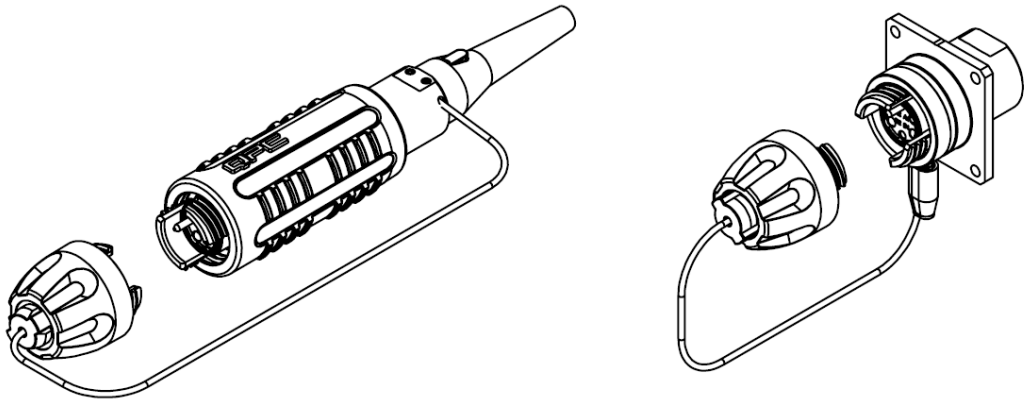
QMini Connectors
Customer Assembly Instructions



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SCOPE

This document describes the Assembly Instructions for the QMini product line. Please use the table of contents above to locate the applicable section(s) based on the products needing assembly.

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.

- 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.

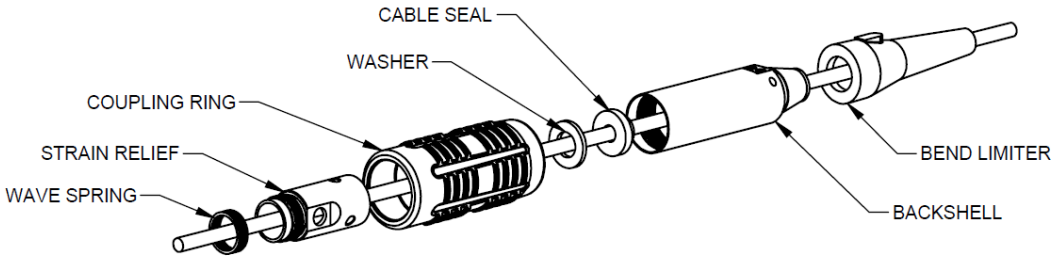
STANDARD & SPECIALTY ASSEMBLY TOOLS

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

PLUG, STRAIGHT BACKSHELL, BOOT

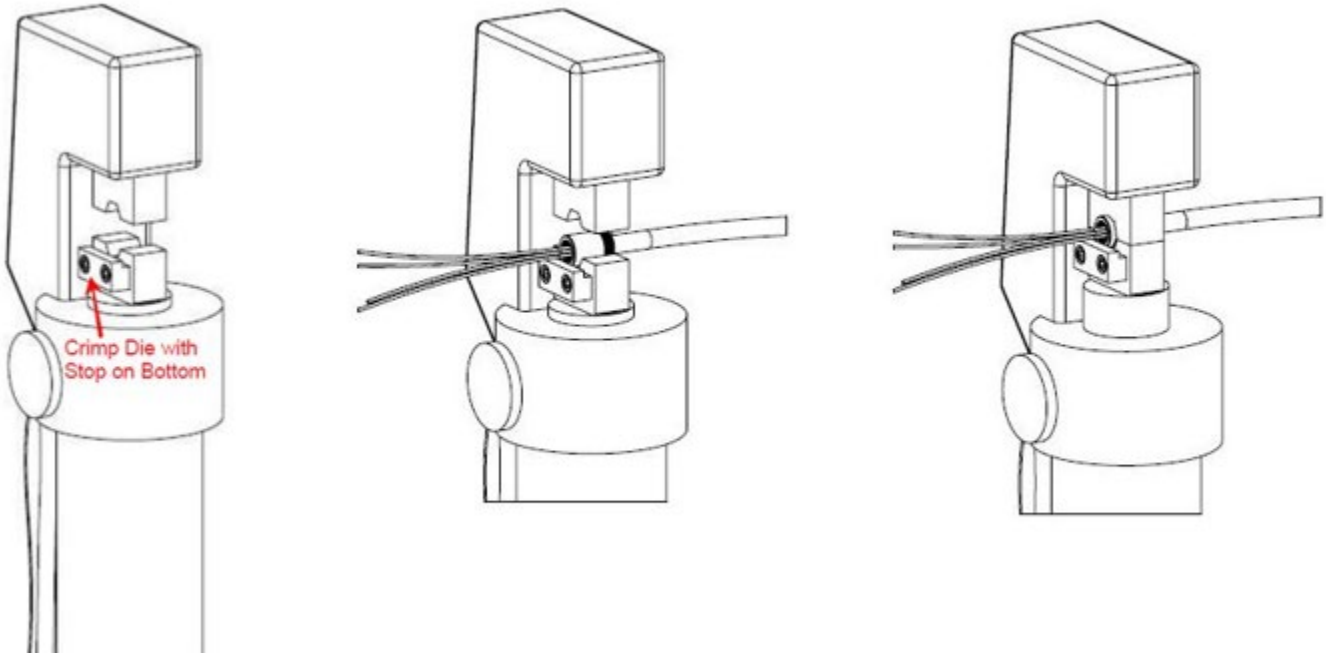
CABLE PREPARATION

Slide parts onto cable in the order below.



Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.

Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.

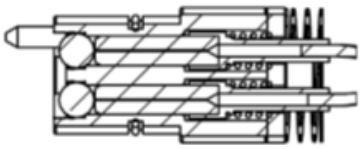


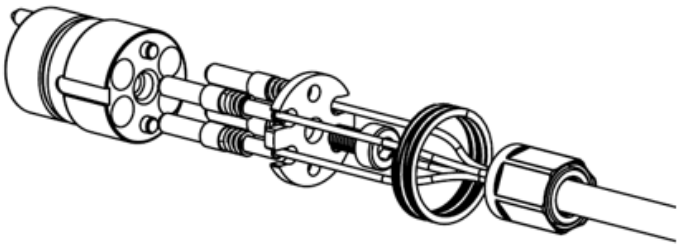
TERMINATION

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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.

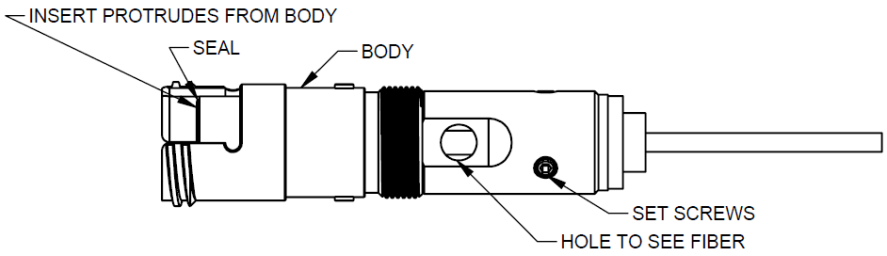




CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504 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 and strain relief into place. Place onto the QMini Torque Fixture Stand PT-388 with the QMini Torque Fixture PT-618. Hand tighten the strain relief while on the torque fixture so that the fibers do not get twisted or kinked. Torque the strain relief using the adjustable crowfoot wrench PT-536 with the dial torque-measuring wrench PT-506 to the values in the torque table in the appendix. Inspect the fibers by looking through the holes in the strain relief making sure that the fibers are not twisted or kinked. Pull on the cable to set the crimp to bottom of strain relief. Use the hex screwdriver PT-500 to tighten the set screws on the strain relief to lock the crimp into place. Torque the set screws using torque-measuring hex drive PT-590 and hex bit 0.05-inch from PT-599 to the values in the torque table in the appendix

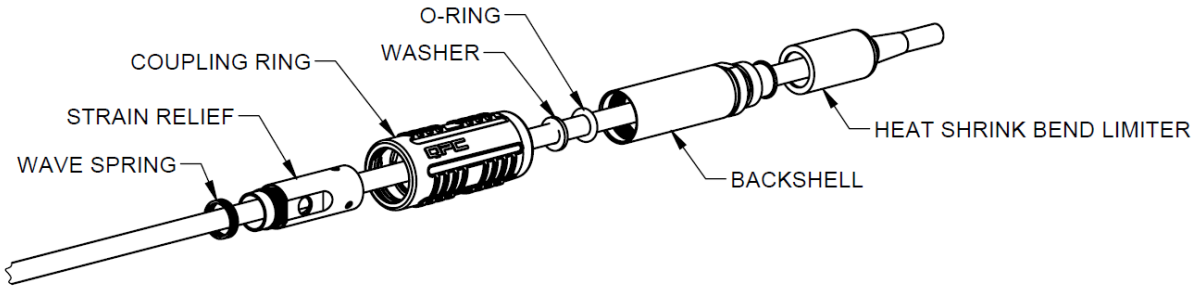


Slide the washer and cable seal to the base of the strain relief. Slide the coupling ring over the strain relief and connector body. Place the plug on the torque fixture and hand-tighten the coupling ring. Slide the backshell into position and hand-tighten it. Torque the backshell using the crow's foot wrench PT-536 with the dial torque measuring wrench PT-506 to the values in the torque table in the appendix. Slide the bend limiter into position and snap into place.

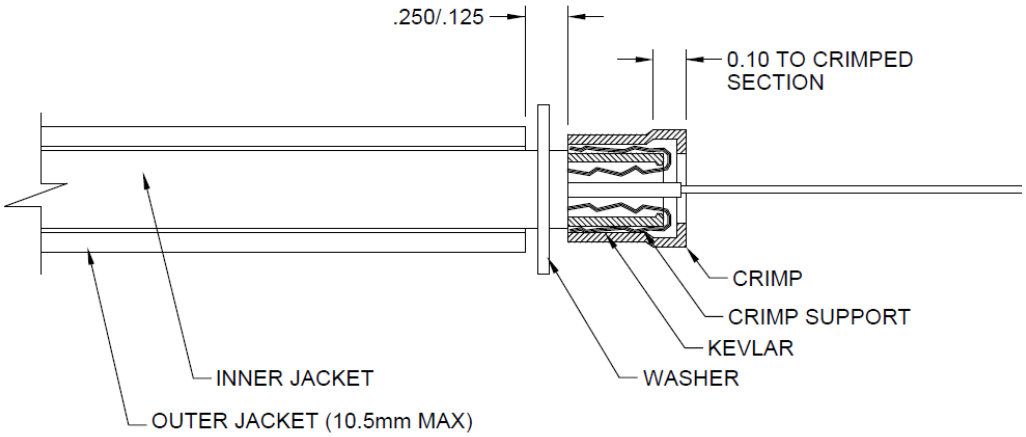
PLUG, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

Slide parts onto cable in the order below.



In the case of armored cable over 7.5mm Diameter, the washer will rest past the end of the armored section.



Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.

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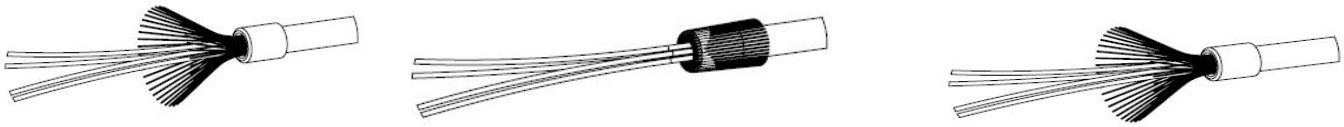
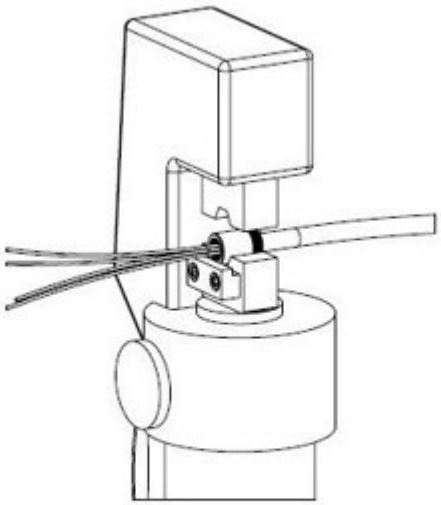
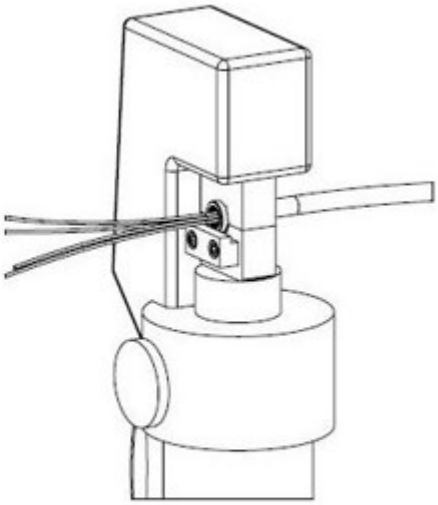


Setup the hydraulic crimping tool PT-540 with the die set PT-541. Place the crimp die with stop on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handle until the crimp dies are touching. Release the crimp by turning the knob counterclockwise.



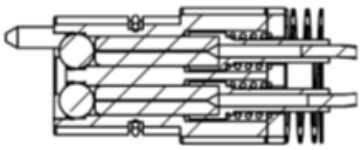


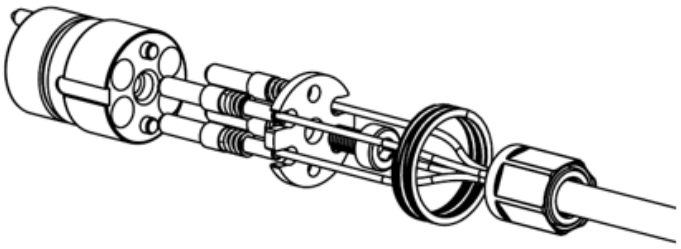
TERMINATION

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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.



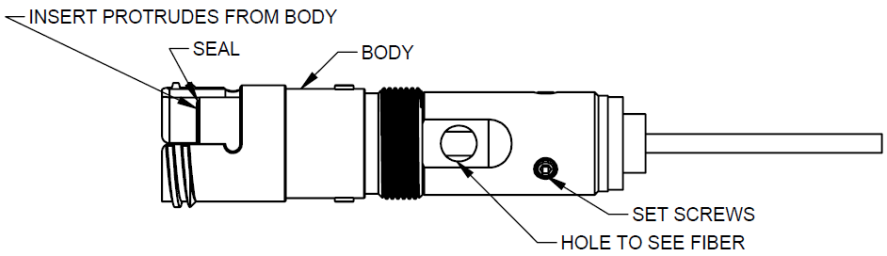


CONNECTOR ASSEMBLY

Use Screwdriver, 2.5mm Hex Tool PT-504 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.

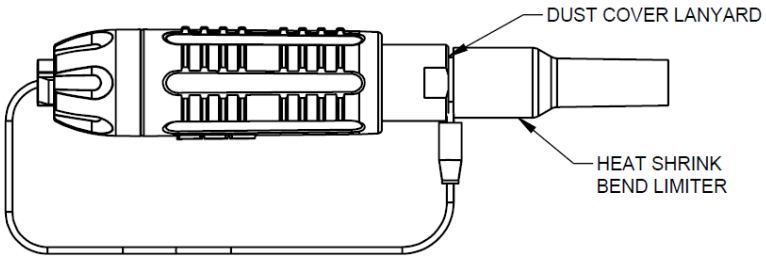
Slide the wave spring and strain relief into place. Place onto the QMini torque fixture Stand PT-388 with QMini torque fixture PT-618. Hand tighten the strain relief while on the torque fixture so that the fibers do not get twisted or kinked. Torque the strain relief using the adjustable crowfoot wrench PT-536 with the dial torque-measuring Wrench PT-506 to the values in the torque table in the appendix. Inspect the fibers by looking through the holes in the strain relief making sure that the fibers are not twisted or kinked.
Use the cable to pull the crimp to bottom of Strain Relief. Use Screwdriver, 1/16” Hex Tool PT-501 to tighten the set screws on the strain relief to lock the crimp into place. Torque the set screws using Torque-Measuring Hex Drive PT-590 and Hex Bit 1/16” PT-599 to the values in the torque table.

Perform a final visual check by looking through the holes of the strain relief to make sure that the fiber is not twisted or kinked.



Slide the O-Ring cable seal to the base of the strain relief. Slide the coupling ring over the strain relief and connector body. Place the plug on the torque fixture and hand-tighten the coupling ring. Slide the backshell into position and hand-tighten it. Torque the backshell using the crow’s root wrench PT-536 with the dial torque measuring wrench PT-506 to the values in the torque table.

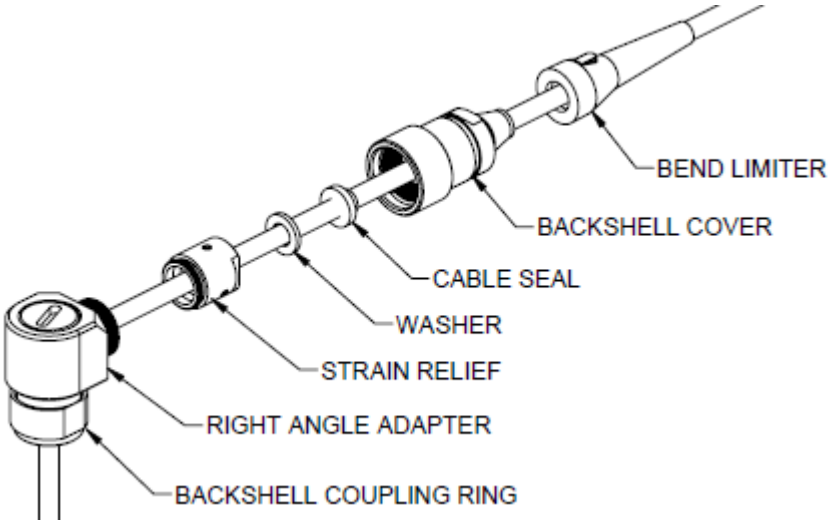
Apply an adhesive (Loctite Stik’N Seal Outdoor Adhesive or similar for rubber applications) on the inside of the heat shrink bend limiter. Slide it up towards the backshell below the lanyard groove and heat shrink.



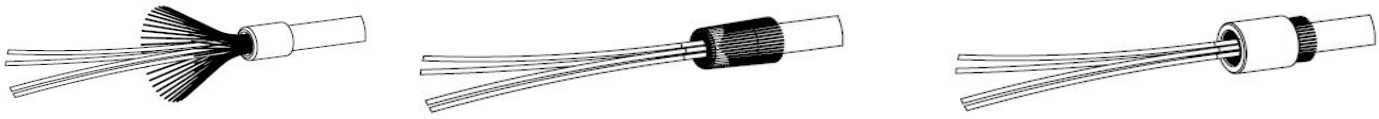
PLUG, SEALED 90° BACKSHELL, BOOT

CABLE PREPARATION

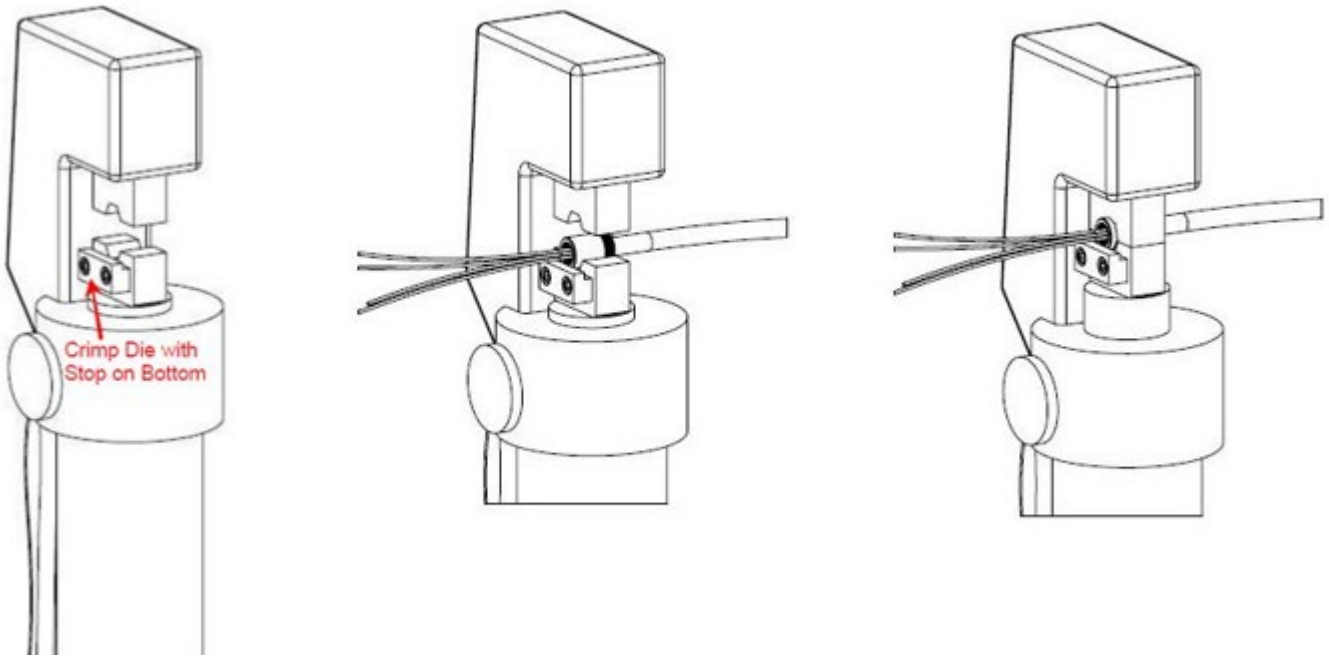
Slide parts onto cable in the order below.



Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.



Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the handles can be pumped to crimp. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release crimp by turning knob counterclockwise.

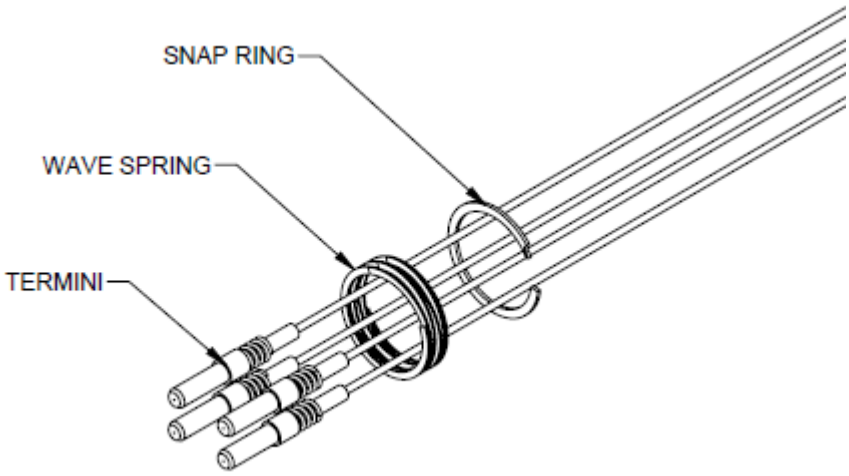


TERMINATION

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.

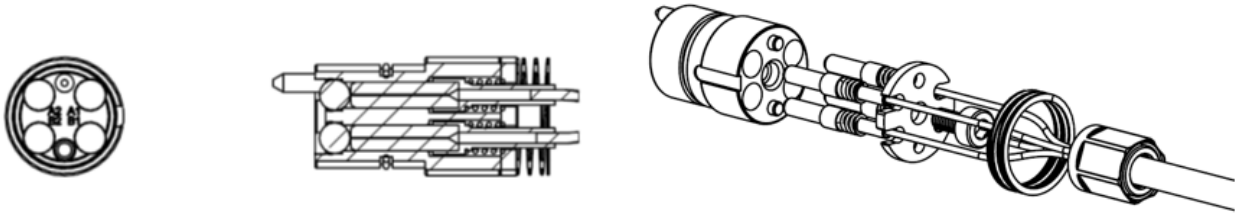
FRONT ASSEMBLY

Slide the wave spring onto cable as shown.



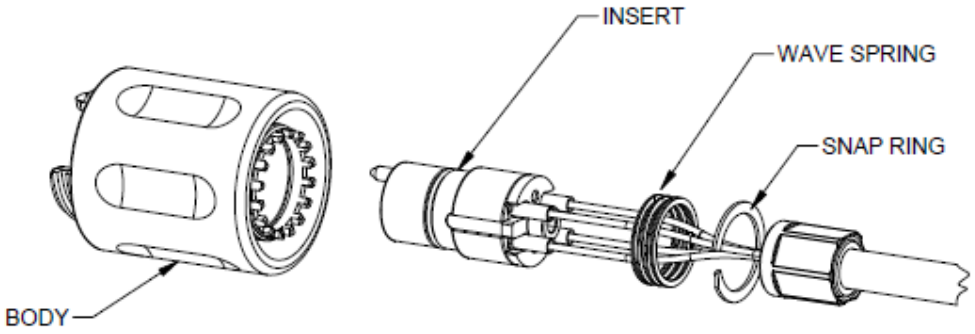
POPULATE INSERT

Insert the fiber optic termini into the back of the insert cavities according to the desired pinout. Place the termini retainer plate between the 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.



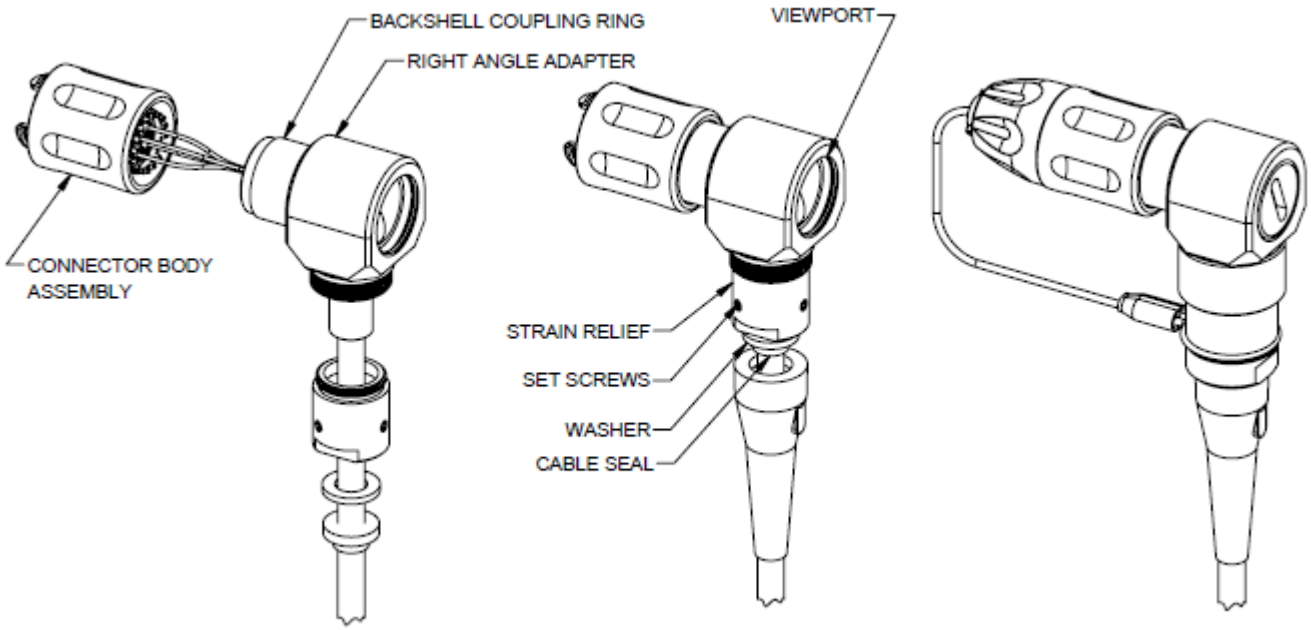
CONNECTOR ASSEMBLY

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



Slide the wave spring into place and secure with the snap ring. The snap ring may be installed by pushing one corner into the slot in the body and working the ring around the inside diameter with a small Allen wrench. Care should be taken to avoid damage to the fibers.

Screw the connector body assembly onto the QMini torque fixture stand PT-388 with QMini Torque Fixture PT-618.



Slide the right-angle adapter into position and engage the threads with the backshell coupling ring. Position and hold the adapter to the desired clocking angle.

Hand tighten the backshell coupling ring while maintaining the clocking angle.

Torque the backshell coupling ring using the adjustable crowfoot wrench PT-536 with the dial torque-measuring wrench PT-506 to the values in the torque table in the appendix.

Slide the strain relief up and hand tighten to the Right-Angle Adapter. Torque the strain relief with the adjustable crowfoot Wrench PT-536 with the Dial Torque-Measuring Wrench PT-506 to the values in the torque table.

Use the cable to pull the crimp to the bottom of the strain relief. Use a 1.5mm hex screwdriver to tighten the set screws on the strain relief to lock the crimp into place. Torque the set screws using a Torque-Measuring Hex Drive PT-590 and a 1.5mm hex bit to the values in the torque table. Slide the washer and cable seal to the base of the strain relief.

Look through the viewport to ensure the fibers are not twisted or kinked.

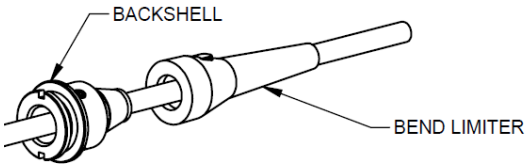
Install the viewport cover and torque to the values in the torque table.

Slide the Backshell Cover up and torque to the values in the torque table. Slide the bend limiter into position and snap into place.

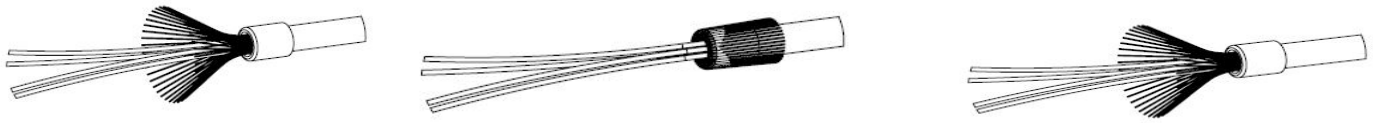
PLUG, 90° BACKSHELL, BOOT

CABLE PREPARATION

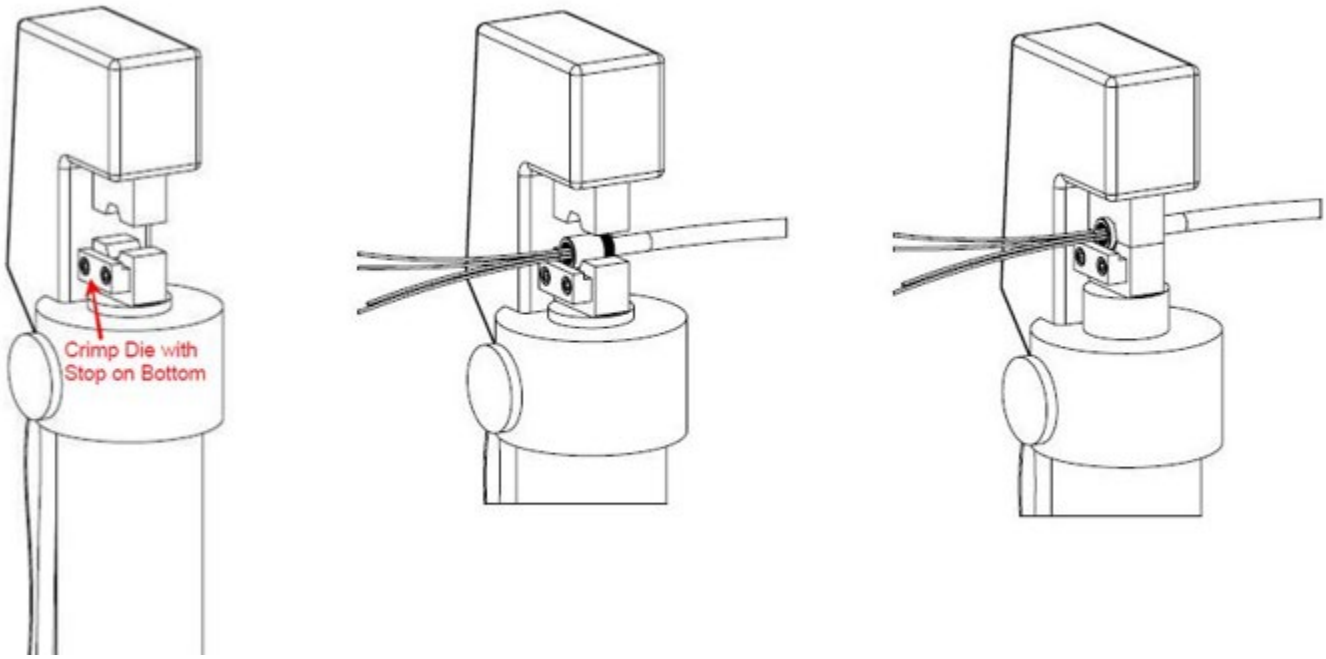
Slide parts onto cable in the order below.



Strip the cable jacket approximately 5” (127 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.



Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.

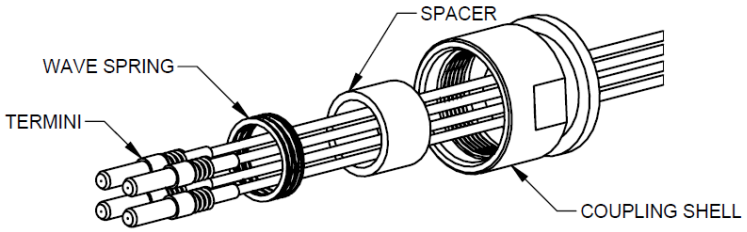


TERMINATION

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.

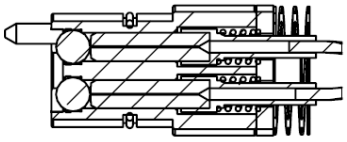
FRONT ASSEMBLY

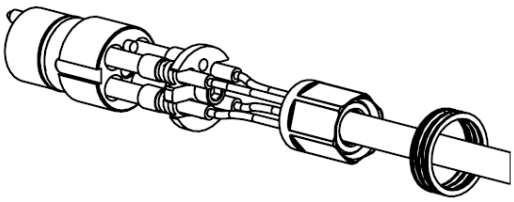
Slide the parts onto cable in the order below.



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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.

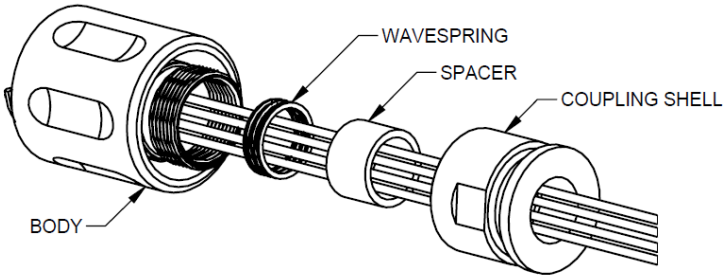




CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504, 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.

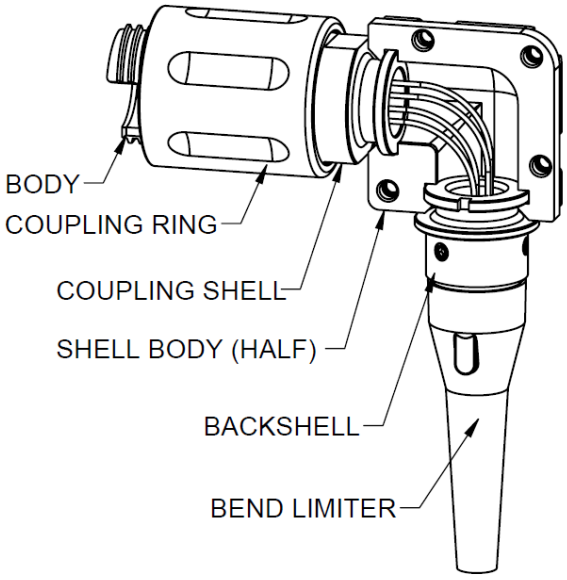
Slide the wave spring and spacer into place. Place onto the QMini torque fixture stand PT-388 with QMini torque fixture PT-618. Slide the coupling ring up and hand tighten while on the Torque Fixture so that the fibers do not get twisted or kinked. Torque the Coupling Ring using the adjustable crowfoot wrench PT-536 with the dial torque-measuring Wrench PT-506 to the values in the torque table.

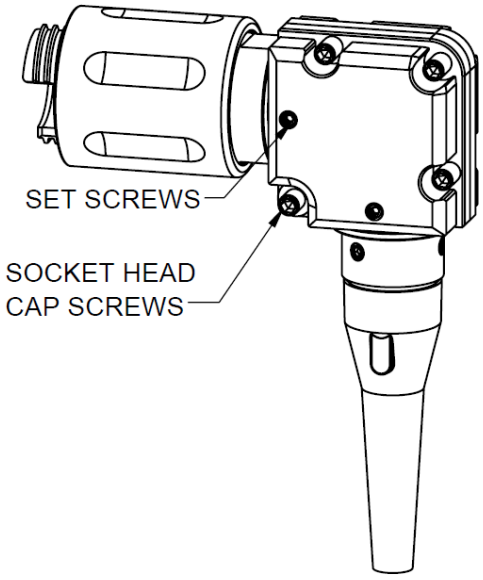


Use Cable to pull Crimp to bottom of Backshell. Use Screwdriver, 1/16” Hex Tool PT-501 to tighten the set screws on the Backshell to lock the crimp into place. Torque the Set Screws using Torque-Measuring Hex Drive PT-590 and Hex Bit 1/16” PT-599 to the values in the torque table in the appendix. Slide the bend limiter into position and snap into place.

Position the coupling ring plug body assembly and the backshell into the bottom half of the shell body groove. Perform a visual check to make sure that the fiber is not twisted or kinked.

Attach the top half of the shell body to the connector and tighten the socket head cap screws using Screwdriver, 3/32” Hex Tool PT-502 and torque using Torque-Measuring Hex Drive PT-590 and Hex Bit 3/32” PT-599 to the values in the torque table. Finally, tighten the Set Screws using Screwdriver, .050” Hex Tool PT-500 and torque using Torque-Measuring Hex Drive PT-590 and Hex Bit .050” PT-599 to the values in the torque table.





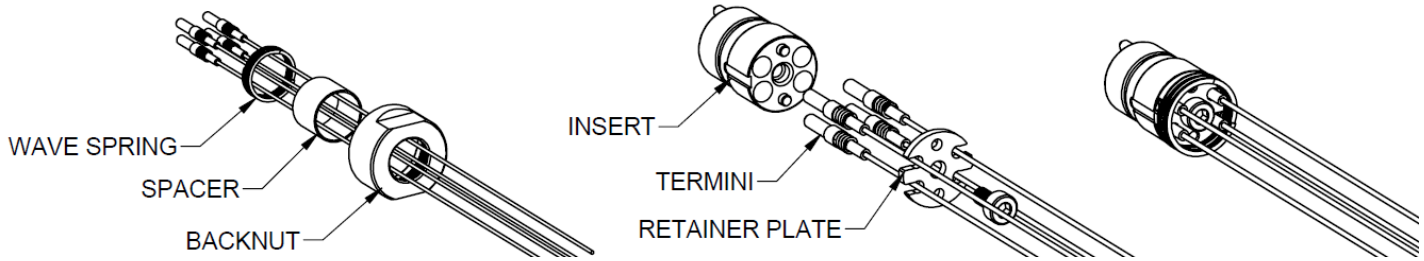
RECEPTACLE, NO BACKSHELL

TERMINATION

Before terminating the fiber, slide a Spring onto the jacket of the fiber unless the Spring is already captive on the Terminus body (e.g., SE2 Epoxy Cup Termini). For the S02 2mm simplex cable or SE2 Epoxy Cup Termini options, 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.
(NOTE: Per CAI-TERM, for the S02 2mm simplex cable with crimp Termini option, ensure Termini are crimped before proceeding.)

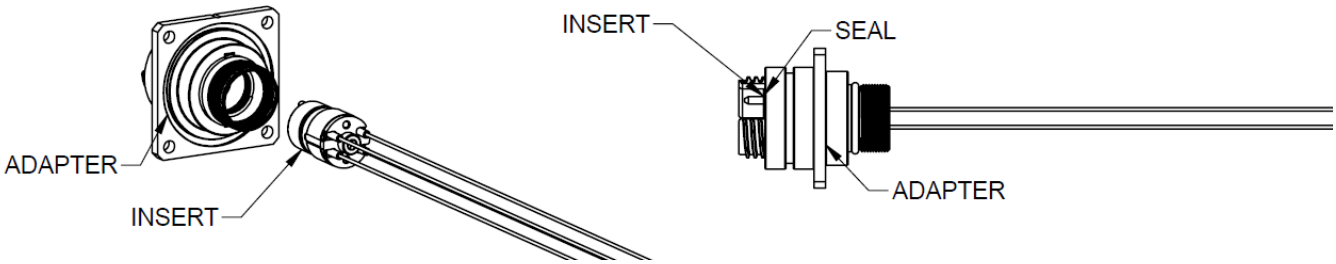
POPULATE INSERT

Insert the fiber optic termini into the back of the insert cavities according to the desired pinout. Place the termini retainer plate between the 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses

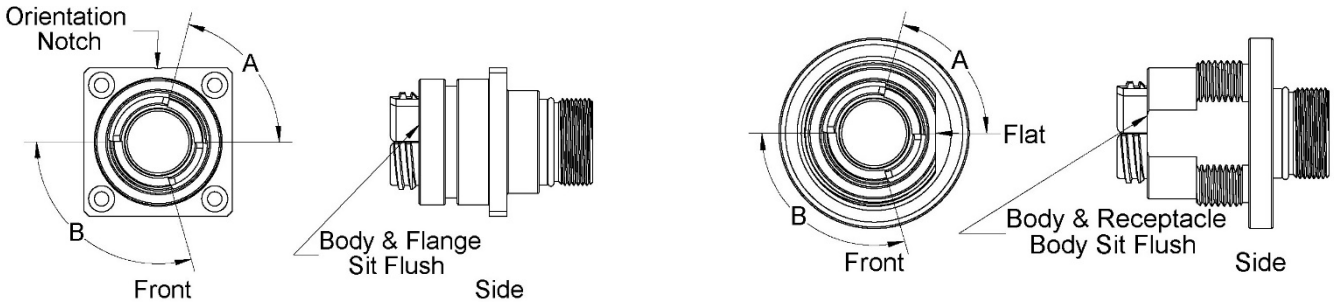


CONNECTOR ASSEMBLY

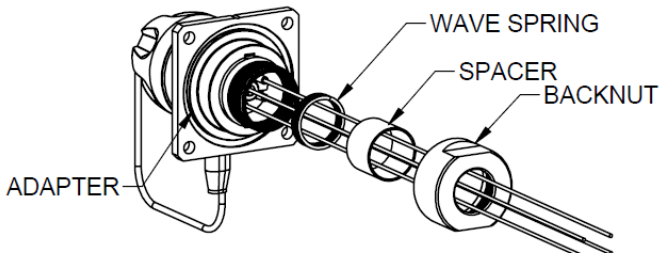
Use the 2.5mm Hex Screwdriver, PT-504, to align the key and install the insert into the back of the body. The insert should protrude slightly from the seal and the body. The seal should be visible around the insert.



***NOTE**: Orientation of the Connectors with the smaller tab (A) on the top and the larger (B) on the bottom.*



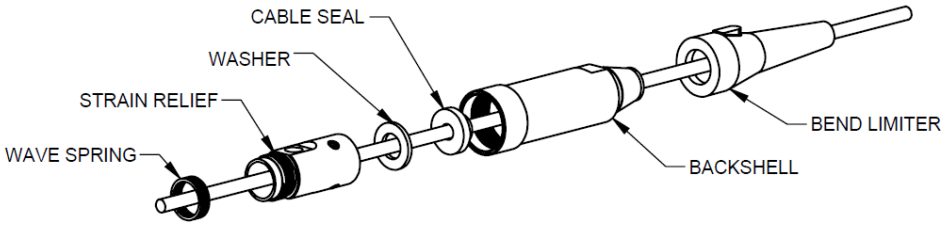
Slide the wave spring and spacer forward and secure flush against the back of the Body. Place the assembly in the 4" Drill Press Vise with 2 x Machined Plastic Jaws with Groove PT-591 and use the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to torque the Back Nut to the values in the torque table in the appendix.



RECEPTACLE, STRAIGHT BACKSHELL, BOOT

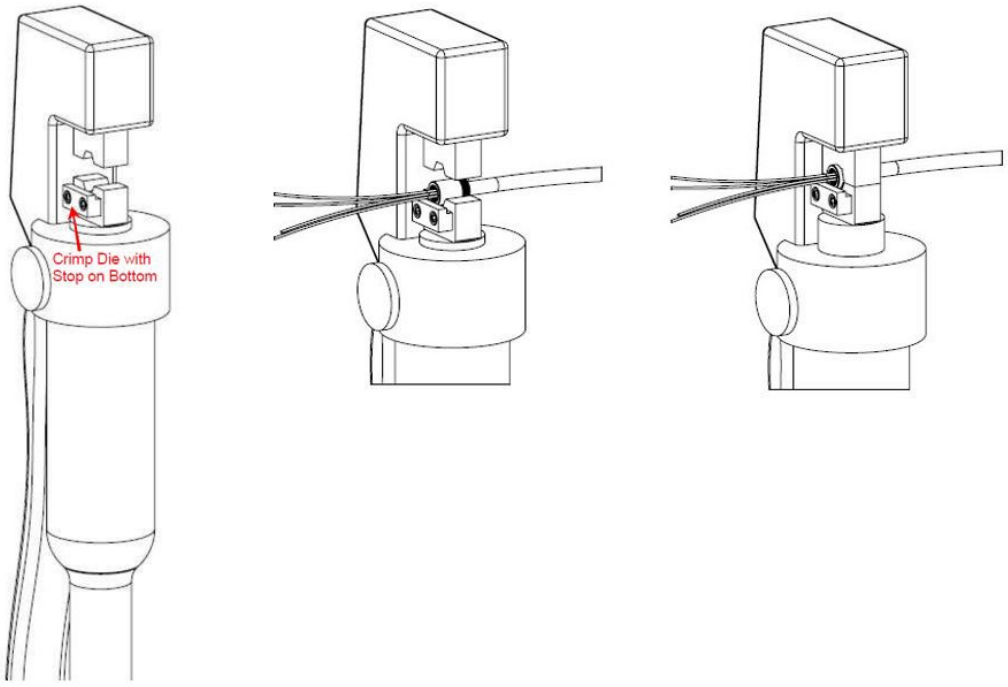
CABLE PREPARATION

Slide parts onto cable in the order below.



Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.

Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.

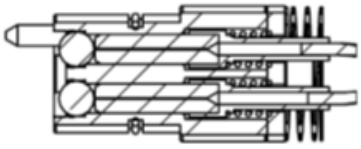


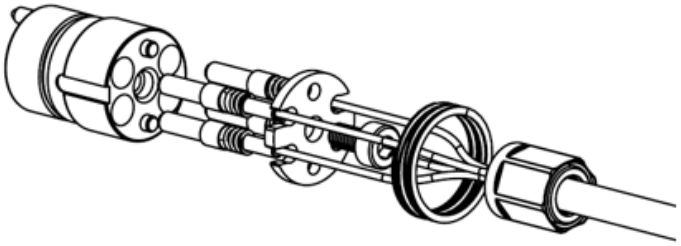
TERMINATION

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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.

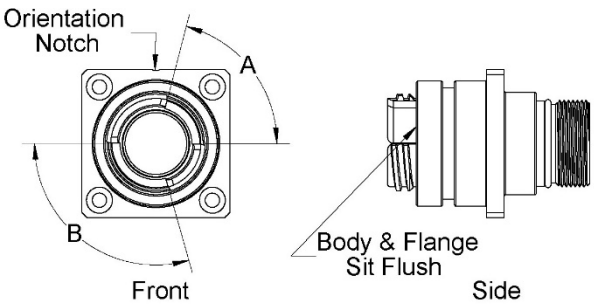


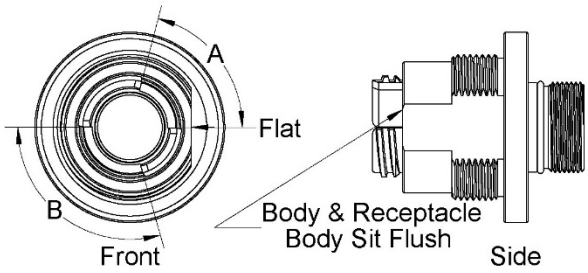


CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504, 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.

***NOTE**: Orientation of the Connectors with the smaller tab (A) on the top and the larger (B) on the bottom.*

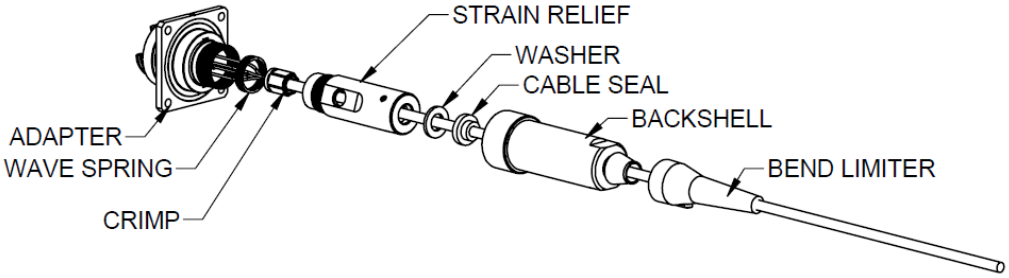




Slide the Wave Spring and Strain Relief into place. Hand tighten the Strain Relief. Check the fiber through the holes in the Strain Relief to make sure they are not twisted or kinked.

Place assembly in the 4" Drill Press Vise with Plastic Jaws with Groove PT-591 and use the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to torque the Strain Relief to the values in the torque table. Use Cable to pull Crimp to bottom of Strain Relief. Use Screwdriver, 1/16" Hex Tool
PT-501 to tighten the Set Screws on the strain relief to lock the crimp into place. Torque the Set Screws using Torque-Measuring Hex Drive PT-590 and Hex Bit 1/16" PT-599 to the values in the torque table in the appendix.

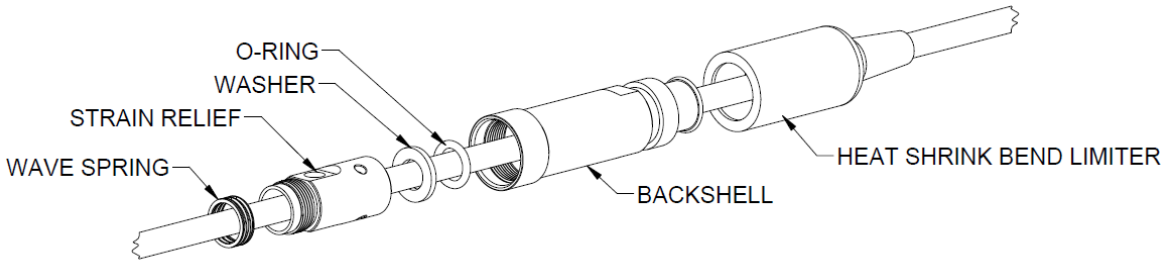
Perform a final visual check by looking through the holes of the Strain Relief to make sure that the fiber is not twisted or kinked. Slide the Washer and the Cable Seal to the base of the Strain Relief. Slide the Backshell into position and hand-tighten it. Torque the Backshell using the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to the values in the torque table in the appendix. Slide the bend limiter into position and snap into place.



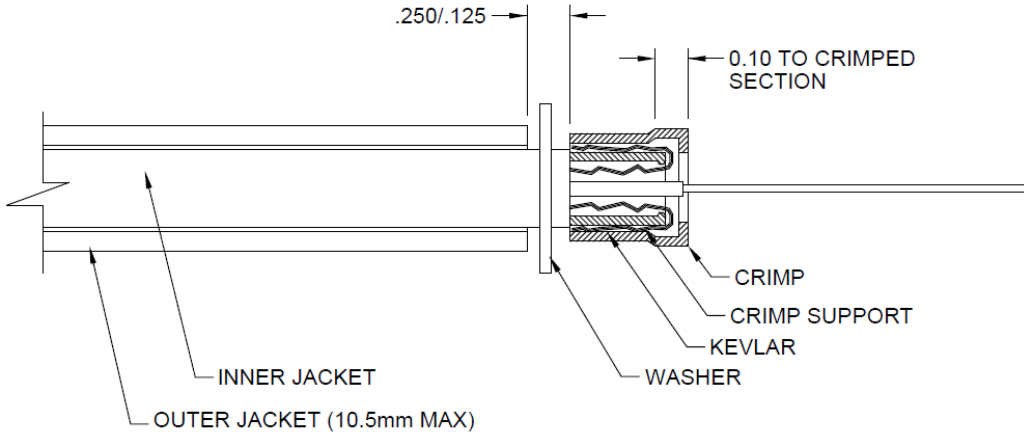
RECEPTACLE, STRAIGHT BACKSHELL, HEAT SHRINK BOOT

CABLE PREPARATION

Slide parts onto cable in the order below.

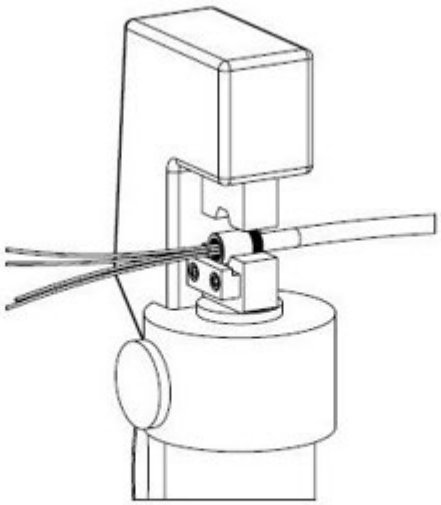


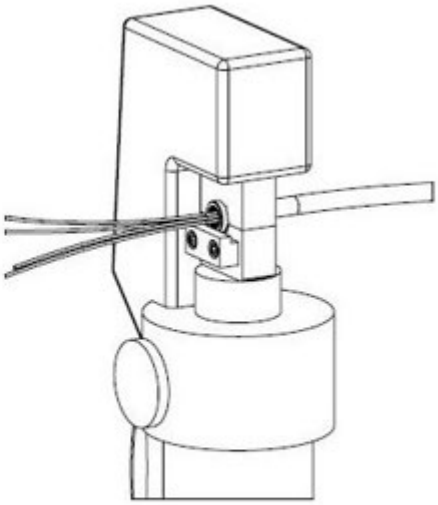
In the case of armored cable over 7.5mm Diameter, the washer will rest past the end of the armored section.



Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.

Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.



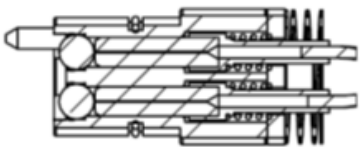


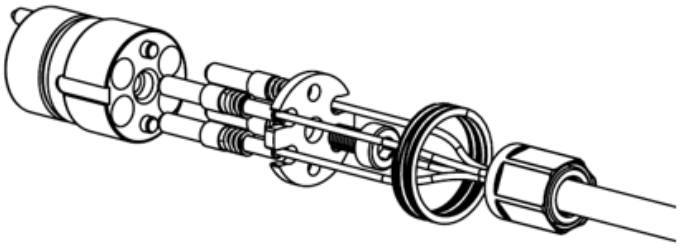
TERMINATION

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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.

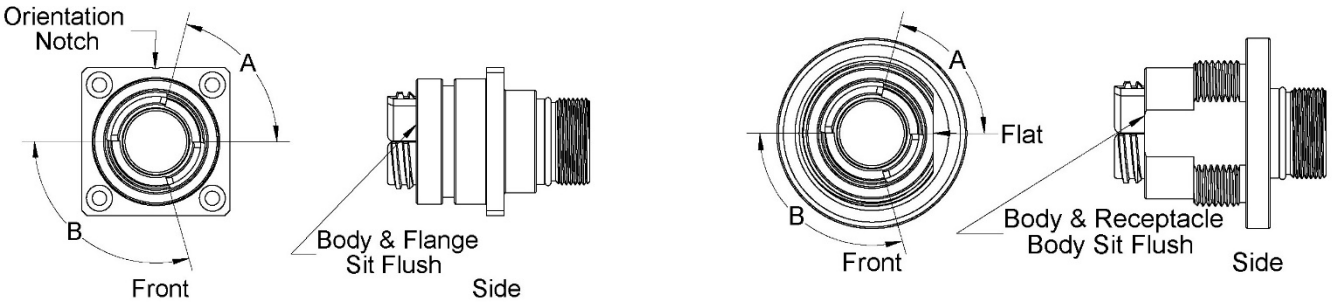




CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504, 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.

***Note**: Orientation of the Connectors with the smaller tab (A) on the top and the larger (B) on the bottom*

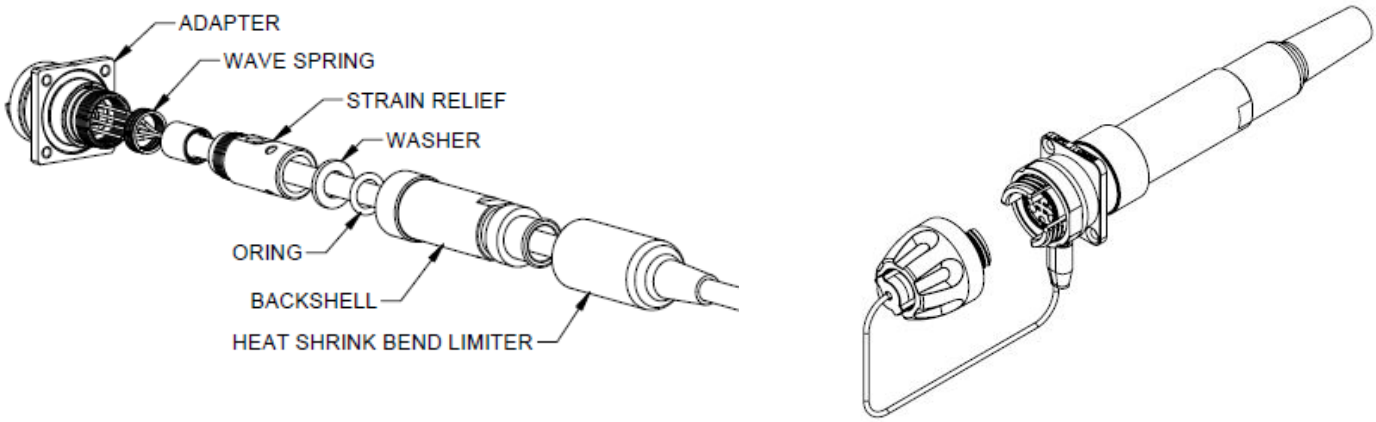


Slide the Wave Spring and Strain Relief into place. Hand tighten the Strain Relief. Check the fiber through the holes in the Strain Relief to make sure they are not twisted or kinked.

Place assembly in the 4" Drill Press Vise with 2 x Machined Plastic Jaws with Groove PT-591 and use the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to torque the Strain Relief to the values in the torque table in the appendix. Use Cable to pull Crimp to bottom of Strain Relief. Use Screwdriver, 1/16" Hex Tool PT-501 to tighten the Set Screws on the strain relief to lock the crimp into place. Torque the Set Screws using Torque-Measuring Hex Drive PT-590 and Hex Bit 1/16" PT-599 to the values in the torque table.

Perform a final visual check by looking through the holes of the Strain Relief to make sure that the fiber is not twisted or kinked. Slide the O-Ring Cable Seal to the base of the Strain Relief. Slide the Backshell into position and hand-tighten it. Torque the Backshell using the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to the values in the torque table in the appendix.

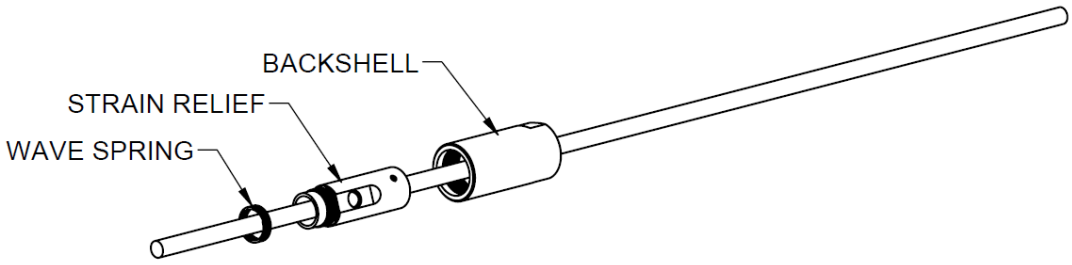
Apply an adhesive (Loctite Stik'N Seal Outdoor Adhesive or similar for rubber applications) on the inside of the Heat Shrink Bend Limiter. Slide it up towards the Backshell and heat shrink.



RECEPTACLE, STRAIGHT BACKSHELL, LOW PROFILE, NO BOOT

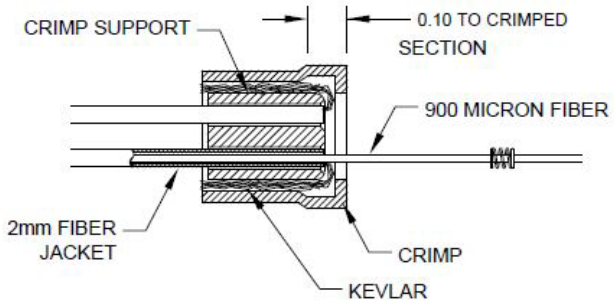
CABLE PREPARATION

Slide parts onto cable in the order below.



For a 4x2mm (L42) Cable Option

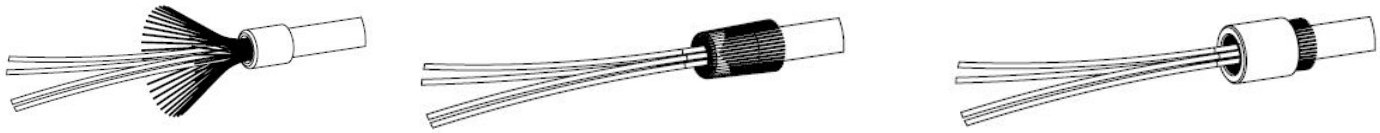
Strip the fiber jacket leaving extra Kevlar. Slide the 900µm fiber and Kevlar thru the hole in the 4-Channel Crimp Support. Slide the fiber jacket into the hole up to the front face of the support. Repeat for each channel. Wrap the Kevlar around the 4-Channel Crimp Support. Install the Crimp over the 900µm fibers.



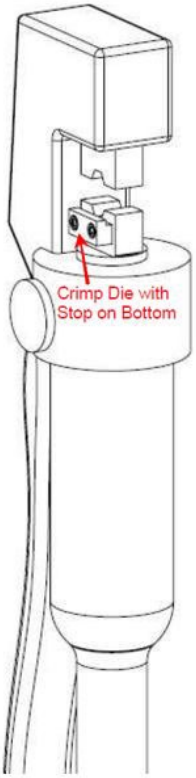
L42 CRIMP LAYOUT

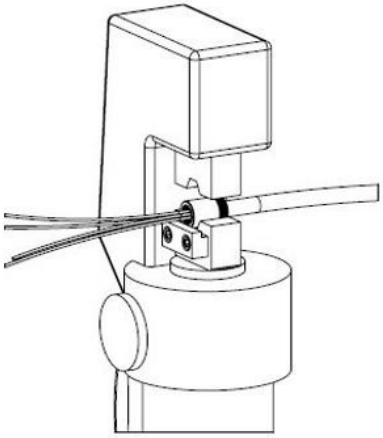
For a 3.6mm to 7.5mm Cable Option

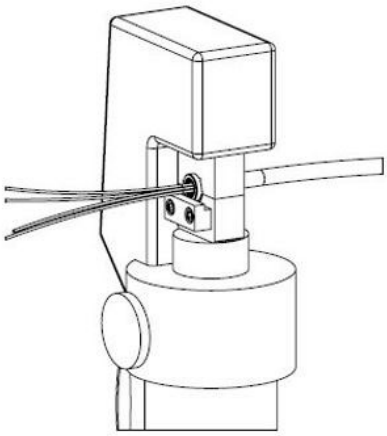
Strip the cable jacket approximately 3” (76 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.



Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.





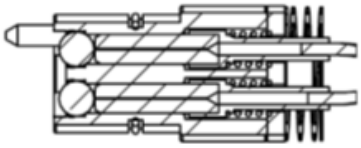


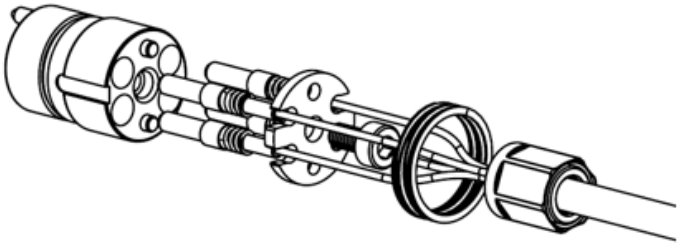
TERMINATION

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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504 to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.

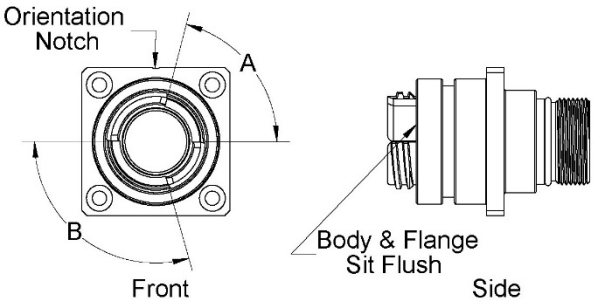


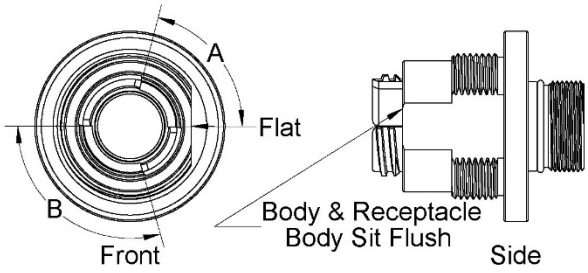


CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504, 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.

***NOTE**: Orientation of the Connectors with the smaller tab (A) on the top and the larger (B) on the bottom.*



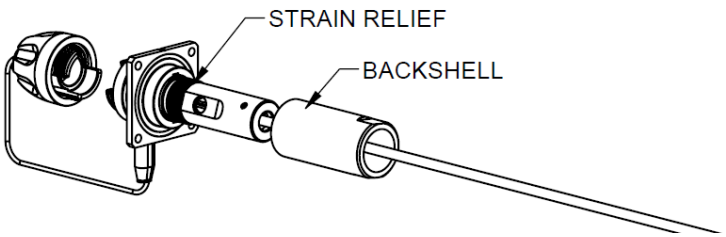


Slide the Wave Spring and Strain Relief into place. Hand tighten the Strain Relief. Check the fiber through the holes in the Strain Relief to make sure they are not twisted or kinked.

Place assembly in the 4" Drill Press Vise with 2 x Machined Plastic Jaws with Groove PT-591 and use the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to torque the Strain Relief to the values in the torque table in the appendix. Use Cable to pull Crimp to bottom of Strain Relief. Use Screwdriver, 1/16" Hex Tool PT-501 to tighten the Set Screws on the strain relief to lock the crimp into place. Torque the Set Screws using Torque-Measuring Hex Drive PT-590 and Hex Bit 1/16" PT-599 to the values in the torque table in the appendix.

Perform a final visual check by looking through the holes of the Strain Relief to make sure that the fiber is not twisted or kinked. Slide the Backshell into position and hand-tighten it. Torque the Backshell using the Crow's Foot Wrench PT-536 with the Dial Torque Measuring Wrench PT-506 to the values in the torque table.

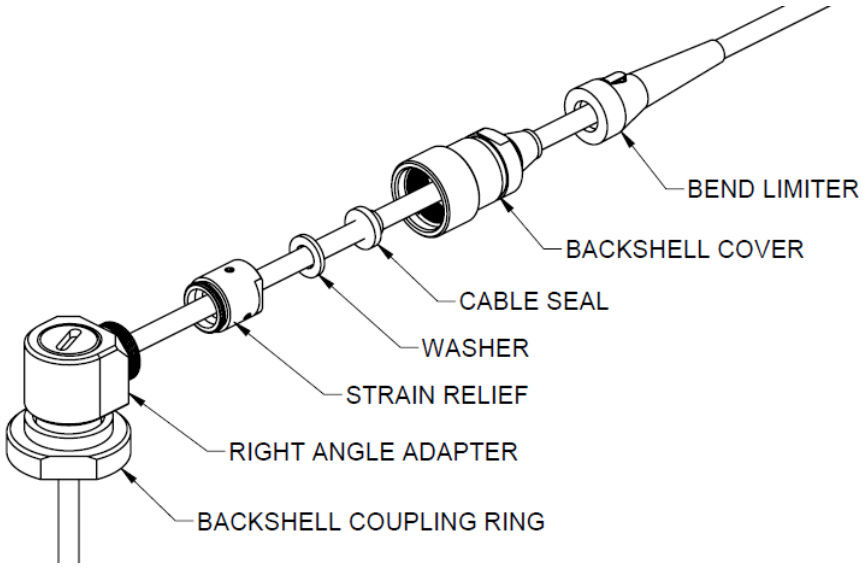
Perform a final visual check by looking through the holes of the Strain Relief to make sure that the fiber is not twisted or kinked. Hand tighten the Backshell and then Torque it using the same torque tools to the values in the torque table.



RECEPTACLE, SEALED 90° BACKSHELL, BOOT

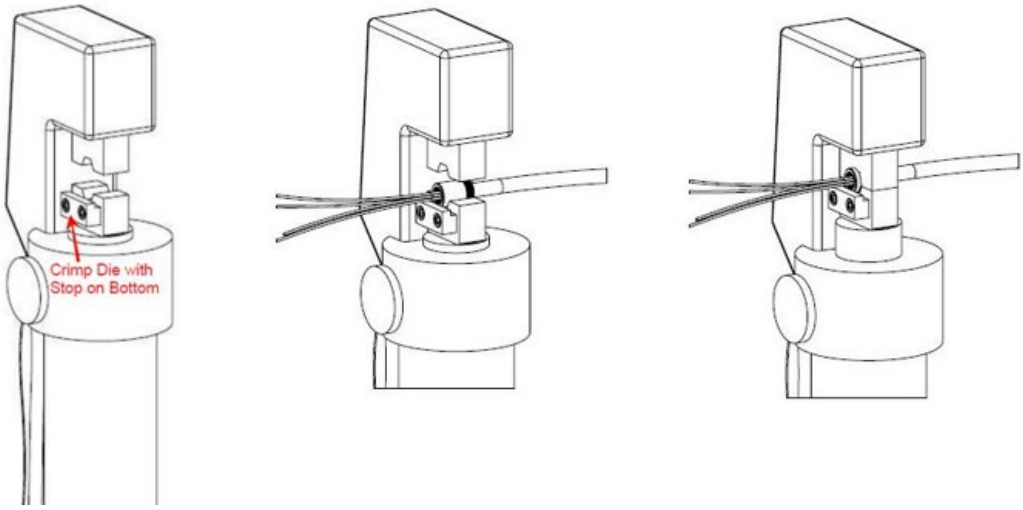
CABLE PREPARATION

Slide parts onto cable in the order below.



Strip the cable jacket approximately 5” (127 mm) from the end and slide the crimp support over the fiber and Kevlar as illustrated below. Bend the Kevlar back over the crimp support. Slide the crimp over the Kevlar and crimp support to prepare for crimping.

Setup the hydraulic crimping tool PT-540 with the die set PT-541. The crimp die with stop needs to be placed on the bottom facing out and with the crimp against the stop as seen in the image below. Turn the knob clockwise on the hydraulic crimper, so that the crimp will close as the handle is pumped. Place the cable in the lower crimp die with the fiber facing out. Pump the handles until the crimp dies are touching. Release the crimp by turning the control knob counterclockwise.

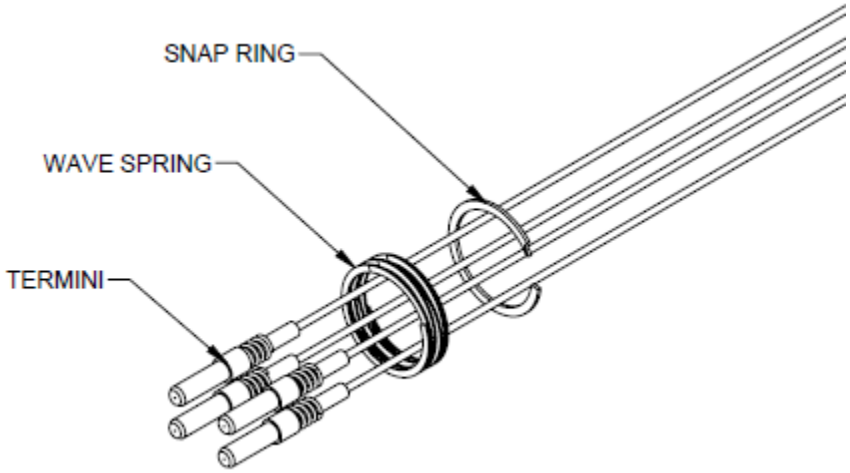


TERMINATION

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.

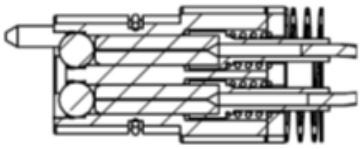
FRONT ASSEMBLY

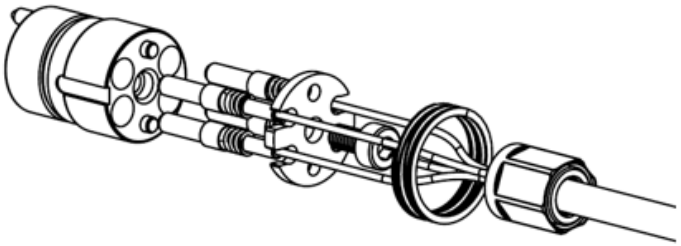
Slide the parts onto cable in the order below.



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 900µm fibers making sure that the springs are between the fiber optic termini and the termini retainer plate. Apply a drop of Loctite 222 to the socket head cap screw and use a 2.5mm hex screwdriver, PT-504, to fasten the termini retainer plate to the insert. Torque the socket head cap screw to the values in the torque table in the appendix using Torque-Measuring Head Drive PT-590 and 2.5mm hex bit from PT-599. Use a pair of long nose pliers, PT- 532, to ensure the termini are fully seated against the ball lenses.



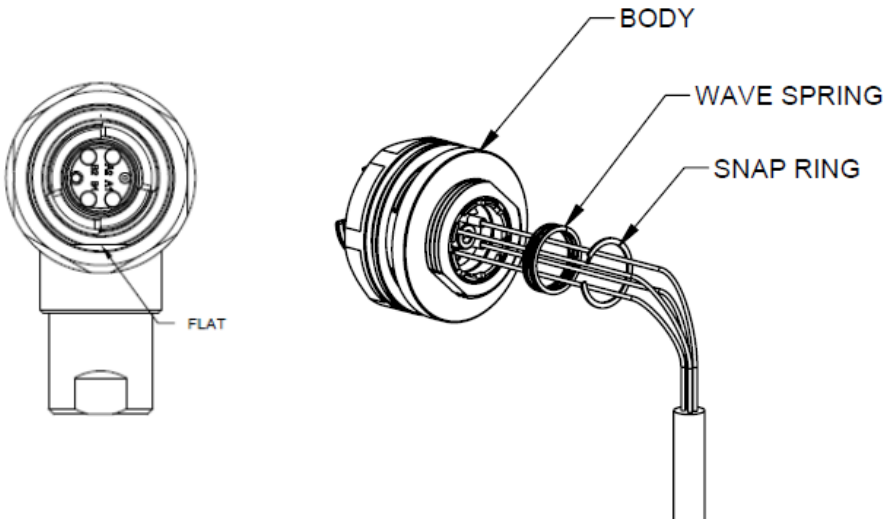


Use the 2.5mm Hex Screwdriver, PT-504, to align the key and install the insert into the back of the body. The insert should protrude slightly from the seal and the body. The seal should be visible around the insert.

Slide the Wave Spring up into the Body and install the Snap Ring in the Snap Ring groove located behind the Wave Spring. This will hold the Insert in place.

CONNECTOR ASSEMBLY

Use the 2.5mm Hex Screwdriver, PT-504, 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 into place and secure with the snap ring. The snap ring may be installed by pushing one corner into the slot in the body and working the ring around the inside diameter with a small Allen wrench. Care should be taken to avoid damage to the fibers.

Slide the right-angle adapter into position and engage the threads with the backshell coupling ring. Position and hold the adapter to the desired clocking angle.

Hand tighten the backshell coupling ring while maintaining the clocking angle.

Torque the backshell coupling ring using the adjustable crowfoot wrench PT-536 with the dial torque-measuring wrench PT-506 to the values in the torque table in the appendix.

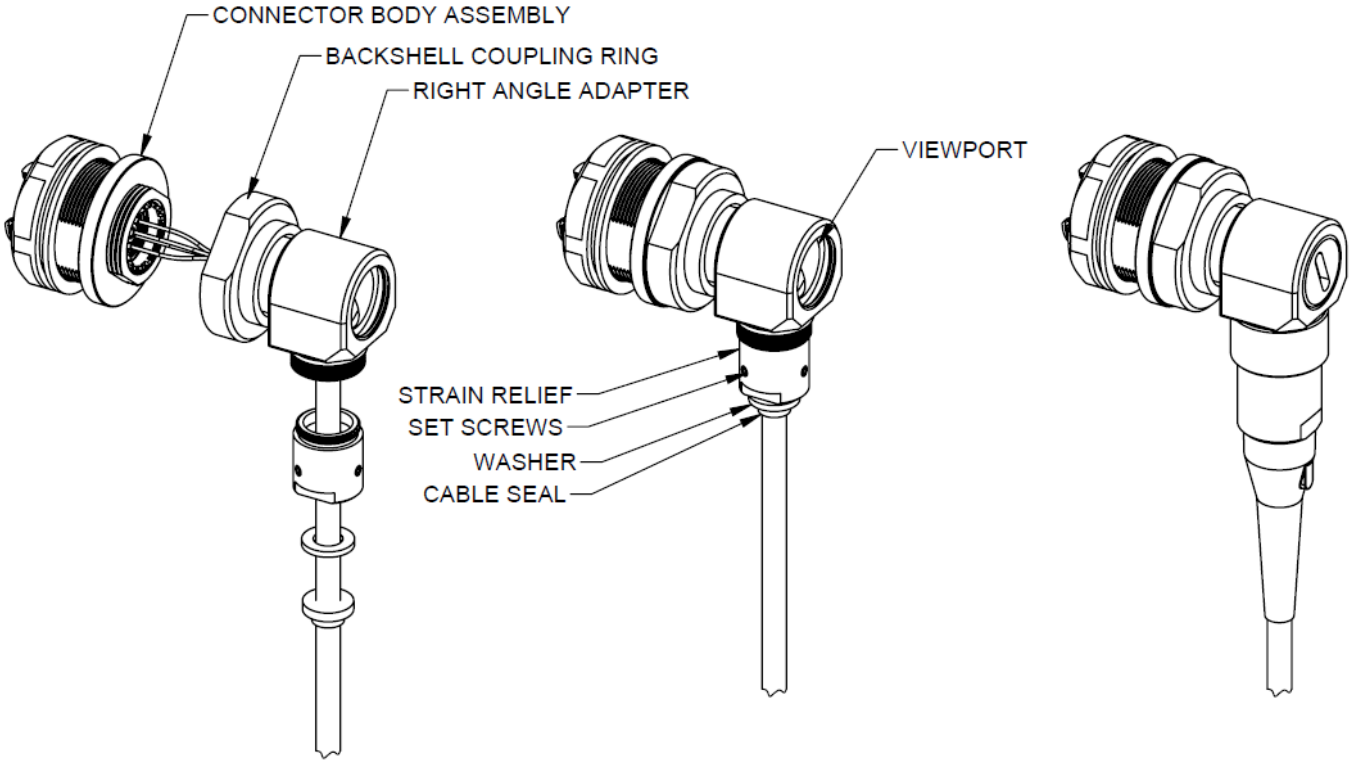
Slide the strain relief up and hand tighten to the Right-Angle Adapter. Torque the strain relief with the adjustable crowfoot Wrench PT-536 with the Dial Torque-Measuring Wrench PT-506 to the values in the torque table in the appendix.

Use the cable to pull the crimp to the bottom of the strain relief. Use a 1.5mm hex screwdriver to tighten the set screws on the strain relief to lock the crimp into place. Torque the set screws using a Torque-Measuring Hex Drive PT-590 and a 1.5mm hex bit to the values in the torque table in the appendix. Slide the washer and cable seal to the base of the strain relief.

Look through the viewport to ensure the fibers are not twisted or kinked.

Install the viewport cover and torque to the values in the torque table

Slide the Backshell Cover up and torque to the values in the torque table. Slide the bend limiter into position and snap into place.



Appendix

TORQUE TABLE

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

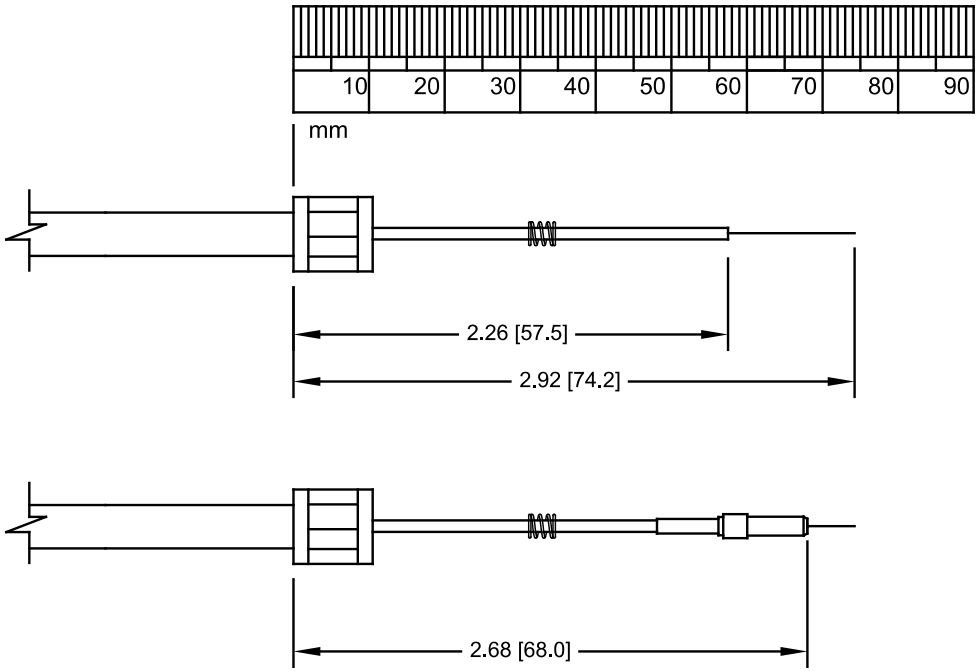
Component		Backshell Cover	Strain Relief	Angled Backshell Coupling Ring	Viewport Cover	Socket Head Cap Screw (Insert)	Set Screws	Jam Nut
Torque Values / Units	In-lb.	48 – 53	48 – 53	48 – 53	48 – 53	2.5 – 3.0	2.25 – 2.75	48 - 53
	N • m	5.5 – 6.0	5.5 – 6.0	3.0 – 3.5	5.5 – 6.0	0.28 – 0.34	0.25 – 0.31	5.5 - 6.0

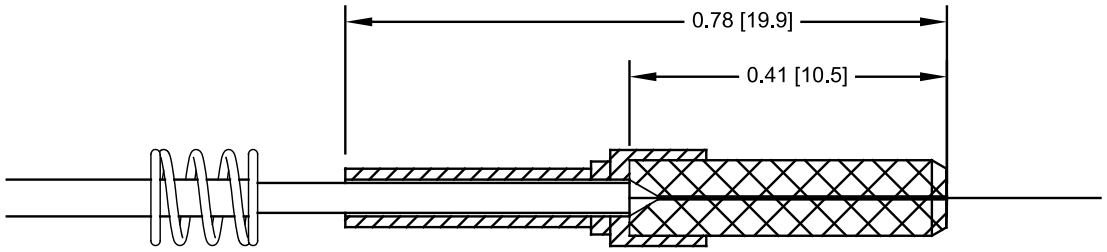
STRIPPING LENGTHS – QMINI CONNECTORS

WI 851-62 - FIGURE 1.1 – QMINI PLUG AND RECEPTACLE WITH BACKSHELL
WI 851-62 - FIGURE 1.2 – QMINI / QMICRO PLUG AND RECEPTACLE CRIMP PLACEMENT
WI 851-62 - FIGURE 1.4 – QMICRO / QMINI PLUG AND RECEPTACLE WITH 90° BACKSHELL
WI 851-62 - FIGURE 1.5 – QMINI RECEPTACLE WITH LOW PROFILE BACKSHELL
WI 851-62 - FIGURE 1.7 – QMINI / QMICRO RECEPTACLE SIMPLEX CABLE
WI 851-62 - FIGURE 1.8 – QMINI / QMICRO PLUG AND RECEPTACLE WITH SEALED 90° BACKSHELL

QMINI CONNECTOR

PLUG and RECEPTACLE with BACKSHELL

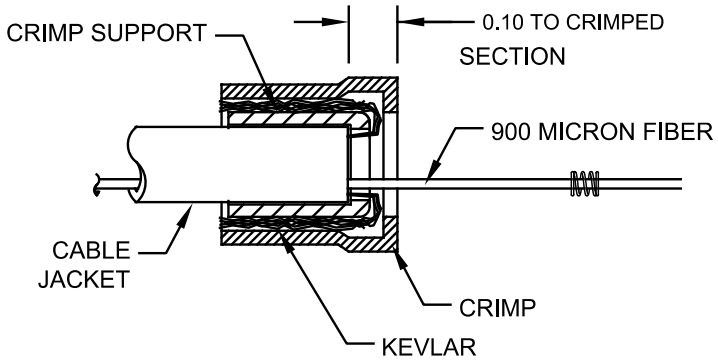




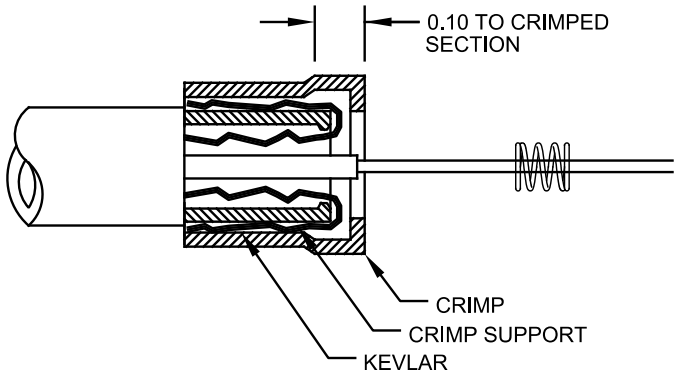
QPC FIBER OPTIC

QMINI / QMICRO CONNECTOR

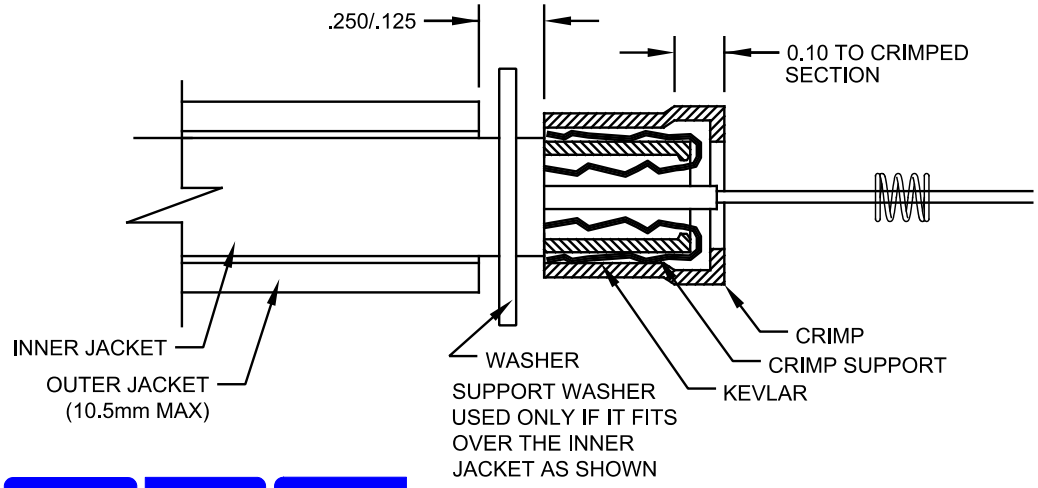
PLUG and RECEPTACLE CRIMP PLACEMENT



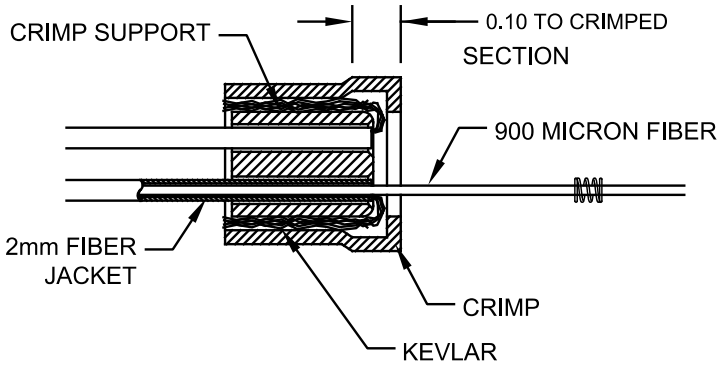
3.6mm - 6.5mm
Cable Option



6.6mm - 7.5mm
Cable Option



7.5mm - 10.5mm
Cable Option



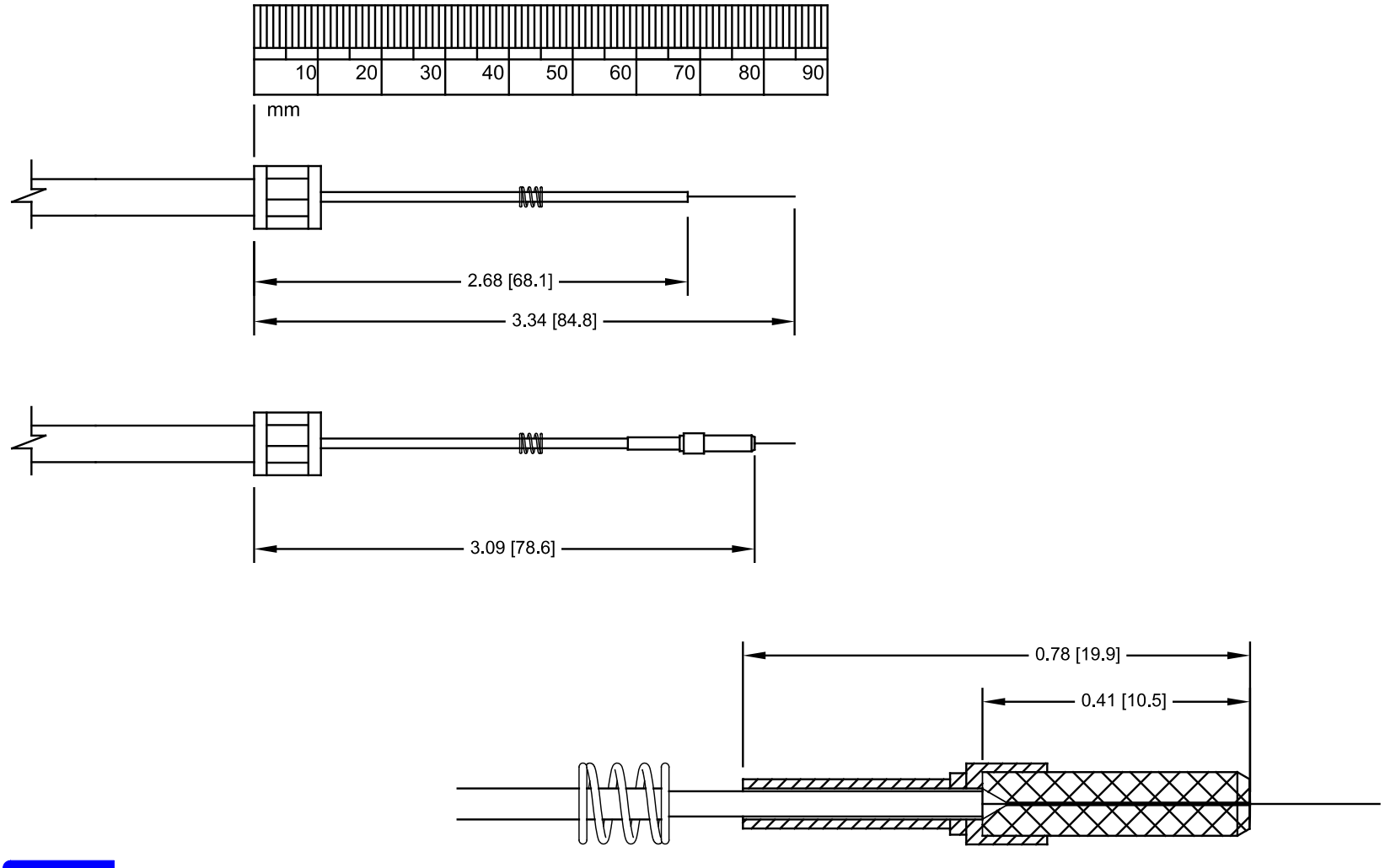
4x2mm
Cable Option

QPC FIBER OPTIC

WI 851-62 - FIGURE 1.2

QMINI / QMICRO CONNECTOR

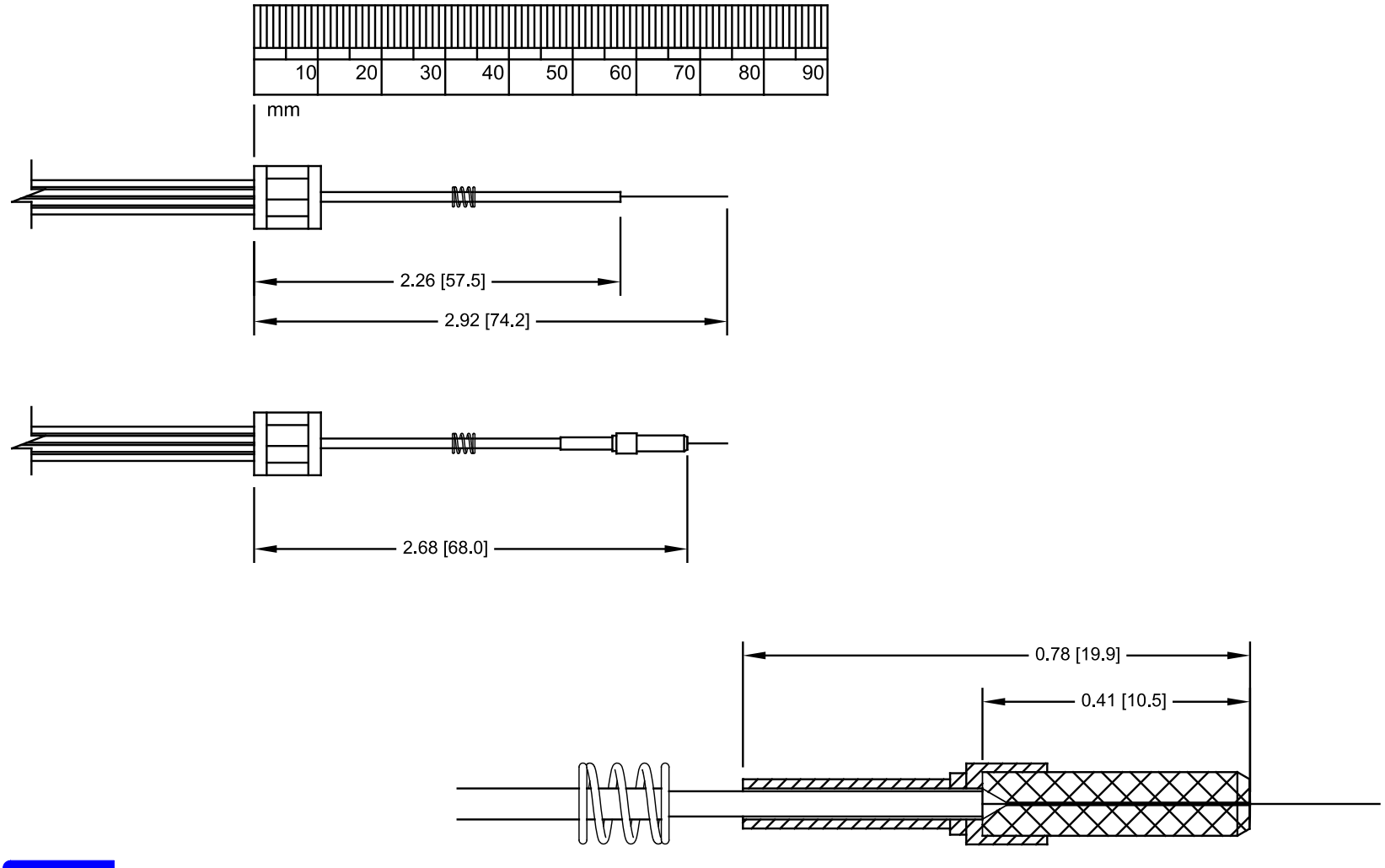
PLUG AND RECEPTACLE WITH 90° BACKSHELL



QPC FIBER OPTIC

QMINI CONNECTOR

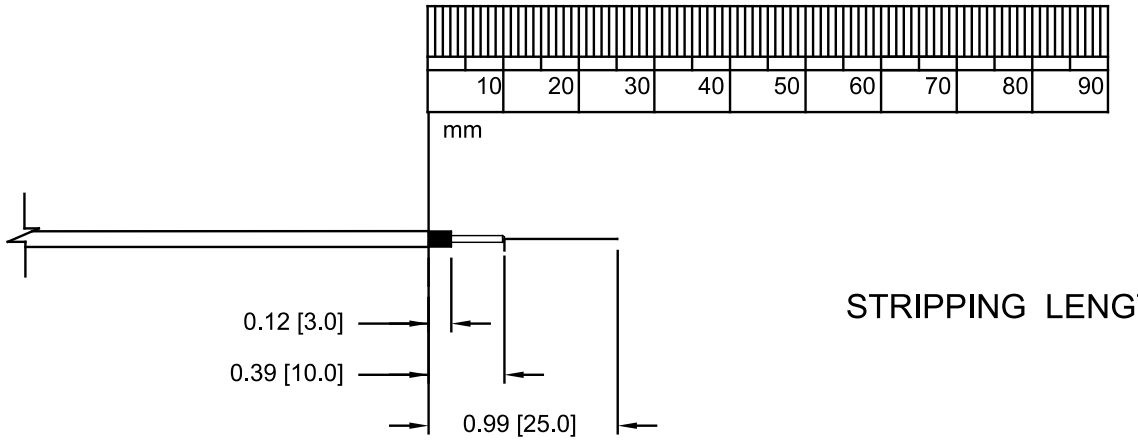
RECEPTACLE with LOW PROFILE BACKSHELL



QPC FIBER OPTIC

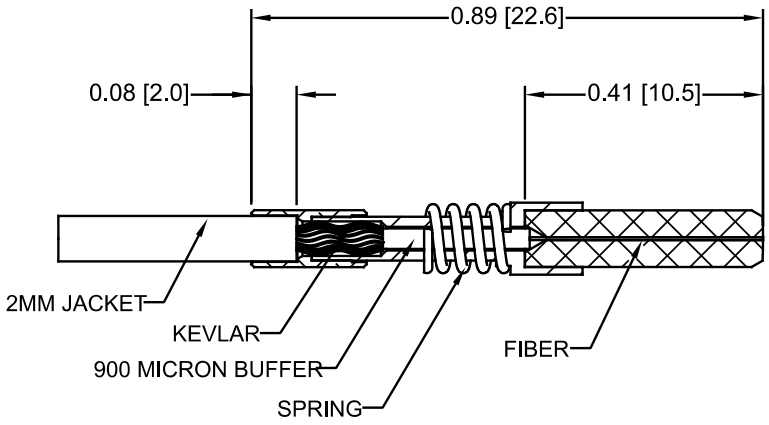
QMINI / QMICRO CONNECTOR

RECEPTACLE SIMPLEX CABLE

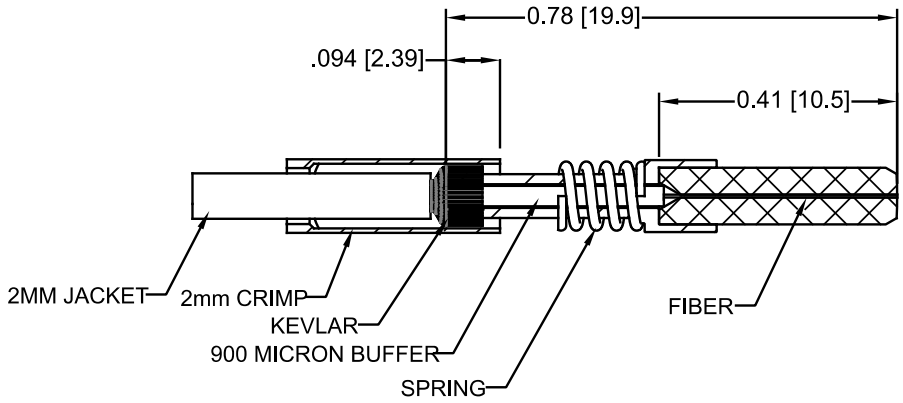


STRIPPING LENGTH

EPOXY CUP OPTION (SE2)



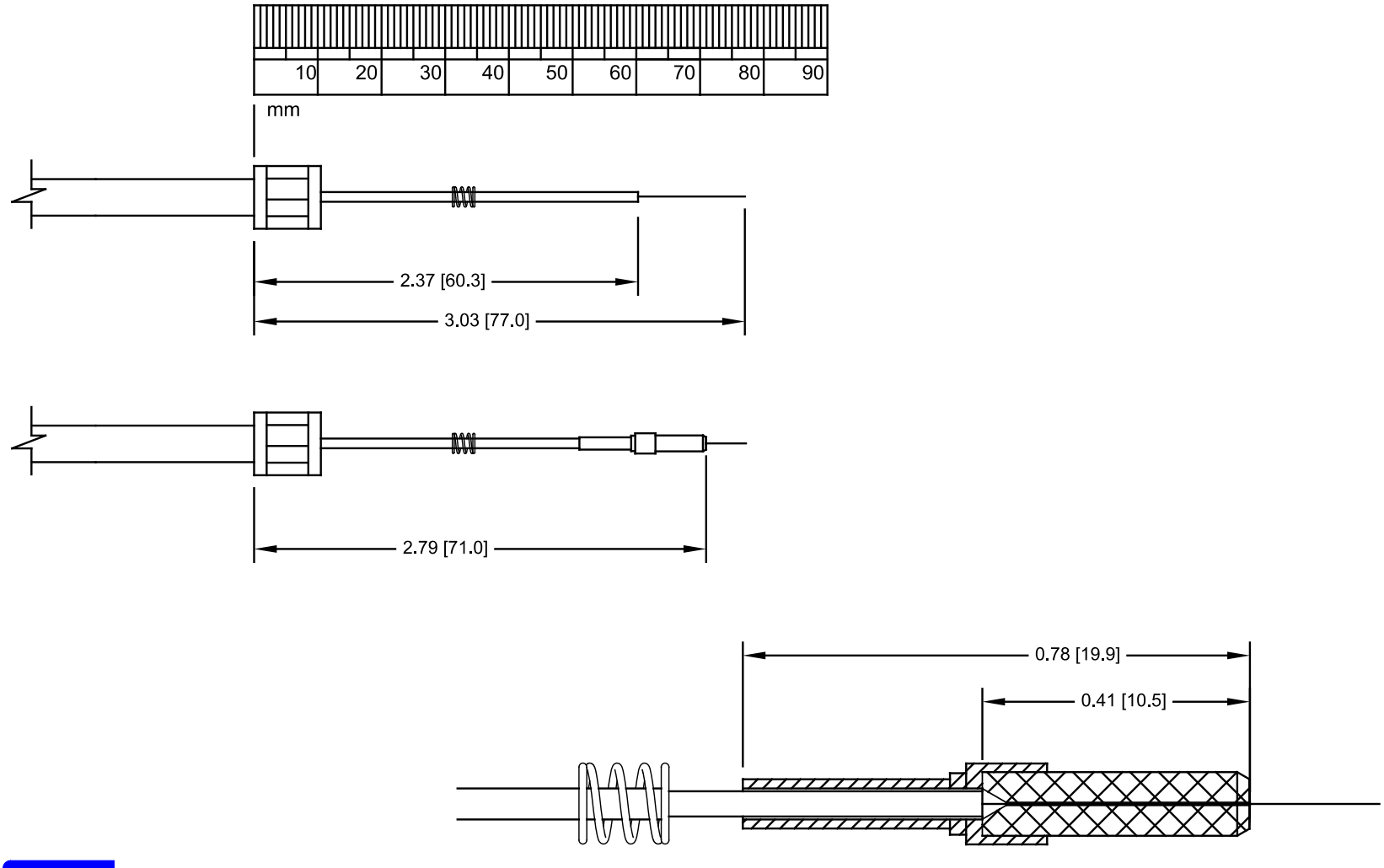
CRIMP OPTION (S02)



QPC FIBER OPTIC

QMINI / QMICRO CONNECTOR

PLUG and RECEPTACLE with SEALED 90° BACKSHELL



QPC FIBER OPTIC

Revision Change Record

Revision	Date	Section	Description	Approval
0	12/09/2020	New Release	Newly Released Document combining all QMini Connector Configurations.	SJW
1	8/28/2021	Receptacle, 90 Degree Sealed Backshell, Boot	New Instruction	RNZ
2	7/01/2024	ALL	Update format and images, add 90 degree sealed plug.	RNZ