

CONNECTOR ASSEMBLY INSTRUCTIONS

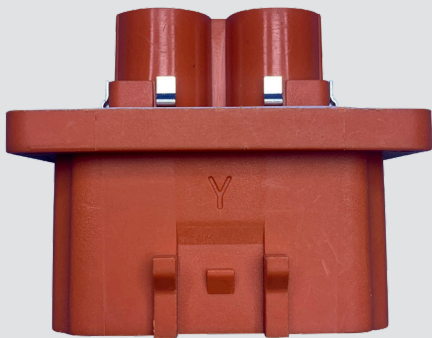
ePower-Lite | Mini | Mini X



ePower-lite 5.7mm 2 port Connector

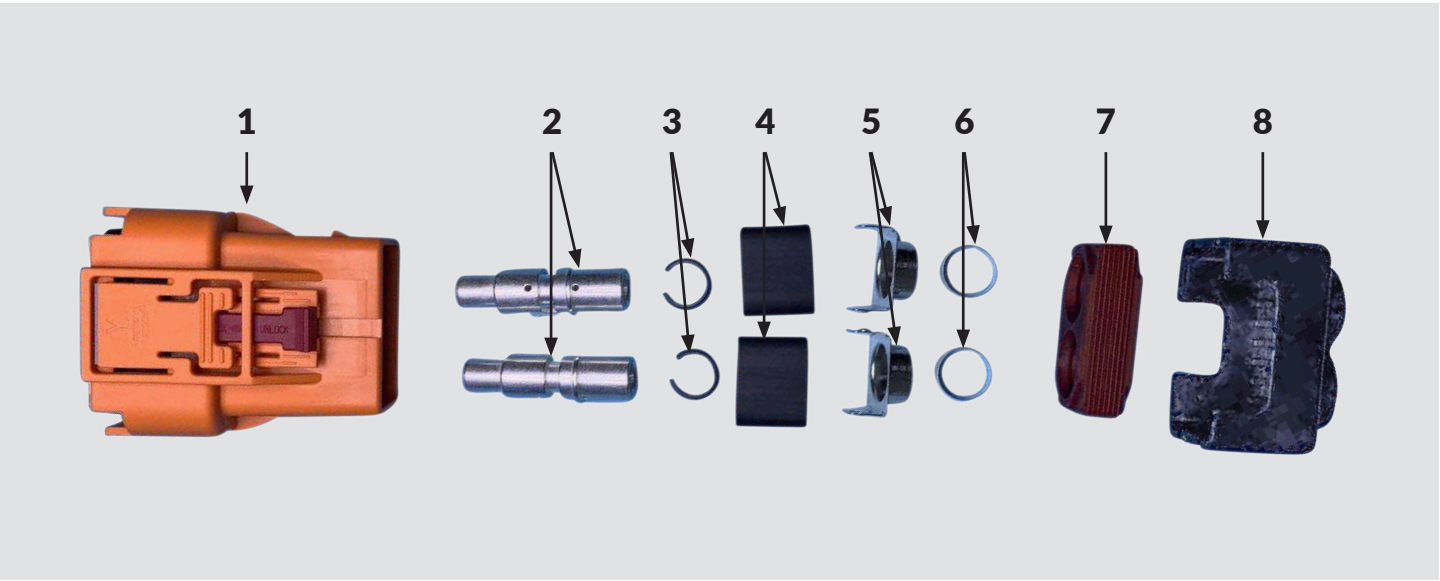


Part Numbers:
C10-738986-2XS1
C10-738986-2XS2



Part Numbers:
C10-738985-2XP1
C10-738985-2XP2

Part 1: Plug Package Contents



1. Package Contents
- 1: Housing shell assembly (1PCS)
 - 2: Contact assembly (2PCS)
 - 3: Collar (2PCS)
 - 4: Heat shrink tubing (2PCS)
 - 5: Rear shield shell (2PCS)
 - 6: Rear shield ring (2PCS)
 - 7: Rear grommet (1PCS)
 - 8: Rear cover (1PCS)

2. Recommended shielded wire specification

Wire Size	Insulation Diameter (mm)	Shield Wire Diameter (mm)	Cable Jacket Diameter (mm)	Recommended Min. Cable Pullout Force (N)
16 mm ²	8.1±0.2	0.12	11.2±0.3	1500
25 mm ²	10.2±0.2	0.12	13.9±0.3	1900

Revision	Description	Issue Date
A	Initial release	2016/03/10
B	Change the assembly method of shielding	2019/05/06
C	Update picture detail	2020/05/13

Part 2: Plug Assembly

Step 1: Shielded wire stripping the jacket.



Item	Cutting Length
L1	21±0.5mm

Step 2: Assembly the rear shield ring (Part 6).



Step 3: Cutting shield wire.

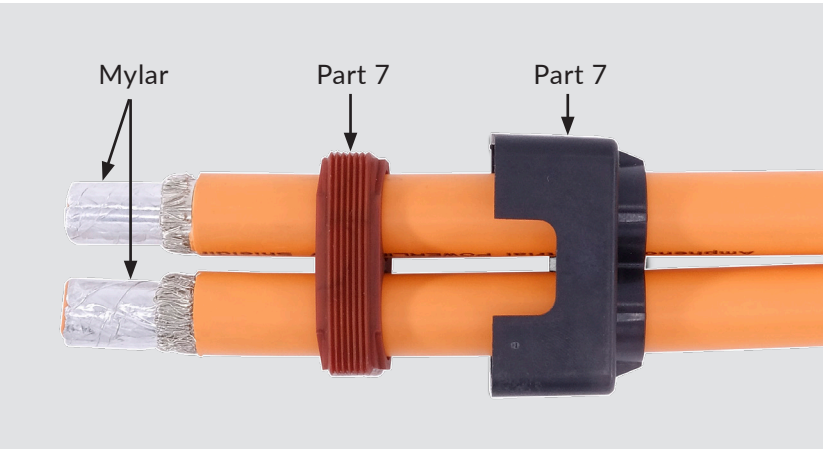


Item	Cutting Length
L2	9±0.5mm

Step 4: Fold back shielding wires onto the rear shield ring.



Step 5: Install the Rear Cover (Part 8) and the Rear Grommet (Part 7) in sequence.

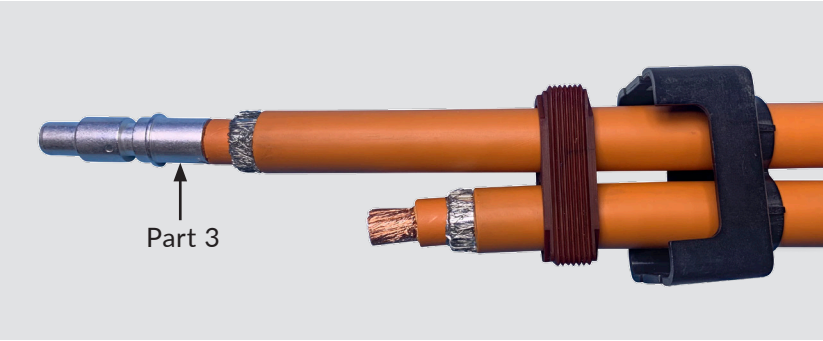


Step 6: Remove film layer, stripping insulation.

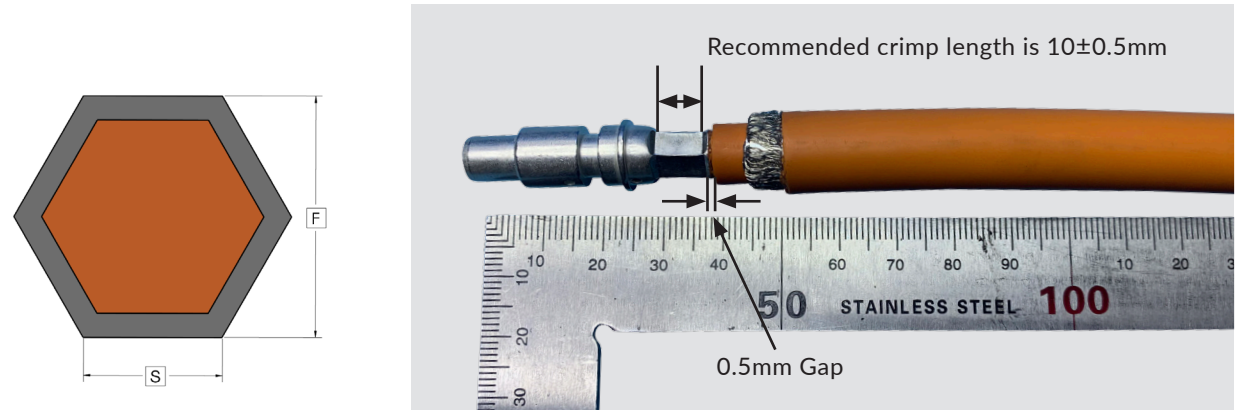


Item	Cutting Length
L3	10.5±0.5mm

Step 7: Pull one of the wires to make a misplacement with another wire, then assemble contact assembly (part 3).



Step 8: Crimp plug contact assembly (Part 3).



Cable Size	Recommended crimp length of Side S	Recommended crimp dist across Flats F	Recommended Min. Cable Pullout Force (N)
16 mm ²	6.0	7.0±0.1mm	1500
25 mm ²	6.0	7.5±0.1mm	1900

Notes: The recommended crimp sizes are only for reference. The customer should adjust them according to cable specification and crimp tool and test results including temperature rise and metallographic analysis and pullout force.

Recommended crimping tool: Manual hydraulic crimping

Die: 25mm² die for 25mm² cable
Die: 16mm² die for 16mm² cable



Step 9: Install heat shrink tubing to the area where crimping contact and wire.

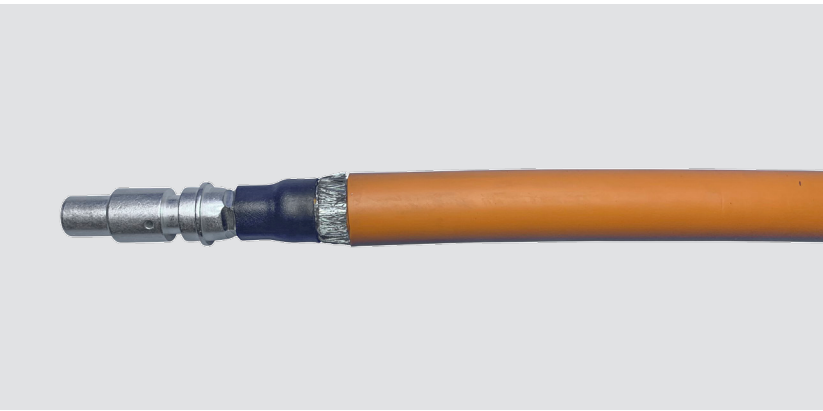


Notes: Don't let the shrink tubing cover the braid wire

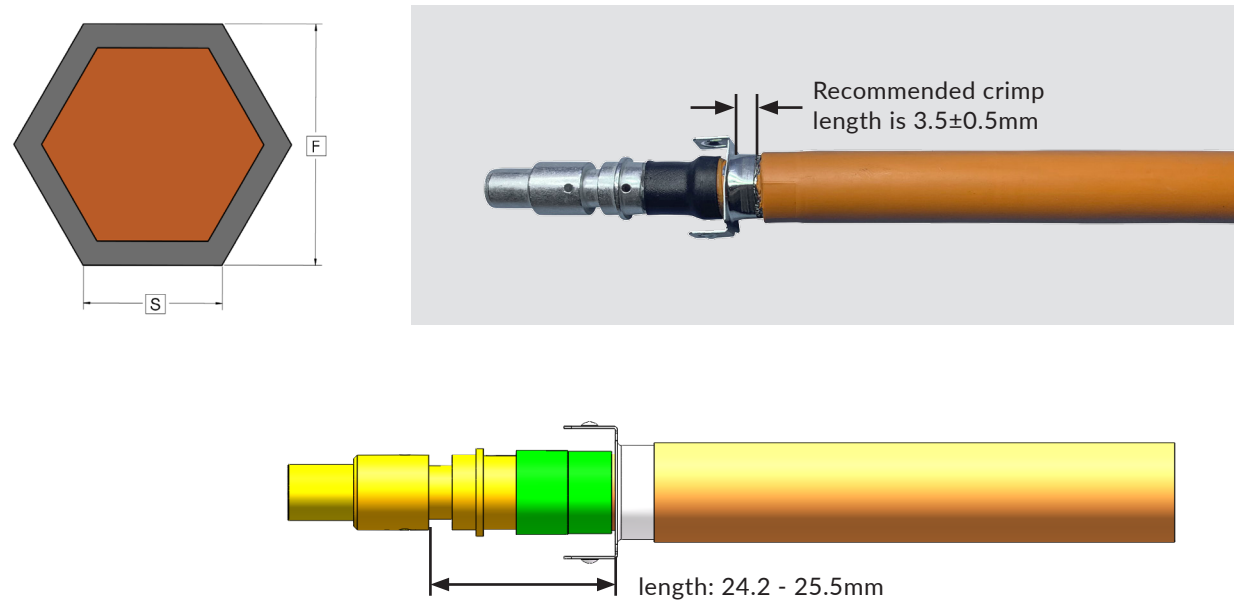
Tooling: Heat gun as shown in picture
Recommended heat shrink tubing spec: Without hot melt adhesive
Excellent sealing and insulation properties
Shrink ratio: 2:1
Operating temperature: -55~125°C



Step 10: Repeat steps 7 and 8 and 9 to assemble another contact assembly.



Step 11: Pull one of the wires out and load. Crimp the Rear Shield (Part 5).



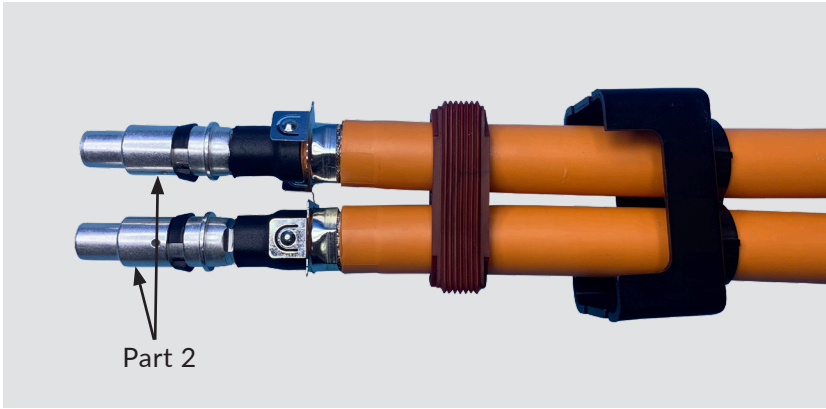
Cable Size	Recommended crimp length of Side S	Recommended crimp dist across Flats F	Recommended Min. Cable Pullout Force (N)
16 mm ²	6.0	11.5±0.1mm	150
25 mm ²	6.0	11.5±0.1mm	150

Notes: The recommended crimp sizes are only for reference. The customer should adjust them according to cable specification and crimp tool and test results including contact resistance and pullout force.

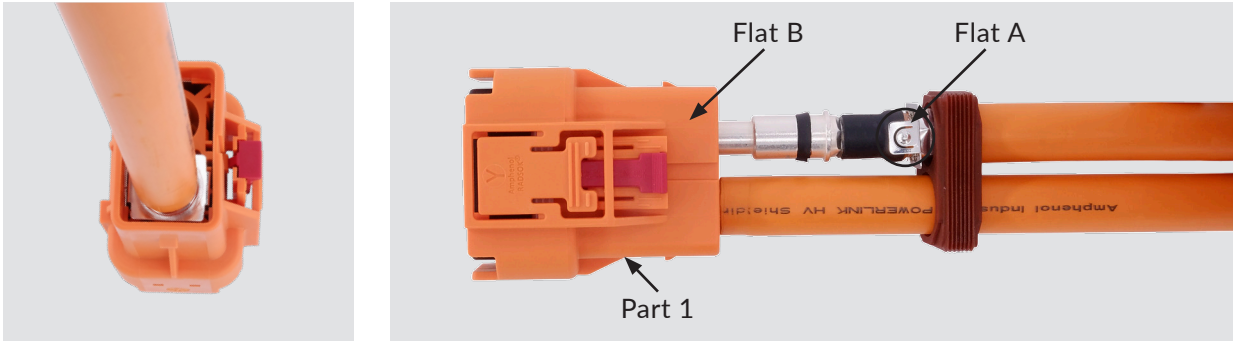
Crimping tool: Hydraulic press

Step 12: Repeat step 11 to assemble another Rear Shield.

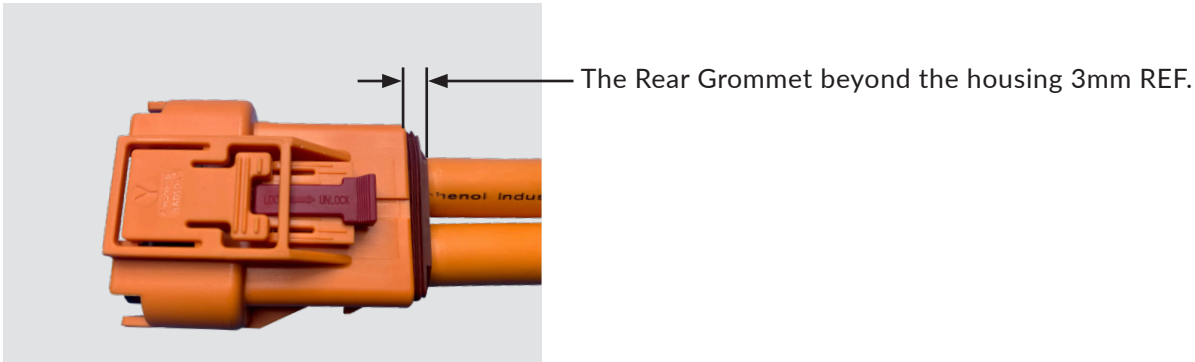
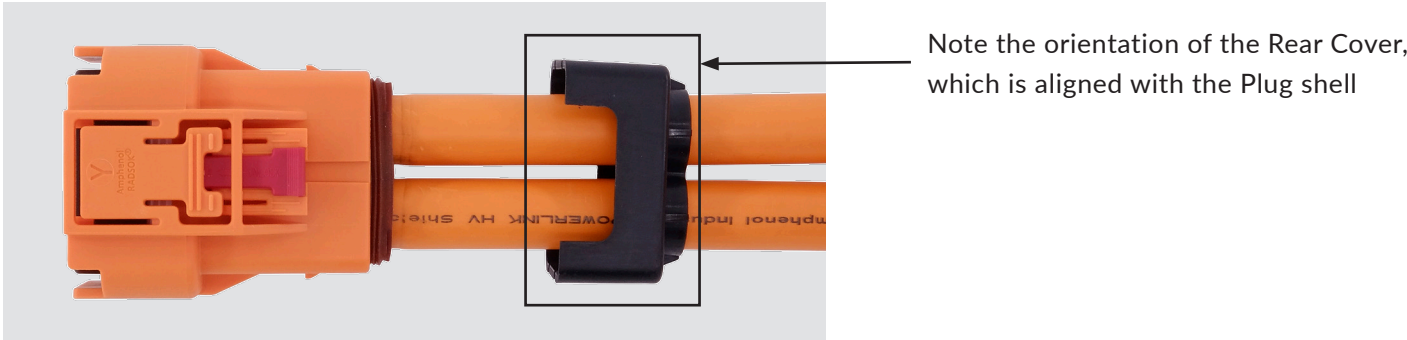
Step 13: Assembling Collar (part 2) , and Straighten two cable.



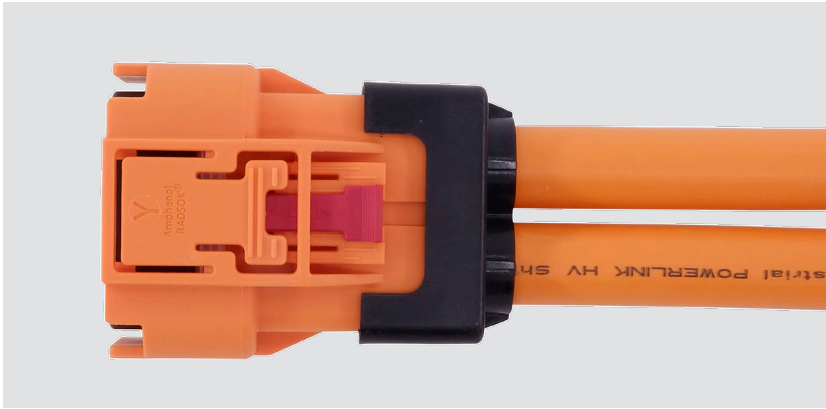
Step 14: Insert the crimped terminal into the Plug shell assembly (Part 1) one by one. Note that the plane A of the shield and the plane B of the shell are parallel.



Step 15: Install the Rear Grommet (Part 7).



Step 16: Install the Rear Cover (Part 8). The rear cover buckle should snap-fit with the main housing shell.



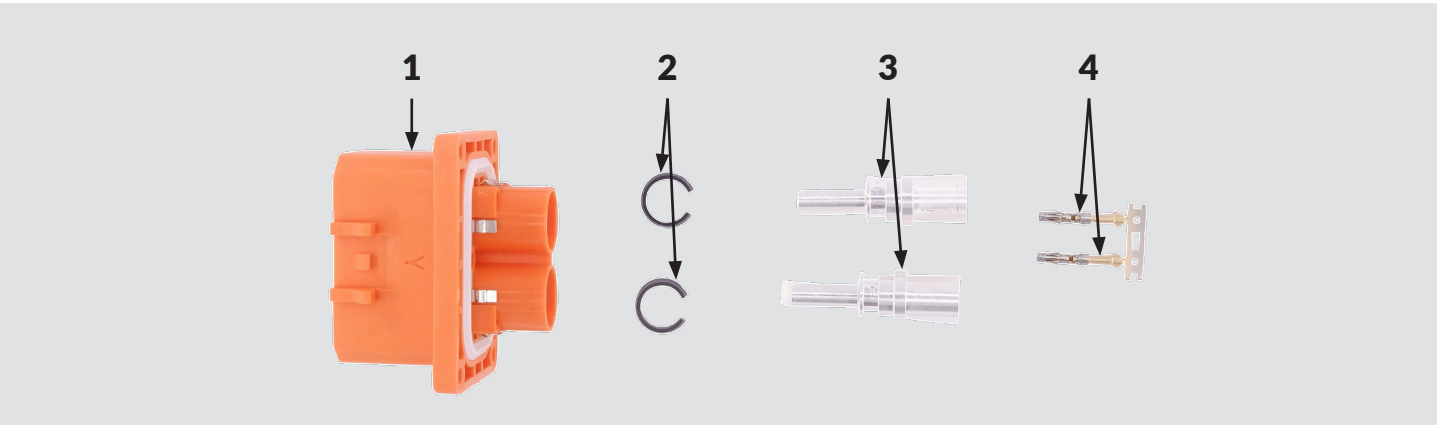
Step 17: Requirements for electrical performance testing.

Notes: Need to do Insulation Resistance and DWV test after cable assembly

Insulation Resistance test: 850V DC, 100MΩ Min, 60s

DWV test: 2500V AC, leakage current ≤ 5mA, 60s

Part 3: Receptacle Package Contents



1. Package Contents

- 1: Receptacle shell assembly (1PCS)
- 2: Collar (2PCS)
- 3: Pin contact assembly (2PCS)
- 4: HVIL socket contact (2PCS)

2. Recommended unshielded wire specification

Wire Size	Insulation Diameter (mm)	Recommended Min. Cable Pullout Force (N)
16 mm ²	8.1±0.2	1400
25 mm ²	10.2±0.2	1900

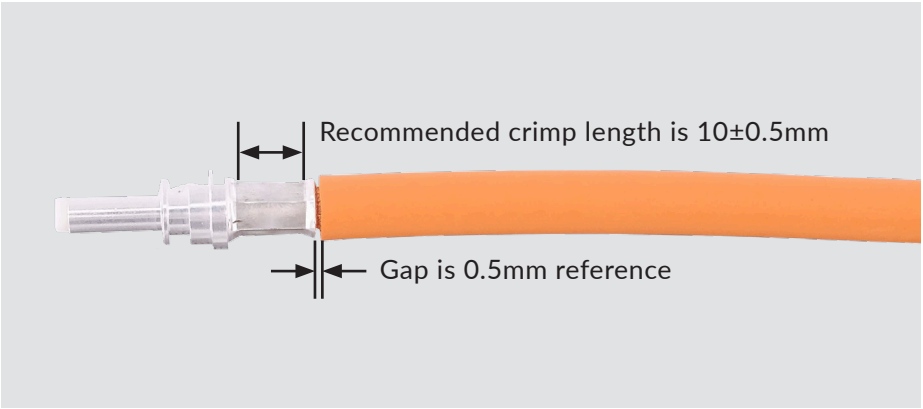
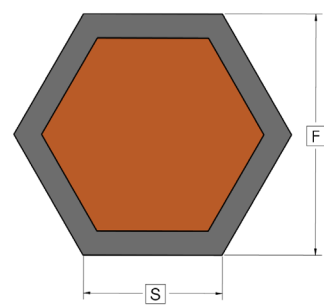
Part 4: Receptacle Assembly

Step 1: Wire cutting and stripping jacket.



Item	Cutting Length
L1	11.5±0.5mm

Step 2: Crimp pin contact assembly (Part 3).



Cable Size	Recommended crimp length of Side S	Recommended crimp dist across Flats F	Recommended Min. Cable Pullout Force (N)
16 mm ²	6.0	7.0±0.1mm	1500
25 mm ²	6.0	7.8±0.1mm	1900

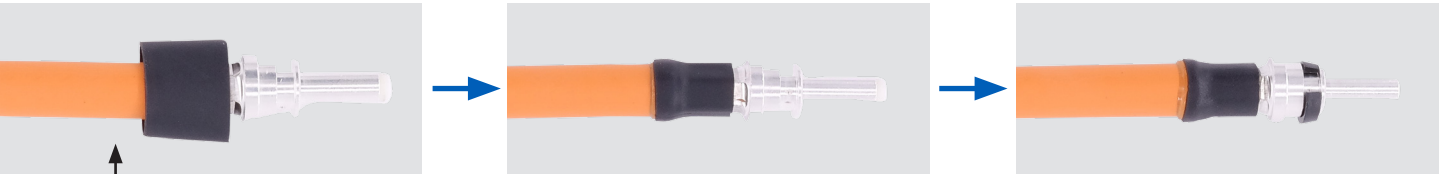
Notes: The recommended crimp sizes are only for reference. The customer should adjust them according to cable specification and crimp tool and test results including temperature rise and metallographic analysis and pullout force.

Recommended crimping tool: Manual hydraulic crimping



Die: 25mm² die for 25mm² cable
Die: 16mm² die for 16mm² cable

Step 3: Install heat shrink tubing to the area where crimping contact and wire, Then assemble the Collar.



Amphenol P/N: CH53X-O05-09A

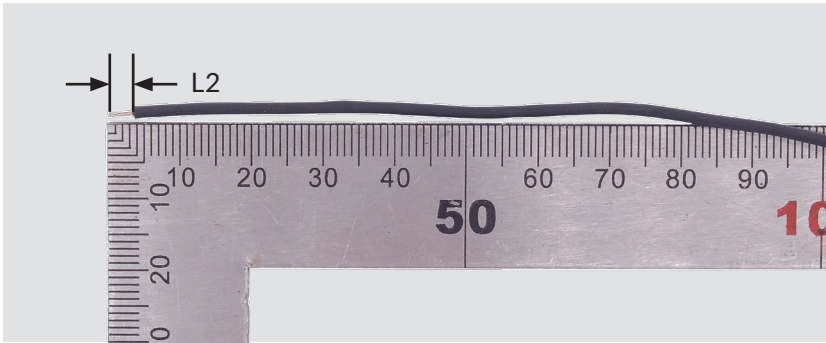
Tooling: Heat gun as shown in picture
Recommended heat shrink tubing spec: With hot melt adhesive
Excellent sealing and insulation properties
Shrink ratio: 2:1
Operating temperature: -55~150°C



Step 4: Insert the contact with cable assembled into the plug shell, the collar snapped into the shoulder of the hole.
Repeat step 1-4 for another port.

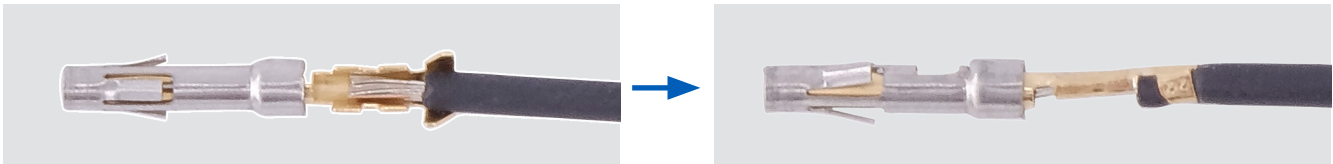


Step 5: HVIL wire cutting and stripping the jacket(Recommended use the 20AWG cable).



Item	Cutting Length
L2	3.5±0.5mm

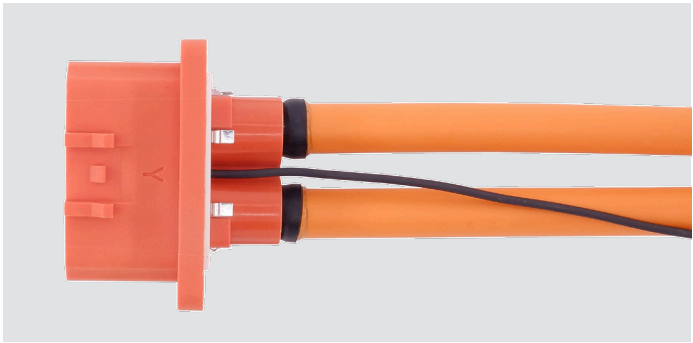
Step 6: Insert conductor into hole of socket and crimping use right crimping tool.



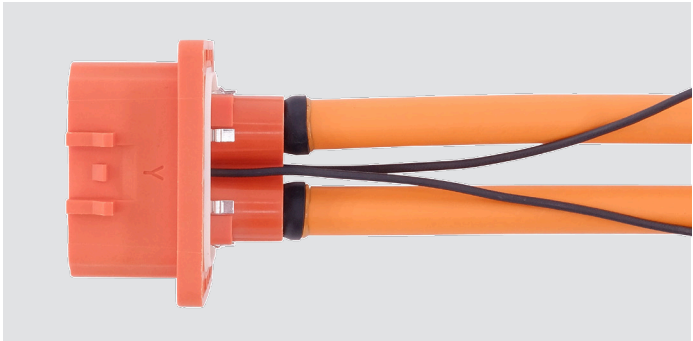
Recommended Crimping tool as below:



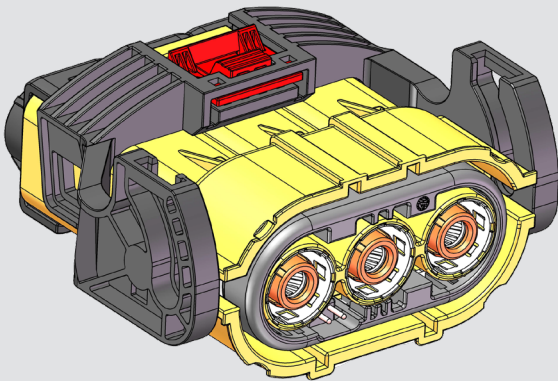
Step 7: Insert the HVIL contact and cable assembly into the plug shell assembly.



Step 8: Repeat step 6-8 for another port.

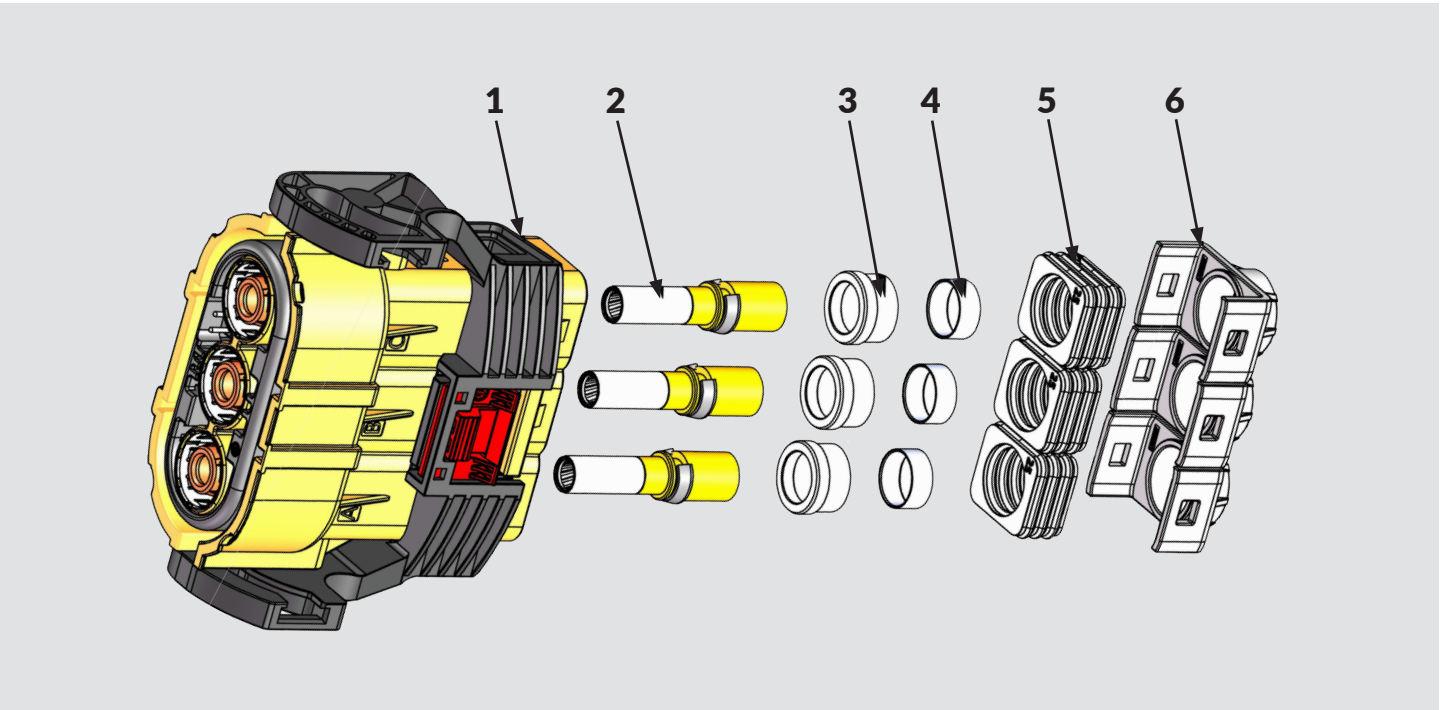


ePower-Lite 5.7mm 3-Port Connector



Part Numbers:
C10-765779-3XS1
C10-765779-3XS2

Part 1: Plug Assembly



1. Package Contents
- 1: Plug Shell assembly
 - 2: Plug contact assembly
 - 3: Rear Outside Shield ring
 - 4: Rear inside Shield ring
 - 5: Rear Grommet
 - 6: Rear Cover

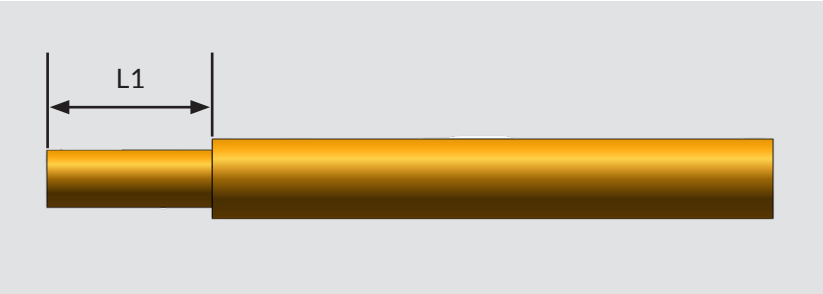
2. Recommended shielded wire specification

Wire Size	Insulation Diameter (mm)	Shield Wire Diameter (mm)	Cable Jacket Diameter (mm)	Recommended Min. Cable Pullout Force (N)
16 mm ²	8.1±0.2	0.12REF	11.2±0.3	1500
25 mm ²	10.2±0.2	0.12REF	13.9±0.3	1900

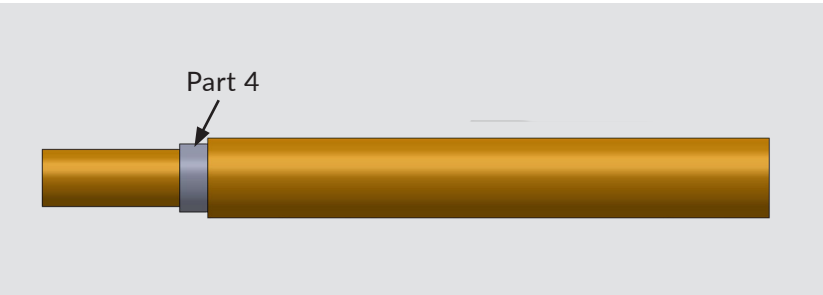
Revision	Description	Issue Date
A	Initial release	2021/08/16

Part 2: Plug Assembly

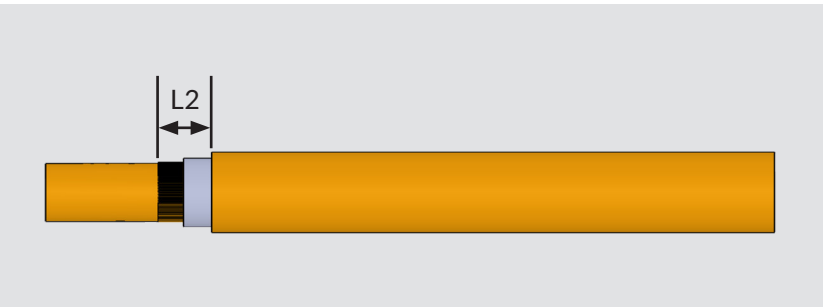
Step 1: Shielded wire stripping the jacket.



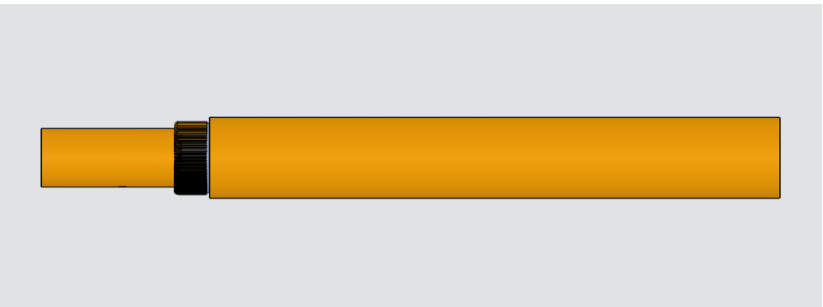
Step 2: Mount the rear inside shield ring (Part 4).



Step 3: Cutting shield wire.



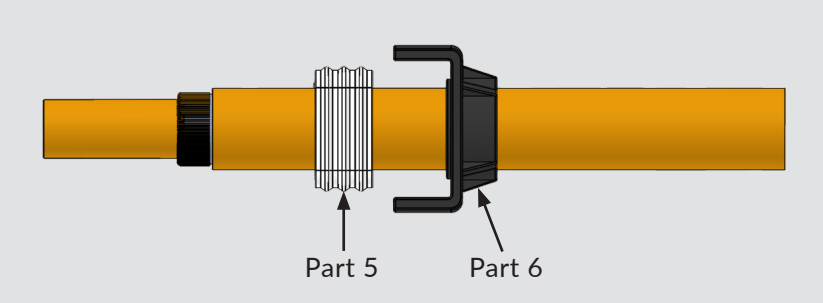
Step 4: Shielding wire turned back.



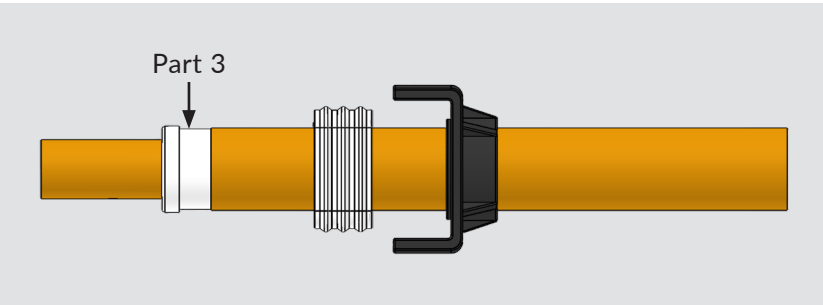
Item	Cutting Length
L1	29.5±0.5mm

Item	Cutting Retention Length
L2	9.5±0.5mm

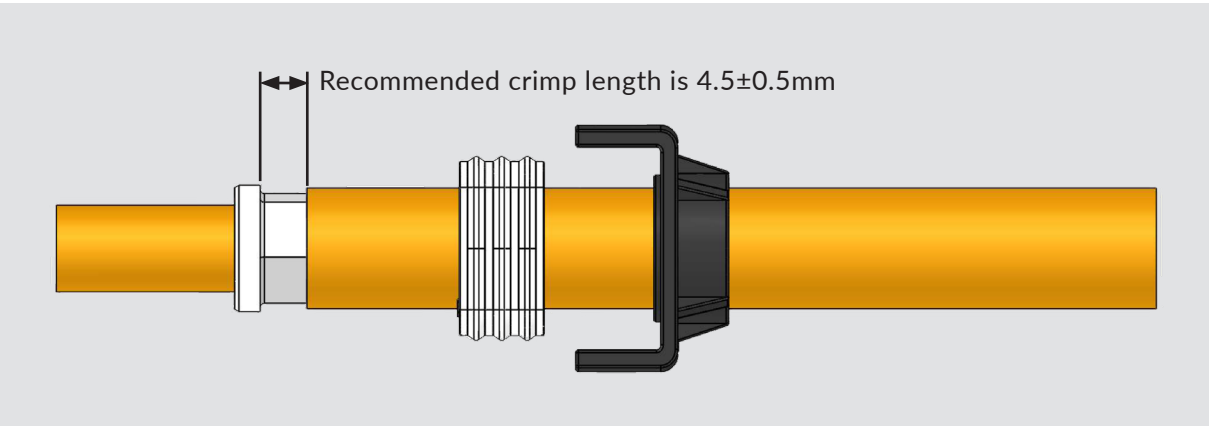
Step 5: Install the Rear Cover (Part 6) and the Rear Grommet (Part 5) in sequence.



Step 6: Mount the Rear Cover (Part 3).



Step 7: Crimping the rear shield outside ring.

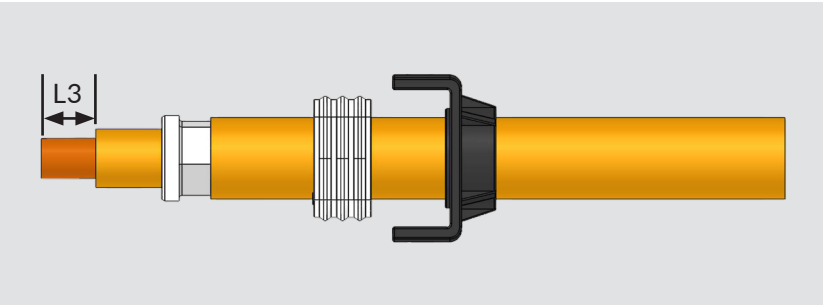


Cable Size	Recommended crimp length of Side S	Recommended crimp dist across Flats F	Recommended Min. Pull out force
16mm²	6.0	11.0±0.1mm	150N
25mm²	6.0	11.0±0.1mm	150N

Notes: The recommended crimp sizes are only for reference. The customer should adjust them according to cable specification and crimp tool and test results including temperature rise and metallographic analysis and pullout force.

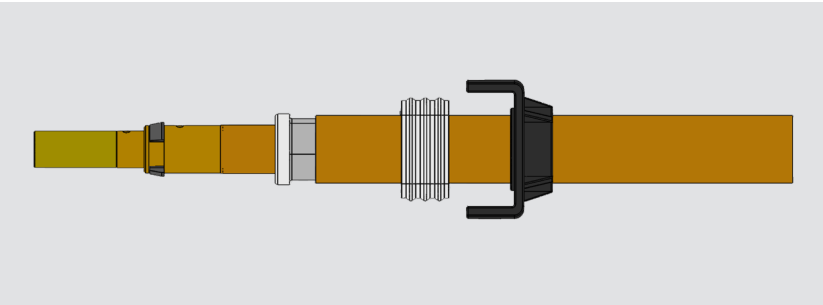
Recommended crimping tool: Hydraulic press

Step 8: Remove film layer, cutting insulation.

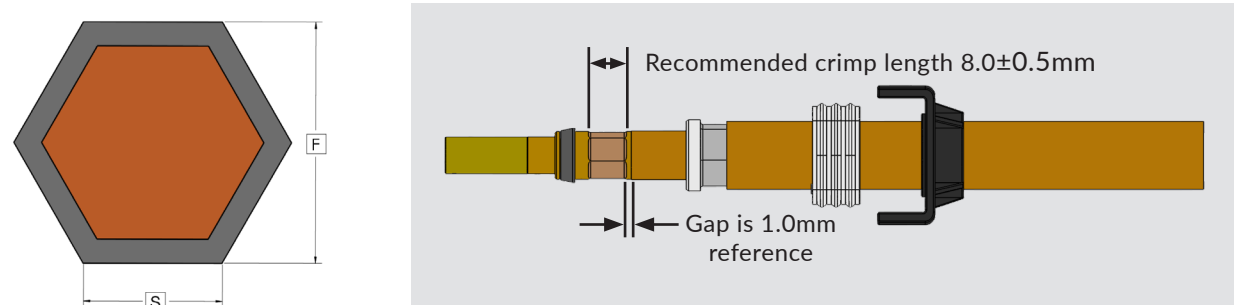


Item	Cutting Length
L3	9±0.5mm

Step 9: Mount the Plug contact assembly (Part 2).



Step 11: Pull one of the wires out and load. Crimp the Rear Shield (Part 5).



Cable Size	Recommended crimp length of Side S	Recommended crimp dist across Flats F	Recommended Min. Pull out force
16mm ²	6.0	6.5±0.1mm	1500N
25mm ²	6.0	7.5±0.1mm	1900N

Notes: The recommended crimp sizes are only for reference. The customer should adjust them according to cable specification and crimp tool and test results including contact resistance and pullout force.

Crimping tool: Manual hydraulic crimping

Die: 25mm² die for 25mm² cable

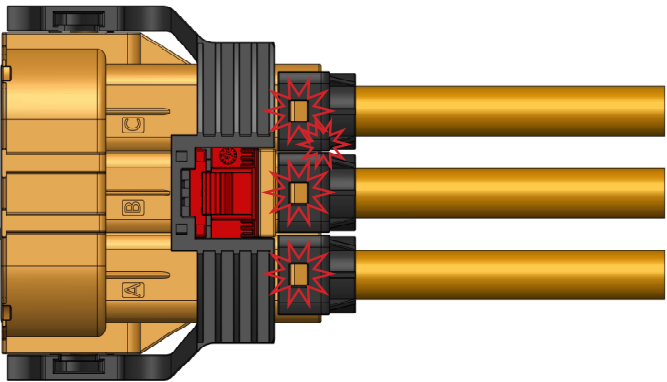


Step 13: Follow steps to assemble another two cables.

Step 14: Insert the crimped terminal into the Plug shell assembly (Part 1) one by one. First assemble the rear sealing grommet (Part 5). After that, assemble the rear cover (Part 6).

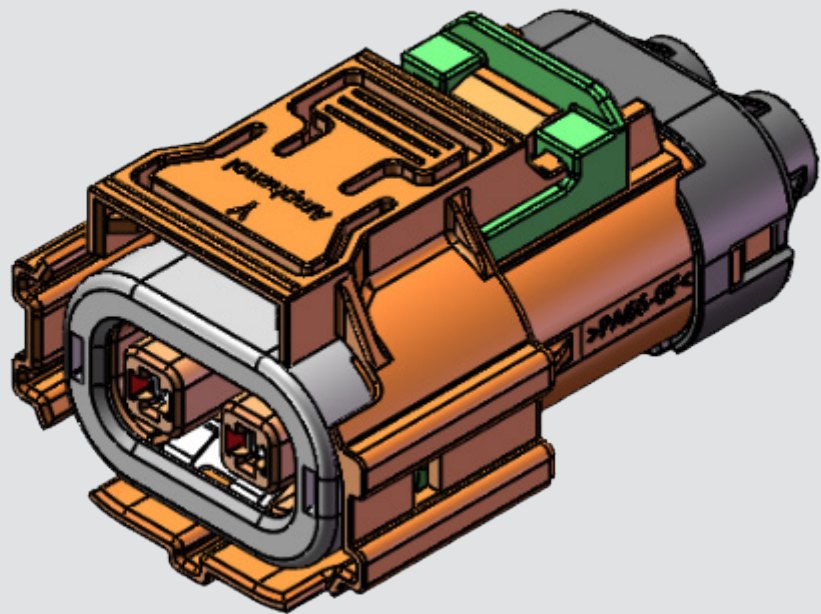


Note: The rear cover must be locking to the buckle of plug shell



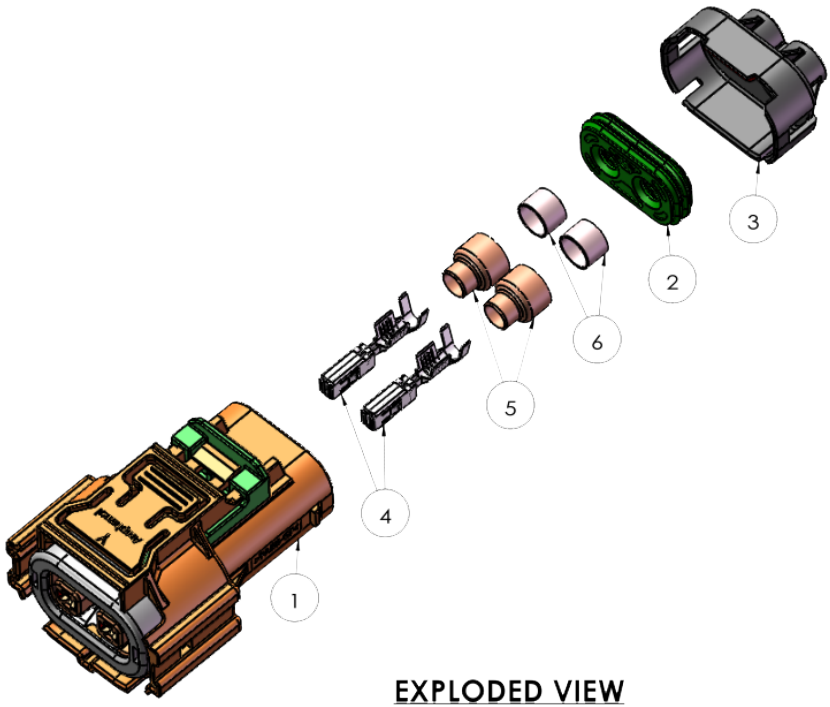
Notes: Need to do Insulation Resistance and DWV test after cable assembly
Insulation Resistance test: 1000V DC, 100MΩ Min, 60s
DWV test: 3000V AC, leakage current ≤ 5mA, 60s

ePower-Lite Mini



Part 1: Package Contents

- 1. Package Contents
 - 1: Plug Shell assembly
 - 2: Grommet
 - 3: Cable Cover
 - 4: Socket contact
 - 5: Outer Ferrule
 - 6: Inner Ferrule

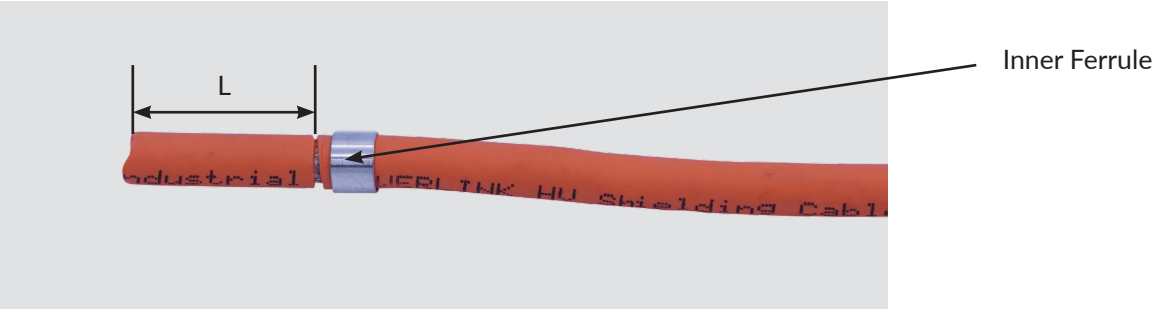


2. Recommended wire specification

Wire Size	Wire OD (mm)	Recommended Min. Pullout force (N)
4.0mm ²	5.8 ± 0.2	325

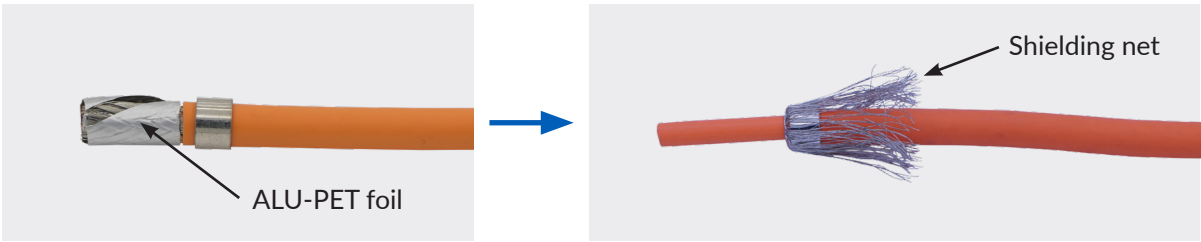
Part 2: Assembly

Step 1: Installing the inner ferrule for 4mm² wire then cutting and stripping the jacket.

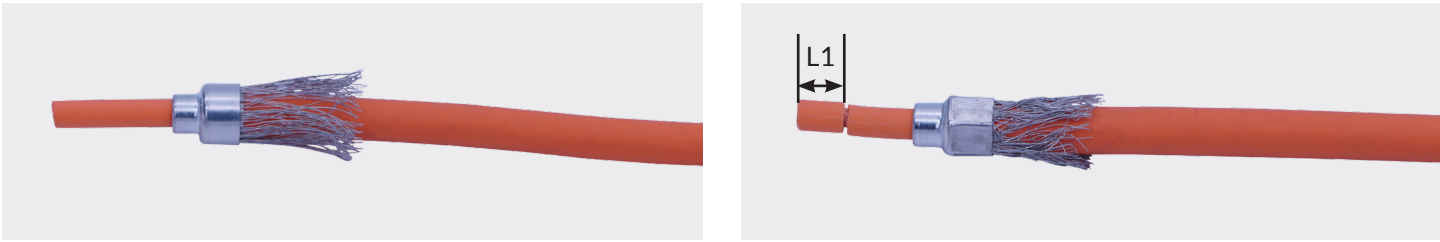


Item	2 Ports (Include all cable sizes)
L	21.5 ± 0.5 mm

Step 2: Strip out ALU-PET foil, evenly disperse and bend the shielding net, ensure the inner ferrule is in close contact with shielding wire.

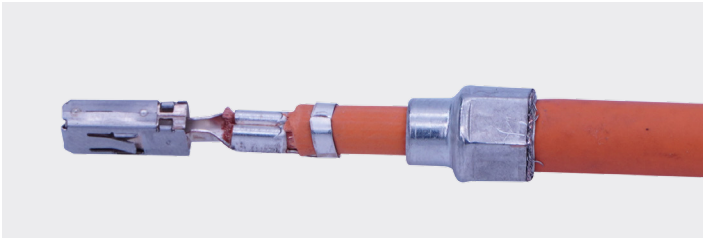


Step 3: Assemble the outer ferrule and crimping to right crimp height (7.5 ± 0.1 mm), cutting and the jacket.



Item	2 Ports (Include all cable sizes)
L1	5.8 ± 0.2 mm

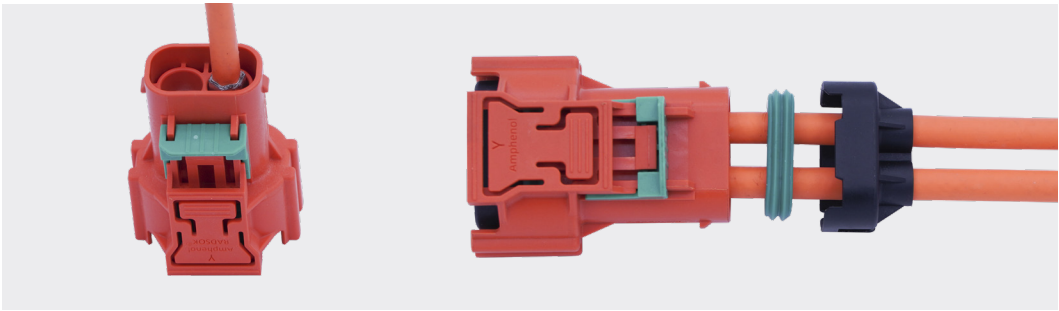
Step 4: Stripping the jacket and cut off the exposed shielding wire of cable, crimping the terminal by right crimping tool.



Recommended manual crimping tool as below (P/N: FX3-0094-000):



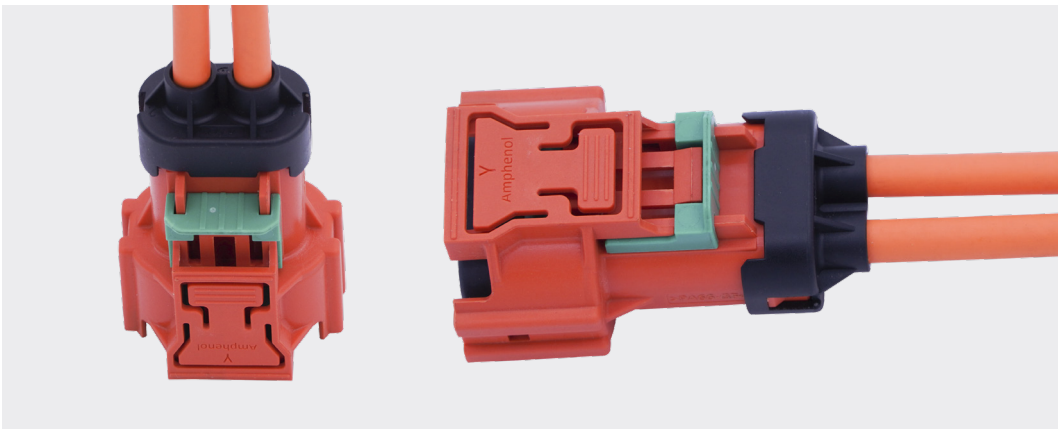
Step 5: Insert the contact with cable assembled into the plug shell, the collar snapped into the shoulder of the hole.



Step 6: Install the cable grommet.



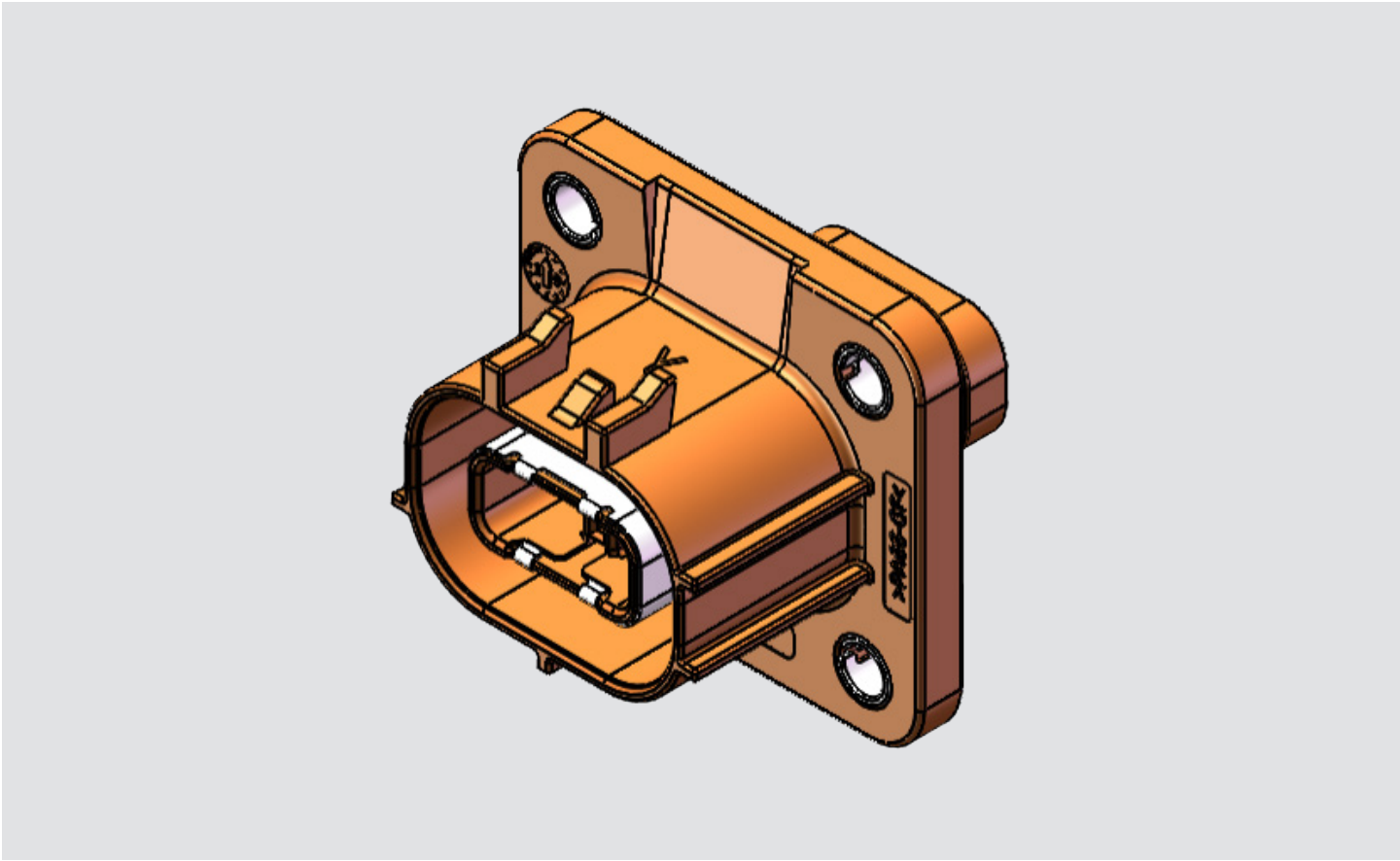
Step 7: Install the cable cover



Notes:

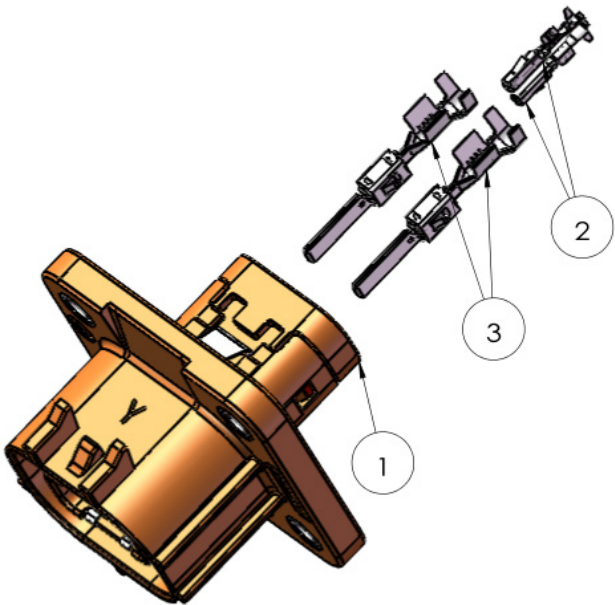
Need to do Insulation Resistance and DWV test after cable assembly
Insulation Resistance test: 600V DC, 500M Ω Min, 60s
DWV test: 2200V AC, leakage current $\leq$ mA, 60s

ePower-Lite Mini Series Receptacle Connector



Part 1: Package Contents

- 1. Package Contents
 - 1: Receptacle Shell Assembly
 - 2: Power Pin Contact
 - 3: Socket Contact



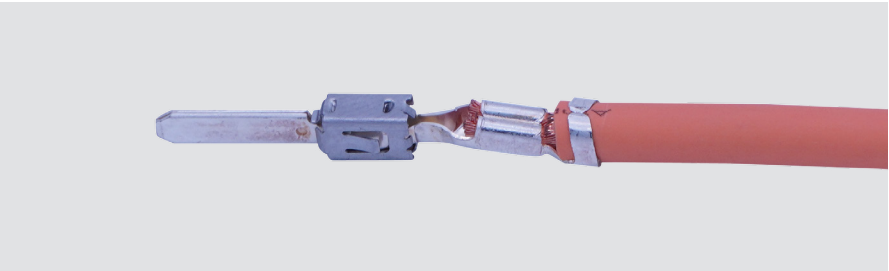
EXPLODED VIEW

Part 2: Assembly Steps for Power Pin

Step 1: 4mm² wire cutting and stripping jacket dimensions

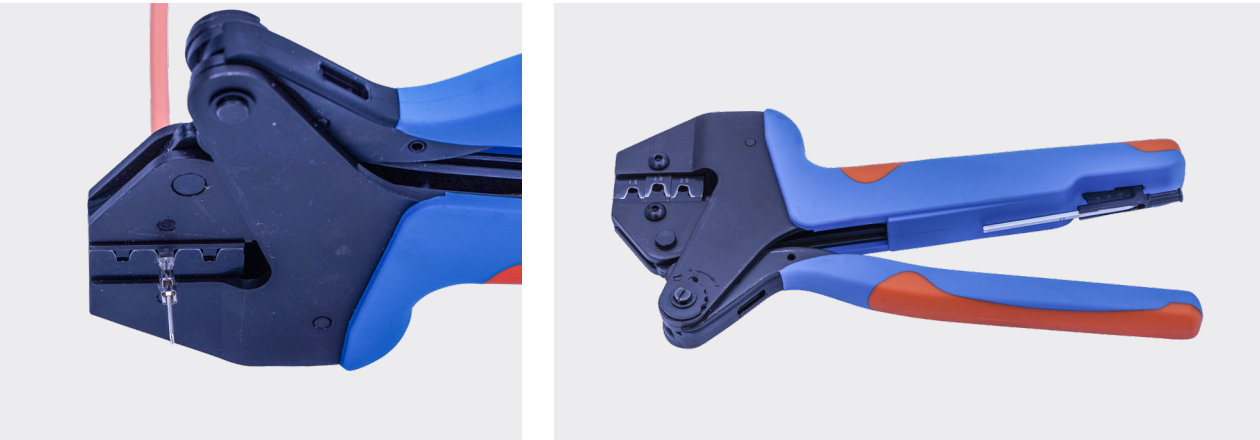


Step 2: Insert conductor into hole of socket and crimping use right crimping tool

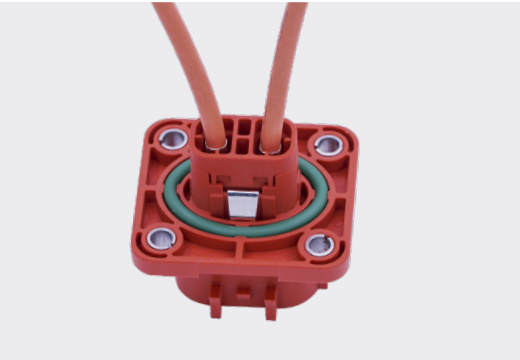


Wire Size	Recommended Min. Pullout force (N)
4.0mm ²	325

Recommended manual crimping tool as below (P/N: FX3-0094-000):



Step 5: Insert the contact with cable assembled into the plug shell, the collar snapped into the shoulder of the hole.



Part 3: Assembly Steps for HVIL pin

Step 1: Wire cutting and stripping the jacket



Step 2: Insert conductor into hole of socket and crimping use right crimping tool



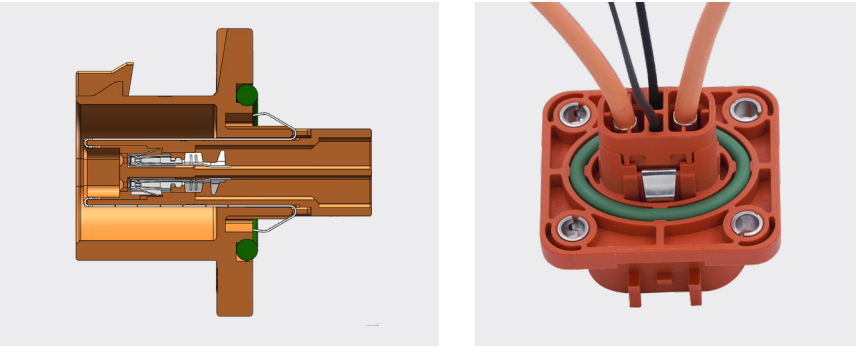
Recommended HVIL Wire Specification

Receptacle	HVIL Wire Size	Recommended Min. Pullout force (N)
2 ports	22 AWG	40
	20 AWG	60

Recommended Crimping tool as below (P/N: FX3-0095-000):



Step 3: Insert the HVIL contacts into the receptacle shell assembly, the claws face to the sides

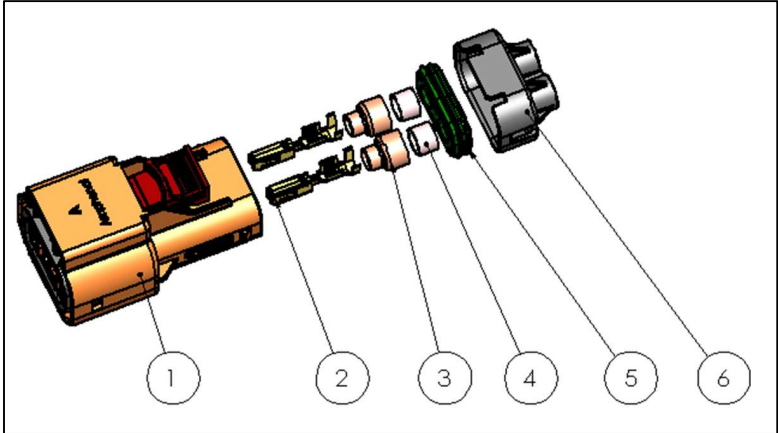


HISTORY OF CHANGES

Rev	Change	Originator	Date
A	New document	Leon Xie	22024/7/15

PLUG

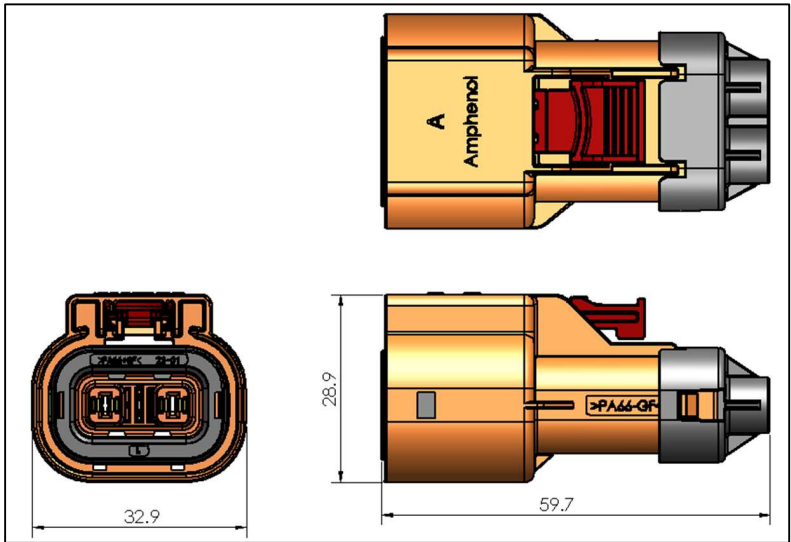
Part 1: Package contents and specifications.



1.Plug Kit (1x)	4.Inner Shielding Ring (2x)
2.Terminal (2x)	5.Grommet (1x)
3. Outer Shielding Ring(2x)	6.Cable Cover (1x)

Specifications:

- Current: 40A MAX.
- Operating voltage: 1000V DC.
- Operating temperature: -40~+125℃.
- Durability: 100 cycles MIN.
- Water proof: IPX7, IP6K9K (when connector mated).
- Touch proof: IPXXB unmated and IPXXD mated.
- HVIL: yes.
- Shield: yes.
- Keyway : 3 (A/B/D)



Part 2: Cable assembly for plug

Step 1: Pre-assembly.

- Installing the inner ferrule for 4 mm² cable.

Cable spec:

	4mm² cable
Cable size	4 mm²
Conductor	2.6mm
Insulation	3.9~4.7mm
Jacket	5.6~6.0mm



Attention: If use different cable specification please contact Amphenol to confirm.

Step 2: Wire cutting stripping and assembly

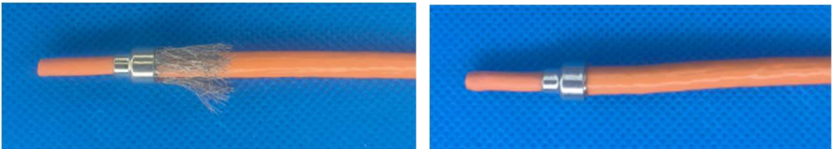
- Cut the cable jacket. “L”=21.5±0.5mm



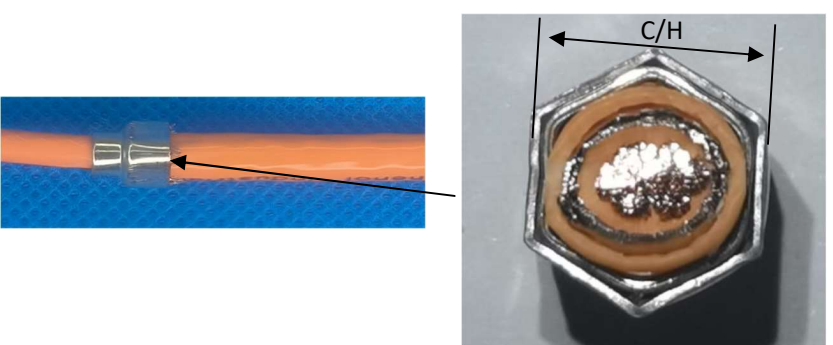
- Strip out ALU foil, evenly disperse and bend the shielding braid.



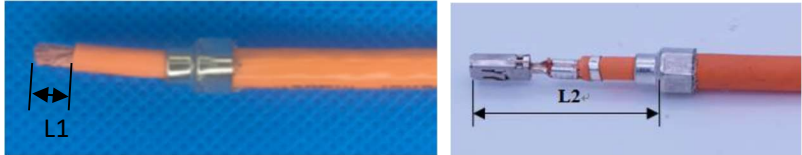
- Installing the outer shielding ring, cut the extra shield braid.



- Crimp the shielding ring into a hexagon. C/H=7.1±0.2mm.



- Crimp the terminal. L1=5.8±0.2mm, L2=33.5±0.5mm



Recommended manual crimping tool as below(P/N:FX3-0094-000):



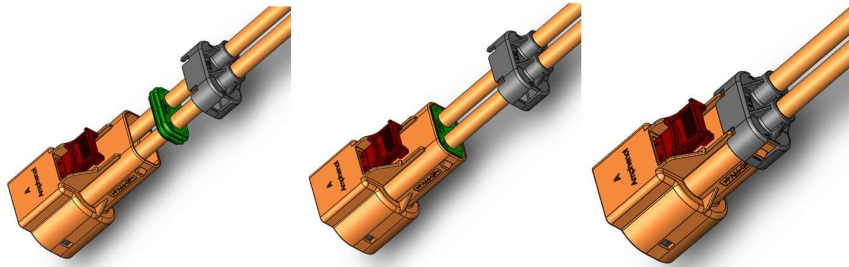
Key process parameters



Different crimp type and dimension can be used after test(USCAR 21) with the test result is acceptable .

Step 3 Plug assemble

- Insert the contact with cable assembled into the plug shell, the collar snapped into the shoulder of the hole.
- Install the cable grommet.
- Install the cable cover.

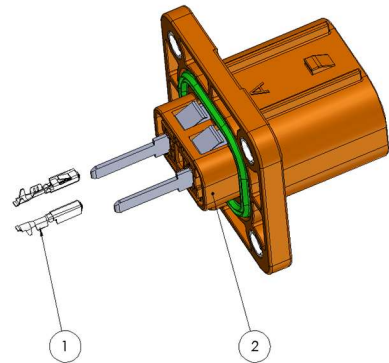


Step 5: test for plug

- It is better to have some test for the plug after cable assembly.
Reference test conditions:
 - ✧ IR: 1000V DC, 60S 200MΩ Min (Socket contact to Socket contact, Socket contact to Shell, Socket contact to Shielding).
 - ✧ DWV : 3000V AC (50~60Hz), 60S, leakage current 5mA Max. There shall be no dielectric breakdown or flash-over (Socket contact to Socket contact, Socket contact to Shell).

Receptacle-Pin Type

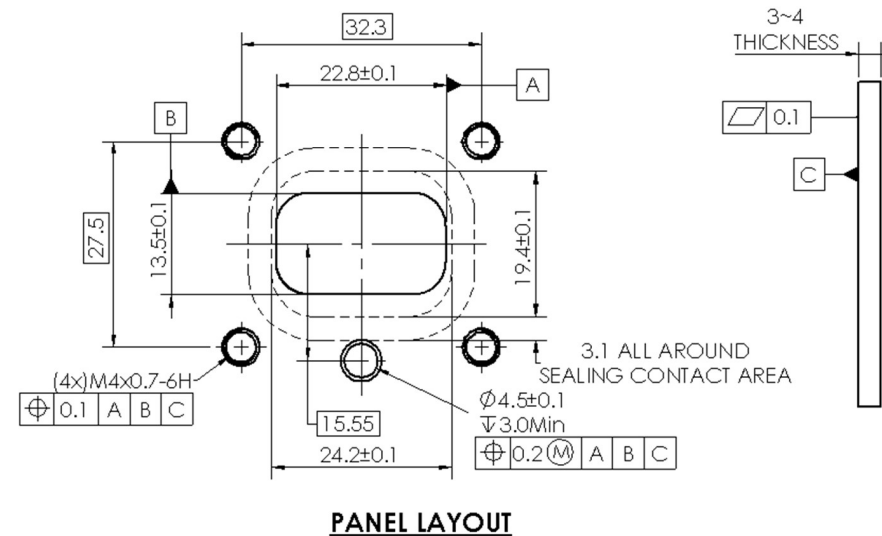
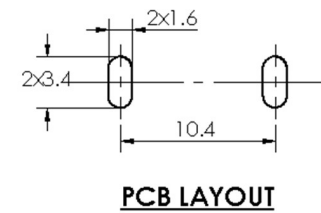
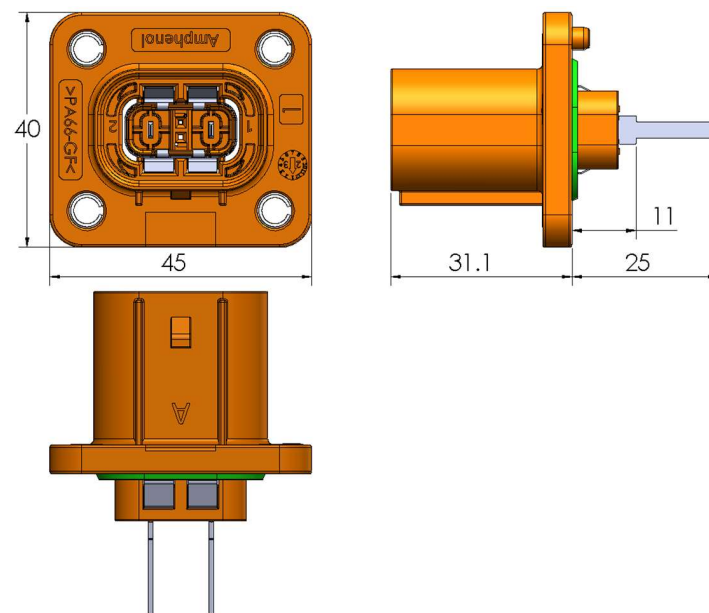
Part 1: Package contents and specifications.



- 1.HVIL Socket Contact (2x)
- 2.Receptacle body (1x)

Specifications:

- Current: 40A MAX.
- Operating voltage: 1000V DC.
- Operating temperature: -40~+125℃.
- Durability: 100 cycles MIN.
- Water proof: IPX7, IP6K9K (when connector mated).
- Touch proof: IPXXB unmated and IPXXD mated.
- HVIL: yes.
- Shield: yes.
- KeyWay : 3 (A/B/D)



Part 2: Cable assembly for HVIL

Step 1: Pre-assembly.

- Cable spec: 20 AWG/ 22 AWG
- Cut the cable insulator and pre-assemble the cable with contact.

$$A=3.5 \pm 0.5\text{mm}$$



Step 2: Crimp the HVIL socket contact.

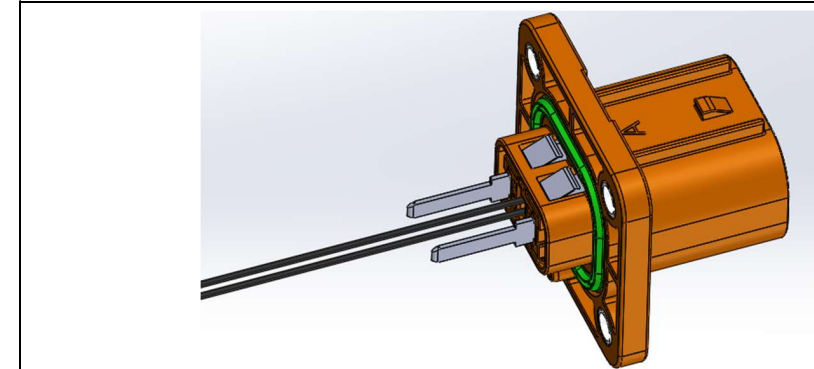
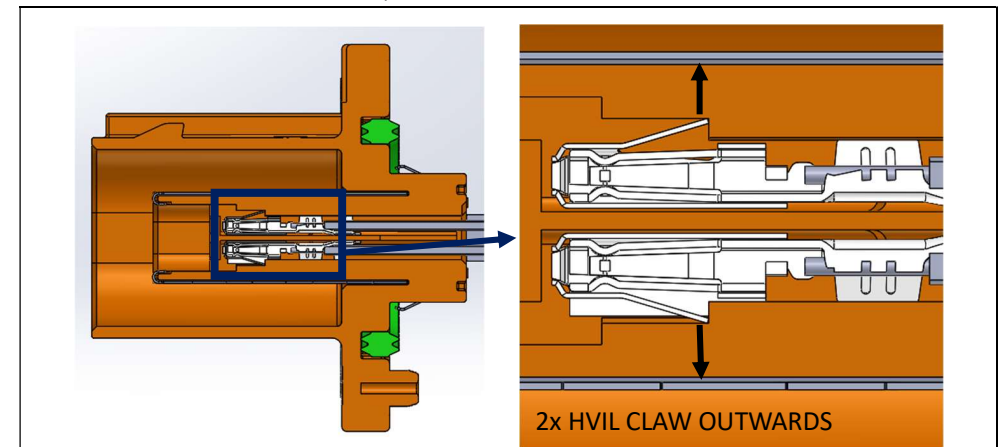
Key process parameters

- Recommended Crimping tool as below(P/N:FX3-0095-000):



Step 3: Install the contacts

- Install the HVIL contacts, 2x HVIL claw outwards.



Step 4: test for receptacle

- It is better to have some test for the plug after cable assembly.

Reference test conditions:

- ✧ IR: 1000V DC, 60S 200MΩ min (Pin to Pin, Pin to Shell, Pin to Shielding).
- ✧ DWV : 3000V AC (50~60Hz), 60S, leakage current 5mA Max. There shall be no dielectric breakdown or flash-over (Pin to Pin, Pin to Shell, Pin to Shielding).



Different crimp type and dimension can be used after test(USCAR 21) with the test result is acceptable .

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