

PowerLok 10mm单芯2代弯头组装式连接器安装说明

The Assembly Manual for
PowerLok 10mm 1POS G2 90D Plug Connector



PL28(X)-30(X)-XX-2-5

键位		高压互锁	线缆大小	G2 Connector	
X 键	X	0: 无	Cable Size mm2		线缆类型
Y 键	Y	1: 有			
U 键	U				
V 键	V	HVIL			
W 键	W	0: NO	50		
T 键	T	1: WITH	70		5: HS cable

第一部分：包装清单

Part 1 : Package contents



- ① 屏蔽壳组件Shield shell assembly ×1
- ② 一套绝缘套 A set of Insulation sleeve ×1
- ③ 螺旋弹簧Coil spring ×1
- ④ 外铜环Outer Copper ring ×1
- ⑤ 内铜环Inside Copper ring ×1
- ⑥ 外壳Shell ×1
- ⑦ 密封圈Sealing ×1
- ⑧ 尾盖End cap ×1

第二部分：插头组装

Part 2：Plug assembly

步骤1：穿配件

Step1：Assemble the accessories

1-1 线缆准备：按生产需求从表1选择合适尺寸的线缆，并裁剪

1-1 Cable preparation：take right-sized cable and cut the cable according to production plan from the table 1

表1：线材规格
Table 1：Cable size

连接器 Connector	线缆尺寸 Cable size	线缆外径 Accepted cable OD (mm)	屏蔽线缆 Shield Cable
300系列 300Series	50mm ²	14.9±0.3	HS 84096257
	70mm ²	17.0±0.3	HS 84100298

1-2 取各1pcs的⑧尾盖，⑦密封圈，⑥外壳和⑤内铜环，从右边依次穿过线缆；

1-2 Take each 1pcs of ⑧ end cap, ⑦ sealing, ⑥ shell and ⑤ Inside Copper ring, and make them pass through the cable from right in sequence.



步骤2：剥线皮，按表2尺寸剥离线缆绝缘皮和外被

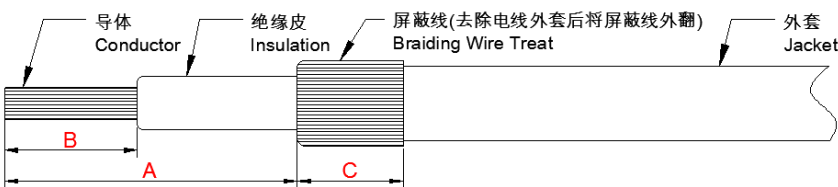
Step 2：Stripping, Strip off cable insulation and jacket as following size from the table 2

表2：剥线长度
Table 2：Strip length

连接器 Connector	线缆尺寸 Cable size	外套剥线长度 A Stripping jacket (mm)	绝缘皮剥线长 B Stripping insulation (mm)	保留屏蔽长度 C leave over shielding(mm)
300系列 300 Series	50mm ²	32±1	17±1	7±1
	70mm ²	32±1	17±1	7±1

注意：剥皮完成之后，裁剪屏蔽保留C mm(看上方表2)，并将屏蔽线向后翻180°

Note：After wire stripping, cutting shielded leave over C mm(see table 2), and fold back the shielding braid



步骤3：压接铜环

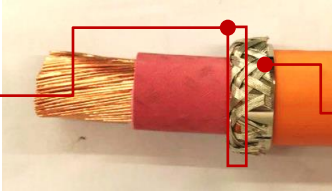
Step 3: Crimping Copper ring

3-1 将 ⑤内铜环从右端移动到屏蔽线下方，屏蔽线覆盖在铜环表面

3-1 Move the ⑤ inside copper ring from the right side to the side below the shield. The shield line is covered on the surface of the copper ring

确保此处铜环前端和外被前端贴紧，
压紧后间隙最佳为0mm

Be sure to be closely in here, the best
clearance is 0mm after crimping

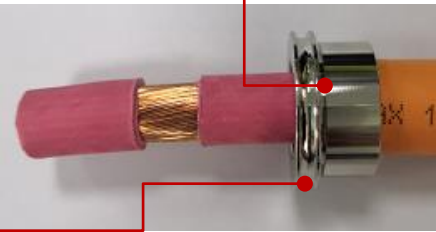


⑤ Inside Copper ring
内铜环

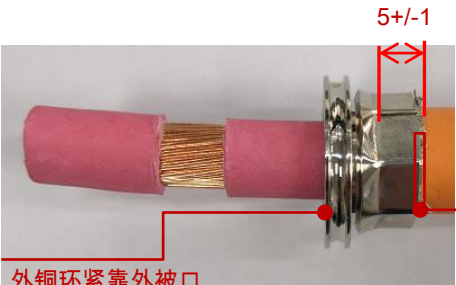
3-2 取1pcs ④外铜环，铜环从左端安装到屏蔽线上，铜环从屏蔽线的左端开始完全覆盖,并压接在其上(规格参照表3)

3-2 Take 1pcs ④ Outer Copper ring , load it to the cable end on the left, copper ring cover the shielded fully from the shielded left end, then crimp(refer to table 3)

④ Outer Copper Ring
外铜环



紧靠外被口 Close to the outer Jacket



外铜环紧靠外被口
Outer Copper Ring Close to the outer Jacket

压接之前，确保
此处外铜环后端
和内铜环后端平
齐
Make sure the
ends are level
with each other
before crimping

表3：铜环与线缆屏蔽编织层压接规格&拉拔力要求

Table 3：Copper Ring and Cable braids Crimping spec & retention force requirement

连接器 Connector	线缆尺寸 Cable size	线缆外径 (1) Accepted cable OD (mm)	压接高度 (2) Crimping height (mm)	参考抗拉拔力 (2) Retention Force
301/300系列 301/300 Series	50mm ²	14.9±0.3	18.0±0.25	150N
	70mm ²	17.0±0.3	20.3±0.25	150N

压接工具：油压机

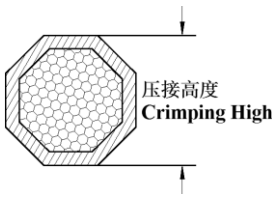
Crimping tool：Hydraulic press

50mm²压模：195195150D50

50mm²Die：195195150D50

70mm²Die：220220150D70

70mm²压模：220220150D70



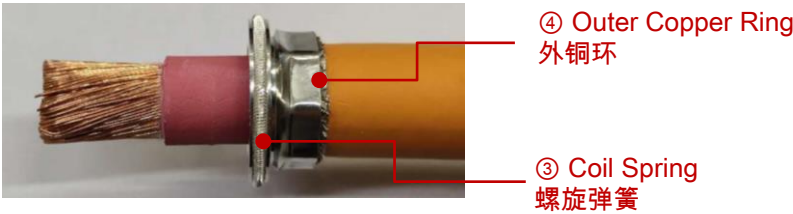
(1) 建议使用安费诺H+S线材（H+S线材型号详见步骤1-1），如果客户选用其它电缆，请联系安费诺业务，协商订制零配件。

Recommend to use H+S cable.(See section 1-1 for details of H+S cable part numbers.) 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。；

Customers need to reconfirm cross section on crimping area and pull out force test to confirm the quality of crimp process;

步骤4：取1pcs的③螺旋弹簧安装在④外铜环上
Step 4: Take 1pcs ③Coil spring and install it on ④ Outer Copper Ring



步骤5：取出①屏蔽壳组件（样品参照下面的图片）
Step 5: Take each 1pcs of ① Shield shell assembly (sample refer to picture below)



Key mark on connector 连接器标示	X	Y	U	V	W	T
Inner Pin color 防触摸Pin颜色	Orange 橙色	Black 黑色	Yellow 黄色	Green 绿色	Red 红色	Blue 蓝色

步骤6：取1pcs的①屏蔽壳组件自左端穿上线缆，并压接在其上(规格参照表4)
Step 6: Take a ①Shield shell assembly, load it to the cable end on the left, then crimp(refer to table 4)

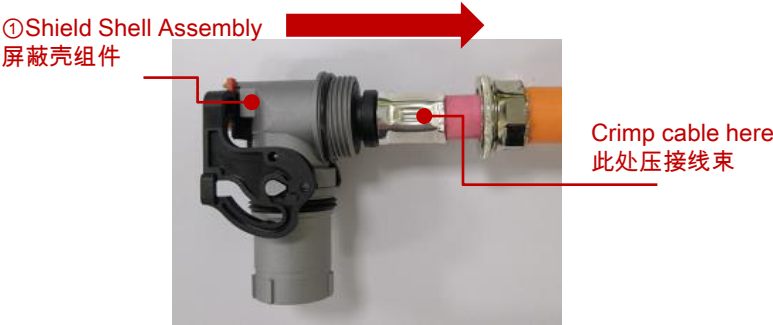


表4：端子与线缆压接压接规格&拉拔力要求

Table 4：Contact and Conductor Crimping spec & retention force requirement

连接器 Connector	线缆尺寸 Cable size	线缆外径 (1) Accepted cable OD (mm)	压接高度 (2) Crimping height (mm)	参考抗拉拔力 (3) Retention Force
301/300系列 301/300 Series	50mm²	14.9±0.3	11.34 ±0.25	2800N
	70mm²	17.0±0.3	13.18 ±0.25	3400N

压接工具：油压机

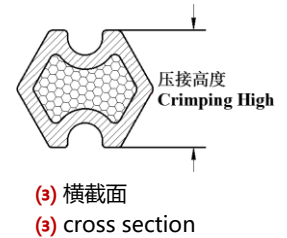
Crimping tool : Hydraulic press

50mm²压模：L113130150D50

50mm²Die：L113130150D50

70mm²Die: L132153150D70

70mm²压模：L132153150D70



(1) 建议使用安费诺H+S线材（H+S线材型号详见步骤1-1），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. (See section 1-1 for details of H+S cable part numbers.) 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

Customers need to reconfirm cross section on crimping area and pull out force test to confirm the quality of crimp process

(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 only reference tooling geometry (ex. hex and indent dimensions),customer will take liability for sourcing tools or dies

步骤7：取出一套②绝缘套，将绝缘套卡入端子处

Step 7: Take a set of ② Insulation sleeve, install it into the terminal



② Insulation sleeve
绝缘套

步骤8：把连接头前端固定,以10~12N•M拧紧⑥外壳

Step 8: Secure the front end of the connector ⑥ shell tight with torque 10~12N•M



⑥ Shell
外壳

步骤9：将⑦密封圈推入屏蔽壳组件内部的底部，接着将⑧尾盖扣住屏蔽壳组件，完成此端线束的组装

Step 9: Push the ⑦sealing to the bottom of Shield shell assembly. The ⑧ end cap is then fastened to the Shield shell assembly, one end assembly done

⑦ Sealing
密封圈



The effect of
operation in place
操作到位的效果图



⑧ End Cap
尾盖

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: Need to do the Insulation Resistance and DWV test after cable assembly, 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 (DC) 测试电压 (直流)	测试时间 (推荐) Test Time (recommended)	Insulation resistance 绝缘电阻
Cable(power) to shell 电缆芯线到壳体	1000 V	5S	> 500 MΩ
Cable(power) to HVIL 电缆芯线到高压互锁	1000 V	5S	> 500 MΩ
HVIL to shell 高压互锁到壳体	1000 V	1S	> 100 MΩ

10-2 耐压测试

10-2 Dielectric Withstand Voltage

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

步骤11：补充说明

Step 11: Other notes

11-1：在连接器搬运，和高压线束搬运过程中，推荐使用插头防尘盖，和插头防护盖。避免搬运过程中碰伤损坏。要求详见 安装指引 8P1129。.

11-1: In the process of connector handling and high-voltage harness handling, it is recommended to use plug dust cover and plug protective cover. Avoid bumping and damage during handling. See installation guideline 8p1129 for detail requirements.



Optional protective cover



Plug dust cover



此HVIL保护
套使用前需
移除

This HVIL
cap must
be removed
before use



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