

CABLE ASSEMBLY WORK INSTRUCTION

RadCrimp® Solar Splice
with Melni Spiral Termination Technology

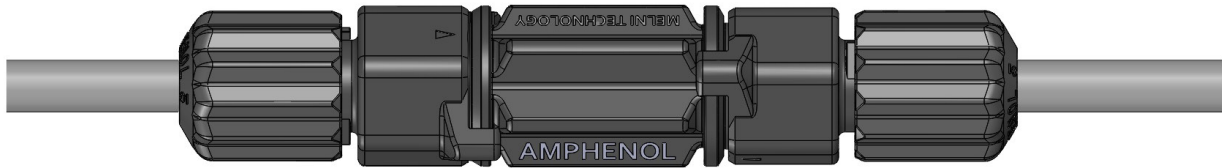


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Assembly Instruction

RadCrimp® 12 & 10 AWG Solar Spiral Connector



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Part 1: Safety

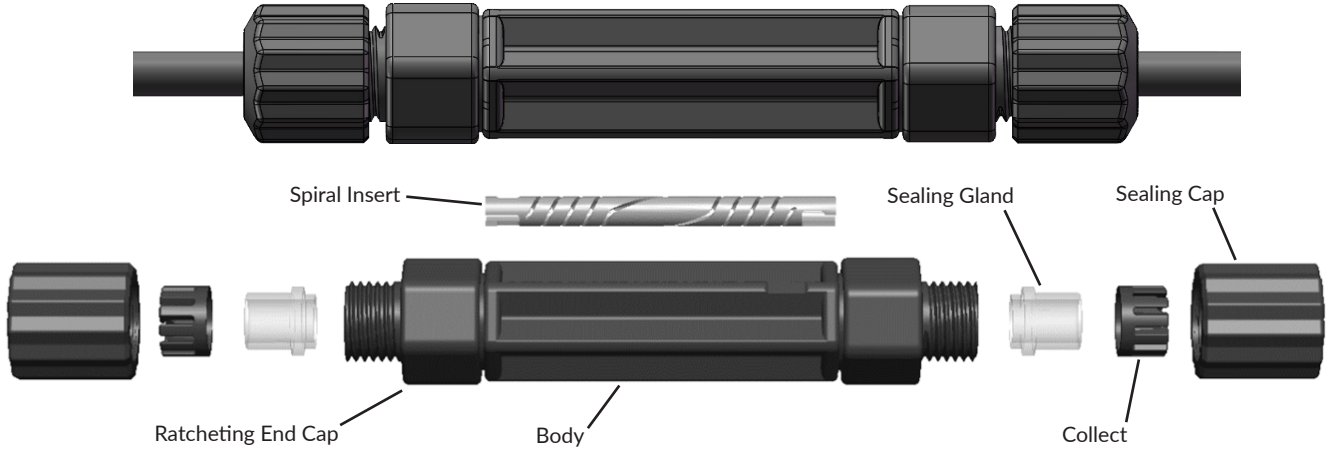
-  1. The connector must be isolated and disconnected from the power supply during the assembly or disassembly process.
-  2. Do not disconnect under load.
-  3. The connector complies with UL 6703 only when assembled according to the specified instructions.
-  4. Amphenol disclaims any liability in the event of failure to comply with this assembly instruction.
-  5. Third-party laboratory test results serve as a reference only. Customers are responsible for validating connector durability under specific system conditions, including extreme environments. Customers should always incorporate a safety margin in all applications, as overheating may occur.
-  6. Avoid exposing connectors to chemical substances. The chemical compatibility of thermoplastics, such as Lexan polycarbonate, depends on contact time, temperature, concentration, and external stress. Chemical exposure may cause discoloration, softening, swelling, cracking, or loss of material properties. Do not allow connectors to come into contact with chemicals, including but not limited to: Grease, Oils, Mold Release Agent, Binder, Alcohols, Fatty hydrocarbons, Acid, Aromatic hydrocarbon, Ketones, Halogenated hydrocarbon, Organic solvents (including Gasoline, Kerosene, Ethyl acetate and others), Cleaning agents. For more information, refer to Appendix A (Chemical Exposure Checklist - WI-S047-ENG). The list is not exhaustive, and customers must assess chemical exposure risks in their specific system conditions and use environments. Amphenol does not accept returns for products contaminated with chemicals.
-  7. Avoid placing split loom over connectors or zip ties directly in contact with connectors (including connector housings)
-  8. Avoid stacking or bundling multiple connectors together.

Part 2: Technical Data

Technical Data	
Rated voltage	1500V DC
Rated current	UL (UL6703) 20A (12AWG) 30A (10AWG)
Protection degree	IP68 when terminated (1m@1H)
Safety class	II
Operation Temperature Range	-40°C to +85°C
License Holder	Amphenol Industrial Operations
Full Address	20 Valley Street, Endicott, New York 13760-3600, USA

Part 3: Connector and Tool Selection

3.1: Connector



3.2: Connector Part Number Logic Code

Product Line		Product Type		Terminals - Cable Size		Contact	
AMPV	Amphe-PV	STS	Spiral Termination Splice	4	4mm ² /12AWG & 6mm ² /10AWG	M	Machining Terminal

3.3: Tools List

Strip tool for 4/6mm² PV cable: H4TS0000

Wrench tool: AMPVTW0001



Part 4: Assembly Process of Connector

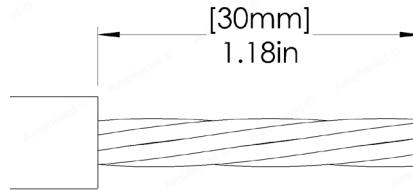
4.1: Applicable Cable Selection

- 4.1.1 Only suitable for the PV cable with copper conductor. Pre-tinning of conductors is recommended.
- 4.1.2 The cable OD is Ø6.0mm to Ø7.4m, the number of conductor strands is 7 to 67 for 12AWG and 7 to 52 for 10 AWG.
- 4.1.3 This connector is only suitable for cables with UL 4703 certification
- 4.1.4 This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA NEC 70 Chapter 9, Table 10). If the connector is found to be suitable for use with other stranding classes, the connector shall be marked with those class conductors. See the Standard for Wire Connectors, UL 486A-486B.

4.2: Cable Strip

4.2.1. Stripping Length

Strip PV Wires 1.18" (30mm)

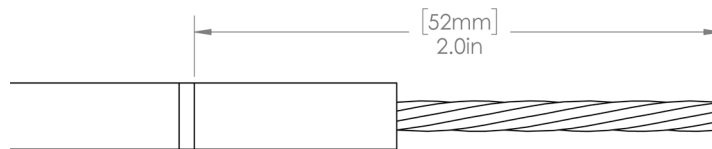


Note:

- DO NOT TWIST OR TIGHTEN CONNECTOR UNTIL INSTURCTED TO DO SO.
- If using a PV Wire with a strand count greater than 7, twist stripped wires together to form a Straight and concentric group of wires.

4.2.2 Mark the insert depth

Mark conductor sheathing at 2" (52mm) from stripped end. Do not cut into cable for marking purposes.



4.3: Insert Cable

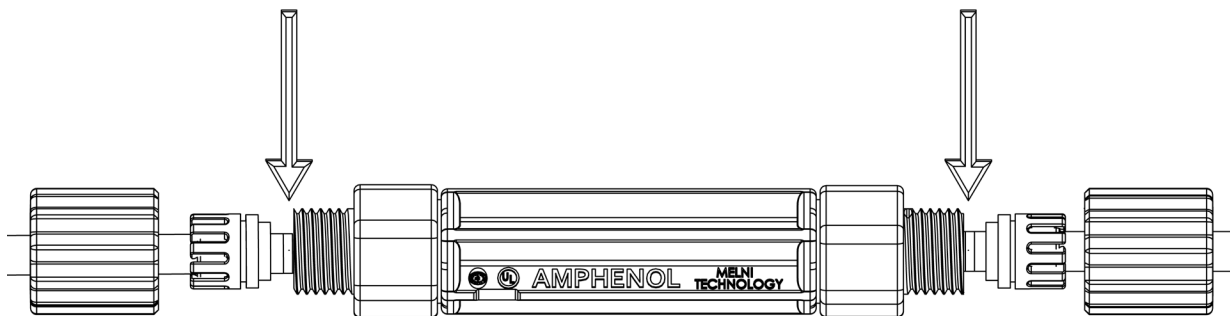
4.3.1. Remove Sealing Caps, Sealing Glands and Collet and slide it onto the PV wire before inserting the PV wire into the connector.



4.3.2 Carefully insert stripped PV Wires into BOTH ends of the connector.

Note:

- Mark on sheathing should line up closely with the end of the threads on the Ratcheting End Cap.
- Be mindful to not bend the conductor strands upon insertion.
- Keep the stripped wire straight and insert the wire slowly. There should be little to no resistance when inserting the wire, which indicates the wire was inserted cleanly into the spiral terminal.



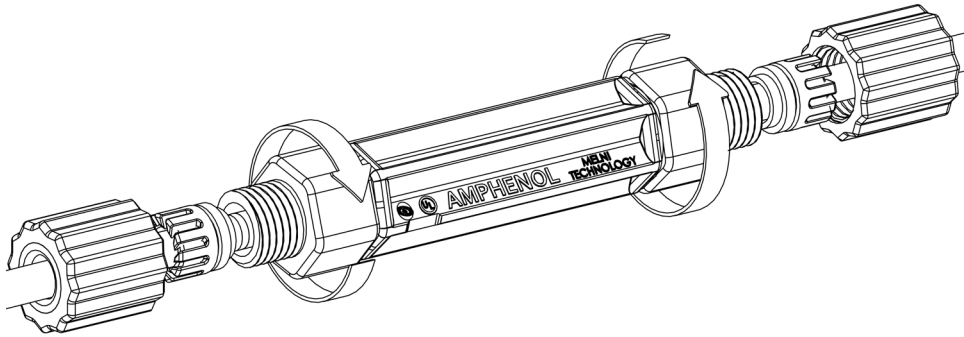
Caution:

If step 4.3.2 is not followed accordingly and the wire is not fully inserted, the spiral contact will not terminate properly as shown below.

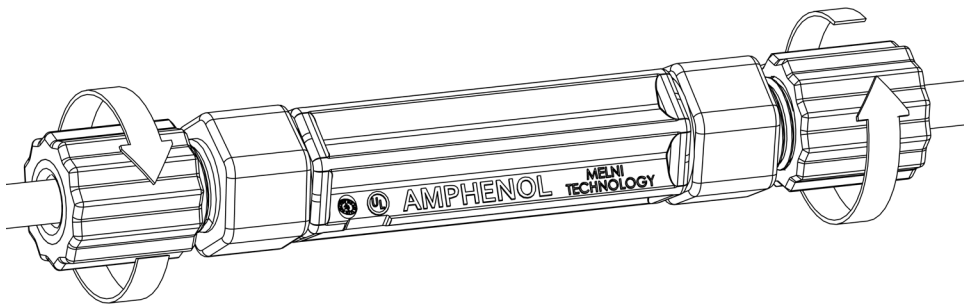


4.4: Tighten the sealing cap

4.4.1. Tighten BOTH Ratcheting End Caps by hand in clockwise direction.



4.4.2 Re-install Sealing Gland, Collet and Sealing Caps. Lightly tighten the Sealing Caps by hand.



4.4.3 Using a Calibrated Torque Wrench and either a 3/4" or 20mm crows foot adapter, tighten BOTH of the Ratcheting End Caps to the EXACT specified torque shown in the table below. Or using wrench tool AMPVTW0001 to tighten the two Ratcheting End Caps.

Ratcheting End Cap Torque			
PV Wire	Torque		
	Lbf-in	Lbf-ft	Nm
12 AWG	18	1.5	2
10 AWG	18	1.5	2



4.4.4 Tighten BOTH Sealing Caps completely by hand or to the following torque specifications. Or using wrench tool AMPVTW0001 to tighten the two Sealing Caps.

Sealing Cap Torque			
PV Wire	Torque		
	Lbf-in	Lbf-ft	Nm
12 AWG	12	1	1.4
10 AWG	12	1	1.4

5: Disassembly of connector

If connector must be removed from installation for any reason, uninstall using the following instructions.

Caution: DO NOT DISCONNECT UNDER LOAD

1. Loosen Sealing Caps completely from connector.
2. Using any available tool, (i.e. 20mm or 3/4" end wrenches, crows foot adapter or channel lock pliers), hold the body with one tool and turn EITHER Ratcheting End Cap with the other in a COUNTER-CLOCKWISE rotation until the spiral contact releases.

- 3. Pull the PV wire out of the ends of the connector.
- 4. DISPOSE OF CONNECTOR, THE AMPV IS A ONE TIME USE ONLY CONNECTOR.

5. Storage Requirement

We recommend that you store connector components at a temperature between -30°C to +60°C and with a relative humidity of less than 70%. The components must not be exposed to moisture due to direct rainfall, condensation, etc. Ensure the individual components do not come into contact with acids, alkalis, gases, acetone or any other chemical substance that could impact the material's use. The connector can be stored for two years if these conditions are met.

6. REVISION RECORD

REV	Description	Date	Name
A	First Release	Oct 28, 2021	Johnny Wang
B	Remove Lead-In Funnel	Sept. 16, 2023	Max Li

(Prepared by) : _____

(Checked by) : _____

(Date) : _____

(Date) : _____

CABLE ASSEMBLY WORK INSTRUCTION

Assembly Instruction
RadCrimp® 8 ~ 6AWG Solar Spiral Connector

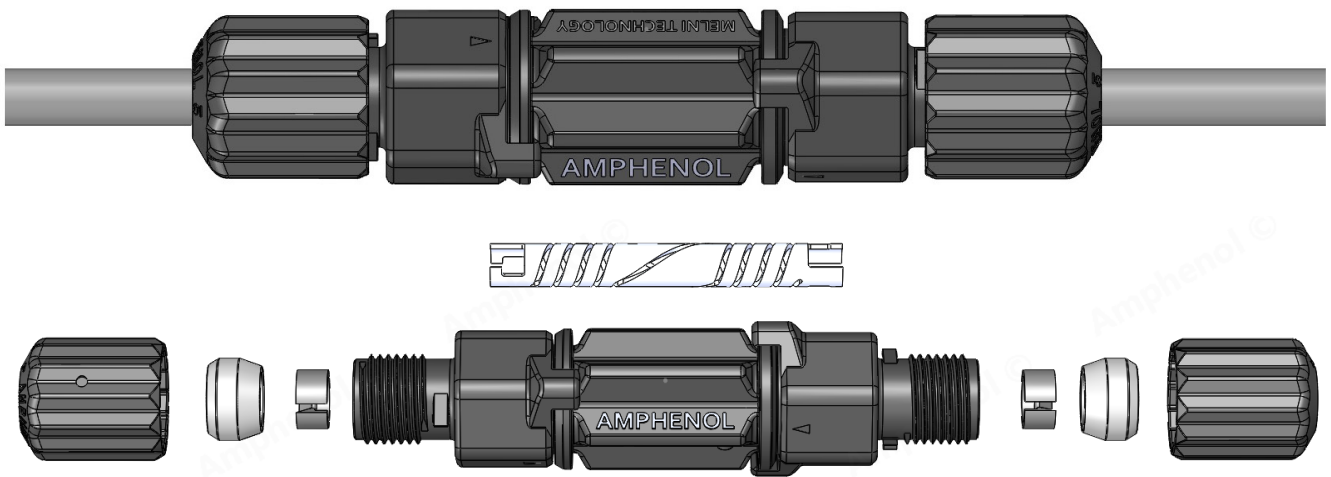


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Part 1: Safety Caution

- 4) The connector must be isolated and disconnected from the power supply during the assembly or disassembly process.
- 5) Amphenol PV connectors are IP68 (under water 1meter for 1 hour) compliant in the function of sealing. However please prevent connectors from being immersed in water.
- 6) The connector is considered to be in compliance with UL 6703 only when assembled in the manner specified by assembly instructions.
- 4) Amphenol declines any liability in the vent of failure to comply with this assembly instruction.
- 5) Please be aware that this 3rd party laboratory test is just a reference for application. It is the customer's responsibility to validate connector durability in system function at specific and extreme environment conditions, we recommend customer to consider a margin in actual application with high current situations that can lead to overheating.
- 6) Amphenol warns customers and users to avoid exposure of chemical substances in the connector application environment. Chemical compatibility of thermoplastics e.g. Lexan polycarbonate is dependent on contact time, temperature, concentration and stress (external stress to which the application is subjected to). Chemicals exposure can result in discoloration, softening, swelling, cracking or loss of properties of the thermoplastics. DO NOT allow the connectors contact any chemicals including below but not limited as they may cause stress cracking. Grease, Oils, Mold Release Agent, Binder, Alcohols, Fatty hydrocarbons, Acid, Aromatic hydrocarbon, Ketones, Halogenated hydrocarbon, Organic solvents including Gasoline, Kerosene, Ethyl acetate and others, Cleaning agents. Detailed refer to file. See file: WI -S047-ENG (Chemicals exposure check list).

The list of chemicals provided by Amphenol does not include all chemicals that may appear in the production and subsequent use of customers. Customers are requested to verify their impact on products and take corresponding to risk management measures for chemical contamination. Amphenol does not accept any return requests for products contaminated with chemicals.

Part 2: Technical Data

Rated Voltage: 1500V DC

Rated Current: UL (UL6703) 50A (8AWG)
65A (6AWG)

Protection Degree: IP68 mated (1m@1H)

Safety Class: II

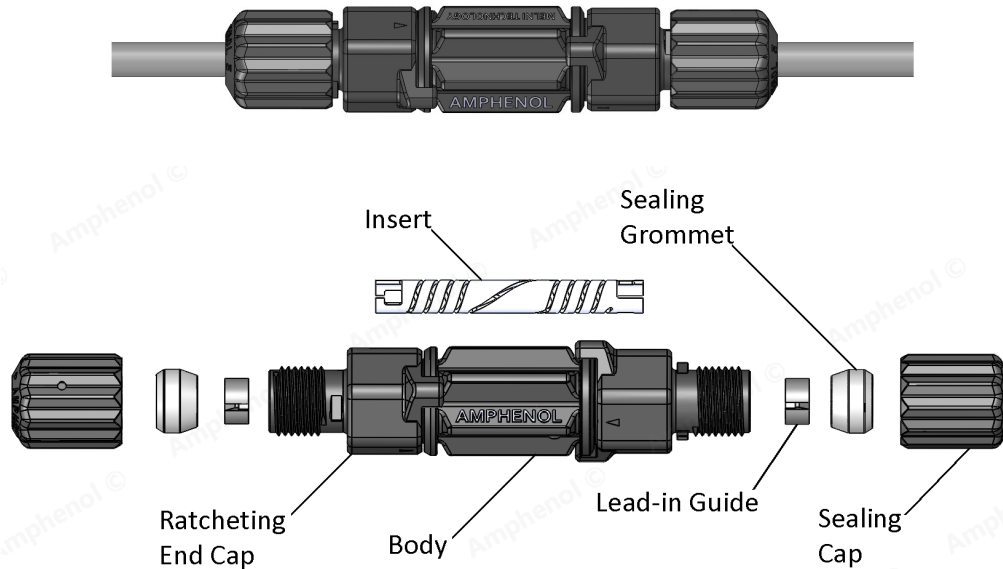
Operation Temperature Range: -40°C to +85°C

License Holder: Amphenol Industrial Operations

Full Address: 20 Valley Street, Endicott, New York 13760-3600, USA

Part 3: Connector and Tool Selection

3.1: Connector



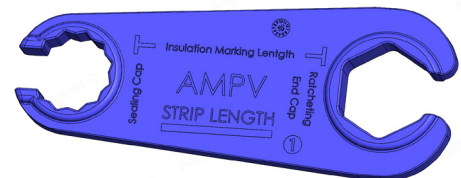
3.2: Connector Par Number Logic Code

Product Line		Product Type		Contact Size & Cable Jacket Diameter		Contact	
AMPV	Amphe-PV	STS	Spiral Termination Splice	8	10mm ² /8AWG&16mm ² /6AWG ø 8.0mm~ ø 9.24mm	M	Machining Terminal

3.3: Tools List

Wrench Tool:

AMPV TW0002



Part 4: Assembly Process of Connector

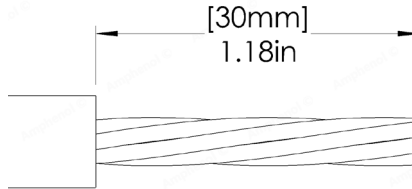
4.1: Applicable Cable Selection

- 4.1.1 Only suitable for the PV cable with copper conductor. Tin coated wire of conductors is recommended.
- 4.1.2 The cable OD range from $\varnothing 8.0\text{mm}$ to $\varnothing 9.24\text{mm}$. The number of conductor strands is from 19 to 168 for 10.0mm^2 connector and from 7 to 19 for 16.0mm^2 connector.
- 4.1.3 This connector is only suitable for cables with EN 50618, IEC62930, UL 4703 and USE-2 certification
- 4.1.4 For use with others cable, do crimping and sealing performance verification first or contact Amphenol.
- 4.1.5 This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA NEC 70 Chapter 9, Table 10)".If the connector is found to be suitable for use with other stranding classes, the connector shall be marked with those class conductors. See the Standard for Wire Connectors, UL 486A486B

4.2: Cable Strip

4.2.1 Stripping Length

Strip PV Wires 1.18" (30mm)

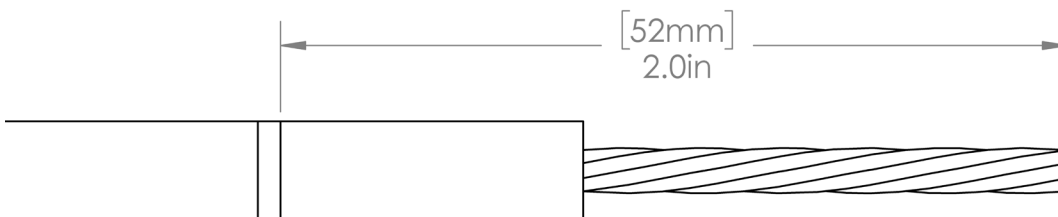


Note:

- DO NOT TWIST OR TIGHTEN CONNECTOR UNTIL INSTURCTED TO DO SO.
- If using a PV Wire with a strand count greater than 7, twist stripped wires together to form a straight and concentric group of wires.

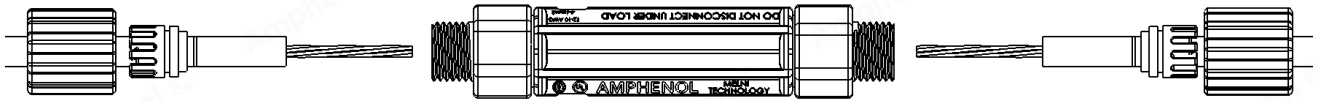
4.2.2 Mark the insert depth

Mark conductor sheathing at 2" (52mm) from stripped end.



4.3: Insert Cable

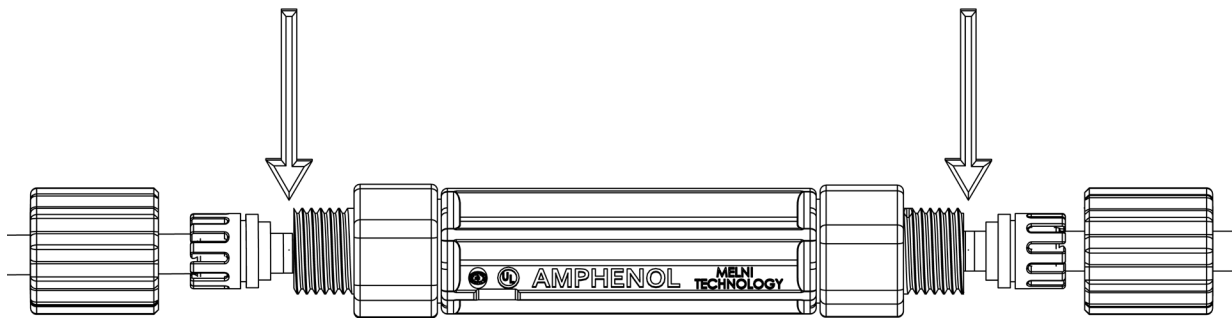
4.3.1 Remove Sealing Caps and Sealing Grommets and slide onto the PV wire before inserting the PV wire into the connector.



4.3.2 Carefully insert stripped PV Wires into BOTH ends of the connector.

Note:

- Mark on sheathing should line up closely with the end of the threads on the Ratcheting End Cap.
- Be mindful to not bend the conductor strands upon insertion.
- Keep the stripped wire straight and insert the wire slowly. There should be little to no resistance when inserting the wire, which indicates the wire was inserted cleanly into the spiral terminal.



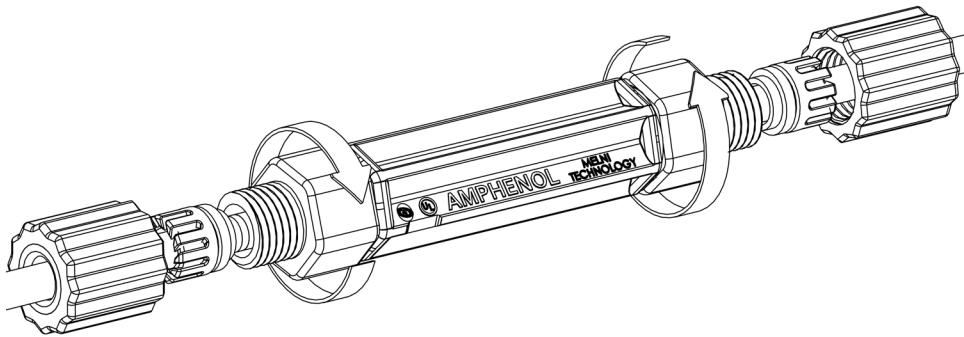
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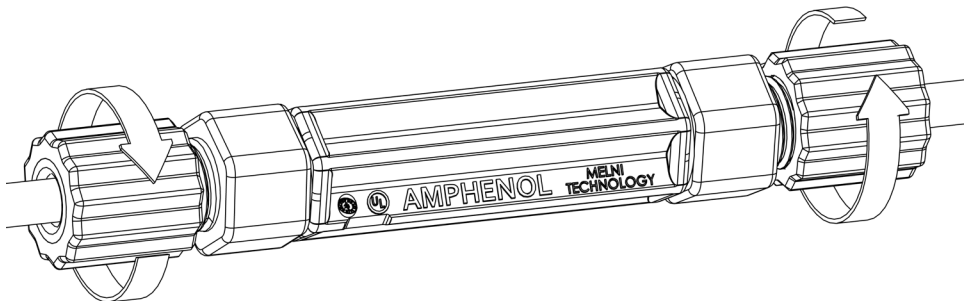


4.4: Tighten the sealing cap

4.4.1. Tighten BOTH Ratcheting End Caps by hand in clockwise direction.



4.4.2 Re-install Sealing Grommet, Collet and Sealing Caps. Lightly tighten the Sealing Caps by hand.



4.4.3 Using a Calibrated Torque Wrench and tool AMPVTW0002, tighten BOTH of the Ratcheting End Caps to the EXACT specified torque shown on the table below.

Ratcheting End Cap Torque			
PV Wire	Torque		
	Lbf-in	Lbf-ft	Nm
8 AWG	36 ~ 42	3 ~ 3.5	4 ~ 4.75
6 AWG	36 ~ 42	3 ~ 3.5	4 ~ 4.75



4.4.4 Tighten BOTH Sealing Caps completely by Calibrated Torque Wrench and tool AMPVTW0002 following torque specifications shown on the table below.

Sealing Cap Torque			
PV Wire	Torque		
	Lbf-in	Lbd-ft	Nm
8 AWG	23 ~ 25.6	3 ~ 3.5	4 ~ 4.75
6 AWG	23 ~ 25.6	3 ~ 3.5	4 ~ 4.75

Part 5: Disassembly of connector

If connector must be removed from installation for any reason, uninstall using the following instructions.

Caution: DO NOT DISCONNECT UNDER LOAD

1. Loosen Sealing Caps completely from connector.
2. Using any available tool, (i.e. 23mm end wrenches, crows foot adapter or channel lock pliers), hold the body with one tool and turn EITHER Ratcheting End Cap with the other in a COUNTER-CLOCK-WISE rotation until the spiral contact releases.
3. Pull the PV wire out of the ends of the connector
4. DISPOSE OF CONNECTOR, THE AMPV IS A ONE TIME USE ONLY CONNECTOR.
5. Storage Requirement

We recommend that you store connector components at a temperature between -30°C to +60°C and with a relative humidity of less than 70%. The components must not be exposed to moisture due to direct rainfall, condensation etc. Ensure that the individual components do not come into contact with acids, alkalis, gases, acetone or any other chemical substance that could impact the materials use. The connector can stored for two years if these conditions are met.

REV	Description	Date	Name
A	First Release	Sept. 11, 2023	Max Li
B	Update Connector Part Number	Nov. 16, 2023	Max Li

(Prepared by): _____

(Checked by): _____

(Date): _____

(Date): _____