

# PowerLok™ 10.0 单芯直头插头组装规范

## PowerLok™ 10.0 1POS 180D Plug Assembly Manual



产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线材尺寸 Cable Size	
PLS	PowerLok™	18	插头连接器， 直头，屏蔽 Plug, Straight, Shielding	X	1芯，X 键位 橙色 1POS, Key "X" Orange	300	300系列 300 Series	35	35mm <sup>2</sup>
				Y	1芯，Y 键位 黑色 1POS, Key "Y" Black				
				U	1芯，U 键位 黄色 1POS, Key "U" Yellow				
				V	1芯，V 键位 绿色 1POS, Key "V" Green	301	带高压互锁 的300系列 300 Series With HVI	50	50mm <sup>2</sup>
				W	1芯，W 键位 红色 1POS, Key "W" Red				
				T	1芯，T 键位 蓝色 1POS, Key "T" Blue			70	70mm <sup>2</sup>

### 安装步骤 Assembly Instruction

步骤1：取一套产品, 拆包零件

Step1：Take out the connector and take it apart as the picture shown below



- ① 尾盖 End Cap×1
- ② 胶圈 Rubber Ring ×1
- ③ 铜环1 Copper Ring1×1
- ④ 铜环2 Copper Ring2×1
- ⑤ R4 Holder×1
- ⑥ 绝缘套 Insulation Sleeve×1
- ⑦ 绝缘筒 Insulation Housing ×1
- ⑧ 合金外壳 Alloy Shell ×1

步骤2：选取合适线缆(参考手册最后的附录)，按照表1尺寸剥离绝缘皮和外皮

Step2：Select the right cable(refer to the appendix), prepare the cable according to the sketch and Table 1 below

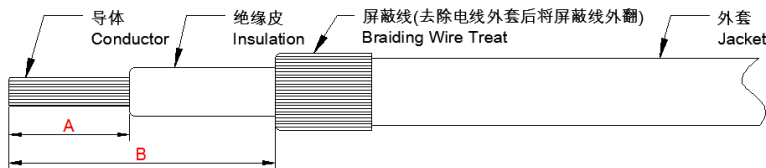


表1：剥皮尺寸

Table 1: Strip length

线材尺寸 Cable Size	A (mm)	B (mm)
70mm <sup>2</sup>	18±1	27 ±1

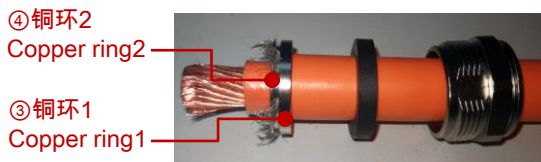
步骤3：取各1pcs的①尾盖, ②胶圈和③铜环1, 依次穿过线缆

Step3: Take 1pcs of ①end cap, ②rubber ring and ③copper ring 1 and make them through the cable in the right order as the picture shown below



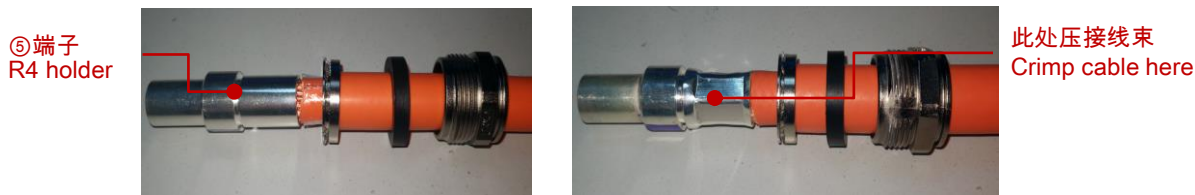
**步骤4：**取1pcs的④铜环2穿过线缆，与③铜环1按压在一起，并剪去突出的线头

**Step4：**Take 1pcs of ④copper ring 2 and make it through the cable, and clip the braid between ④copper ring 2 and ③copper ring 1 then cut off any excessive braid



**步骤5：**取1pcs的⑤R4 holder 穿上线缆，并压接在其上(规格参照手册最后的附录,附录数据仅供参考)

**Step5：**Take 1pcs of ⑤R4 holder and crimp it with the cable conductor, as the picture shown below. (please refer to the appendix at the end of this manual for more crimping information)



端子压接需要满足压缩比要求：80-90%

Terminal crimping needs to meet the compression ratio requirements: 80-90%

(1) 建议使用附录中的线材，如果要使用客户定制线材，请联系当地销售，让他们提供延伸的产品

Cables written in the appendix are highly recommended for crimping, please contact our local sales for help if you want to use other cables out of this table

(2) 客户需要重新确认压接区域横截面和拉力测试，这两项达到压接的质量标准

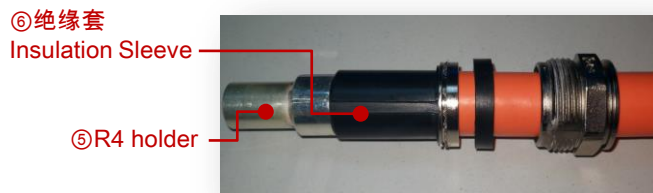
A good crimping process is determined by 3 factors: W、H and tensile test result, please confirm these 3 targets specified are met after crimping

(3) 横截面仅供参考(其他举例：等边六变形的横截形状)，客户负责采购压接工具或刀模

Cross section shape is only for reference( other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

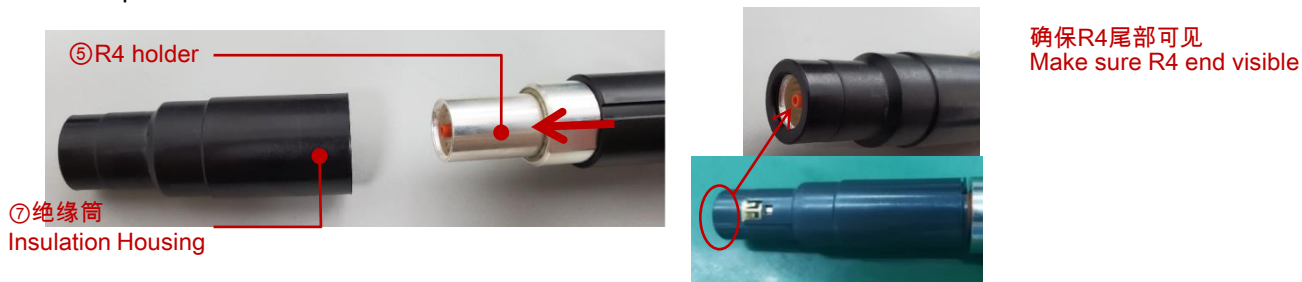
**步骤6：**组装⑥绝缘套到⑤R4 holder 脖颈处的沟槽

**Step6：**Take 1 pair of ⑥insulation sleeve and buckle up together to the neck groove of ⑤R4 holder



**步骤7：**插入⑤R4 holder到⑦绝缘筒上，转动使其触底

**Step7：**Bring ⑤R4 holder through ⑦insulation housing and rotate ⑤R4 holder until it arrives at a stop position



**步骤8：**将⑦绝缘罩插入⑧合金外壳，转动使其触底；固定外壳与电缆，以10~12N•M拧紧①尾盖，完成此端线束组装

**Step8：** Put ⑦insulation housing into ⑧alloy shell, rotate the cable to make ⑦insulation housing arrive at a stop position then screw up ①end cap with a torque of 10~12N.m to finish the assembly as the picture shown below



**步骤9：**建议客户参考下面的测试参数,对线束进行绝缘电阻测试和耐压测试

**Step9：** Insulation resistance and dielectric withstand voltage tests are obligated to be done according to below test parameters to guarantee the good electric performance of the whole harness

#### 9-1 绝缘电阻测试

##### 9-1 Insulation Resistance Test

位置 Positions	测试电压 ( 直流 ) Test Voltage(DC)	绝缘电阻 Insulation Resistance
电缆芯线到壳体 Cable(power) to shell	1000 V	> 500 MΩ
电缆芯线到高压互锁 Cable(power) to HVIL	1000 V	> 500 MΩ
高压互锁到壳体 HVIL to shell	1000 V	> 100 MΩ

#### 9-2 耐压测试

##### 9-2 Dielectric Withstand Voltage Test

位置 Positions	测试电压 ( 直流 ) Test Voltage(DC)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 V	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 V	<5mA
HVIL to shell 高压互锁到壳体	500V	<5mA

产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线材尺寸 Cable Size	
PLS	PowerLok™	48	插头连接器, 直头, 非屏蔽  Plug connector, Straight, Un-shielding	X	1芯, X 键位 橙色 1POS, Key "X" Orange	300	300系列 300 Series	35	35mm <sup>2</sup>
				Y	1芯, Y 键位 黑色 1POS, Key "Y" Black				
				U	1芯, U 键位 黄色 1POS, Key "U" Yellow				
				V	1芯, V 键位 绿色 1POS, Key "V" Green	301	带高压互锁的 300系列 300 Series With HVIL	50	50mm <sup>2</sup>
				W	1芯, W 键位 红色 1POS, Key "W" Red				
				T	1芯, T 键位 蓝色 1POS, Key "T" Blue			70	70mm <sup>2</sup>

## 安装步骤 Assembly Instruction

步骤1：取一套产品，拆包零件

Step1：Unpack all parts as the picture shown below



- ① 尾盖End Cap×1
- ② 胶圈Rubber Ring ×1
- ③ 铜环Copper Ring×1
- ④ 绝缘套 Insulation Sleeve×1
- ⑤ R4 Holder×1
- ⑥ 绝缘筒 Insulation Housing ×1
- ⑦ 合金外壳 Alloy Shell ×1

步骤2：选取合适线缆(参考手册最后的附录)，按照表2尺寸剥离绝缘皮和外皮

Step2：Select the right cable(refer to the appendix), and prepare the cable according to the sketch and Table 1 below

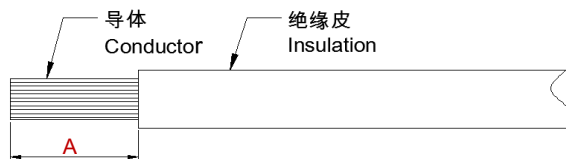


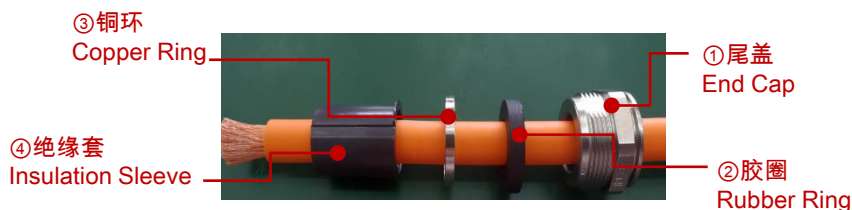
表2：剥皮尺寸

Table 2: Strip length

线材尺寸 Cable Size	A (mm)
70mm <sup>2</sup>	18±1

步骤3：取各1pcs的①尾盖，②胶圈，③铜环和④绝缘套，从右边依次穿过线缆

Step3：Take 1pcs of ①end cap, ②rubber ring and ③copper ring 1 and make them through the cable in the right order as the picture shown below



步骤4：取1pcs的⑤R4 holder 穿上线缆，并压接在其上(规格参照手册最后的附录,附录数据仅供参考)

Step4：Take 1pcs of ⑤R4 holder and crimp it with the cable conductor, as the picture shown below (please refer to the appendix at the end of this manual for more crimping information)

此处压接线束

Crimp cable here

⑤R4 holder



端子压接需要满足压缩比要求：80-90%

Terminal crimping needs to meet the compression ratio requirements: 80-90%

(1) 建议使用附录中的线材，如果要使用客户定制线材，请联系当地销售，让他们提供延伸的产品

Cables written in the appendix are highly recommended for crimping, please contact our local sales for help if you want to use other cables out of this table

(2) 客户需要重新确认压接区域横截面和拉力测试，这两项达到压接的质量标准

A good crimping process is determined by 3 factors: W, H and tensile test result, please confirm these 3 targets specified are met after crimping

(3) 横截面仅供参考(其他举例：等边六变形的横截形状)，客户负责采购压接工具或刀模

Cross section shape is only for reference (other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

步骤5：装④绝缘套到R4 holder 脖颈处

Step5：Take 1 pair of ④insulation sleeve and buckle up together to the neck groove of ⑤R4 holder

④ 绝缘套

Insulation Sleeve

⑤R4 holder



步骤6：向左依次推动①尾盖,②胶圈,③铜环,使之靠齐④绝缘套

Step6：Push ①end cap, and make all parts in line be in touch with each other as the shown below

④绝缘套

Insulation Sleeve

③铜环

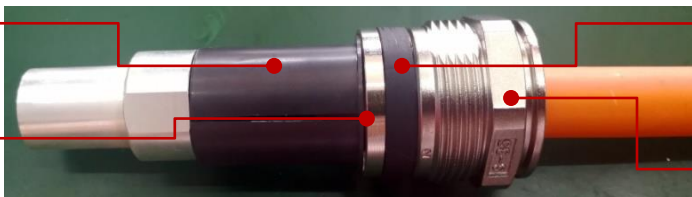
Copper Ring

②橡胶圈

Rubber Ring

①尾盖

End Cap



步骤7：插入⑥R4 holder到⑦绝缘筒上, 转动使其触底

Step7：Bring ⑥insulation housing through ⑥R4 holder and rotate ⑥insulation housing until it arrives at a stop position

⑥R4 holder

⑦绝缘筒

Insulation Housing



确保R4尾部可见

Make sure R4 end visible



步骤8：将⑥绝缘筒插入⑦合金外壳，转动使其触底；固定外壳与电缆，以10~12N•M拧紧①尾盖，完成此端线束组装  
 Step8：Put ⑥insulation Housing into ⑦alloy shell, rotate the cable to make ⑦alloy shell arrive at a stop position then screw up ①end cap with a torque of 10~12N.m to finish the assembly as the picture shown below



步骤9：建议客户参考下面的测试参数,对线束进行绝缘电阻测试和耐压测试

Step9：Insulation resistance and dielectric withstand voltage tests are obligated to be done according to below test parameters to guarantee the good electric performance of the whole harness

### 9-1 绝缘电阻测试

#### 9-1 Insulation Resistance Test

位置 Positions	测试电压 ( 直流 ) Test Voltage(DC)	绝缘电阻 Insulation Resistance
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### 9-2 耐压测试

#### 9-2 Dielectric Withstand Voltage Test

位置 Positions	测试电压 ( 直流 ) Test Voltage(DC)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 V	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 V	<5mA
HVIL to shell 高压互锁到壳体	500V	<5mA

附录APPENDIX

线缆压接的参考规范  
Reference specification for cable crimping

线缆类型 Cable Type	电线尺寸 Cable Size	导体结构(mm) Conductor	导体外径(mm) Conductor OD	电线外径(mm) Wire OD	压接压缩比(%) Compression ratio	参考保持力 Retention Force
屏蔽线 Shielding cable	70mm <sup>2</sup>	3876*0.15	11.8	19.50±0.3	80-90	3400N
	70mm <sup>2</sup>	360*0.51	11.6	17.00±0.3	80-90	3400N
非屏蔽线 Un-shielding cable	70mm <sup>2</sup>	3876*0.15	11.8	15.50±0.3	80-90	3400N
	70mm <sup>2</sup>	360*0.51	11.6	15.20±0.3	80-90	3400N





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