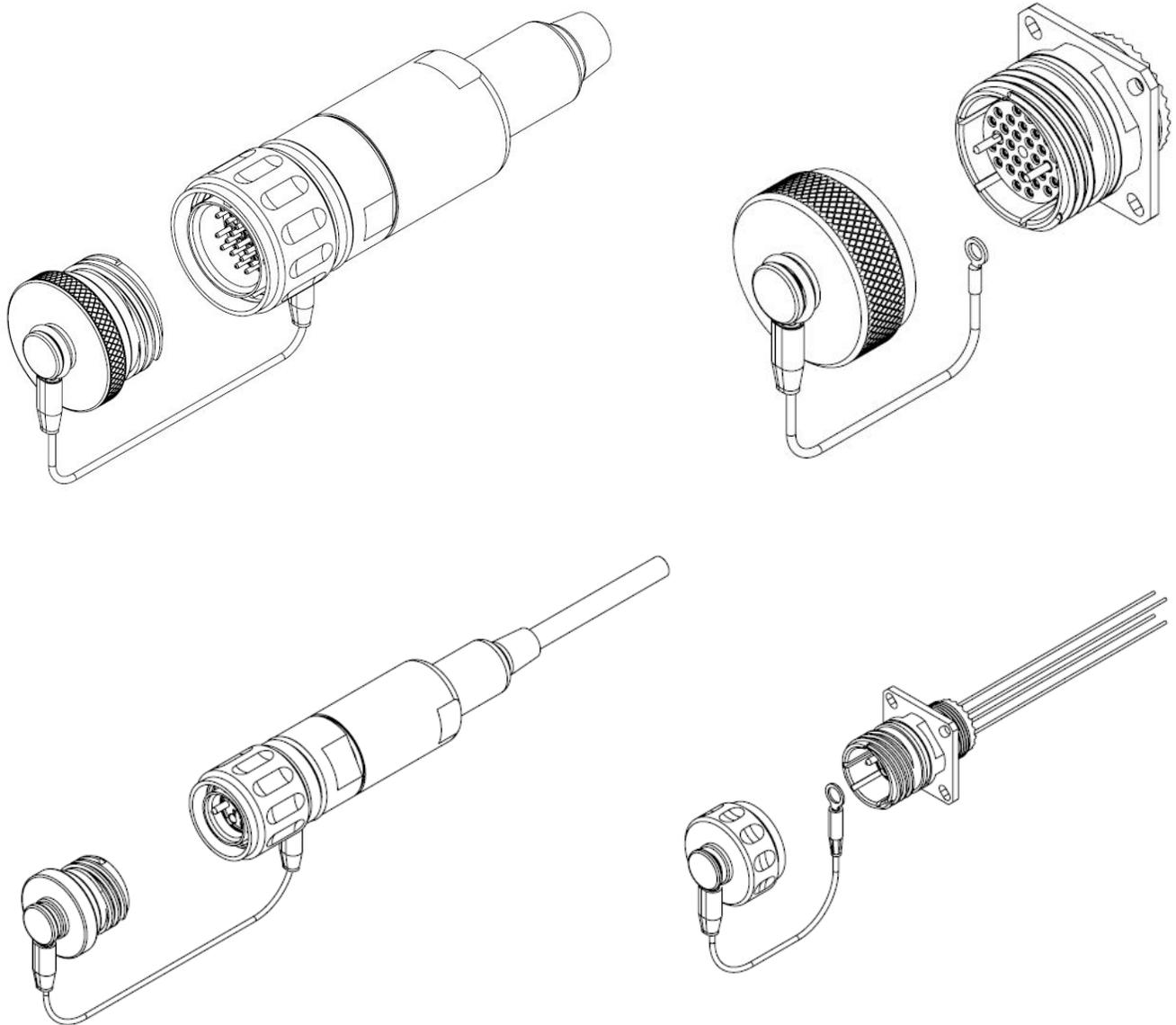


Q38 Connectors

Customer Assembly Instructions



Document: CAI-Q38
Release Date: 3/01/2022

Revision: 2
Revision Date: 8/10/2023

SCOPE

This document describes the Assembly Instructions for the Q38 Product Line. Please use the Configuration Table below to locate the applicable section(s) based on the products needing assembly.

CONFIGURATION TABLE

Plugs	Page	Receptacles	Page
Q38HD		Q38HD	
No Backshell, Epoxy Cup Option	3	No Backshell	9
Straight Backshell, Heat Shrink Boot	5	Straight Backshell, Heat Shrink Boot	11
Q38EB		Q38EB	
Straight Backshell, Heat Shrink Boot	14	No Backshell	18
		Straight Backshell, Heat Shrink Boot	19

SAFETY

Please use caution when following these instructions. This is not an exhaustive list of safety guidelines, refer to local regulations and your own company's policies. For more information, please refer to QPC Fiber Optic General Fiber Handling Instructions (CAI-GEN).

- Be careful when handling bare fibers as sharp ends may penetrate skin.
- Wear appropriate personal protective equipment such as gloves and safety glasses.
- Track all fiber scraps and dispose of properly. Tape may be used to remove scraps from the worktable.
- Wash hands after handling fiber and before touching eyes or face.
- Do not look down fiber ends unless certain there is no light source coming through the fiber.
- Keep all combustible materials safely away from curing ovens.

STANDARD & SPECIALTY ASSEMBLY TOOLS

Refer to QPC CAI-TOOLS for a list of Standard & Specialty Assembly Tools used in this instruction.

Component	Backshell			Coupling Nut	Strain Relief	Spacer	Set Screws	
	11 – 15	17 – 19	21 – 25	All	All	All	All	
Torque Values / Units	In-lb.	57 – 62	80 – 97	106 – 124	106 – 124	80 – 97	35 – 40	2.25 – 2.75
	N • m	6.5 – 7	9 – 11	12 – 14	12 – 14	9 – 11	4 – 4.5	0.25 – 0.31

TORQUE TABLE

Refer to the Torque Table below for the torque values for various components used in this instruction.

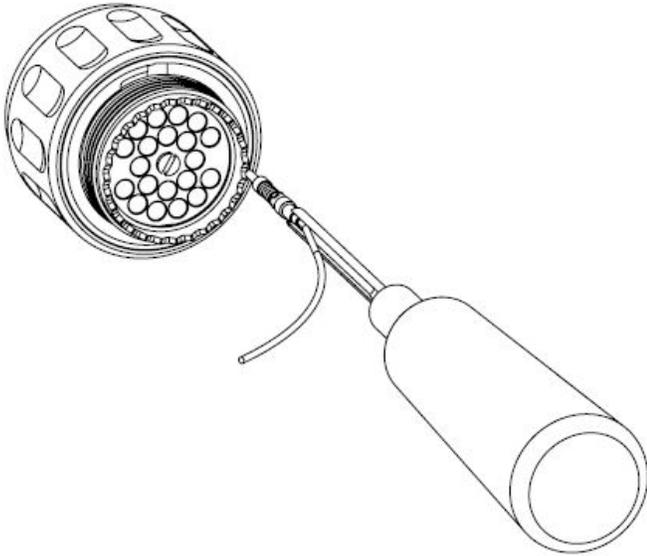
Q38HD PLUG, NO BACKSHELL, EPOXY CUP OPTION

TERMINATION

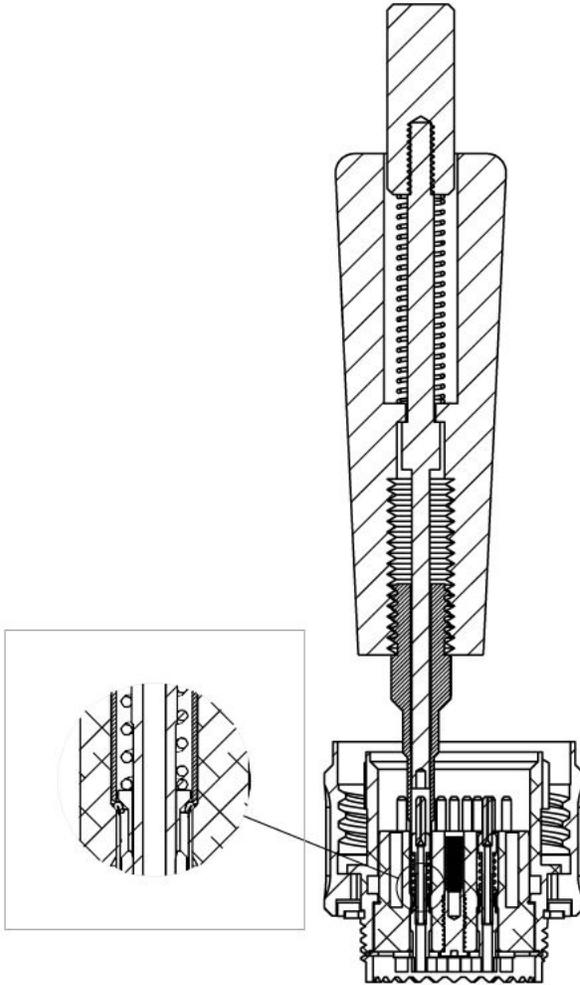
Use the Stripping Length Diagram located in the Appendix titled Q38HD Epoxy Cup Terminus with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

POPULATE INSERT

To populate the Plug Body, use the Fiber Optic Insertion Tool PT-001 to insert the Fiber Optic Termini in desired channel.



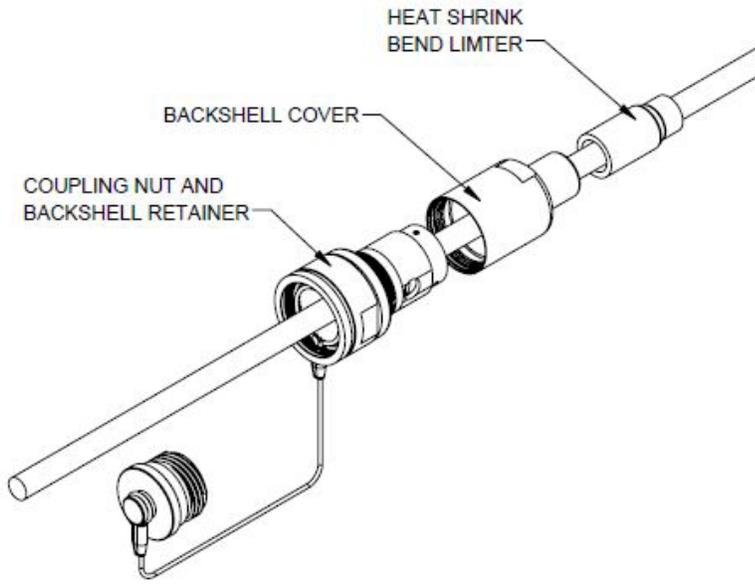
If there is a need to remove the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to unscrew the Cap Head Screw on the front of the Cap Sleeve Retainer (if applicable) to expose the Fiber Optic Termini. Slide the Fiber Optic Termini Removal Tool PT-002-H over the Fiber Optic Termini until it disengages the locking tab, then depress the release button. Once you replace the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to screw in the Cap Screw (if applicable).



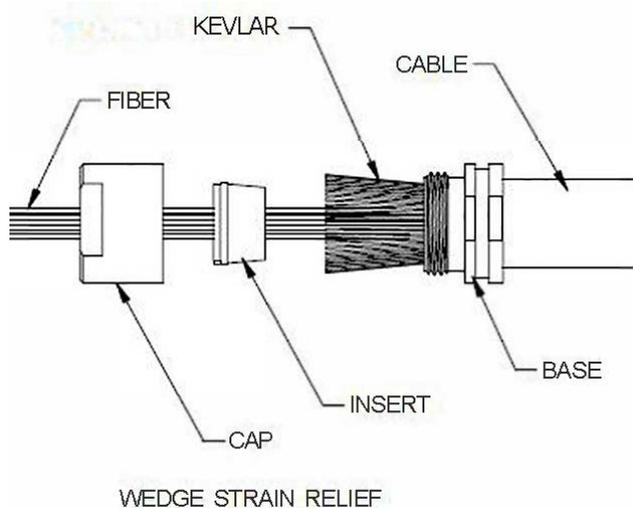
Q38HD PLUG, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

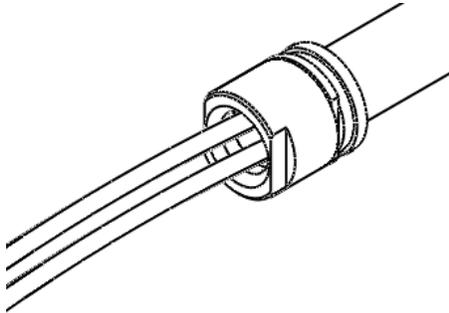
Slide parts onto cable in the order below.



Remove approximately 6-inches (152mm) of the outer jacket from the cable end. Thread the Wedge Strain Relief Base over the fiber and Kevlar and slide it to the cable jacket edge. Thread the Wedge Strain Relief Insert over the fibers. Spread the Kevlar out evenly and slide the Wedge Strain Relief Insert into the Wedge Strain Relief Base. The Kevlar should be trapped between the Wedge Strain Relief Base and the Wedge Strain Relief Insert. Cut Kevlar flush with top of Strain Relief Wedge.



Screw on Wedge Strain Relief Cap to the Wedge Strain Relief Base. Tighten using the Dial Torque-Measuring Wrench PT-506 and Crow's Foot Wrench PT-536 and torque to the values in the above Torque Table.

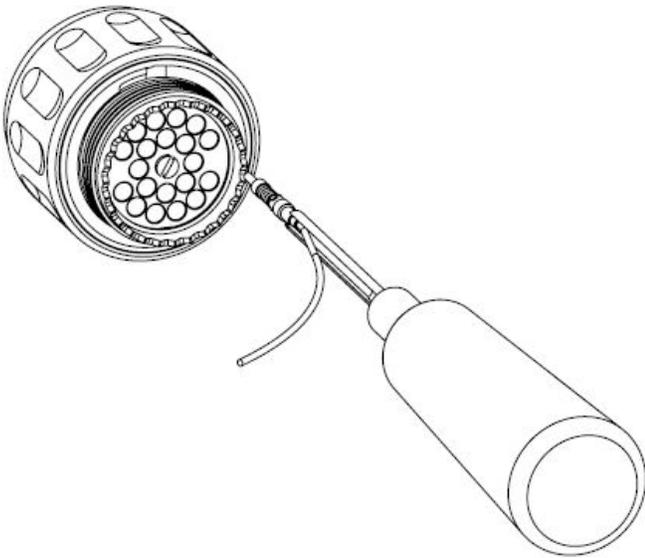


TERMINATION

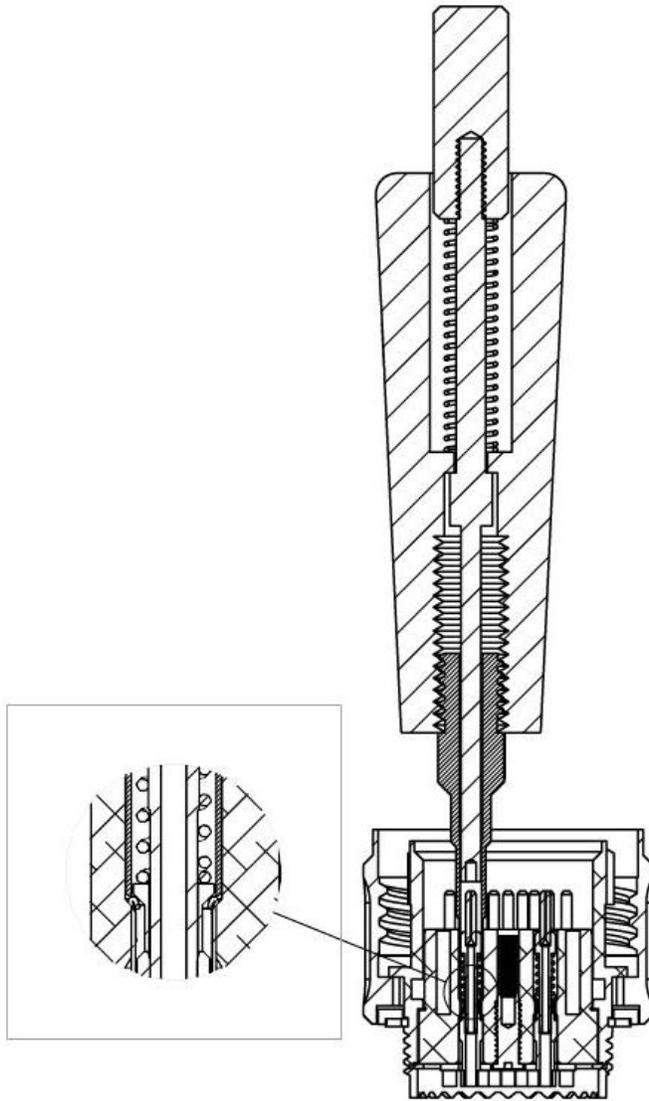
Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

POPULATE INSERT

To populate the Plug Body, use the Fiber Optic Insertion Tool PT-001 to insert the Fiber Optic Termini in desired channel.

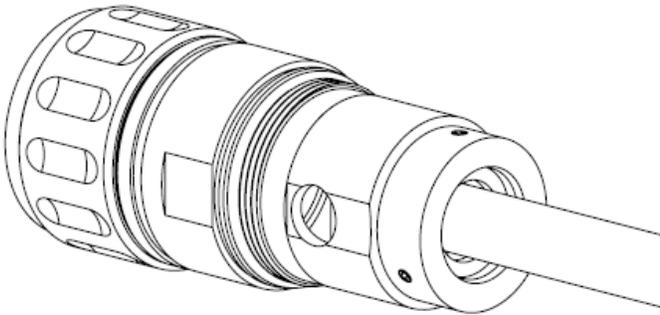


If there is a need to remove the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to unscrew the Cap Head Screw on the front of the Cap Sleeve Retainer (if applicable) to expose the Fiber Optic Termini. Slide the Fiber Optic Termini Removal Tool PT-002-H over the Fiber Optic Termini until it disengages the locking tab, then depress the release button. Once you replace the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to screw in the Cap Screw (if applicable).



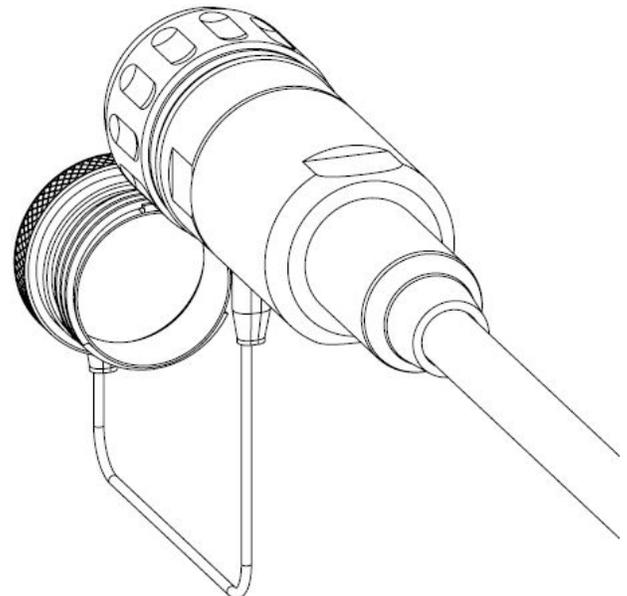
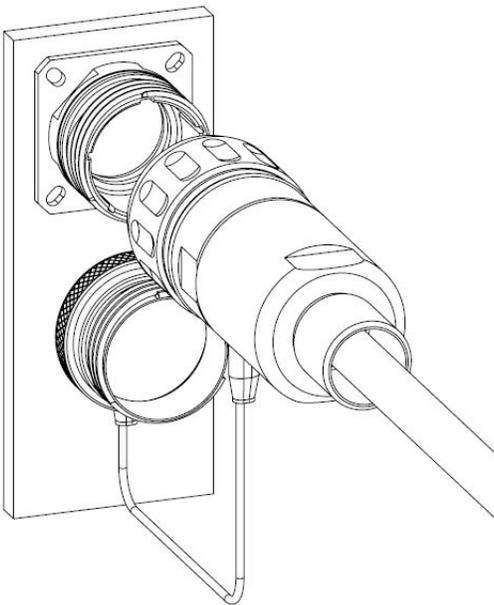
CONNECTOR ASSEMBLY

Slide the Coupling Nut and Backshell Retainer forward and hand tighten. Check the fiber length and position by looking through the holes in the Backshell Retainer to make sure the fiber is not twisted or kinked. To torque Coupling Nut and Backshell Retainer, place the corresponding Torque Fixture into the Vise PT-591. Attach the Adjustable Crow's Foot Wrench PT-536 or PT-546 onto Dial Torque-Measuring Wrench PT-506. Hand-tighten Q38 Plug to Torque Fixture and Torque Coupling Nut and Backshell Retainer according to the values in the above Torque Table. Next, torque the Spacer according to the values in the above Torque Table.



Pull Strain Relief to bottom of Backshell Retainer and tighten set screws using Hex Driver PT-500. Use Torque Hex Driver PT-590 with Hex Bit 0.050" PT-599 and torque Set Screws to the values in the above Torque Table. Perform a final visual check by looking through the holes in the Backshell Retainer to make sure that the fiber is not twisted or kinked.

Slide Backshell forward and hand tighten. Torque Backshell according to the values in the above Torque Table. Use the applicable QPC torque tool or equivalent (Daniels Manufacturing recommended) to hold the connector while torquing. Slide the Heat Shrink Bend Limiter forward and use a Heat Gun to activate the Heat Shrink Bend Limiter.



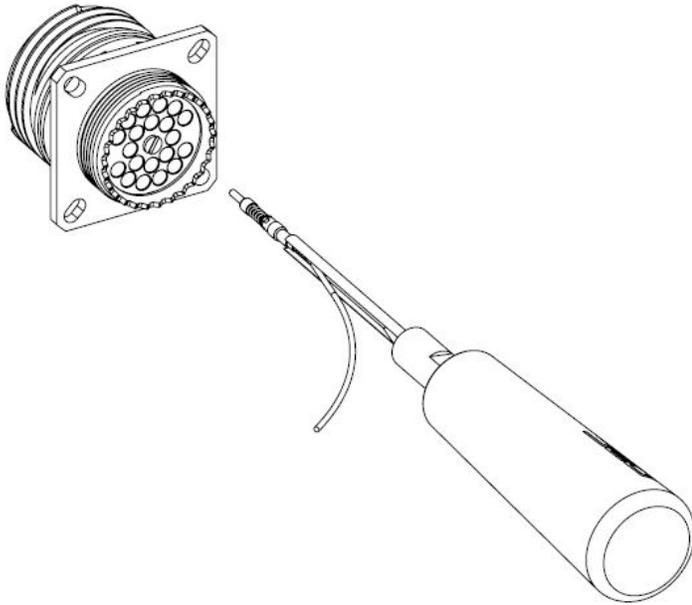
Q38HD RECEPTACLE, NO BACKSHELL

TERMINATION

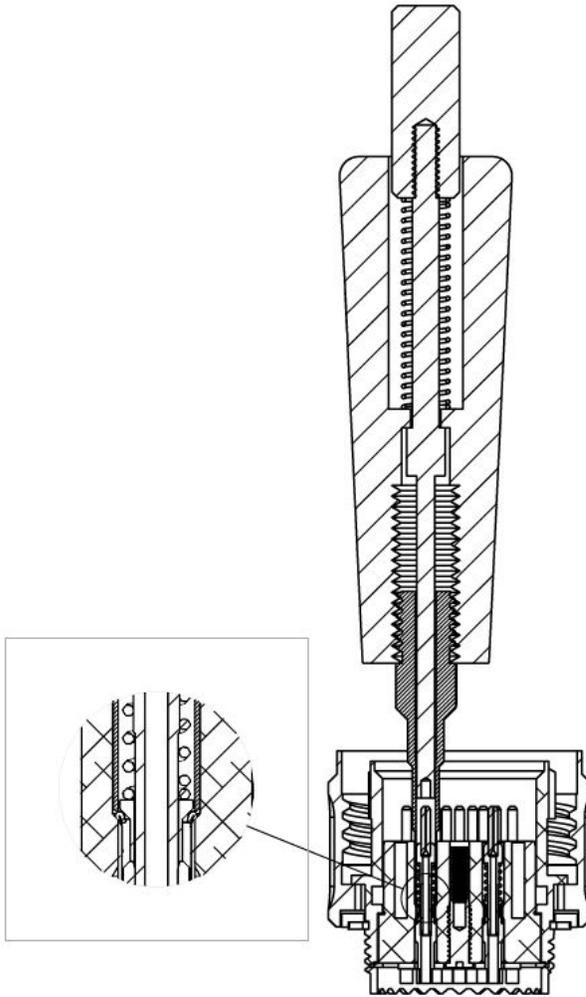
Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

POPULATE INSERT

To populate the Receptacle Body, use the Fiber Optic Insertion Tool PT-001 to insert the Fiber Optic Termini in desired channel.



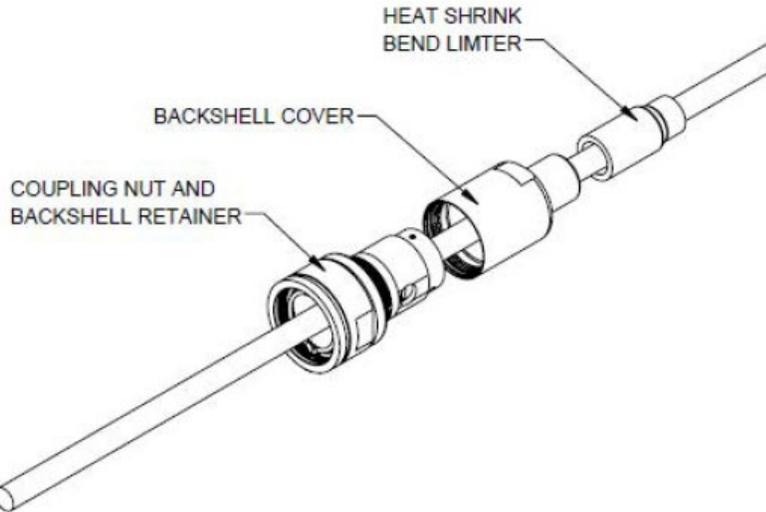
If there is a need to remove the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to unscrew the Cap Head Screw on the front of the Cap Sleeve Retainer (if applicable) to expose the Fiber Optic Termini. Slide the Fiber Optic Termini Removal Tool PT-002-H over the Fiber Optic Termini until it disengages the locking tab, then depress the release button. Once you replace the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to screw in the Cap Screw (if applicable).



Q38HD RECEPTACLE, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

Slide parts onto cable in the order below.

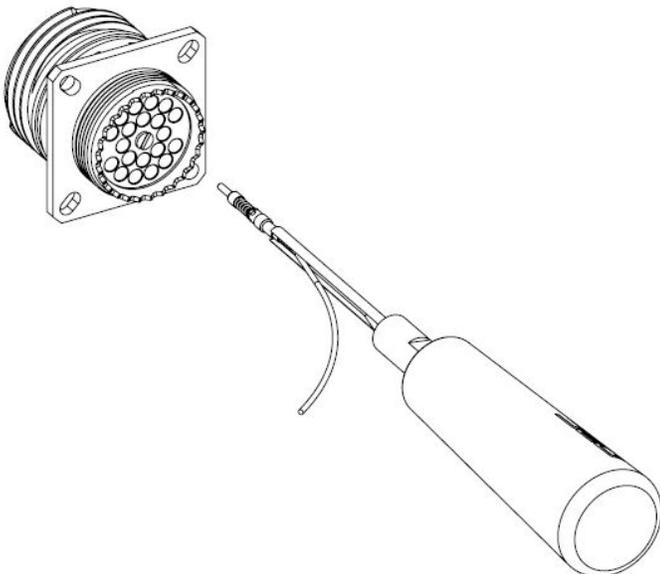


TERMINATION

Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

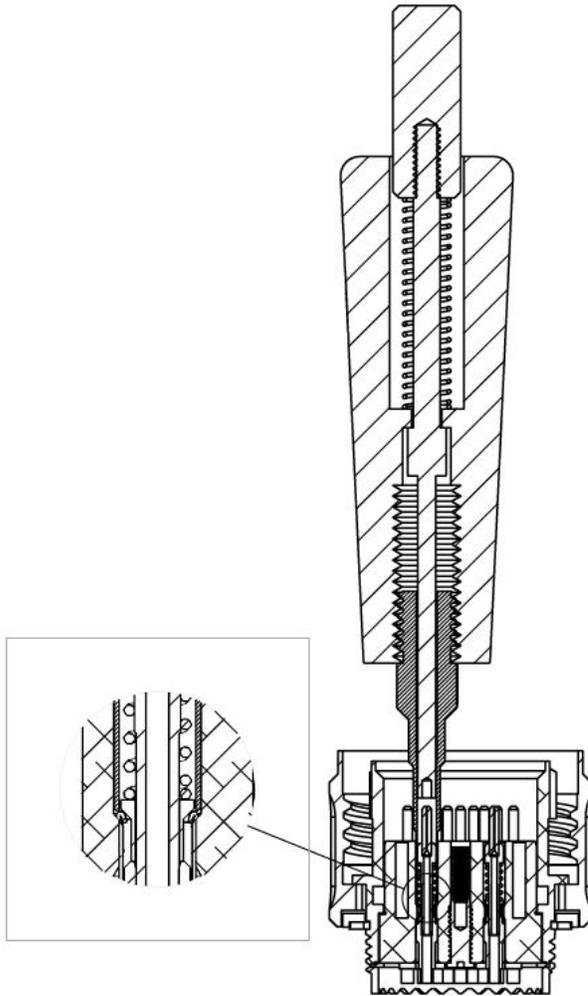
POPULATE INSERT

To populate the Receptacle Body, use the Fiber Optic Insertion Tool PT-001 to insert the Fiber Optic Termini in desired channel.



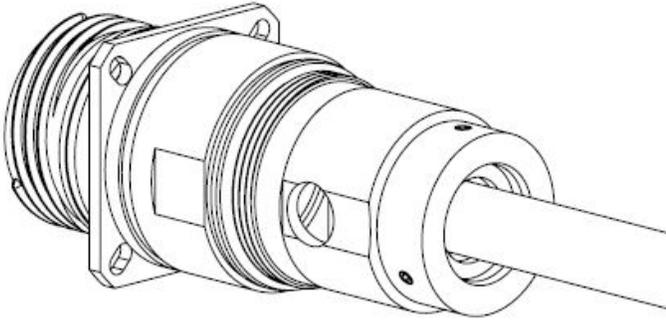
CAI-Q38: Q38 Customer Assembly Instructions

If there is a need to remove the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to unscrew the Cap Head Screw on the front of the Cap Sleeve Retainer (if applicable) to expose the Fiber Optic Termini. Slide the Fiber Optic Termini Removal Tool PT-002-H over the Fiber Optic Termini until it disengages the locking tab, then depress the release button. Once you replace the Fiber Optic Termini, use the Hex Screwdriver 5/64" PT-503 to screw in the Cap Screw (if applicable).



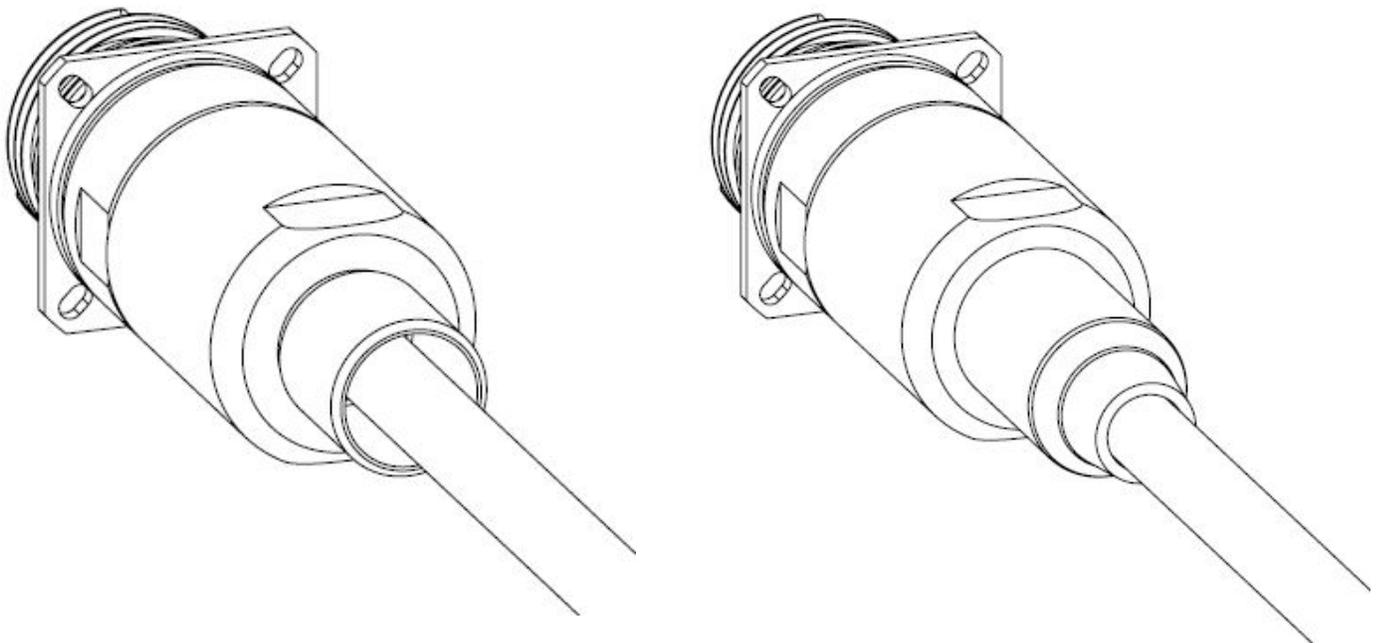
CONNECTOR ASSEMBLY

Slide the Coupling Nut and Backshell Retainer forward and hand tighten. Check the fiber length and position by looking through the holes in the Backshell Retainer to make sure the fiber is not twisted or kinked. To torque Coupling Nut and Backshell Retainer, place the Receptacle Assembly into the Vise PT-591. Attach the Adjustable Crow's Foot Wrench PT-536 or PT-546 onto Dial Torque-Measuring Wrench PT-506 and torque Coupling Nut and Backshell Retainer according to the values in the above Torque Table. Next, torque the Spacer according to the values in the above Torque Table.



Pull Strain Relief to bottom of Backshell Retainer and tighten set screws using Hex Driver PT-500. Use Torque Hex Driver PT-590 with Hex Bit 0.050" PT-599 and torque Set Screws to the values in the above Torque Table. Perform a final visual check by looking through the holes in the Backshell Retainer to make sure that the fiber is not twisted or kinked.

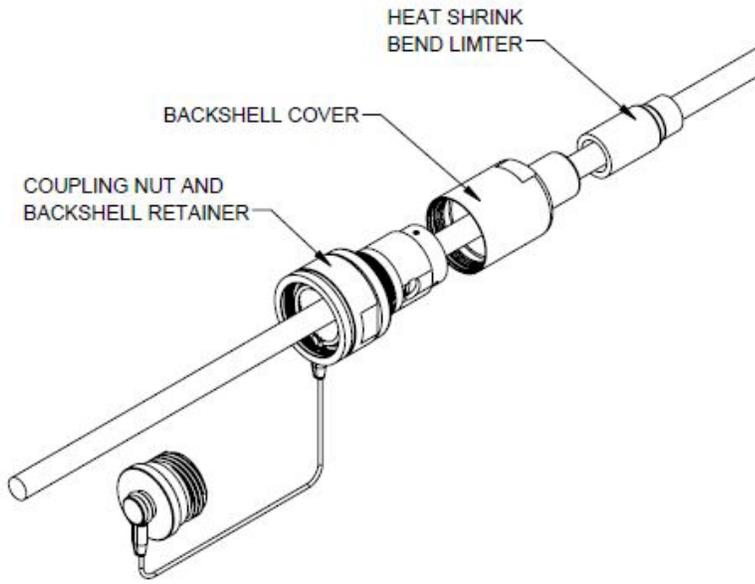
Slide Backshell forward and hand tighten. Torque Backshell according to the values in the above Torque Table. Slide the Heat Shrink Bend Limiter forward and use a Heat Gun to activate the Heat Shrink Bend Limiter.



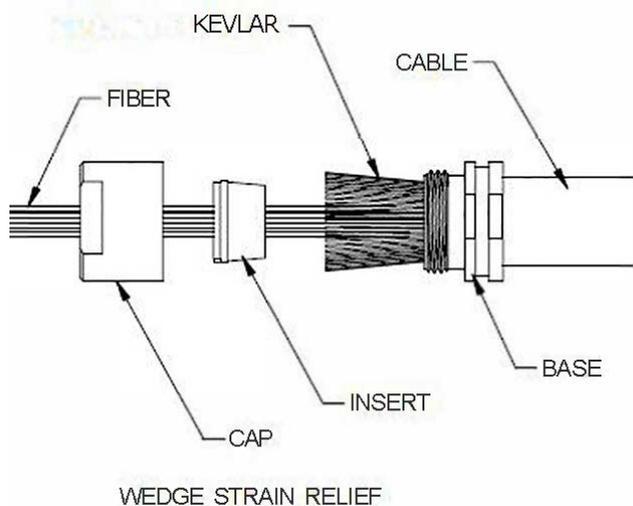
Q38EB PLUG, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

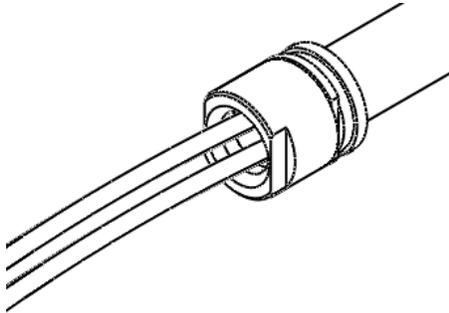
Slide parts onto cable in the order below.



Remove approximately 6-inches (152mm) of the outer jacket from the cable end. Thread the Wedge Strain Relief Base over the fiber and Kevlar and slide it to the cable jacket edge. Thread the Wedge Strain Relief Insert over the fibers. Spread the Kevlar out evenly and slide the Wedge Strain Relief Insert into the Wedge Strain Relief Base. The Kevlar should be trapped between the Wedge Strain Relief Base and the Wedge Strain Relief Insert. Cut Kevlar flush with top of Strain Relief Wedge.



Screw on Wedge Strain Relief Cap to the Wedge Strain Relief Base. Tighten using the Dial Torque-Measuring Wrench PT-506 and Crow's Foot Wrench PT-536 and torque to the values in the above Torque Table.

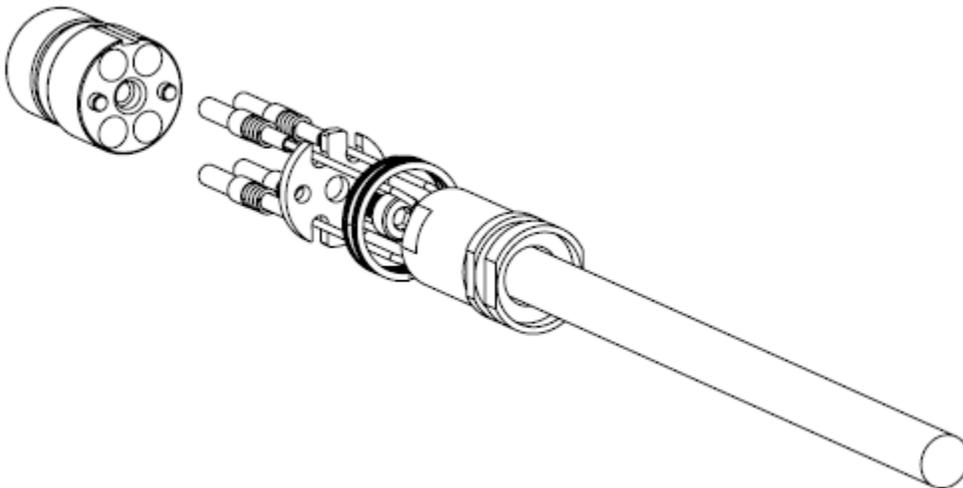


TERMINATION

Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

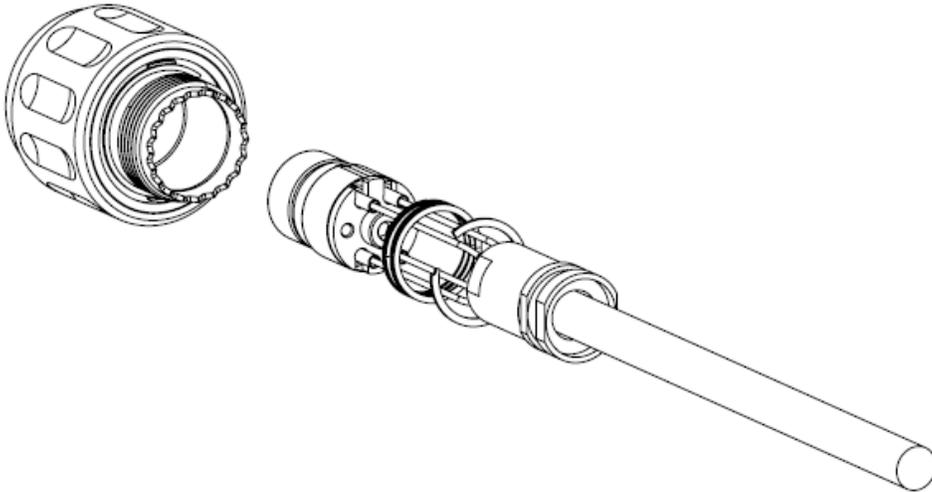
POPULATE INSERT

Insert the Fiber Optic Termini into the back of the Insert Cavities according to the desired pinout. Place the Termini Retainer Plate between the 900 μ m fibers making sure that the springs are between the Fiber Optic Termini and Termini Retainer Plate. Apply a drop of Loctite 222 to the Socket Head Cap Screw and use Hex Tool PT-503 to fasten the Termini Retainer Plate to the Insert. Torque the Socket Head Screw to the values in the above Torque Table using Torque-Measuring Head Drive PT-590 and Bit Size 5/64" PT-599. Use a pair of Long Nose Pliers PT- 532 to ensure the termini are fully seated against the ball lenses.

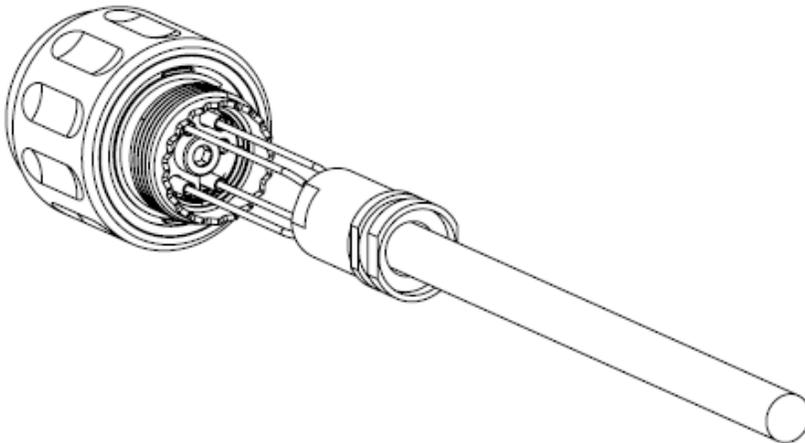


CONNECTOR ASSEMBLY

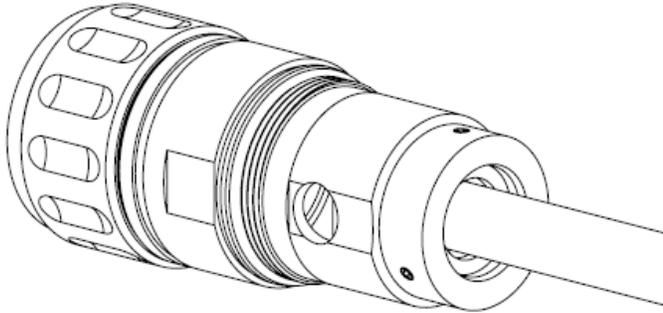
Use the Hex Screwdriver PT-503 to align the key and install the insert into the back of the Body. The Insert should protrude slightly from the seal and the Body. The seal should be visible around the Insert.



Slide the Wave Spring up behind the Insert. Install the Snap Ring behind the Wave Spring into the Snap Ring groove to hold Insert in place.

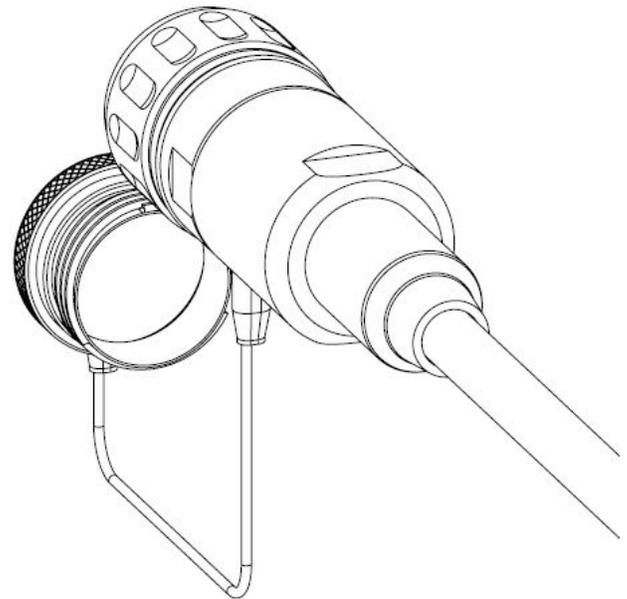
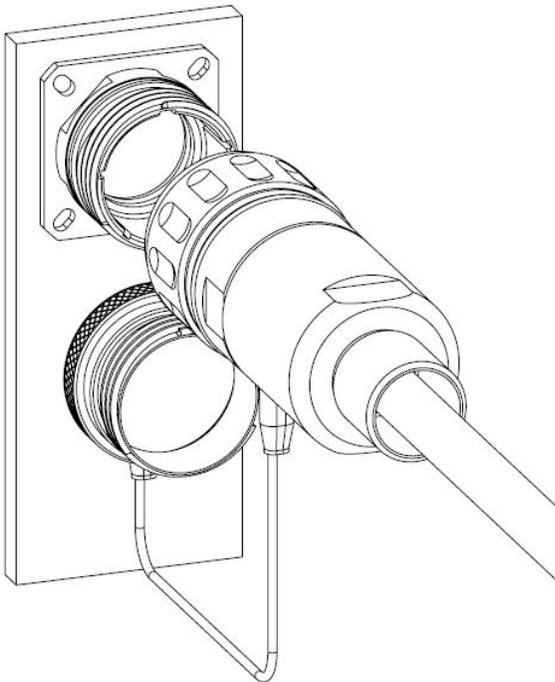


Slide the Coupling Nut forward and hand tighten. To torque the Coupling Nut, place the corresponding Torque Fixture into the Vise PT-591. Attach the Adjustable Crow's Foot Wrench PT-536 or PT-546 onto Dial Torque-Measuring Wrench PT-506. Hand-tighten Q38 Plug to Torque Fixture and Torque Coupling Nut according to the values in the above Torque Table. Next, slide the Spacer up and hand tighten. Torque the Spacer according to the values in the above Torque Table.



Pull Strain Relief to bottom of Spacer and tighten Set Screws using Hex Driver PT-500. Use Torque Hex Driver PT-590 with Hex Bit 0.050" PT-599 and torque Set Screws to the values in the above Torque Table. Perform a final visual check by looking through the holes in the Spacer to make sure that the fiber is not twisted or kinked.

Slide Backshell forward and hand tighten. Torque Backshell according to the values in the above Torque Table. Use the applicable QPC torque tool or equivalent (Daniels Manufacturing recommended) to hold the connector while torquing. Slide the Heat Shrink Bend Limiter forward and use a Heat Gun to activate the Heat Shrink Bend Limiter.



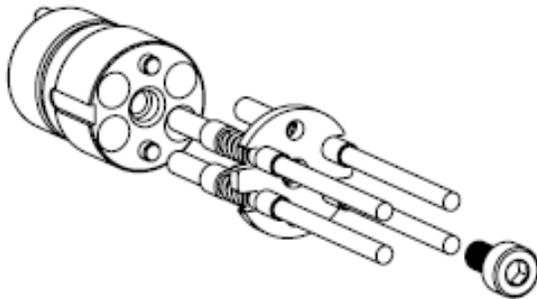
Q38EB RECEPTACLE, NO BACKSHELL

TERMINATION

Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

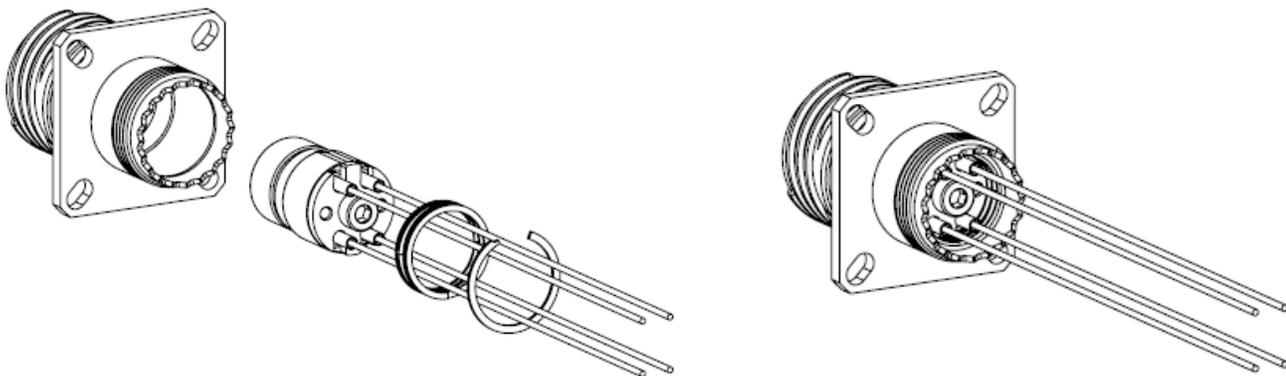
POPULATE INSERT

Insert the Fiber Optic Termini into the back of the Insert Cavities according to the desired pinout. Place the Termini Retainer Plate between the 900 μ m or 2mm fibers making sure that the springs are between the Fiber Optic Termini and Termini Retainer Plate. Apply a drop of Loctite 222 to the Socket Head Cap Screw and use Hex Tool PT-503 to fasten the Termini Retainer Plate to the Insert. Torque the Socket Head Screw to the values in the above Torque Table using Torque-Measuring Head Drive PT-590 and Bit Size 5/64" PT-599. Use a pair of Long Nose Pliers PT- 532 to ensure the termini are fully seated against the ball lenses.



CONNECTOR ASSEMBLY

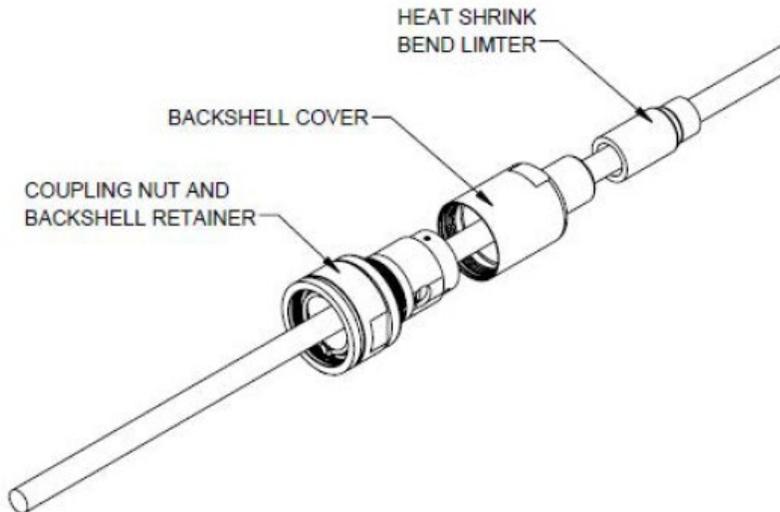
Use the Hex Screwdriver PT-503 to align the key and install the insert into the Receptacle Body. Slide the Wave Spring up behind the Insert. Install the Snap Ring behind the Wave Spring into the Snap Ring groove to hold Insert in place.



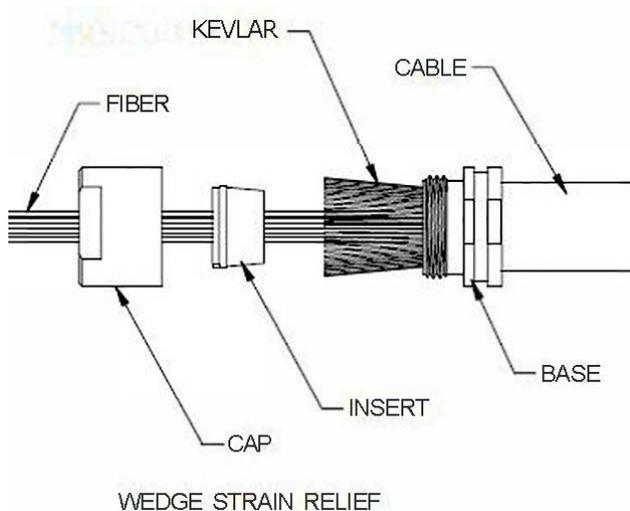
Q38EB RECEPTACLE, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

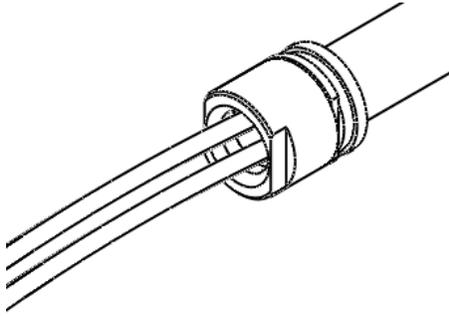
Slide parts onto cable in the order below.



Remove approximately 6-inches (152mm) of the outer jacket from the cable end. Thread the Wedge Strain Relief Base over the fiber and Kevlar and slide it to the cable jacket edge. Thread the Wedge Strain Relief Insert over the fibers. Spread the Kevlar out evenly and slide the Wedge Strain Relief Insert into the Wedge Strain Relief Base. The Kevlar should be trapped between the Wedge Strain Relief Base and the Wedge Strain Relief Insert. Cut Kevlar flush with top of Strain Relief Wedge.



Screw on Wedge Strain Relief Cap to the Wedge Strain Relief Base. Tighten using the Dial Torque-Measuring Wrench PT-506 and Crow's Foot Wrench PT-536 and torque to the values in the above Torque Table.

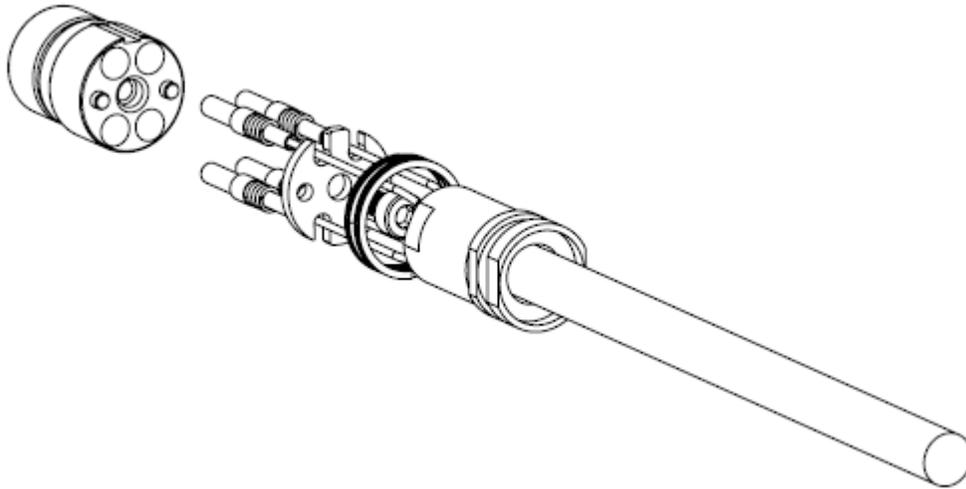


TERMINATION

Use the Stripping Length Diagrams located in the Appendix with the Fiber Optic Termination and Polishing Assembly Instructions (reference CAI-TERM) to terminate each fiber.

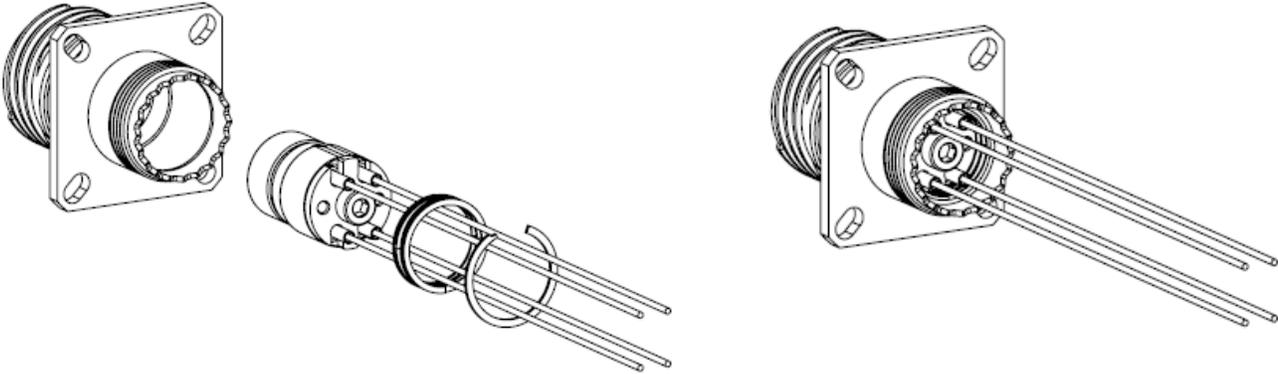
POPULATE INSERT

Insert the Fiber Optic Termini into the back of the Insert Cavities according to the desired pinout. Place the Termini Retainer Plate between the 900 μ m fibers making sure that the springs are between the Fiber Optic Termini and Termini Retainer Plate. Apply a drop of Loctite 222 to the Socket Head Cap Screw and use Hex Tool PT-503 to fasten the Termini Retainer Plate to the Insert. Torque the Socket Head Screw to the values in the above Torque Table using Torque-Measuring Head Drive PT-590 and Bit Size 5/64" PT-599. Use a pair of Long Nose Pliers PT- 532 to ensure the termini are fully seated against the ball lenses.

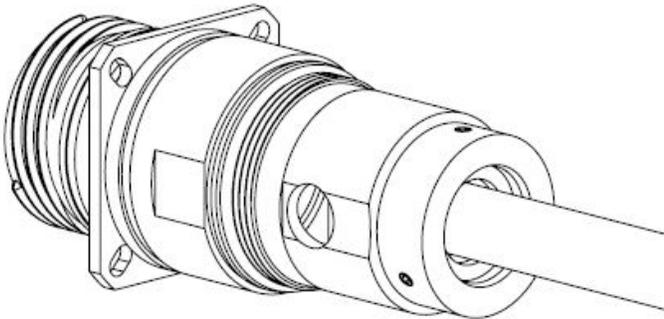


CONNECTOR ASSEMBLY

Use the Hex Screwdriver PT-503 to align the key and install the insert into the Receptacle Body. The Insert should protrude slightly from the Body. Slide the Wave Spring up behind the Insert. Install the Snap Ring behind the Wave Spring into the Snap Ring groove to hold Insert in place



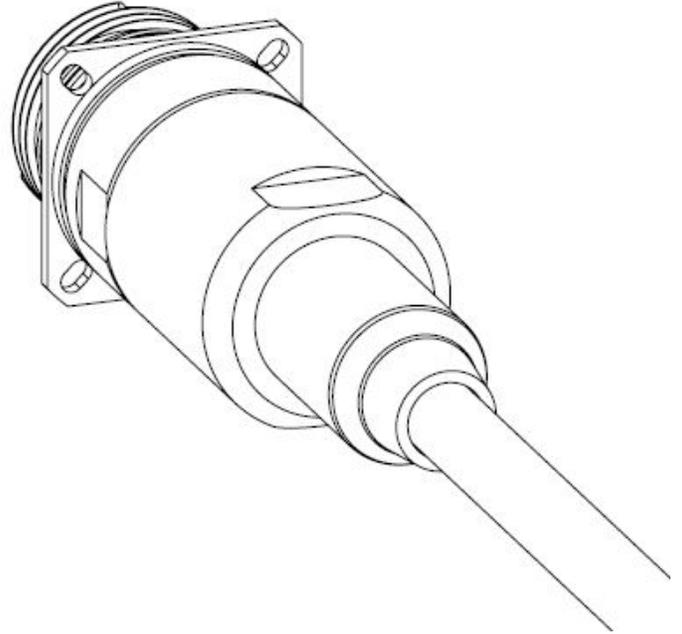
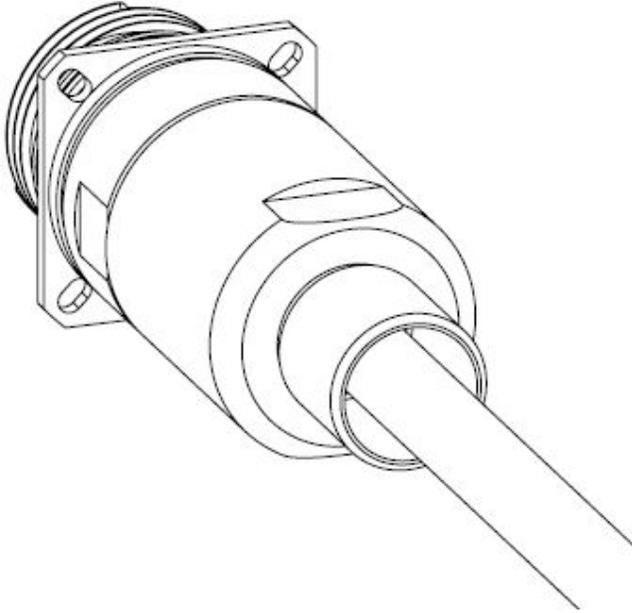
Slide the Coupling Nut and Backshell Retainer forward and hand tighten. Check the fiber length and position by looking through the holes in the Backshell Retainer to make sure the fiber is not twisted or kinked. To torque Coupling Nut and Backshell Retainer, place the Receptacle Assembly into the Vise PT-591. Attach the Adjustable Crow's Foot Wrench PT-536 or PT-546 onto Dial Torque-Measuring Wrench PT-506 and torque Coupling Nut and Backshell Retainer according to the values in the above Torque Table. Next, torque the Spacer according to the values in the above Torque Table.



Pull Strain Relief to bottom of Backshell Retainer and tighten set screws using Hex Driver PT-500. Use Torque Hex Driver PT-590 with Hex Bit 0.050" PT-599 and torque Set Screws to the values in the above Torque Table. Perform a final visual check by looking through the holes in the Backshell Retainer to make sure that the fiber is not twisted or kinked.

CAI-Q38: Q38 Customer Assembly Instructions

Slide Backshell forward and hand tighten. Torque Backshell according to the values in the above Torque Table. Slide the Heat Shrink Bend Limiter forward and use a Heat Gun to activate Heat Shrink Bend Limiter.



Appendix

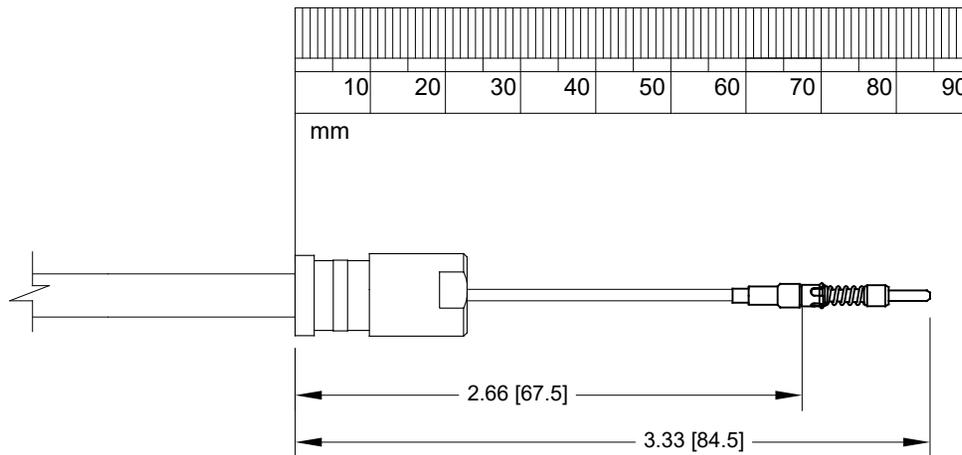
STRIPPING LENGTHS – Q38 CONNECTORS

- WI 851-62 - FIGURE 11.1 – Q38HD PLUG AND RECEPTACLE WITH STRAIGHT BACKSHELL SIZE 11 – 19
- WI 851-62 - FIGURE 11.2 – Q38HD PLUG AND RECEPTACLE WITH STRAIGHT BACKSHELL SIZE 21 – 25
- WI 851-62 - FIGURE 11.3 – Q38HD EPOXY CUP TERMINUS
- WI 851-62 - FIGURE 11.4 – Q38EB PLUG WITH CRIMP STYLE BACKSHELL
- WI 851-62 - FIGURE 11.5 – Q38EB RECEPTACLE, SIMPLEX CABLE

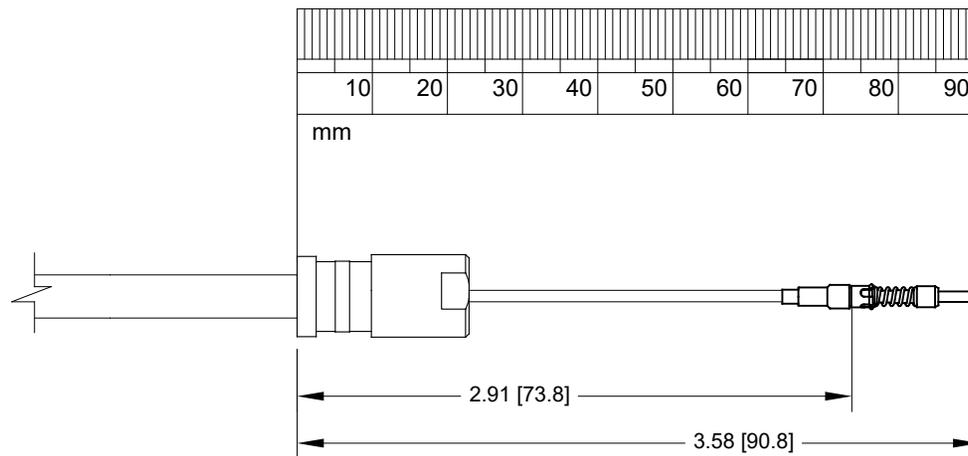
Revision Change Record

Revision	Date	Section	Description	Approval
0	3/02/2022	All	Newly Released Document	CN
1	5/27/2022	Q38EB	Added New Instructions for the Q38EB	CN
2	8/10/2023	Q38EB / Q38HD	Added instructions for Receptacle with Backshell	RZ

Q38HD PLUG AND RECEPTACLE WITH STRAIGHT BACKSHELL SIZE 11-19



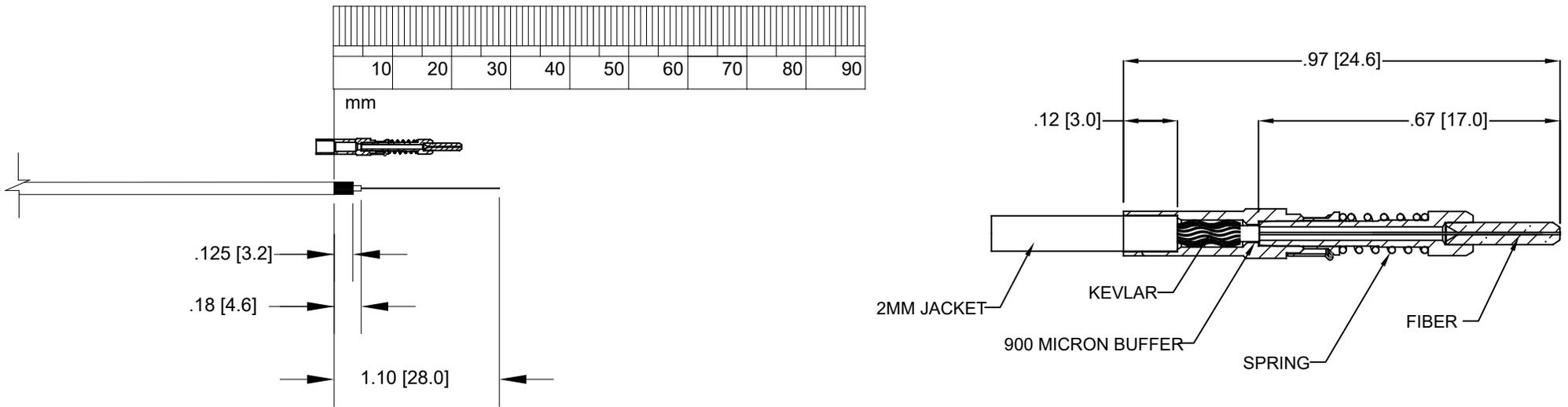
Q38HD PLUG AND RECEPTACLE WITH STRAIGHT BACKSHELL SIZE 21-25



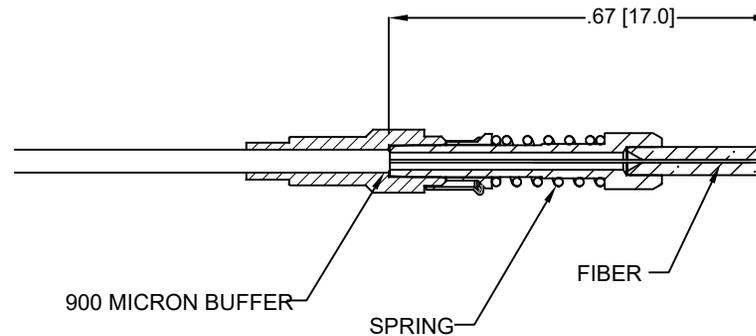
Q38HD

RECEPTACLE SIMPLEX CABLE

EPOXY CUP OPTION (E2)

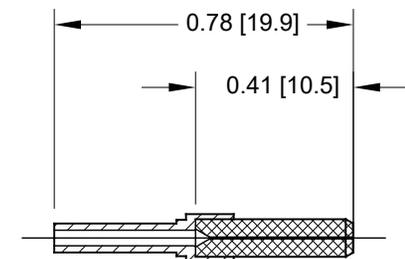
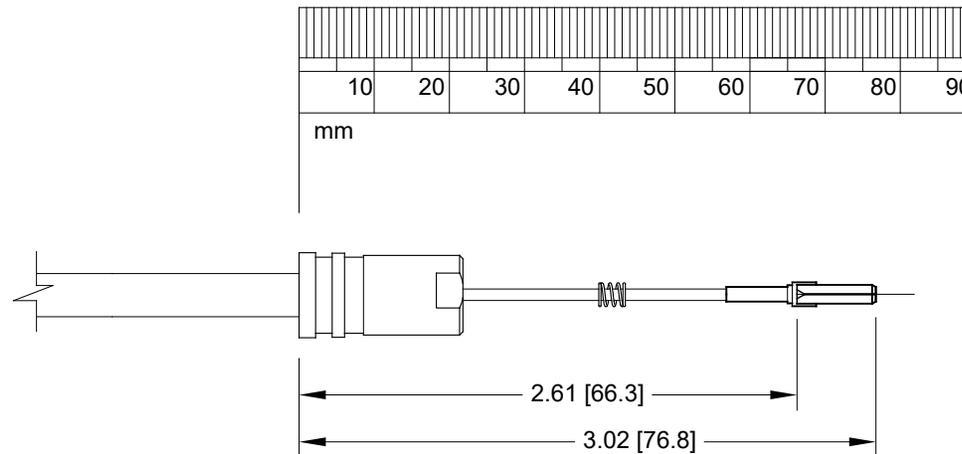


900μm OPTION



Q38EB CONNECTOR

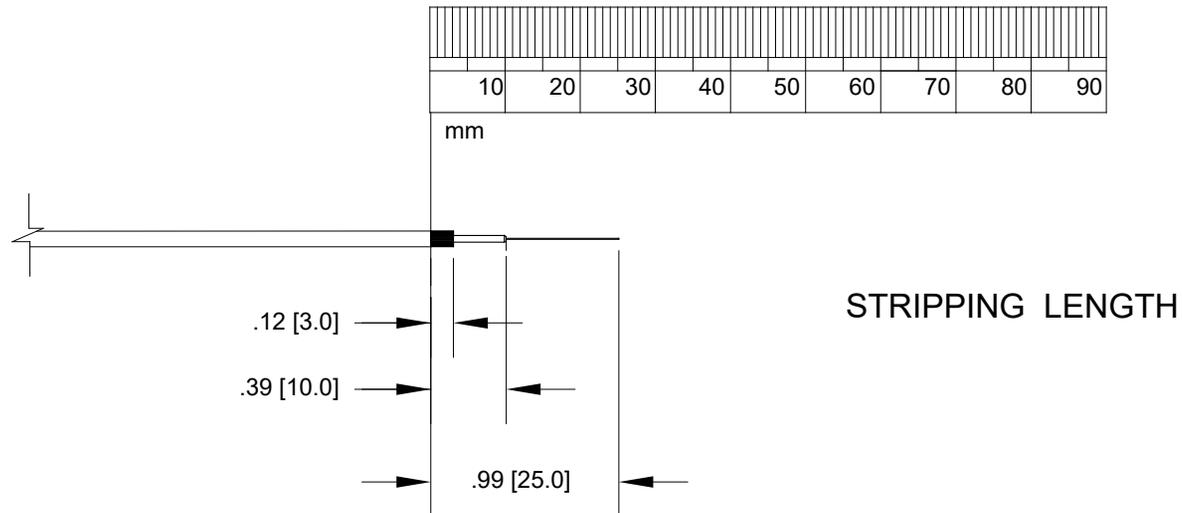
PLUG, WITH CRIMP STYLE BACKSHELL



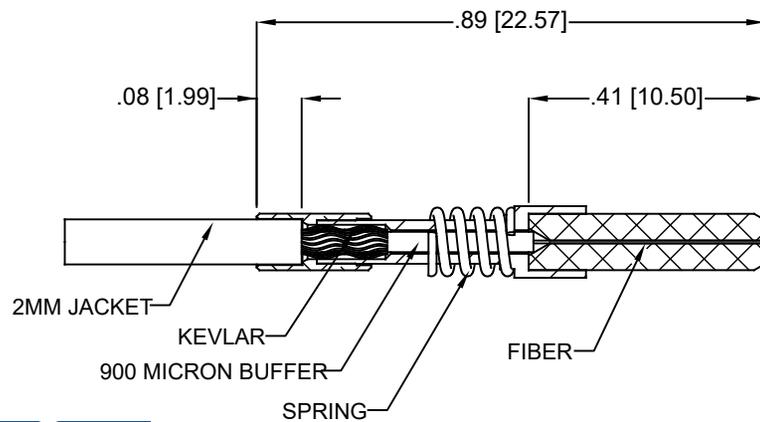
NOT TO SCALE

Q38EB CONNECTOR

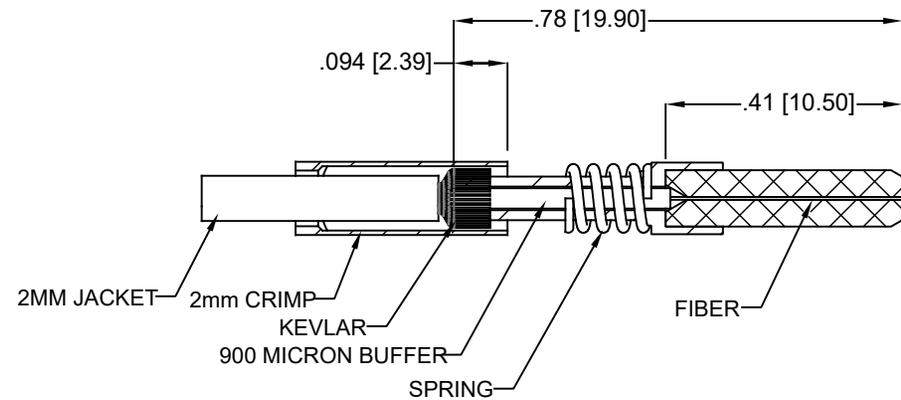
RECEPTACLE, SIMPLEX CABLE



EPOXY CUP OPTION (SE2)



CRIMP OPTION (S02)



CABLE PREPARATION