

二芯2代弯头组装式连接器安装说明

The Assembly Manual For PowerLok 10mm G2

2POS 90D Right Angle Plug Connector



PL282(X)-30(X)-XX-2-5

键位		高压互锁		线缆大小	G2 Connector
Key		0: 无	1: 有	Cable Size mm2	
X 键	X	HVIL		35	线缆类型
Y 键	Y			50	
U 键	U	0: NO		70	5: HS cable
V 键	V			95	
W 键	W	1: WITH			
T 键	T				

第一部分：包装清单

Part 1 : Package contents



- | | |
|--|----------------------------|
| ① 摇杆Latch ×1 | ② 螺旋弹簧Coil spring ×2 |
| ③ 外铜环Outer Copper ring ×2 | ④ 内铜环Inside Copper ring ×2 |
| ⑤ 外壳 Shell ×2 | ⑥ 密封圈Sealing ×2 |
| ⑦ 金属垫片 Metal gasket ×2 | |
| ⑧ 尾壳组件 Tail shell assembly ×1 | |
| ⑨ R4端子组件 R4 and terminal assembly ×2 | |
| ⑩ 一套绝缘套 A set of Insulation sleeve ×2 | |
| ⑪ W 锁块 (带凸台) Clamp W (With convex platform) ×1 | |
| ⑫ W/O锁块Clamp W/O ×1 | |
| ⑬ M6平垫圈 M6 flat washer ×1 | |
| ⑭ M6弹簧垫圈 M6 spring washer ×1 | |
| ⑮ M6×18螺丝 M6×18 Screw ×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 300 Series	35mm ²	12.7±0.3	HS 84100296
	50mm ²	14.9±0.3	HS 84096257
	70mm ²	17.0±0.3	HS 84100298
	95mm ²	19.9±0.4	HS 84100299

1-2：取各1pcs的⑦金属垫片，⑥密封圈，⑤外壳和④内铜环, 从右边依次穿过线缆

1-2： Take each 1pcs of ⑦ Metal gasket, ⑥ Sealing, ⑤ shell and ④ 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

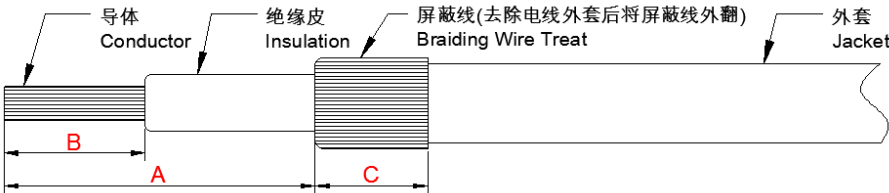
表2：剥线长度

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	35mm ²	30±1	15±1	7±1
	50mm ²	32±1	17±1	7±1
	70mm ²	32±1	17±1	7±1
	95mm ²	32±1	17±1	7±1

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

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



步骤3：压接铜环

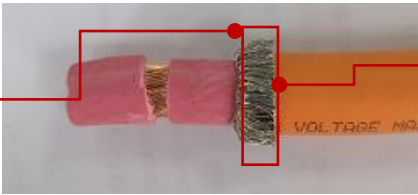
Step 3: Crimping Copper ring

3-1 将④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 ④ 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



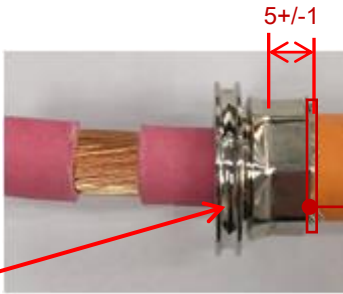
3-2 取1pcs ③外铜环，铜环从左端安装到屏蔽线上，铜环从屏蔽线的左端开始完全覆盖,并压接在其上(规格参照表3)

3-2 Take 1pcs ③ 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)

③ Outer Copper ring
外铜环



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
300系列 300 Series	35mm ²	12.7±0.3	16.1±0.25	150N
	50mm ²	14.9±0.3	18.0±0.25	150N
	70mm ²	17.0±0.3	20.3±0.25	150N
	95mm ²	19.9±0.4	21.8±0.25	150N

压接工具：油压机

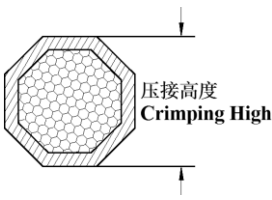
Crimping tool：Hydraulic press

35mm²Die： TY-062

50mm²Die： 195195150D50

70mm²Die： 220220150D70

95mm²Die： TY-086



(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;

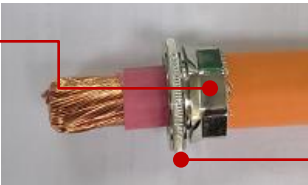
(2) 压接高度和拉拔力需要配合压接截面的金相分析，客户才能判断压接质量合格。；

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 ② 螺旋弹簧安装在③ 外铜环上

Step 4: Take a Coil spring, and install it on ③ Outer Copper ring

③ Outer Copper Ring
外铜环



② Coil spring
螺旋弹簧

步骤5：取出⑨ R4端子组件（样品参照下面的图片）

Step 5: Take 1pcs ⑨ R4 and terminal 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⑨ R4端子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 ⑨ R4 and terminal assembly , load it to the cable end on the left, then crimp(refer to table 4)

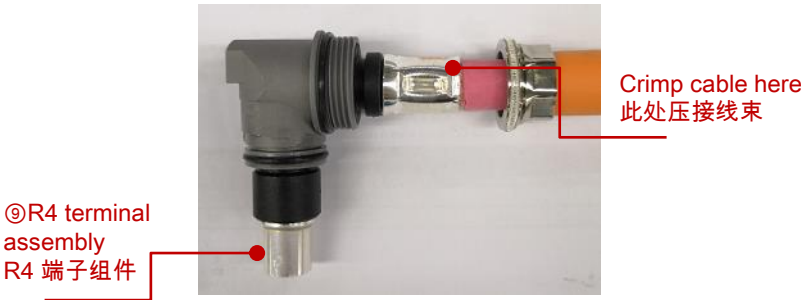


表4：端子与线缆压接规格&拉拔力要求

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

连接器 Connector	线缆尺寸 Cable size	线缆外径 (H) Accepted cable OD (mm)	压接高度 (H) Crimping height (mm)	参考抗拉拔力 (H) Retention Force
300系列 300 Series	35mm ²	12.7±0.3	10.35 ±0.25	2300N
	50mm ²	14.9±0.3	11.34 ±0.25	2800N
	70mm ²	17.0±0.3	13.18 ±0.25	3400N
	95mm ²	19.9±0.4	14.25 ±0.25	4200N

压接工具：油压机

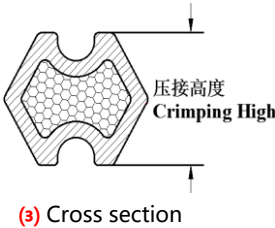
Crimping tool：Hydraulic press

35mm²Die: TY-064

50mm²Die: L113130150D50

70mm²Die: L132153150D70

95mm²Die: TY-085



(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⑩绝缘套，将绝缘套卡入端子处

Step 7: Take a set of ⑩ Insulation sleeve , install it into the terminal



步骤8：把连接头前端固定,以10~12N•M拧紧⑤外壳

Step 8: Secure the front end of the connector, ⑤ shell tight with torque 10~12N•M



步骤9：将⑥密封圈推入屏蔽壳组件内部的底部

Step 9: Push the ⑥ sealing to the bottom of Shield shell assembly



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

步骤10：取出⑧尾壳组件（样品参照下面的图片）

Step 10: Take each 1pcs of ⑧ Tail shell assembly(sample refer to picture below)



Key mark on
connector
连接器标示

X

Y

U

V

W

T

步骤11（手压机）：

11-1 将⑧ 尾壳组件放置于桌面

11-2 将连接头的密封圈推入⑧尾壳组件内部

11-3 将产品放入治具T60014，启动开关将卡簧压合到位，

11-4 摇动手柄将接头压入尾壳组件，并保持位置，

11-5 左手松开气动开关，右手继续将接头往下压，听到“嗒”的声音，卡簧安装到位。

Step11(manual press)：

11-1 Place ⑧ Tail shell assembly on the desktop

11-2 Push the sealing of the connecting head into the inner part of the ⑧ tail shell assembly

11-3 Put the product into the fixture T60014, start the switch to press the clamp spring in place,

11-4 Crank the handle to press the connector into the tail housing assembly, And stay in this position,

11-5 Release the pneumatic switch with the left hand, and continue to press the joint down with the right hand to confirm that the installation is in place. it's in position when it clicks.



11-1



11-2

卡口相对
Slot face to gap



11-3



11-4



11-5

步骤11 (手压钳) :

11-1 将⑧ 尾壳组件放置于桌面

11-2 将连接头的密封圈推入⑧尾壳组件内部

11-3 用治具T00281夹紧卡簧，确认卡簧收缩到位，

11-4 用手将接头压入尾壳组件，并保持位置，

11-5 松开手压钳，继续将接头往下压，听到“嗒”的声音，卡簧安装到位。

Step11(Hand pressure pliers) :

11-1 Place ⑧ Tail shell assembly on the desktop

11-2 Push the sealing of the connecting head into the inner part of the ⑧ tail shell assembly

11-3 Clamp the metal gasket with hand pressure pliers T00281 to ensure that the metal gasket is in position,

11-4 Push the connector into the tail housing assembly by hand, And stay in this position,

11-5 Release the hand pressure pliers, and continue to press the joint down to confirm that the installation is in place. it's in position when it clicks.



11-1



11-2

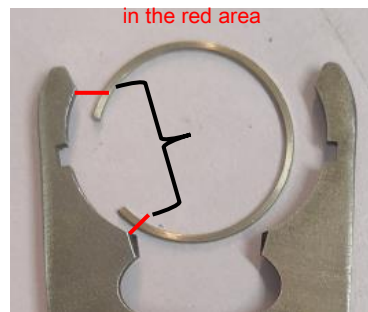


卡口相对
Slot face to gap



11-3

确认卡环开口在红色区域内
Make sure the clip ring opening is
in the red area



11-4



11-5

步骤12：将连接器如图下图所示移动位置，并参照步骤11安装另外一条线束的卡簧

Step 12: Move the connector as shown in the figure below and follow step 11 to install the gasket metal for another cable



步骤13：

13-1 将金属垫片推到紧贴密封圈位置

13-2 将连接器水平放置与桌面

13-3 将⑪ W/O锁块安装到连接器尾部

13-4 将连接器反转放置

13-5 将⑫ W锁块安装到连接器尾部

13-6 检查两个锁块之间的缝隙小于1mm

13-7 取出⑮ M6×18螺丝、⑭ M6弹簧垫圈和⑬ M6平垫圈，组装在一起

13-8 使用电批将螺丝锁在上面位置的锁孔(扭力为3N.M)

Step 13:

13-1 Push the metal gasket to the position close to the sealing

13-2 Place the connector horizontally with the desktop

13-3 Install the ⑪ Clamp W/O at the end of the connector

13-4 Inversion of the connector

13-5 Install the ⑫ Clamp W at the end of the connector

13-6 Check that the gap between the two locking blocks is less than 1 mm

13-7 take ⑮ M6×18 Screw , ⑭ M6 spring washer and ⑬ M6 flat washer and assemble them together.

13-8 Lock the screw in the upper position with the batch(torque is 3N.M)



13-1



13-2



13-3



13-4



13-5



13-6



13-7

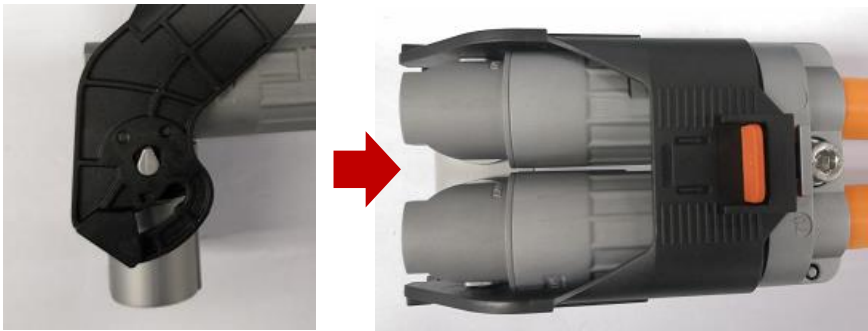


13-8

- 步骤14：取出①摇杆（样品参照下面的图片）
- Step 14: Take 1pcs ① Latch(sample refer to picture below)



- 步骤15：①摇杆两端的孔位对准铁壳相应的位置装入铁壳,完成此线束的组装
- Step 15: The holes at both ends of ① Latch are aligned with the corresponding positions of the iron shell and loaded into the iron shell. , one end assembly done.



- 步骤16：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 16: Need to do the Insulation Resistance and DWV test after cable assembly. It is recommended that the customer refer to the following test parameters

16-1 绝缘电阻测试

16-1 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(power) to shell 电缆芯线到壳体	1000 VDC	5S	> 500 MΩ
Cable(power) 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

16-2 Dielectric Withstand Voltage

16-2 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(power) to shell 电缆芯线到壳体	5000 VDC	10S	< 5mA
Cable(power) 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

16-3 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。

16-3 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17: 补充说明**Step 17: Other notes**

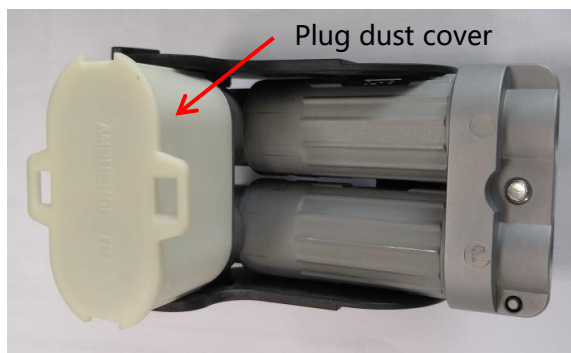
17-1: 在连接器搬运和高压线束搬运过程中,推荐使用插头防尘盖和插头防护盖。避免搬运过程中碰伤或损坏。要求详见安装指引 8P1129。.

17-1: 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.



此HVIL保护套使用前
需移除
This HVIL cap must be
removed before use

此HVIL保护套新版本
已取消
This HVIL cap has
been cancelled in new
version





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