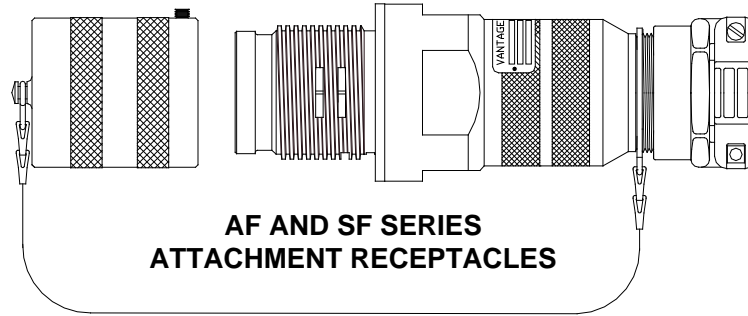




# Vantage Technology Attachment Receptacles AF and SF Series

## ASSEMBLY, TERMINATING and USAGE INSTRUCTIONS



**AF AND SF SERIES  
ATTACHMENT RECEPTACLES**

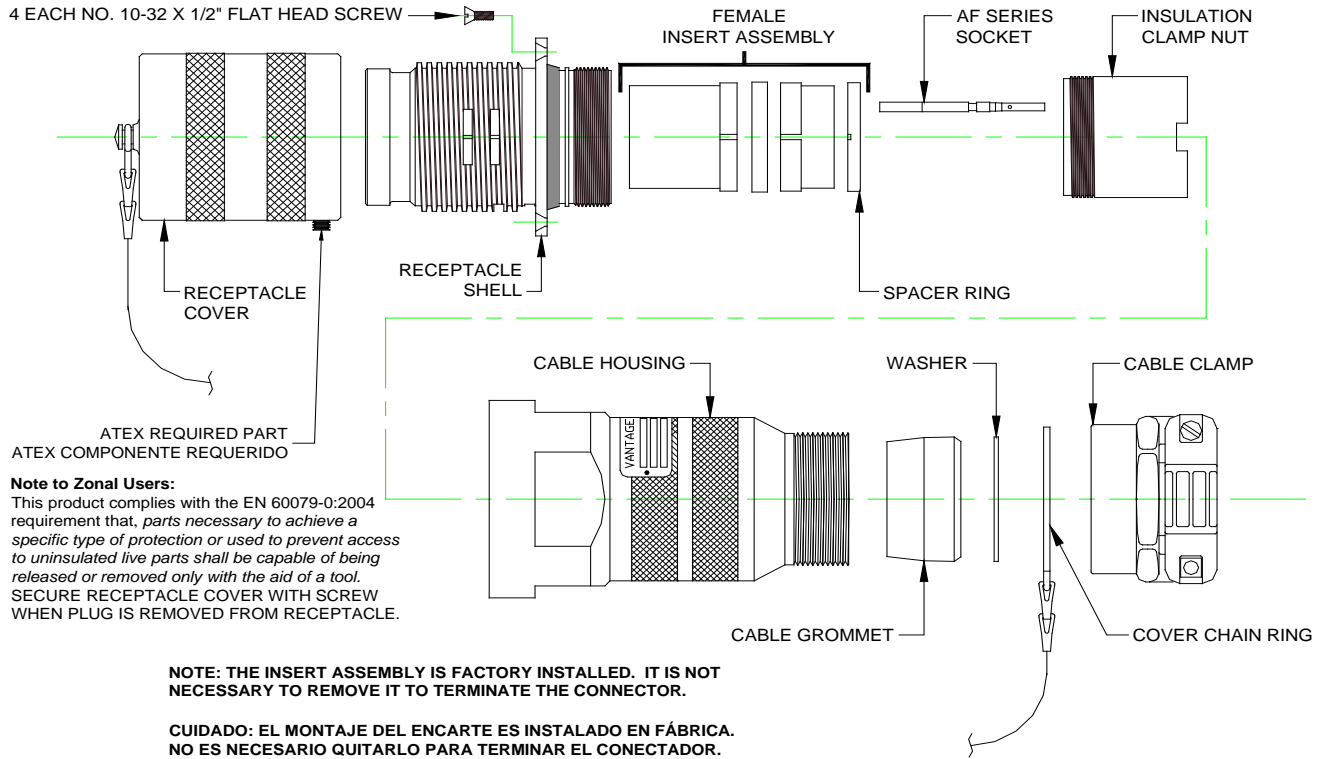
|  |   |   |  |
|--|---|---|--|
| <b>RECEPTACLE ASSEMBLY</b>   |   | <b>HAZARDOUS LOCATIONS</b>  |  |
| CAUTION: TO PREVENT SHOCK HAZARD, THE RECEPTACLE COVER MUST BE REPLACED UPON REMOVING PLUG FROM RECEPTACLE |   | CLASS I, GROUPS B, C & D<br>CLASS II, GROUPS F & G                                  |  |
| Catalog Number   | ① | LISTED RECEPTACLE   | CAUTION: KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE                                     |
| AMPS CSA   | ② | Class I Zone 1<br>AEx d IIC, T6<br>Ex d IIC, T6                                     | AVERTISSEMENT: GARDER LE COUVERCLE BIEN FERME TANT QUE LES CIRCUITS SONT SOUS TENSION. |
| 250 Vac Hz 60/400  | ③ | DO NOT SEPARATE WHEN ENERGIZED<br>NE PAS OUVRIR SOUS TENSION                        |  |
| AMPS ATEX  | ④ | MFG CODE  |  |
| For use with Plug  |   |   |  |
| VANTAGE TECHNOLOGY<br>ENGLEWOOD, COLORADO<br>80110 U.S.A.  |   | 0344 II 2 G D<br>EEx d IIC T6 KEMA 04ATEX2179 X<br>IP66/67 T70°C -20°C = Ta = +50°C |  |

### EQUIPMENT NAMEPLATE

| Field 1<br>Catalog Number <sup>1</sup> | Field 2<br>AMP Rating | Field 3<br>AMP Rating | Field 4<br>For use with Plug <sup>2</sup> |
|--|-----------------------|-----------------------|---|
|  |                       |                       |   |
| AF-B1516-681SL-XX                      | 10                    | 20                    | AF-1016-681PL-XX                          |
| AF-B1516-676SL-XX                      | 10                    | 20                    | AF-1016-676PL-XX                          |
| AF-B1516-612SL-XX                      | 10                    | 20                    | AF-1016-612PL-XX                          |
| AF-B1516-677SL-XX                      | 10                    | 20                    | AF-1016-677PL-XX                          |
| AF-B1520-676SL-XX                      | 10                    | 20                    | AF-1020-676PL-XX                          |
| AF-B1520-688SL-XX                      | 10                    | 20                    | AF-1020-688PL-XX                          |
| AF-B1516-655SL-XX                      | 6.5                   | 15                    | AF-1016-655PL-XX                          |
| AF-B1520-632SL-XX                      | 10                    | 20                    | AF-1020-632PL-XX                          |
| AF-B1520-687SL-XX                      | 10                    | 20                    | AF-1020-687PL-XX                          |
| AF-B1520-686SL-XX                      | 10                    | 20                    | AF-1020-686PL-XX                          |
| AF-B1520-650SL-XX                      | 10                    | 20                    | AF-1020-650PL-XX                          |
| AF-B1516-621SL-XX                      | 6.5                   | 15                    | AF-1016-621PL-XX                          |
| AF-B1516-640SL-XX                      | 3.5                   | 10                    | AF-1016-640PL-XX                          |
| AF-B1516-633SL-XX                      | 3.5                   | 10                    | AF-1016-633PL-XX                          |
| AF-B1520-613SL-XX                      | 6.5                   | 15                    | AF-1020-613PL-XX                          |
| AF-B1524-613SL-XX                      | 5.0                   | 15                    | AF-1024-613PL-XX                          |

- Part numbers may vary; consult Vantage with questions. A 'PL' instead of 'SL' represents pins instead of sockets. Characters such as 'SL01' represent that the insert is keyed in the '01' key position and will only mate with inserts with the same orientation. Substitute the 'XX' with the cable diameter code on page 3.
- Part numbers may vary; consult Vantage with questions. Occurrence of the letter 'D' represents the addition of a cover. A 'SL' instead of 'PL' represents sockets instead of pins. Characters such as 'PL01' represent that the insert is keyed in the '01' key position and will only mate with inserts with the same orientation. Substitute the 'XX' with the cable diameter code on page 3.

## IDENTIFICATION OF PRINCIPAL PARTS

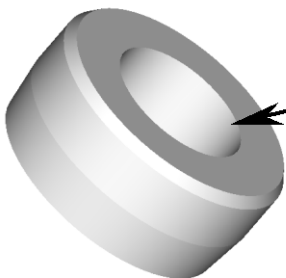


## GROMMET SELECTION

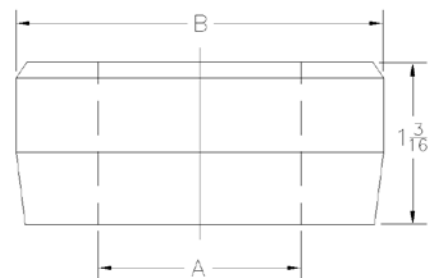
It is important that a properly sized grommet has been selected to obtain a good environmental seal. Failure to provide proper environmental sealing can permit moisture or other conductive material to enter the connector resulting in possible electrical failure.

Please use the table on page 3 to confirm that the grommet ordered fits your cable properly. If not, please contact us for an immediate grommet replacement.

**CAUTION!**  
**¡PRECAUCIÓN!**



Grommet I.D. must fit cable O.D. range.



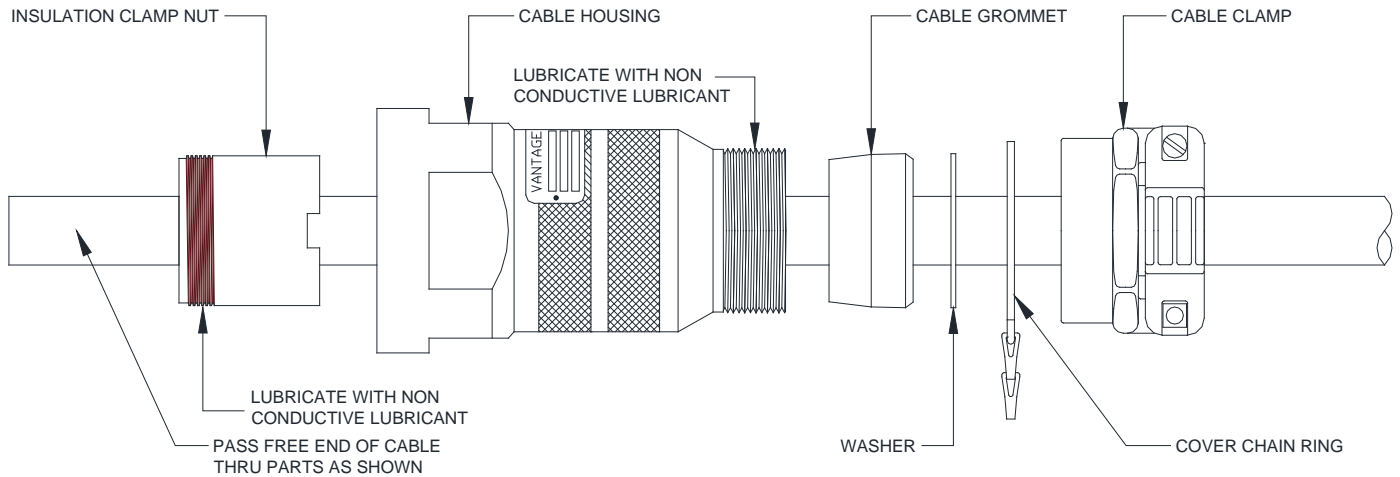
## Grommet Table

| Shell Size | Dim. B                    | Cable Diameter |      |              |      | Cable Diameter Code Number* | Grommet Part Number |
|------------|---------------------------|----------------|------|--------------|------|-----------------------------|---------------------|
|            |                           | MIN.           |      | MAX., Dim. A |      |                             |                     |
|            |                           | inches         | mm   | inches       | mm   |                             |                     |
| 16         | 1 23/32 inches<br>43.7 mm | .250           | 6.4  | .375         | 9.5  | 06                          | VT-6316-6C          |
|            |                           | .375           | 9.5  | .500         | 12.7 | 08                          | VT-6316-8C          |
|            |                           | .500           | 12.7 | .625         | 15.9 | 10                          | VT-6316-10C         |
|            |                           | .625           | 15.9 | .750         | 19.1 | 12                          | VT-6316-12C         |
|            |                           | .750           | 19.1 | .875         | 22.2 | 14                          | VT-6316-14C         |
|            |                           | .875           | 22.2 | 1.000        | 25.4 | 16                          | VT-6316-16C         |
|            |                           | 1.000          | 25.4 | 1.125        | 28.6 | 18                          | VT-6316-18C         |
|            |                           | 1.125          | 28.6 | 1.250        | 31.8 | 20                          | VT-6316-20C         |
|            |                           | 1.250          | 31.8 | 1.375        | 34.9 | 22                          | VT-6316-22C         |
|            |                           | 1.375          | 34.9 | 1.437        | 36.5 | 23                          | VT-6316-23C         |
| 20         | 2 7/32 inches<br>56.4 mm  | .500           | 12.7 | .625         | 15.9 | 10                          | VT-6320-10C         |
|            |                           | .625           | 15.9 | .750         | 19.1 | 12                          | VT-6320-12C         |
|            |                           | .750           | 19.1 | .875         | 22.2 | 14                          | VT-6320-14C         |
|            |                           | .875           | 22.2 | 1.000        | 25.4 | 16                          | VT-6320-16C         |
|            |                           | 1.000          | 25.4 | 1.125        | 28.6 | 18                          | VT-6320-18C         |
|            |                           | 1.125          | 28.6 | 1.250        | 31.8 | 20                          | VT-6320-20C         |
|            |                           | 1.250          | 31.8 | 1.375        | 34.9 | 22                          | VT-6320-22C         |
|            |                           | 1.375          | 34.9 | 1.500        | 38.1 | 24                          | VT-6320-24C         |
|            |                           | 1.500          | 38.1 | 1.625        | 41.3 | 26                          | VT-6320-26C         |
|            |                           | 1.625          | 41.3 | 1.750        | 44.5 | 28                          | VT-6320-28C         |
| 24         | 2 23/32 inches<br>69.1 mm | 1.750          | 44.5 | 1.875        | 47.6 | 30                          | VT-6320-30C         |
|            |                           | 1.875          | 47.6 | 1.937        | 49.2 | 31                          | VT-6320-31C         |
|            |                           | 0.875          | 22.2 | 1.000        | 25.4 | 16                          | VT-6324-16C         |
|            |                           | 1.000          | 25.4 | 1.125        | 28.6 | 18                          | VT-6324-18C         |
|            |                           | 1.125          | 28.6 | 1.250        | 31.8 | 20                          | VT-6324-20C         |
|            |                           | 1.250          | 31.8 | 1.375        | 34.9 | 22                          | VT-6324-22C         |
|            |                           | 1.375          | 34.9 | 1.500        | 38.1 | 24                          | VT-6324-24C         |
|            |                           | 1.500          | 38.1 | 1.625        | 41.3 | 26                          | VT-6324-26C         |
|            |                           | 1.625          | 41.3 | 1.750        | 44.5 | 28                          | VT-6324-28C         |
|            |                           | 1.750          | 44.5 | 1.875        | 47.6 | 30                          | VT-6324-30C         |
| 28         | 3 5/32 inches<br>80.2 mm  | 1.875          | 47.6 | 2.000        | 50.8 | 32                          | VT-6324-32C         |
|            |                           | 2.000          | 50.8 | 2.125        | 54.0 | 34                          | VT-6324-34C         |
|            |                           | 2.125          | 54.0 | 2.250        | 57.2 | 36                          | VT-6324-36C         |
|            |                           | 2.250          | 57.2 | 2.375        | 60.3 | 38                          | VT-6324-38C         |
|            |                           | 2.375          | 60.3 | 2.437        | 61.9 | 39                          | VT-6324-39C         |
|            |                           | 1.375          | 34.9 | 1.500        | 38.1 | 24                          | VT-6328-24C         |
|            |                           | 1.500          | 38.1 | 1.625        | 41.3 | 26                          | VT-6328-26C         |
|            |                           | 1.625          | 41.3 | 1.750        | 44.5 | 28                          | VT-6328-28C         |
|            |                           | 1.750          | 44.5 | 1.875        | 47.6 | 30                          | VT-6328-30C         |
|            |                           | 1.875          | 47.6 | 2.000        | 50.8 | 32                          | VT-6328-32C         |
| 28         | 3 5/32 inches<br>80.2 mm  | 2.000          | 50.8 | 2.125        | 54.0 | 34                          | VT-6328-34C         |
|            |                           | 2.125          | 54.0 | 2.250        | 57.2 | 36                          | VT-6328-36C         |
|            |                           | 2.250          | 57.2 | 2.375        | 60.3 | 38                          | VT-6328-38C         |
|            |                           | 2.375          | 60.3 | 2.500        | 63.5 | 40                          | VT-6328-40C         |
|            |                           | 2.500          | 63.5 | 2.625        | 66.7 | 42                          | VT-6328-42C         |
|            |                           | 2.625          | 66.7 | 2.750        | 69.9 | 44                          | VT-6328-44C         |
|            |                           | 2.750          | 69.9 | 2.875        | 73.0 | 46                          | VT-6328-46C         |

\*The cable diameter code is used to define the grommet size in the connector's catalog part number. For example, connector AF-B1516-621SL-18 comes with a size "18" grommet, to be used with a cable diameter range of 1.00 – 1.125 inches (25.4 – 28.6 mm).

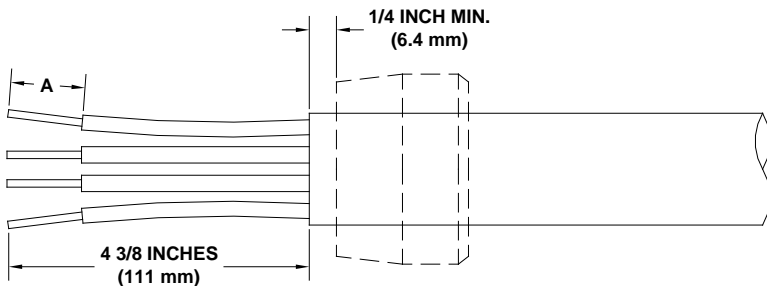
**Step 1. ASSEMBLY OF ADAPTER COMPONENTS**

1. Select one end of the cable for termination. Select cable end with conductor pattern best suited to contact pattern of connector.
2. Pass the cable thru the parts as shown.
3. It is important that a properly sized grommet has been selected to obtain a good environmental seal. The cable should be free of grooves or ridges where the cable grommet seats on the seal. The cable should be free of grooves or ridges where the cable grommet seats on the



**Step 2. CABLE JACKET & WIRE STRIPPING**

Strip cable jacket 4 3/8" (111mm) as shown. Select dimension "A" from table to correspond with contact gauge and strip conductors. The contact's gauge can be found on the contact's packaging.



| CONTACT SIZE<br>AWG (mm <sup>2</sup> ) | DIM. A |      |
|--|--------|------|
|  | INCHES | mm   |
| 18 (0.75)                              | 13/32  | 10.3 |
| 16 (1.5)                               | 17/32  | 13.5 |
| 12 (4.0)                               | 19/32  | 15.1 |
| 10 (6.0)                               | 11/16  | 17.5 |

**NOTE:** The cable should be free of grooves or ridges in the area where the cable grommet seats on the cable. Also, be sure that the correct grommet size has been ordered to fit cable.

### Step 3. TERMINATING CONDUCTORS

All connectors are shipped with the contact insulators factory assembled in the barrel and in the specified key position. Do not remove them from shells.

All contacts are packaged separately.

**Precaution:** Exercise cleanliness throughout termination procedure to avoid contamination of insert insulation. Contamination may reduce the dielectric performance of the insulation.

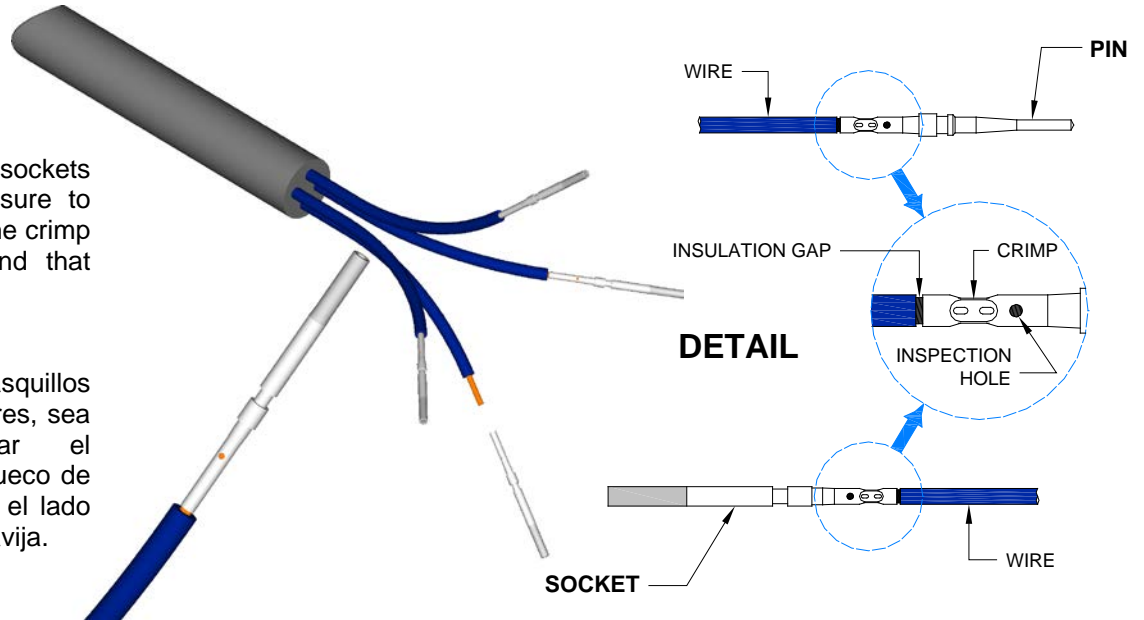
Contacts are crimped to the wires outside of the connector with the proper tool. Important. Crimp contacts with specified Vantage Technology crimp tools. See Page 8 for tooling information. Check through the inspection hole in the contact to make certain wires are fully bottomed in well before crimping. Do not crimp wire insulation.

#### **CAUTION**

When loading sockets onto wires, be sure to insert wire into the crimp well, not the end that mates with pin.

#### **¡PRECAUCIÓN!**

Al cargar los casquillos sobre los alambres, sea seguro insertar el alambre en el hueco de engarzar, no en el lado que acepte la clavija.



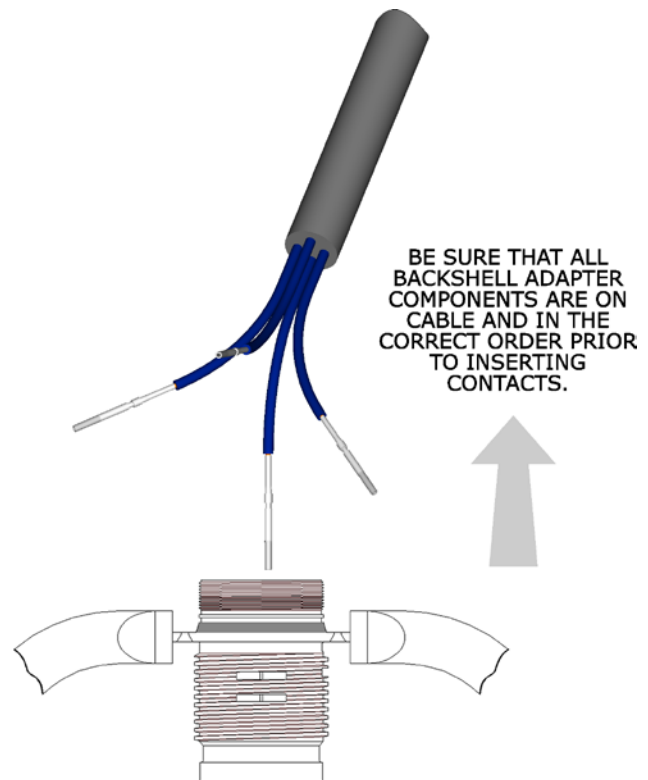
### Step 4. Inserting Contacts

Fix the receptacle shell, with the cable supported directly above. Do not apply clamps or vise plates to shell other than at mounting flange. Use caution to prevent damage to flange and shell.

After contacts are crimped and terminated to cable, insert them into the proper cavities. The contacts are retained in the insert by collets. While pushing in the contact, listen for the contact to “click” into place. Pull back on the wire to assure that it is being held by the collet.

If contact removal is required, use extraction tool T-106-XX. See Page 8 for tooling information.

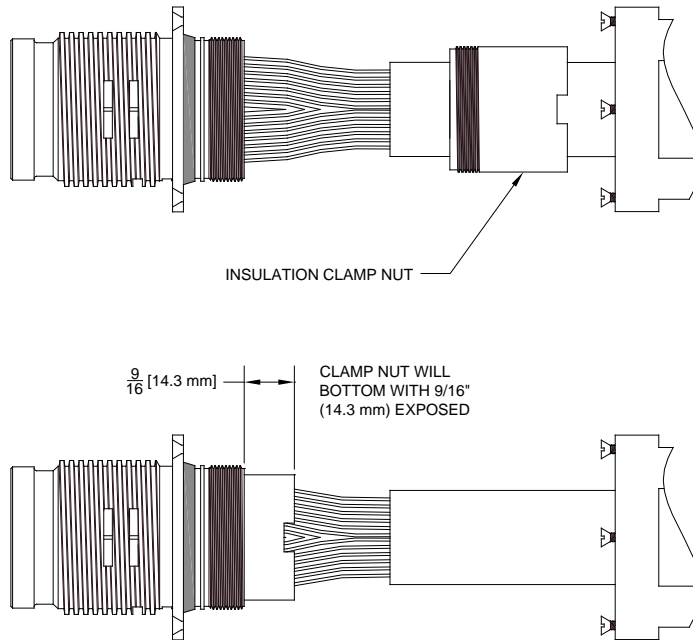
**Important.** Assemble unterminated contacts into open cavities to assure environmental sealing of connector.



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### Step 5. Closing Insulation Clamp Nut

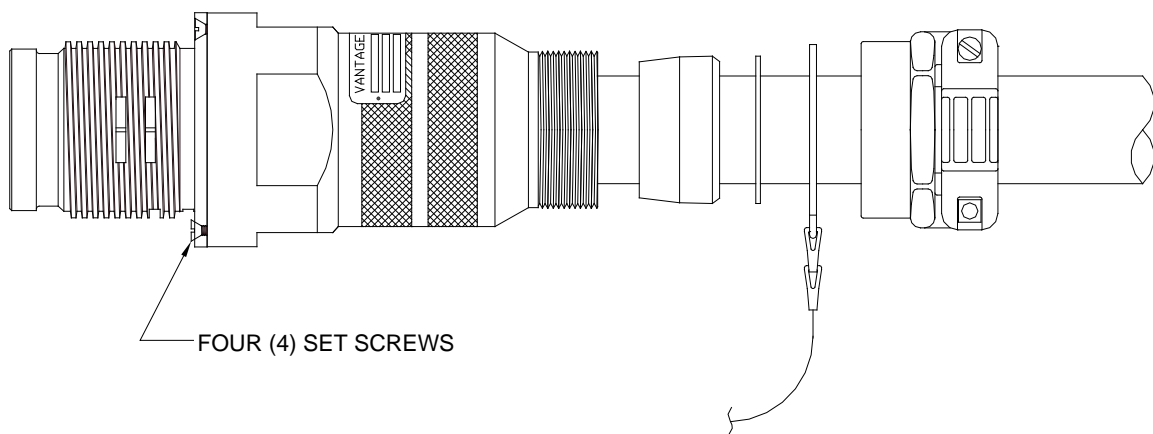
Install the insulation clamp nut. Use suitable spanner or strap wrench to tighten. Tighten fully to stop, leaving 9/16" exposed dimension, as illustrated.



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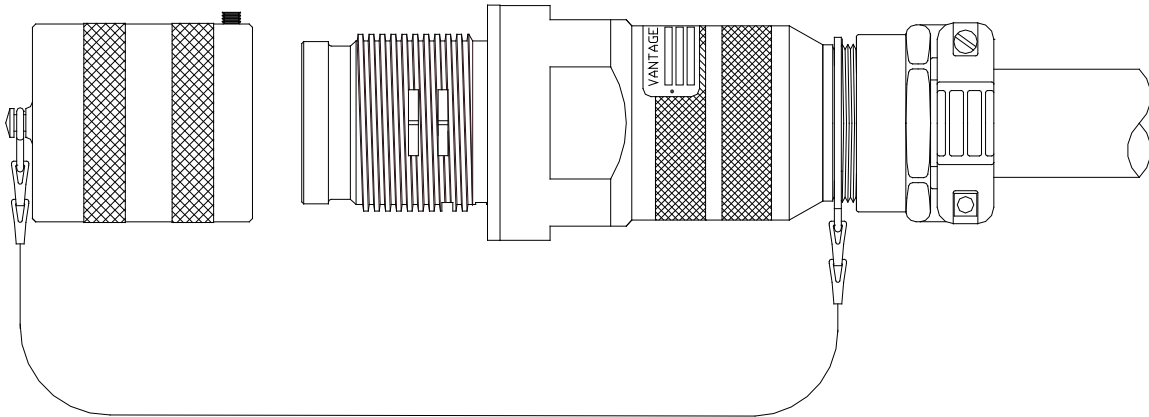
### Step 6. Closing Cable Housing

Thread cable housing onto back of receptacle shell until tight and gasket creates seal. Back off cable housing until four set screw holes line up. Tighten set screws.



## Step 7. Final Assembly

Install cable housing, grommet, washer, and cable clamp nut. Tighten clamp nut and clamp screws.



### Notes

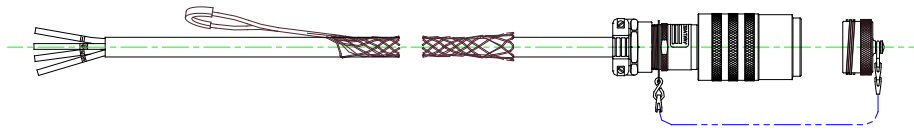
1. Periodically and when conditions require, lubricate coupling threads with silicone oil (part number VT-9400-21D), furnished with connector.
2. Periodically inspect receptacle to insure that all thread engagements are secure and that the grommet continues to provide an environmental seal.
3. Periodically inspect receptacle for excessive wear. Consult Vantage with any questions regarding repair or replacement.

**IMPORTANT:** When not in use, disconnect supply circuit and thread cover onto receptacle.

**IMPORTANTE:** Cuando no en uso, desconecte el circuito y vuelve a poner la cubierta del receptáculo.

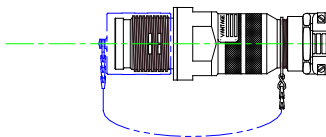
**Note:** Electrical installation shall be in compliance with the National Electric Code (NEC), EN/IEC60079-14, and/or any other presiding local or national electrical codes.

### CABLE ASSEMBLIES Factory Assembly of Connectors and Cable



If your connector(s) arrived pre-assembled to cable and/or other third-party components, consider the following:

1. Follow the instructions and recommended maintenance practices for the attachment plug and/or receptacle.
2. Review the usage instructions on the connector nameplate.
3. For European ATEX applications, in the potentially explosive atmosphere, the unterminated end of an integrally mounted cable shall be terminated in a suitable junction box, e.g. in type of protection flameproof enclosures "d" or increased safety "e".



# TOOLING

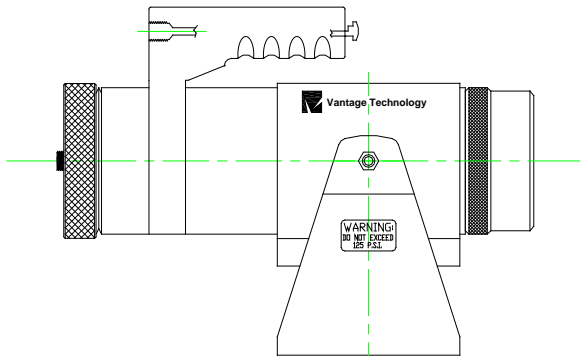
## Crimp Tool

T-104-CT-K Crimping Tool Kit with Accessories  
For Contacts #18 through #10



| Contact Size | Range of Conductor Size | Tool with Locators | Tool Only | Crimp Tool Inspection Gage | Contact Locator |             |
|--------------|-------------------------|--------------------|-----------|----------------------------|-----------------|-------------|
|              |                         |                    |           |                            | Pin             | Socket      |
| 18           | 18-20-22                | T-104-CT-K         | T-104-TO  | T-104-G                    | T-104-16/18     | T-104-16/18 |
| 16           | 16-18-20                |                    |           |                            | T-104-16/18     | T-104-16/18 |
| 12           | 12-14-16                |                    |           |                            | T-104-12M       | T-104-10/12 |
| 10           | 10-12-14                |                    |           |                            | T-104-10/12     | T-104-10/12 |

## Crimp Tool Options



T-105E and T-105HE, Pneumatic Crimp Tool  
(Foot Control Available)

## Contact Extraction Tool



Pin and Socket Contact  
Extraction Tool

| Contact Size | Extraction Tool Number |
|--------------|------------------------|
| 18           | T-106-18               |
| 16           | T-106-16               |
| 12           | T-106-12               |
| 10           | T-106-10               |



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