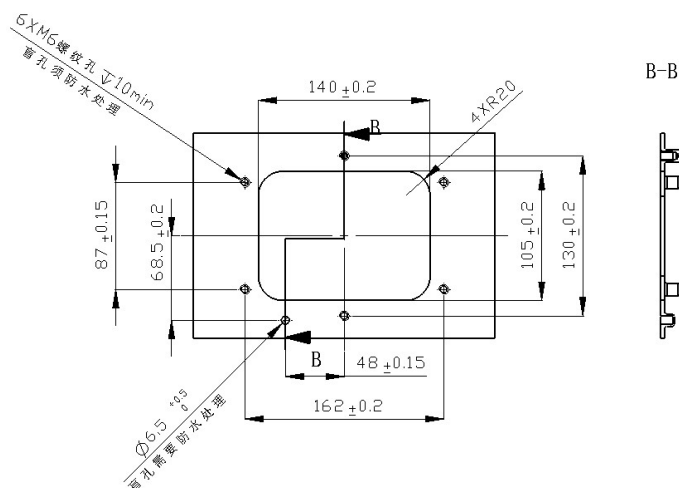


※车端安装防呆柱 $\phi 6$

Installation of anti misoperation column at the vehicle end with a diameter of 6

3、电池端推荐开孔尺寸

3、Recommended opening size for battery end



备注:

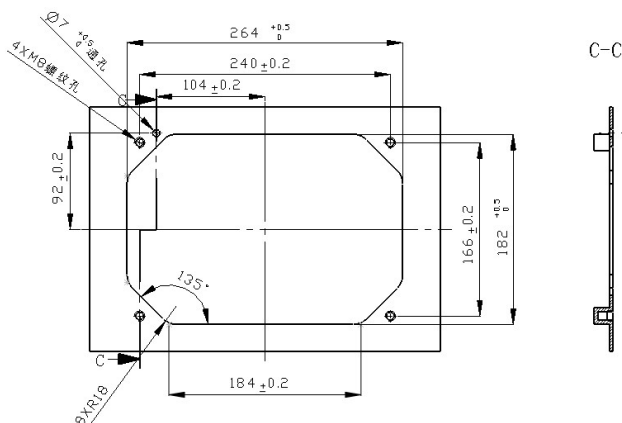
- 1) 为了保证 IP68 的防护要求, 面板粗糙度应不差于 1.6, 平面度不低于 0.2, 推荐面板厚度 $\leq 3\text{mm}$;
- 2) 电池端开孔尺寸图的 6 个 M6 螺纹孔以及装防呆柱沉孔均应为防水盲孔;
- 3) 未注公差尺寸推荐参照 GB/T 1804-c 级执行。

Note:

- 1) In order to ensure the protection requirements of IP68, the panel roughness should not be less than 1.6, the flatness should not be less than 0.2, and the recommended panel thickness is not less than 3mm;
- 2) The 6 M6 threaded holes on the battery end opening size diagram and the anti mistake column sinking hole should all be waterproof blind holes;
- 3) It is recommended to refer to GB/T 1804-c level for unmarked tolerance dimensions.

4、车端推荐开孔尺寸

4、Recommended opening size for the car end



说明:

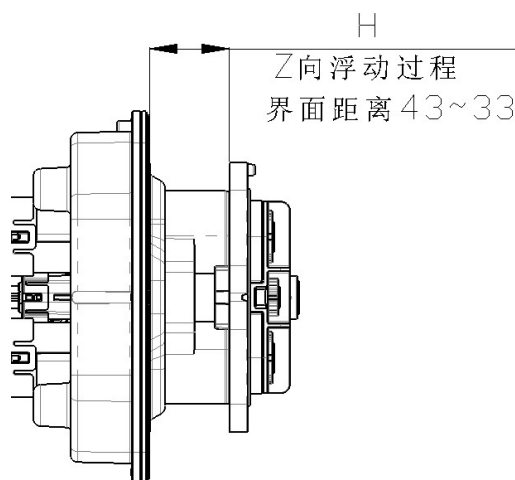
- 1) 未注公差尺寸推荐参照 GB/T1804-c 级执行;
- 2) 安装所使用的螺钉建议使用 M8 螺钉, 建议螺钉长度 $L=16+t$ (t 为安装面板的厚度)。

Instructions:

- 1) It is recommended to refer to GB/T1804-c level for unmarked tolerance dimensions;
- 2) It is recommended to use M8 screws for installation, with a recommended screw length of $L=16+t$ (t is the thickness of the installation panel).

5、配合后浮动尺寸:

5、Floating size after coordination:



说明:

Instructions:

- 1) 如上图所示, 自然插入时电池端法兰距离车端前端面距离为 H , 考虑到要保证连接器端子始终保持可靠接触和头座有效密封, 因此要求电池包对插到位后控制该 H 尺寸, 连接器整体 Z 向浮动量为 $0\text{mm}\sim 10\text{mm}$, 推荐控制尺寸 $H=38\text{mm}$ (此时连接器浮动端已压缩 5mm , 预留 5mm 浮动量, 具体需要根据整车换电机核算力值确定, 必要情况下和瑞可达技术确认)。
- 1) As shown in the above figure, the distance between the battery end flange and the front end face of the vehicle when naturally inserted is H . Considering the need to ensure that the connector terminals always maintain reliable contact and the head seat is effectively sealed, it is required to control the H size after the battery pack is inserted in place.

The overall Z-direction float of the connector is 0mm to 10mm, and it is recommended to control the size H=38mm (at this time, the floating end of the connector has been compressed by 5mm, leaving a 5mm float, which needs to be determined based on the calculation of the force value of the vehicle's replacement mechanism, and confirmed with Ruikeda Technology if necessary).

2) 线束要求: 为保证整车端浮动部位运行正常, 实际在线束固定时, 应对线束尾端给出足够活动量, 不允许任何因线束固定不当而引起浮动异常情况。

2) Wiring harness requirements: In order to ensure the normal operation of the floating parts at the end of the vehicle, sufficient movement should be provided at the end of the wiring harness during actual wiring harness fixation, and any abnormal floating caused by improper wiring harness fixation is not allowed.

3) 浮动尺寸

3) Floating size

实际使用的浮动量越大, 连接器寿命越低。

The larger the actual floating amount used, the lower the lifespan of the connector.

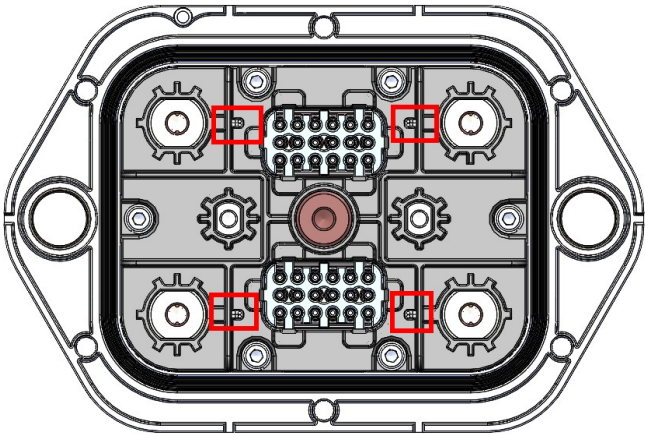
方向 direction	浮动尺寸值 Floating size value	备注 Remarks
X	±8mm	3° 范围内最大到 8mm 偏差 Maximum deviation up to 8mm within a range of 3 °
Y	±8mm	3° 范围内最大到 8mm 偏差 Maximum deviation up to 8mm within a range of 3 °
Z	0-10mm	界面距离 33mm-43mm Interface distance 33mm-43mm
角度 angle	0° -3°	使用过程中减小角度偏差 Reduce angle deviation during use

六、温感要求:

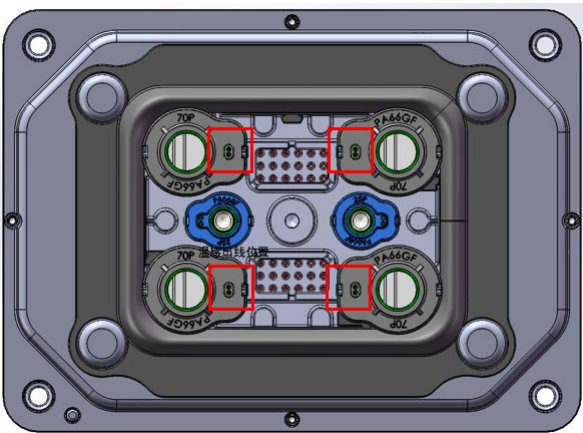
6、Temperature sensing requirements:

1、温感位置

1、Temperature sensing location



电池端
battery terminal



车端
vehicle side

2、温感引出线的标识定义

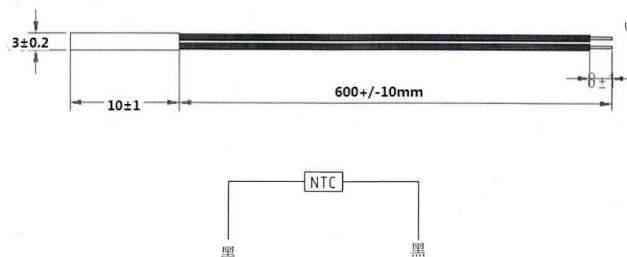
2、Definition of identification for temperature sensing leads

功率端子 PIN 定义 Definition of Power Terminal PIN	车端对应温度传感器标识定义 Corresponding temperature at the vehicle end Definition of Sensor Identification	电池端对应温度传感器标识定义 Corresponding temperature at the battery end Definition of Sensor Identification	说明 Instructions	引出线长度 (mm) Lead out length (mm)
DC1+	T1+/T1-	T5+/T5-	线束制作时在线缆上套对应线号管 During the	590 (±20)
DC1-	T2+/T2-	T6+/T6-		
DC2+	T3+/T3-	T7+/T7-		

DC2-	T4+/T4-	T8+/T8-	production of wire harnesses, the corresponding wire number tube is fitted onto the cable	
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3、温感外形及长度

3、Temperature sensing appearance and length



序号 serial number	技术名称 Technical Name	技术参数 Technical Specifications
1	工作温度 operation temperature	-40℃-200℃
2	工作电流 operating current	1mA
3	绝缘电阻 insulation resistance	100MΩ @500V DC
4	耐电压 Withstand Voltage	3KV@AC&60S, 50HZ, 漏电流小于 1mΩ, 无击穿或闪络 3KV@AC &60S, 50HZ, Leakage current less than 1m Ω, no breakdown or flashover
5	R25℃	10KΩ ± 1%
6	B25/50	3950
7	阻燃等级 Flame retardant rating	V0

备注：温感导线导体外径 0.6±0.05，绝缘厚度 0.22，线缆外径 1.05±0.1，颜色为黑色，压接推荐参考 QCT 29106-2014。

Note: The outer diameter of the temperature sensing wire conductor is 0.6 ± 0.05, the insulation thickness is 0.22, the outer diameter of the cable is 1.05 ± 0.1, the color is black, and the recommended crimping reference is QCT 29106-2014.

七、维护保养要求:

7、Maintenance requirements::

1、螺纹建议最大扭矩

1、Recommended maximum torque for threads

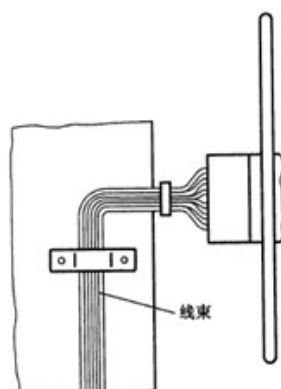
螺纹尺寸 thread size	扭力 (N*M) Torque (N * M)
M6	8±0.5
M8	15±0.5

2、线缆装配折弯半径

2、Cable assembly bending radius

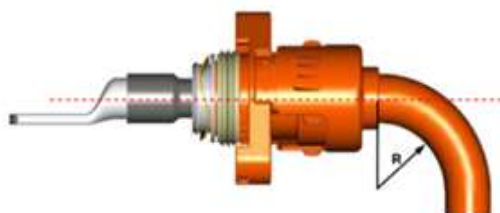
1) 低压信号线束, 应考虑 3-5D 的布线弯曲半径, 电缆需弯曲时, 应保持连接器端子在横向上产生机械应力 (如下图所示):

1) Low voltage signal wiring harness should consider a wiring bending radius of 3-5D. When the cable needs to be bent, the connector terminals should be kept under mechanical stress in the transverse direction (as shown in the figure below):



2) 高压线束出线时, 布线必须遵循电缆弯曲半径的要求, 电缆弯曲半径由电缆厂家提供为准, 常规情况下, 按静态时为 5D, 动态时为 8D-10D 进行布线设计 (如下图), 电缆需弯曲时, 应保持连接器端子在横向上产生机械应力:

2) When the high-voltage wire harness is wired out, the wiring must follow the requirements of the cable bending radius, which is provided by the cable manufacturer. Under normal circumstances, the wiring design is based on 5D for static and 8D-10D for dynamic (as shown in the figure below). When the cable needs to be bent, the connector end should be kept under mechanical stress in the transverse direction:

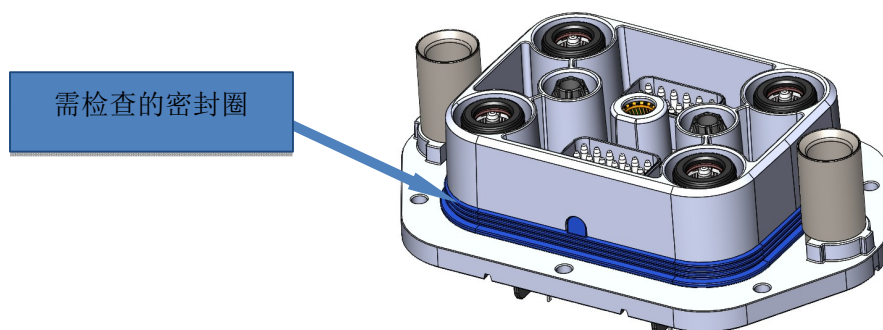


3、密封圈检查确认

3、Sealing ring inspection and confirmation

根据换电工况严酷情况，建议每换电 1500 次后检查或更换电池端密封圈，尤其超出密封圈使用寿命时。当发现密封圈有翻卷、破损等情况时应立即更换，更换时注意密封圈正反方向，最大外圈应靠近安装面板装配。

According to the harsh conditions of battery replacement, it is recommended to check or replace the battery end sealing ring after every 1500 battery replacements, especially when it exceeds the service life of the sealing ring. When the sealing ring is found to be rolled or damaged, it should be replaced immediately. When replacing, pay attention to the direction of the sealing ring, and the maximum outer ring should be assembled close to the installation panel.



4、异物检查确认

4、Confirmation of foreign object inspection

建议定期检查车端和电池端界面上累积的空气沙土扬尘、使用过程中可能坠入的异物、连接器插拔所生产的磨损粉屑等，及时进行清理保证产品功能，清理时建议采用负压抽吸方式。

It is recommended to regularly check the accumulated air, sand, dust, foreign objects that may fall during use, and wear and tear caused by connector insertion and removal on the interface between the vehicle and battery ends to ensure product functionality. Negative pressure suction is recommended for cleaning.

5、其它使用建议

5、Other usage suggestions

1) 产品使用必须在规格书约定的范围内使用，如当换电连接器插头和插座开始接触时必须保证配合范围在本规格书要求允许的浮动范围以内；特别是互配角度偏差会造成浮动量的减小、插拔力增大，建议使用过程中减小角度误差。

1) The product must be used within the scope specified in the specifications, such as ensuring that the mating range is within the allowable floating range required by this specification when the power connector plug and socket come into contact; In particular, the matching angle deviation will reduce the floating amount and increase the plugging force. It is recommended to reduce the angle error during use.

2) 换电过程中应配合专用的换电机构进行换电作业，保证换电连接器插拔速度 $\leq 10\text{mm/s}$ ，且速度均匀；若大于此速度插拔，会导致连接器加速磨损，减少连接器使用寿命。

2) During the battery replacement process, a dedicated battery replacement mechanism should be used to ensure that the insertion and removal speed of the battery connector is $\leq 10\text{mm/s}$, and the speed is uniform; If the insertion and removal speed is greater than this, it will accelerate the wear of the connector and reduce its service life.

3) 导向销建议每 500 次涂抹润滑脂保养。

3) It is recommended to apply lubricating grease every 500 times for maintenance of the

guide pin.

4) 换电连接器每 500 次插拔后需要进行定期维护：首先使用气枪将连接器内的灰尘、杂质去除干净，再使用 FSL530 润滑剂对所有插针、插孔进行喷涂维护。

4) Regular maintenance is required after every 500 insertions and removals of the battery swapping connector: first, use an air gun to remove dust and impurities from the connector, and then use FSL530 lubricant to spray and maintain all pins and sockets.

5) 电池长时间放置时需盖防尘帽，防止接触件氧化。

5) When the battery is left for a long time, it is necessary to cover it with a dust cap to prevent oxidation of the contact parts.

6) 产品在避免雨、雪等直接淋袭的条件下，才可对电池包进行换电作业。

6) The battery pack can only be replaced under the condition of avoiding direct rain, snow, etc.

7) 产品在运输过程中避免雨、雪等直接淋袭。

7) The product should avoid direct exposure to rain, snow, etc. during transportation.

8) 包装成箱的产品应在环境温度 5℃~30℃，相对湿度在 80%以下，周围空气中无酸性、碱性和其它腐蚀性气体的库房里储存。在上述条件下，储存期自生产日期起不超过 12 个月。

8) Products packaged in boxes should be stored in a warehouse with an ambient temperature of 5 °C to 30 °C, relative humidity below 80%, and no acidic, alkaline, or other corrosive gases in the surrounding air. Under the above conditions, the storage period shall not exceed 12 months from the date of production.

9) 维护/保养涉及物料用品如下表，可根据需求情况购买：

9) The materials and supplies involved in maintenance/upkeep are listed in the table below, which can be purchased according to demand:

序号 serial number	名称 name	料号 Part Number	数量 number	备注 notes
1	密封圈 sealing ring	8.683.107175R	1	
2	Fsl530 润滑剂 Fsl530 lubricant	0.028.210001R	1	
3	263 螺纹胶 263 thread adhesive	0.028.010R	1	
4	润滑脂 lubricating grease	0.028.107005R	1	