

# PowerLok™ 10.0 单芯弯头插头组装规范

## PowerLok™ 10.0 1POS 90D Plug Assembly Manual

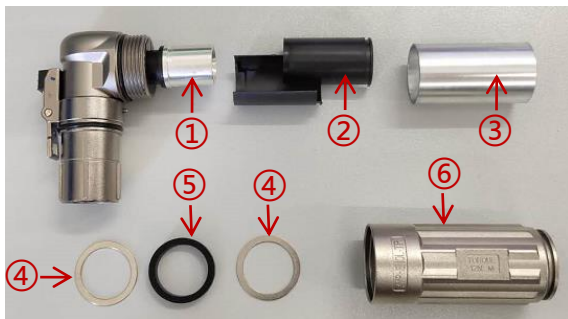


产品类型 Product Type		插头类型 Plug Type	键位&颜色 Key & Color		系列 Series		线材尺寸 Cable Size		
PL	PowerLok™	28	插头连接器, 弯头, 屏蔽 Plug, right angle, shielding	X	1芯, X 键位 橙色 1POS, Key "X" Orange	300	300系列 300 Series	35	35mm²
				Y	1芯, Y 键位 黑色 1POS, Key "Y" Black				
				U	1芯, U 键位 黄色 1POS, Key "U" Yellow				
				V	1芯, V 键位 绿色 1POS, Key "V" Green	301	带高压互锁 的300系列 300 Series With HVIL	50	50mm²
				W	1芯, W 键位 红色 1POS, Key "W" Red				
				T	1芯, T 键位 蓝色 1POS, Key "T" Blue				

### 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 端子 Terminal x1
- ② 绝缘套 Insulation Sleeve x2
- ③ 金属套 Metal Sleeve x1
- ④ 金属环 Metal Gaskets x2
- ⑤ 橡胶密封圈 Rubber Seal x1
- ⑥ 金属外壳 Back Shell x1

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

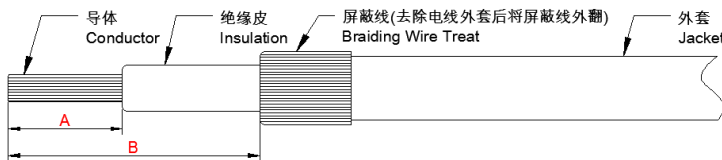
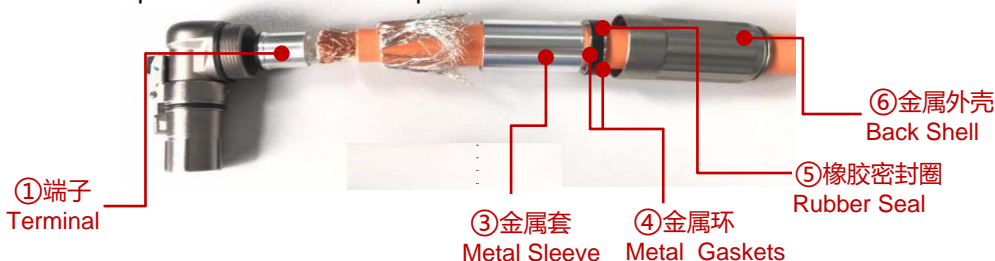


表1: 剥皮尺寸  
Table 1: Strip length

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

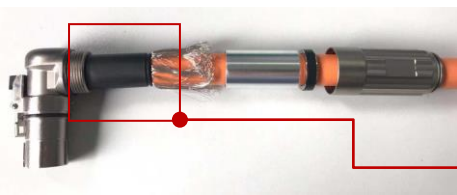
步骤3: 拆开连接器, 将零件按下图套在剥好的电线上

Step3: Load the components in order as the picture shown below

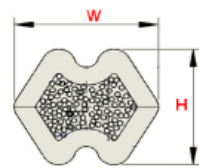


**步骤4: 压接端子(规格参照手册最后的附录,附录数据仅供参考), 然后将绝缘筒安装在电线上**

**Step4: Crimp the terminal(please refer to the appendix for details at the end of this manual), then buckle the twin insulation sleeves together on the terminal crimped as the picture below**



② 绝缘套  
Insulation sleeve



横截面  
Cross Section

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电材, 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: 屏蔽处理**

**5-1 自右向左推动金属套盖住绝缘套**

**5-2 外翻屏蔽线, 将其覆盖到金属套上, 剪切屏蔽线, 保留长度约20mm**

**5-3 剪切尺寸约120mm\*25mm的铜箔, 包裹住屏蔽线, 确保尾端被包紧**

**Step5: Shielding braid preparation**

**5-1 make the cable through the copper sleeve, and slide the copper sleeve to cover inner insulation layer**

**5-2 flip over the shielding braid and cut it into 20mm's length, and put it on the surface of copper sleeve**

**5-3 wrap the shielding braid with a piece of copper foil of 120mm\*25mm, make sure the braid is fully covered by the copper foil**

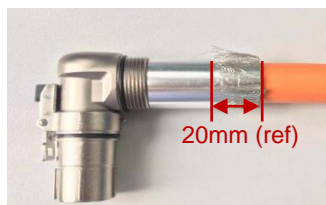
备注: 根据线材类型变化, 选择使用铜箔的用量. 厚屏蔽结构的线不要求包铜箔

Note: Copper foil can vary depending on different cables, copper foil wrapping may not be necessary for thick Shielding layers.

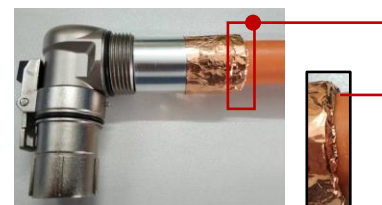


③ 金属套  
Metal Sleeve

5-1



5-2



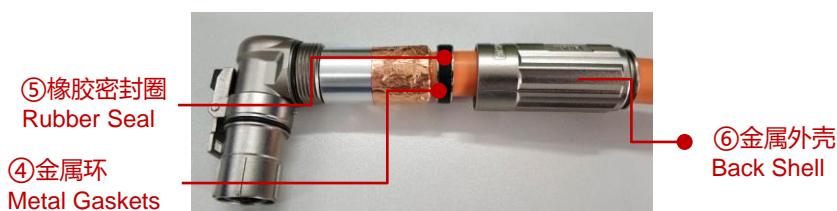
5-3

**步骤6: 组装金属外壳**

**Step6: Assemble the Back shell**

**6-1 套上金属外壳, 使其与金属环和密封圈紧密接触**

**6-1 Bring the metal gaskets and the rubber seal nearer and keep them in touch with the metal sleeve**



⑤ 橡胶密封圈  
Rubber Seal

④ 金属环  
Metal Gaskets

⑥ 金属外壳  
Back Shell

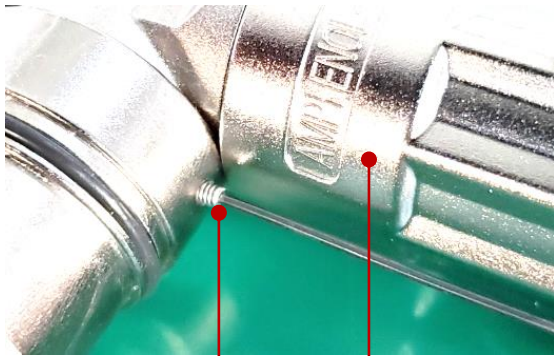
6-2 锁紧金属外壳完成组装, 铁壳锁紧力矩为10~12 N.m

6-2 Screw up the shell with a torque of 10-12N.m to finish the assembly



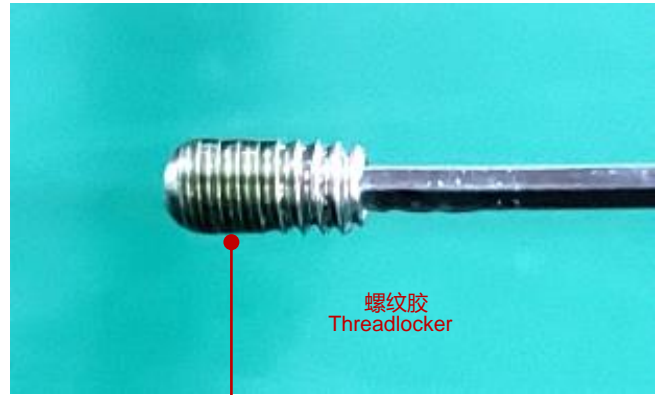
步骤7: 使用0.9mm内六角扳手拧下顶丝, 涂抹螺纹胶; 重新拧紧顶丝, 直至外壳固定

Step7: Use 0.9mm hexagon wrench to unscrew the fastening screw and apply the threadlocker; Retighten the fastening screw until the housing is fixed.

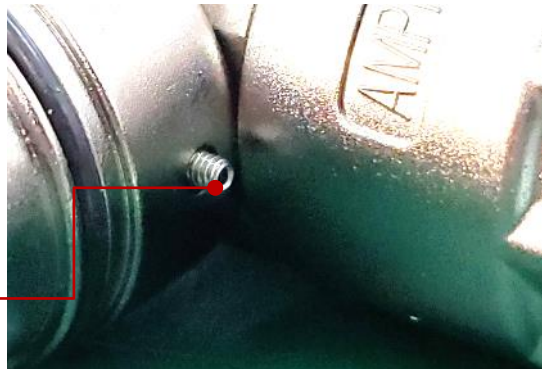


顶丝  
Fastening Screw

⑥金属外壳  
Back Shell



螺纹胶  
Threadlocker



顶丝  
Fastening Screw

(1) 建议使用低强度螺纹胶 乐泰222

It is recommended to use low strength threadlocker LOCTITE 222

**步骤8: 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**

Step8: 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

**8-1 绝缘电阻测试****8-1 Insulation Resistance Test**

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

**8-2 耐压测试****8-2 Dielectric Withstand Voltage Test**

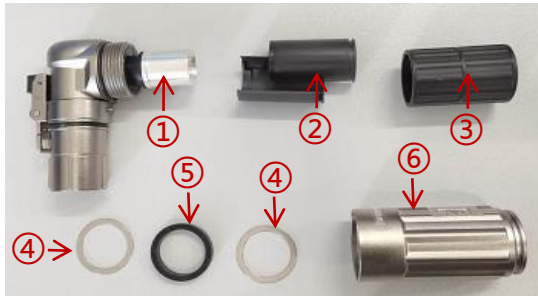
位置 Positions	测试电压 Test Voltage	测试时间 (推荐) Test Time (recommended)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 VDC	10S	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 VDC	10S	<5mA
HVIL to shell 高压互锁到壳体	500VDC	1S	<5mA

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	
PL	PowerLok™	58	插头连接器, 弯头, 非屏蔽 Plug, right angle, unshielding	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				

### 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 端子 Terminal x1
- ② 绝缘套 Insulation sleeve x2
- ③ 塑料套 Plastic Sleeve x1
- ④ 金属环 Metal Gaskets x2
- ⑤ 橡胶密封圈 Rubber Seal x1
- ⑥ 金属外壳 Back Shell x1

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), prepare the cable according to the sketch and Table 2 below

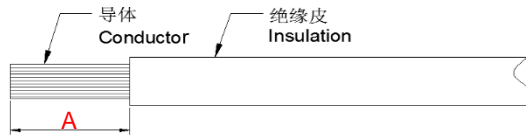
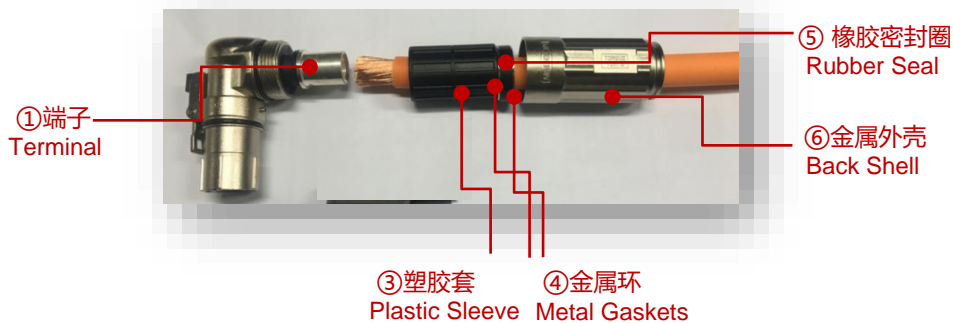


表2: 剥皮尺寸  
Table 2: Strip length

线材尺寸 Cable Size	A (mm)
35mm <sup>2</sup>	18±1
50mm <sup>2</sup>	18±1
70mm <sup>2</sup>	18±1

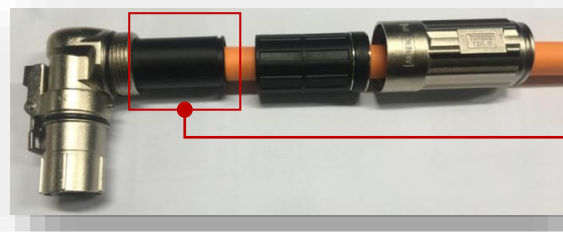
步骤3: 拆开连接器, 将里面的零件按下图套在剥好线皮的电线上

Step3: Load the components in order as the picture shown below

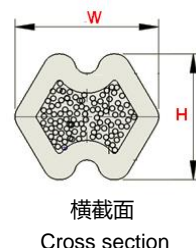


**步骤4: 压接端子(规格参照手册最后的附录,附录数据仅供参考), 然后将绝缘筒安装在电线上**

**Step4: Crimp the terminal(please refer to the appendix for details at the end of this manual), then buckle the twin insulation sleeves together on the terminal crimped as the picture below**



②绝缘套  
Insulation Sleeve



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电材, 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

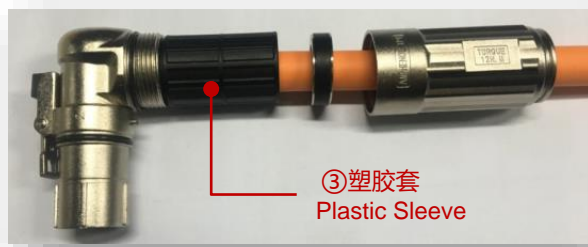
Cross section shape is only for reference( other possibilities: hexagonal section), all crimping tools needed are supposed to be prepared by customers

**步骤5: 组装金属**

**Step5: Assemble the Back shell**

**5-1 装上塑胶套**

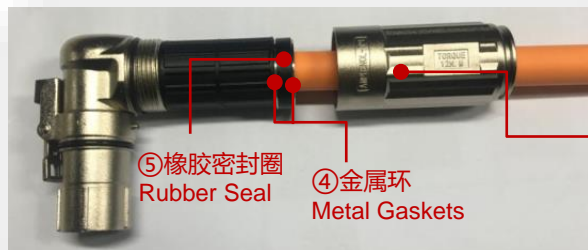
**5-1 Assemble Plastic sleeve**



③塑胶套  
Plastic Sleeve

**5-2 将塑胶套及金属环、橡胶密封圈紧密接触**

**5-2 Bring the metal gaskets and the rubber seal nearer and keep them in touch with the plastic sleeve**



⑤橡胶密封圈  
Rubber Seal

④金属环  
Metal Gaskets

⑥金属外壳  
Back Shell

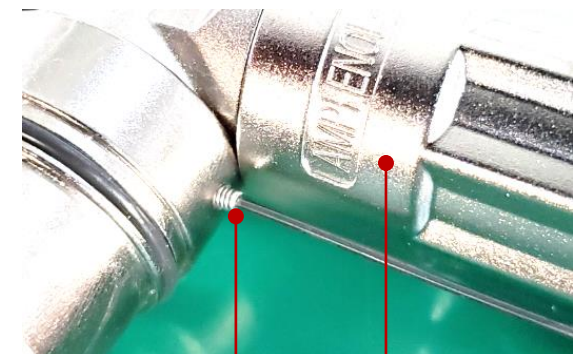
**5-3 锁紧金属外壳完成组装, 外壳锁紧力矩为10~12 N.m**

**5-3 Screw up the shell with a torque of 10-12N.m to finish the assembly**



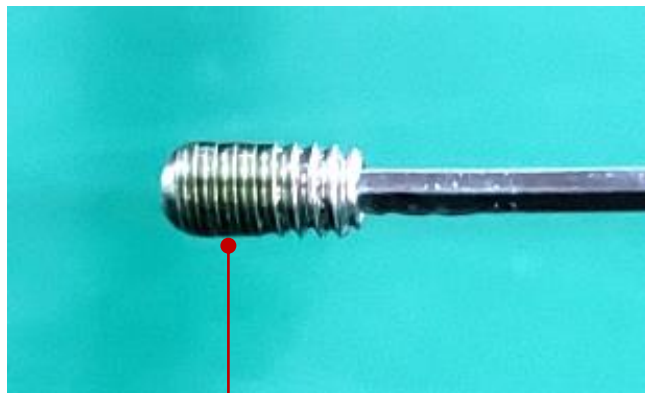
步骤6: 使用内六角扳手拧下顶丝, 涂抹螺纹胶; 重新拧紧顶丝, 直至外壳固定

Step6: Use hexagon wrench to unscrew the fastening screw and apply the threadlocker; Retighten the fastening screw until the housing is fixed.

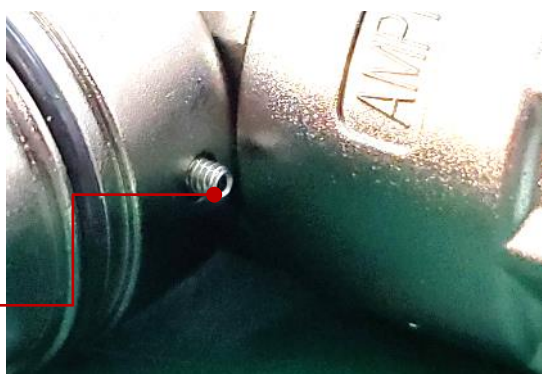


顶丝  
Fastening Screw

⑥金属外壳  
Back Shell



螺纹胶  
Threadlocker



顶丝  
Fastening Screw

(1) 建议使用低强度螺纹胶 乐泰222

It is recommended to use low strength threadlocker LOCTITE 222

步骤7: 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

Step7: 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

### 7-1 绝缘电阻测试

#### 7-1 Insulation Resistance Test

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



**7-2 耐压测试****7-2 Dielectric Withstand Voltage Test**

位置 Positions	测试电压 Test Voltage	测试时间 (推荐) Test Time (recommended)	漏电流 Leakage Current
电缆芯线到壳体 Cable(power) to shell	5000 VDC	10S	<5mA
电缆芯线到高压互锁 Cable(power) to HVIL	5000 VDC	10S	<5mA
HVIL to shell 高压互锁到壳体	500VDC	1S	<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) Conduct or 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	刀模编号 Crimping Tool No.
屏蔽线 Shielding cable	35mm <sup>2</sup>	3071*0.12	8.1	14.50±0.3	9.5±0.2	11.0±0.2	2300N	L095109150D35
	35mm <sup>2</sup>	273*0.41	7.9	12.70±0.3	9.5±0.2	11.0±0.2	2300N	L095109150D35
	50mm <sup>2</sup>	4403*0.12	9.5	17.00±0.3	11.5±0.2	13.3±0.2	2800N	L1145150150D50
	50mm <sup>2</sup>	385*0.41	9.4	14.90±0.3	12.2±0.2	13.3±0.2	2800N	L113130150D50
	70mm <sup>2</sup>	3876*0.15	11.8	19.50±0.3	13.0±0.2	15.0±0.2	3400N	L134152150D70
	70mm <sup>2</sup>	360*0.51	11.6	17.00±0.3	13.26±0.2	15.0±0.2	3400N	L132153150D70
非屏蔽线 Un-shielding cable	35mm <sup>2</sup>	3071*0.12	8.1	11.50±0.3	9.5±0.2	11.0±0.2	2300N	L095109150D35
	35mm <sup>2</sup>	273*0.41	7.9	11.35±0.3	9.5±0.2	11.0±0.2	2300N	L095109150D35
	50mm <sup>2</sup>	4403*0.12	9.5	13.60±0.3	11.5±0.2	13.3±0.2	2800N	L1145150150D50
	50mm <sup>2</sup>	385*0.41	9.4	13.25±0.3	12.2±0.2	13.3±0.2	2800N	L113130150D50
	70mm <sup>2</sup>	3876*0.15	11.8	15.50±0.3	13.0±0.2	15.0±0.2	3400N	L134152150D70
	70mm <sup>2</sup>	360*0.51	11.6	15.20±0.3	13.26±0.2	15.0±0.2	3400N	L132153150D70



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