PowerLok™ 10.0 二/三芯直头插头组装规范
PowerLok™ 10.0 2/3POS 180D Plug Assembly Manual



PL 18 2Y - 301 - 70

产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线束尺寸 Cable Size	
PL	PowerLok™	18	插头连接器，直头，屏蔽 Plug connector, Straight, Shield	2X	2芯，X 键位 橙色 2POS , Key "X" Orange	300	300 Series 300系列	35	35mm²
				2Y	2芯， Y 键位 黑色 2POS , Key "Y" Black			50	50mm²
				3X	3芯，X 键位 橙色 3POS , Key "X" Orange	301	带高压互锁的300系列 300 Series With HVIL		
				3Y	3芯， Y 键位 黑色 3POS , Key "Y" Black			70	70mm²

安装步骤 Assembly Instruction

步骤1：取出连接器, 如图示拆开零件

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



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

注意：图示为二芯配件，三芯的配件数量为：三芯合金外壳 ×1，①尾盖 ×3，② 胶圈×3，③铜环1 ×3，④铜环2 ×3，⑤ R4 holder ×3，⑥绝缘套 ×3，⑦绝缘筒 ×3， ⑧合金外壳× 1，三芯安装方式与二芯安装方法相同

Note: Picture above shows all parts of 2pos connector. Parts of 3POS connector are: ①end cap ×1 ②rubber ring ×3 ③ copper ring1 ×3 ④ copper ring1 ×3 ⑤ R4 holder ×3 ⑥ insulation sleeve ×3 ⑦ insulation housing ×3 ⑧alloy shell × 1, 3pos connector has the same assembly method as 2pos connector

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

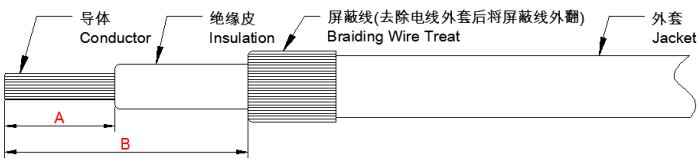


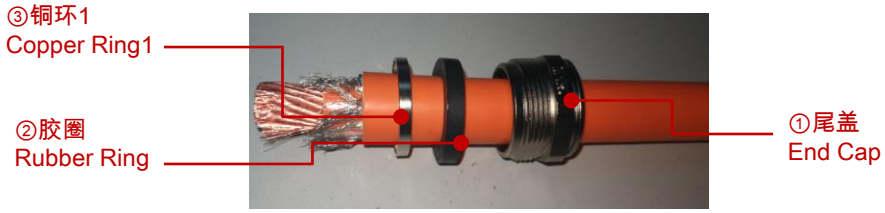
表1：剥皮尺寸

Table 1: Strip length

线材尺寸 Cable Size	A (mm)	B (mm)
35mm²	18±1	27 ±1
50mm²	18±1	27 ±1
70mm²	18±1	27 ±1

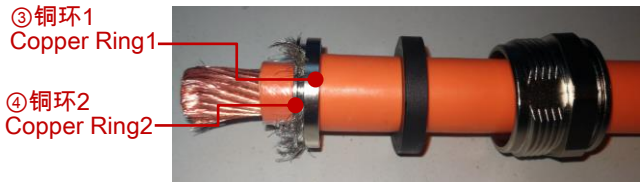
步骤3：取各1pcs的①尾盖, ②胶圈和③铜环1, 依次穿过线缆

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 ring1 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)



端子压接高宽度尺寸，“W”:为压接宽度，“H”为压接高度（相应线径的压接高宽度尺寸及拉力标准参考手册后的附录）

Terminal crimping quality depends on 2 parameters: "W" crimping width and "H" crimping height.(Please refer to the appendix at the end of this manual for details)

(1) 建议使用附录中的线材，如果要使用客户定制的线材，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

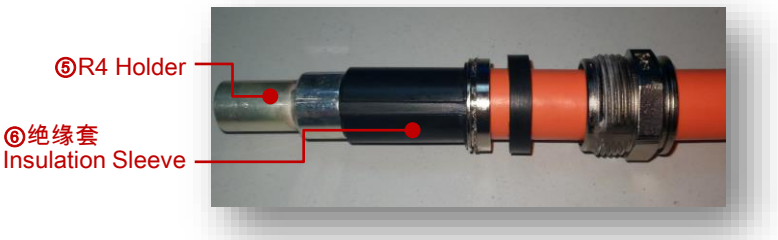
A good crimping process is determined by 3 factors: W、H and tensile test result, please confirm these 3 targets specified are met after crimping

(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

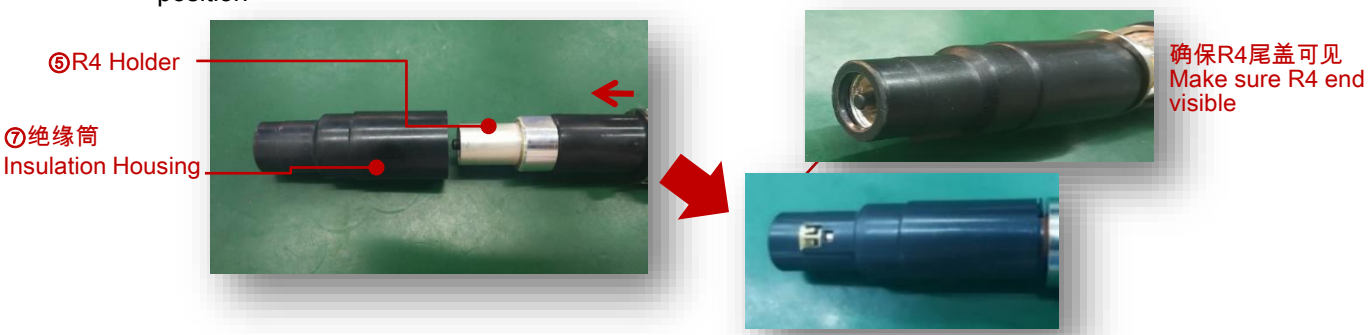
步骤6：组装⑥绝缘套到R4 holder脖颈处的沟槽

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



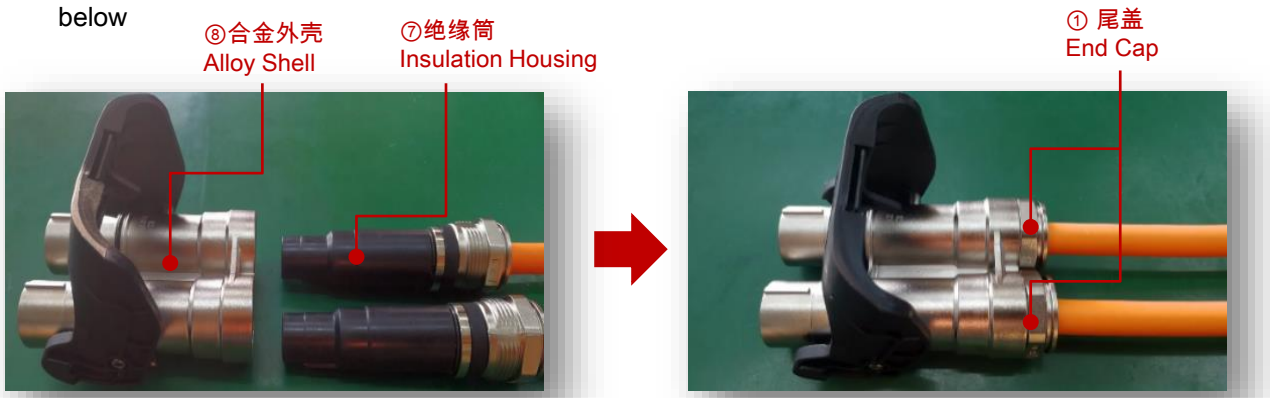
步骤7：插入⑤R4 holder到⑦绝缘筒上，**转动**使其触底

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



步骤8：插入⑦绝缘筒到⑧金属外壳，**转动**使其触底；以10~12N•M拧紧①尾盖,完成此端线束的组装

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

PL 48 2Y - 301 - 70

产品类型 Product Type		插头类型 Plug Type		键位&颜色 Key & Color		系列 Series		线束尺寸 Cable Size	
PL	PowerLok™	48	插头连接器，直头，非屏蔽 Plug, straight , Un-shielding	2X	2芯，X 键位 橙色 2POS , Key "X" Orange	300	300系列 300 Series	35	35mm²
				2Y	2芯， Y 键位 黑色 2POS , Key "Y" Black			50	50mm²
				3X	3芯，X 键位 橙色 3POS , Key "X" Orange	301	带高压互锁的300系列 300 Series With HVIL	70	70mm²
				3Y	3芯， Y 键位 黑色 3POS , Key "Y" Black				

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

注意：图示为二芯配件，三芯的配件数量为：①尾盖 ×2，② 胶圈×2，③铜环×2，④绝缘套×2， ⑤ R4 holder ×2， ⑥ 绝缘筒 ×2 ⑦合金外壳× 1，三芯安装方式与二芯安装方法相同

Note: Picture above shows all parts of 2pos connector. Parts of 3POS connector are: ①end cap ×2 ②rubber ring ×2 ③ copper ring ×2 ④ insulation sleeve ×2 ⑤ R4 holder ×2 ⑥ insulation housing ×2 ⑦alloy shell × 1, 3pos connector has the same assembly method as 2pos connector

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：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

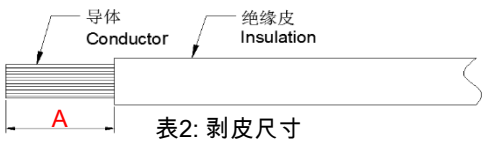


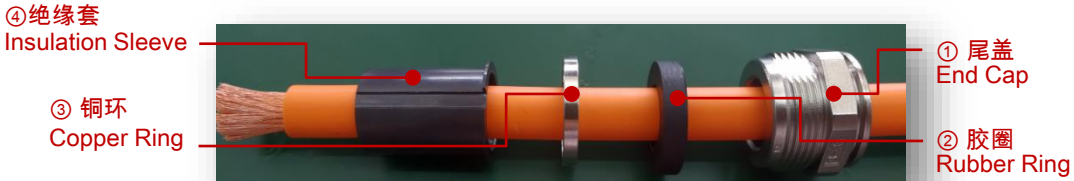
表2: 剥皮尺寸

Table 2: Strip length

线材尺寸 Cable Size	A (mm)
35mm²	18±1
50mm²	18±1
70mm²	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 and make them through the cable in the right order as the picture shown below



步骤4：取1pcs的⑤R4 holder 自左端穿上线缆，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)



端子压接高宽度尺寸，“W”:为压接宽度，“H”为压接高度（相应线径的压接高宽度尺寸及拉力标准参考手册后的附录）
Terminal crimping quality depends on 2 parameters: "W" crimping width and "H" crimping height.(Please refer to the appendix at the end of this manual for details)

(1) 建议使用附录中的线材，如果要使用客户定制的线材，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

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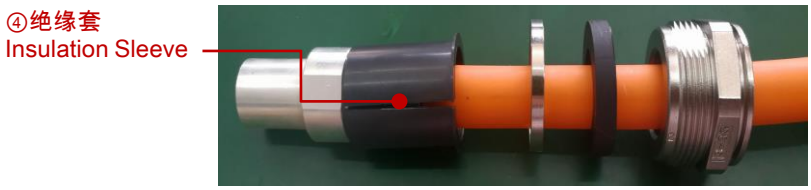
Cross section shape is only for reference(other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

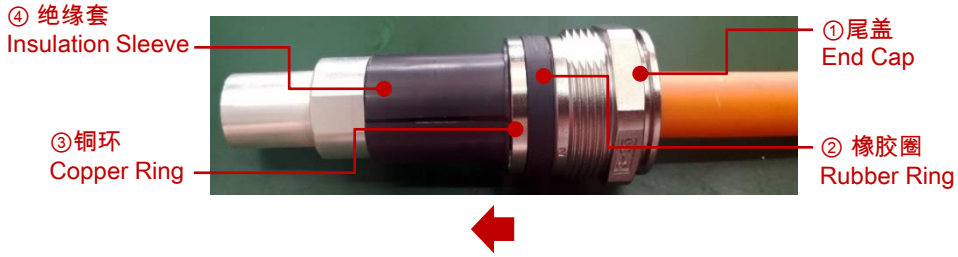
步骤5：组装④绝缘套到R4 holder脖颈处的沟槽

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



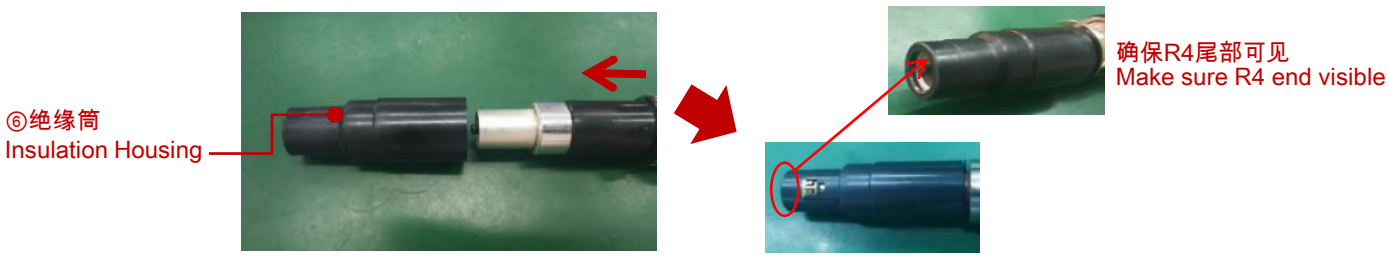
步骤6：向左依次推动①尾盖,②胶圈,③铜环, 使之靠齐④绝缘套

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



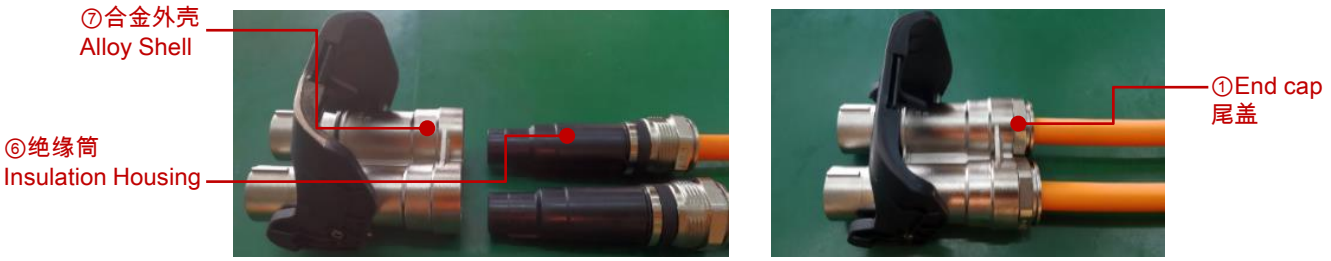
步骤7：插入⑤R4 holder到⑥绝缘筒上, **转动**使其触底

Step7：Bring ⑥insulation housing through ⑤R4 holder and rotate ⑥insulation housing until it arrives at a stop position



步骤8：插入⑥绝缘筒到⑦合金外壳, **转动**使其触底; 以10~12N•M拧紧①尾盖, 完成此端线束的组装

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
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

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	压接高度H(mm) Crimping height	压接宽度W(mm) Crimping Width	参考保持力 Retention Force
屏蔽线 Shielding cable	35mm²	3071*0.12	8.10	14.50±0.3	9.5±0.2	11.0±0.2	2300N
	50mm²	4403*0.12	9.5	17.00±0.3	11.5±0.2	13.3±0.2	2800N
	50mm²	385*0.41	9.4	14.90±0.3	13.3±0.2	12.2±0.2	2800N
	70mm²	3876*0.15	11.8	19.50±0.3	13.0±0.2	15.0±0.2	3400N
	70mm²	360*0.51	11.6	17.00±0.3	15.0±0.2	13.26±0.2	3400N
非屏蔽线 Un-shielding cable	35mm²	3071*0.12	8.10	11.50±0.3	9.5±0.2	11.0±0.2	2300N
	50mm²	4403*0.12	9.5	13.60±0.3	11.5±0.2	13.3±0.2	2800N
	50mm²	385*0.41	9.4	11.5±0.3	13.3±0.2	12.2±0.2	2800N
	70mm²	3876*0.15	11.8	15.50±0.3	13.0±0.2	15.0±0.2	3400N
	70mm²	360*0.51	11.6	13.7±0.3	15.0±0.2	13.26±0.2	3400N



Amphenol Technical Products International provides the above product specifications for the standard PowerLok™ series of connectors to assist users in identifying the correct product for the system to which the connectors may be applied. Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements of suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. Specifications are typical and may not apply to all connectors. Note that these specifications are derived from relevant global standards used in the automotive and industrial transportation markets, but they are not a substitute for system level design validation testing, which is the sole responsibility of the system designer and/or end user.

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