

PowerLok 14mm G1单芯直头插头组装规范

PowerLok 14mm G1 1POS 180D Plug Assembly

Manual



PL18(X)-50(X)-XX-5

键位	Key	高压互锁	线缆大小	
X 键	X	0: 无	Cable Size	
Y 键	Y	1: 有	mm2	
U 键	U		70	线缆类型
V 键	V	HVIL	95	Cable type
W 键	W	0: No	120	
		1: Yes	150	5: H+S cable

第一部分：包装清单

Part 1 : Package contents



- ① 屏蔽壳组件 Shield shell Assy ×1
- ② 带高压弹片的胶壳 Plastic housing with HVIL contact spring ×1
(-500系列无高压互锁弹片 For the -500 version without HVIL, the plastic housing is without HVIL contact)
- ③ 绝缘筒 Insulation sleeve
- ④ R4端子组件 R4 terminal Assy ×1
- ⑤ 内铜环 Inner Copper ring ×1
- ⑥ 外铜环 Outer Copper ring ×1
- ⑦ 金属垫圈 Metal gasket ×1
- ⑧ 密封圈 Sealing ×1
- ⑨ 螺套组件 screw sleeve Assy ×1

第二部分：插头组装

Part 2: Plug Assembly

安装步骤 Assembly Instruction

- 步骤1：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

Step1：Select the right cable(refer to the appendix), prepare the cable according to the sketch and Table 1 below

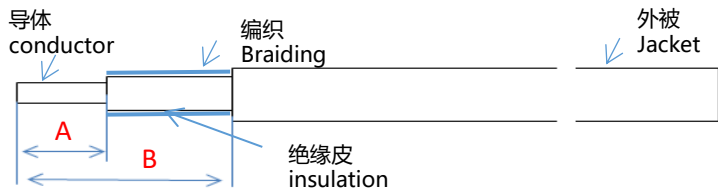


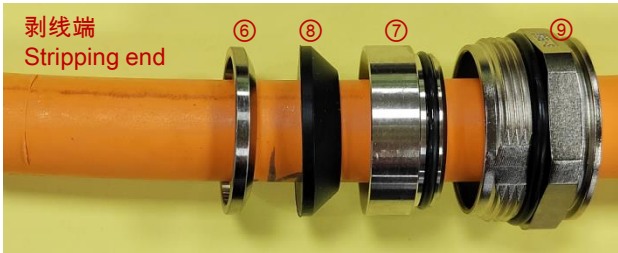
表1：剥皮尺寸

Table 1: Strip length

线材尺寸 Cable Size	Conductor A (mm)	Jacket B (mm)
70mm ²	20±0.5	34+1/-0.5
95mm ²	20±0.5	34+1/-0.5
120mm ²	20±0.5	34+1/-0.5
150mm ²	20±0.5	34+1/-0.5

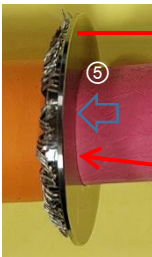
- 步骤2：取各1pcs的⑨螺套组件，⑦金属垫圈，⑧密封圈和⑥外铜环，依次穿过线缆如下图所示

Step2: Take 1pcs of ⑨ screw sleeve assy, ⑦ metal gasket , ⑧ sealing and ⑥ outer copper ring then make them pass through the cable in turn as the picture shown below



- 步骤3：将编织打散均匀反折在外被上，取1pcs的⑤内铜环穿入线缆紧贴外被口，再将编织反折，在图示处剪齐

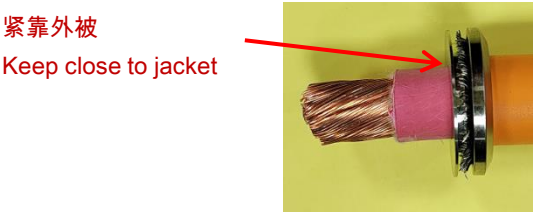
Step3：Break the braid evenly and fold it on the outer jacket, Take 1 piece of ⑤ inner copper ring and push it to the jacket closely, Then fold the braid and cut it evenly as the figure.



平齐此处剪齐
Cut to flush with here

确保此处铜环前端和外被前端贴紧，
最佳间隙为0mm
Be sure to be closely in here, the
best clearance is 0mm

步骤4：将外铜环前移与内铜环一起夹紧编织，注意内铜环不可移位，
Step4：Move the outer copper ring to the inner copper ring and clamped the braid tightly. Make sure the inner copper ring is not shifted.



步骤5：取1pcs的④R4 端子组件穿上线缆，并压接在其上，
Step5：Take 1pcs of ④ R4 terminal assy and crimp it with the cable conductor, as the picture shown below.

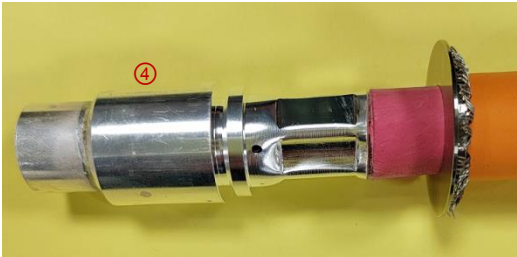


表2：端子与线缆压接规格&拉拔力要求

Table 2：Contact and Conductor Crimping spec & retention force requirement

连接器 Connector	线缆尺寸 Cable size	压接宽度 (a) Crimping width (mm)	压接高度 (a) Crimping height (mm)	参考抗拉拔力 (a) Retention Force
500/501 系列 500/501 Series	70mm ²	15.4+/-0.3	13.2+/-0.3	3400N
	95mm ²	17.0+/-0.3	13.3+/-0.3	4200N
	120mm ²	19.2+/-0.3	15.2+/-0.3	5000N
	150mm ²	21.0+/-0.3	19.8 ±0.3	6000N

压接工具：油压机

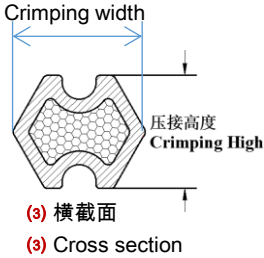
Crimping tool：Hydraulic press

70mm²压模：L132153150D70 95mm²压模：L132173140D95

70mm²Die：L132153150D70 95mm²Die：L132173140D95

120mm²压模：L150195150D120 150mm²压模：TY-060

120mm²Die：L150195150D120 150mm²Die：TY-060



(1) 建议使用H+S线材（参考手册最后的附录），如果客户选用其它电缆，请联系安费诺业务，协商订制零配件

Recommend to use H+S cable.（refer to the appendix）If you need to use customized cable, Please contact local sales for product extentions

(2) 压接高度和拉拔力需要配合压接截面的金相分析，客户才能判断压接质量合格，芯线压缩比要求为 80~90%。

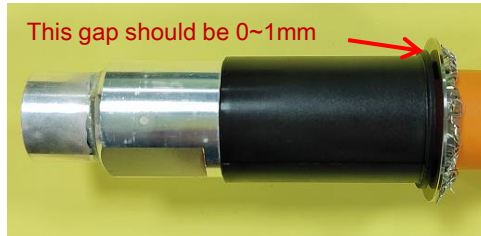
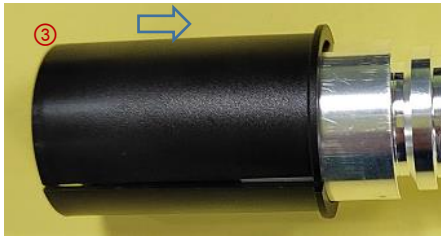
Customers need to check cross section on crimping area and conduct pull-out force test to confirm the quality of crimp process，
Terminal crimping must meet the conductor compression ratio requirements: 80~90%

(3) 横截面仅供参考(其他举例：六边形横截形状)，客户负责采购压接工具或刀模

Cross section and tooling geometry (ex. hexagon) is only for reference; customer should take liability for sourcing tools or dies.

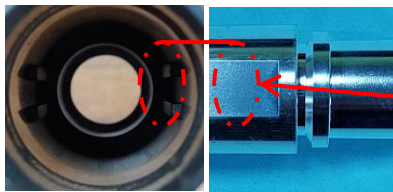
步骤6：组装③ 绝缘筒到R4 组件的脖颈处的沟槽。

Step6：Take ③ Insulation sleeve and assemble it to the neck groove of R4 assy.



步骤7：插入R4 端子组件到②胶壳上, 转动使其触底。

Step7：Bring ② plastic housing through R4 terminal assy and rotate ② plastic housing until it arrives at a stop position.



此两位置对齐
The two positions are aligned

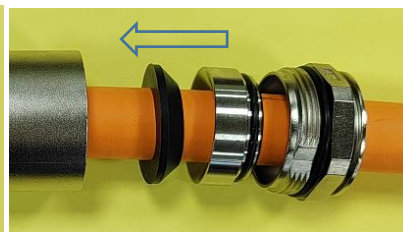


步骤8：将线束按图示方向插入①屏蔽壳组件，直至端面平齐，再依次将配件推到底。

Step8：Insert the wire harness into the shielding shell assembly as shown in the diagram until the end face is flush, Then push the parts to the end in turn.

端面平齐
Ends are flush

HVIL弹片对准此处
HVIL contact spring is aligned at this point



步骤9：把连接头前端固定，以26~28N•m拧紧螺套组件。

Step9：Fix the front end of the connector shell, tighten screw sleeve assy with torque 26~28N•m.



步骤10：在线缆组装好后需要做绝缘电阻和耐压测试，建议客户参考下面的测试参数

Step 10: Insulation resistance and Hi-pot test is needed after the cable is assembled. It is recommended that the customer refer to the following test parameters.

10-1 绝缘电阻测试

10-1 Insulation Resistance

Positions 位置	Test voltage/time 测试电压/时间	测试时间 (推荐) Test Time (recommended)	Insulation resistance 绝缘电阻
Cable (conductor) to shell 电缆芯线到壳体	1000 VDC	5S	> 500 MΩ
Cable (conductor) to HVIL 电缆芯线到高压互锁	1000 VDC	5S	> 500 MΩ
HVIL to shell 高压互锁到壳体	1000 VDC	1S	> 100 MΩ

10-2 Dielectric Withstand Voltage

10-2 耐压测试

Positions 位置	Test voltage 测试电压	测试时间 (推荐) Test Time (recommended)	Leakage Current 漏电流
Cable (conductor) to shell 电缆芯线到壳体	5000 VDC	10S	< 5mA
Cable (conductor) to HVIL 电缆芯线到高压互锁	5000 VDC	10S	< 5mA
HVIL to shell 高压互锁到壳体	500 VDC	1S	< 5mA

10-3 测试说明:

警告:建议的电气测试及其参数应根据终端应用要求进行审查，以确保安全性并防止损坏其他部件。提供的参数是基于PowerLok连接器和其峰值1000VDC额定。提供的测试参数可能超出电缆组件或设备上使用的其他部件/材料的限制。

10-3 Test note:

caution: Recommended electrical tests and their parameters should be reviewed against end application requirements to ensure safety and to prevent damage to other components. Parameters provided are based on the PowerLok connectors and their peak 1000VDC rating. Test parameters provided may exceed the limit of other components/materials used on the cable assembly or device.

附录APPENDIX

线材规格
Cable Specs

线缆类型 Cable Type	线缆尺寸 Cable size	导体结构(mm) Conductor	线缆外径 Accepted cable OD (mm)	线缆型号 Cable type
屏蔽线 Shielding cable	70mm²	360*0.51	17.0+/-0.3	H+S 84100298
屏蔽线 Shielding cable	95mm²	480*0.51	19.9+/-0.4	H+S 84100299
屏蔽线 Shielding cable	120mm²	589*0.51	22.6+/-0.4	H+S 84103410
屏蔽线 Shielding cable	150mm²	741*0.51	24.9+/-0.5	H+S 84000254

版本记录 Revision history

序号 Number	版本 Rev	变更内容 Content of change	日期 Date
1	00	新出 New issue	2021/05/15
2	01	更改压接刀模由六边压接机为六边带点模 Change the crimping die from Hexagonal crimp machine to Hexagon and indent die	2022/07/07
3	02	更新实物图片 Update physical pictures	2024/03/26



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Asia Pacific

ChangZhou, China
Tel: +86 519-8981 9713
Add: No.11 Fengxiang Road, New District, Changzhou, Jiangsu
P.C: 213001

Asia Pacific

GuangZhou, China
Tel: +86 20-3210 6099
Add: 9th Floor, No. 10, the 4th Street, Kehui Jingu, Luogang District, Guangzhou, Guangdong
P.C: 510663

North America

Winnipeg, Canada
Tel: +1 204 697 2222
Add: 2110 Notre Dame Avenue

Europe

Milano, Italy
Tel: +39 02 932541
Add: Via Barbaiana 5, 20020 Lainate(MI)

Email: info@Amphenol-GEC.com