



**NOTE**

All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  [ $\pm .005$ ] and angles have a tolerance of  $\pm 2^\circ$ . Figures and illustrations are for identification only and are not drawn to scale.

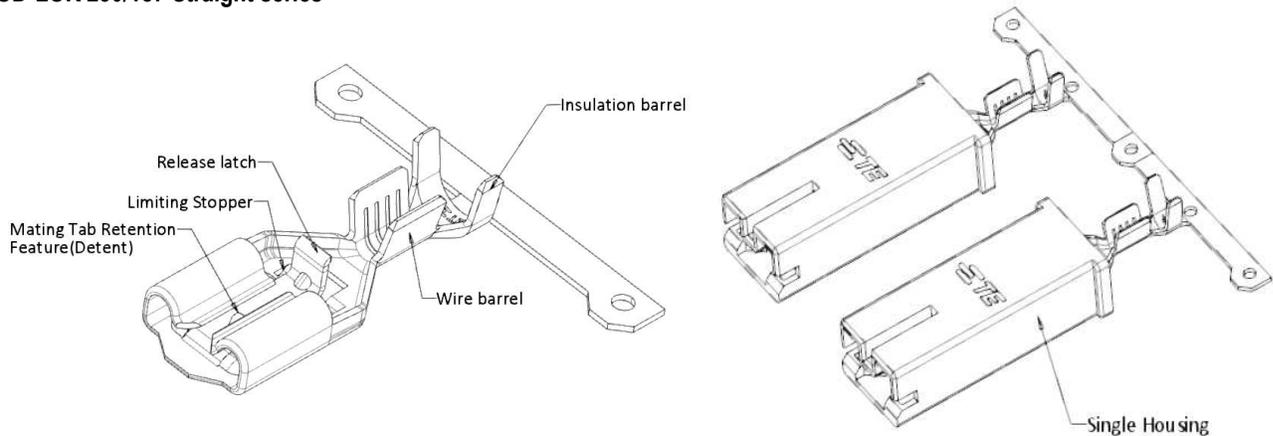
**1. INTRODUCTION**

This specification covers the requirements for application of POD-LOK Connector wire barrel feature. The receptacles have an “F”-crimp and accept a mating tab with a hole feature. The mating tab must have a width of .250 inch, with a thickness of 0.80 mm [.032 inch] for 250 series and .187 inch, with a thickness of 0.50 mm [.020 inch] for 187 series.

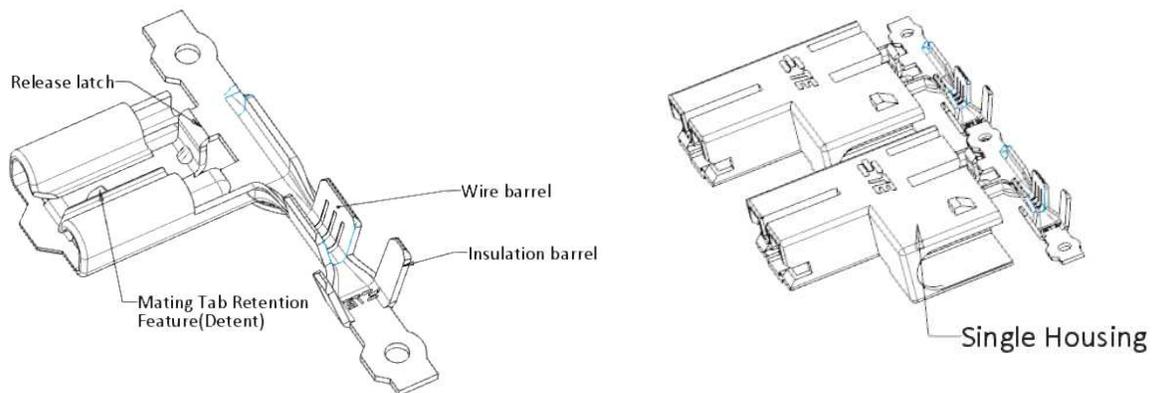
Single circuit housing is available for your production requirements. The contacts are designed to be mated with tabs containing holes for greater locking force. These receptacle contacts are terminated by automatic or semi-automatic machines.

When corresponding with TE Connectivity personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

**POD-LOK 250/187 Straight series**



**POD-LOK 250/187 Flag series**



## Back cover for flag series

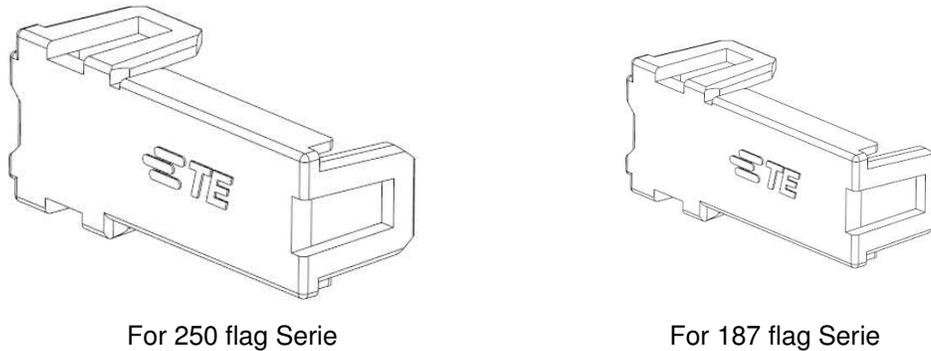


Figure 1

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

This paragraph is reserved for a revision summary covering the most recent additions and changes made to this specification which include the following:

Revisions to this application specification include:

- Updated document to corporate requirements
- Corrected crimp height dimension in Figure 2
- Add new dash PNs with 24 in reel in Figure 2

### 2.2. Customer Assistance

To ensure consistent and high-quality terminations, TE Connectivity (TE) product engineering has analyzed and tested the design factors of numerous terminal crimp connections with varying wire ranges defined by the terminals. As a result, TE product engineering has defined five criteria necessary to achieve a reliable crimp: be sure to 1) use the TE product only for an application it was designed for, 2) always use the TE recommended application tooling, 3) use an appropriately selected and prepared wire, 4) adhere to the application specification described in the associated TE product print and application documentation (such as the TE 114- Application Specification, and TE Applicator “Log Sheet” print), and 5) have the product handled by trained operators only. TE product performance according to TE product specification can be achieved using the methods described in this application specification with the use of the recommended, properly maintained tooling and applicator.

If tooling or termination equipment is used other than what is recommended by TE, where such tooling or equipment was not used for agency validation and/or the product qualification process, TE does not make any representation or warranty, expressed or implied, and disclaims liability for non-performance per TE product specification. Customer accepts the sole responsibility for the evaluation, application, and use of the terminals in such circumstances.

Reference Product Base Part Number 2299280(250 flag type), 2299282(250 straight type),2299286(187 straight type),2299287(187 flag type) and Product Code M309 are representative of POD-LOK connector. Use of these numbers will identify the product line and help you obtain product and tooling information, which can be obtained by visiting [www.te.com](http://www.te.com) or by calling the Product Information number at the bottom of page 1.

### 2.3. Drawings

Customer drawings for product part numbers are available from [www.te.com](http://www.te.com). Information contained in the customer drawing takes priority.

## 2.4. Instructional Material

The following list includes available instruction sheets (408- and 411-series) that provide assembly procedures for product, operation, maintenance and repair of tooling, and customer manuals (409-series) that provides setup, operation, and maintenance of machines.

- 408-3295 Preparing Reel of Contacts for Application Tooling
- 408-7424 Checking Terminal Crimp Height Gaging Die Closure
- 408-10389 Ocean Side Feed Applicator Instruction Sheet
- 408-10390 Ocean End Feed Applicator Instruction Sheet
- 408-9640 Crimp Quality Monitor Applicators for Side-Feed and End-Feed Applications
- 408-9816 Handling of Reeled Products

## 2.5. Specifications

Product Specification [108-106262](#) and Product Performance Test Report [501-106262](#) provide product performance and test results.

## 2.6. Terminal Voltage Rating

Voltage rating is based upon dielectric strength between the terminal and other voltage potential conductors. For these un-insulated terminals, this dielectric strength is determined by 1) the wire insulation used, 2) the housing used (if any), and 3) the application spacings. These appliance business unit terminals with an insulation barrel crimp are designed for UL 1015 wire with insulation rated for 600 volts; so, this is the voltage rating assigned to these terminals. Clearly, if higher dielectric strength wire insulation, larger spacings, and possibly an optional housing are used, larger voltages can be used.

## 3. REQUIREMENTS

### 3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

### 3.2. Storage

#### A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the product material.

#### B. Reel Storage

When using reeled contacts, store coil wound reels horizontally and traverse wound reels vertically.

#### C. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

#### D. Chemical Exposure

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the material.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur	Nitrites	Tartrates



#### NOTE

*When the above environmental conditions exist, phosphor-bronze contacts are recommended instead of brass if available.*

### 3.3. Special Characteristics

POD-LOK Receptacles are designed with reduced mating forces and a flexible locking dimple. This unique locking feature acknowledges proper mating with an audible mechanical “snap” of the dimple into the hole in the mating tab. The locking feature enhances safety and reliability of the connection for isolated and had-to-reach areas.

### 3.4. Wire Selection and Preparation

The contacts accept 1 stranded copper wire within the following sizes and insulation diameter range:

**POD-LOK ASSEMBLE PART APPLICATOR CRIMPING DATASHEET**

SERIES	WIRE SIZE		POD-LOK P/N		INSULATION DIAMETER	STRIP LENGTH	WIRE BARREL		INSULATION BARREL CRIMP WIDTH (REF)	APPLICATOR
	REFERENCE SIZE (AWG)	CMA	ASSEMBLE	CONTACT			CRIMP HEIGHT ±0.05 [.002]	CRIMP WIDTH (REF)		
250 Straight Series	22	700-1600	2299282-1 3-2299282-1	2299283-1	2.2-3.0 [.090-.110]	5.17-4.39 [.203-.173]	1.32[.051] ±0.025 [.001]	2.03 [.080] F	3.30 [.130] OV 3.56 [.140] F	1855703
	20						1.42[.056]			
	18						1.44[.057]			
	18	1600-4100	2299282-2 3-2299282-2	2238099-1	3.0-4.0 [.110-.150]	5.17-4.39 [.203-.173]	1.47[.058]	2.79[.110] F	4.06[.160] OV 4.78 [.188] F	
	16						1.65 [.065]			
	14						1.88[.074]			
	14	4100-6500	2299282-3 3-2299282-3	2299278-1	3.40-5.08 [.134-.200]	6.22-5.46 [.245-.215]	1.85 [.073]	3.05[.120] F	5.08[.200] OV 5.6 [.220] F	
12	2.15 [.085]									
250 Flag Series	22	700-1600	2299280-1 3-2299280-1	2299281-1	2.29-3.30 [.090-.130]	5.17-4.39 [.203-.173]	1.32[.052] ±0.025 [.001]	2.03 [.080] F	3.56 [.140] Box	1855704
	20						1.37[.054]			
	18						1.52[.060]			
	16	2600-6500	2299280-2 3-2299280-2	2238100-1	3.40-4.32 [.134-.170]	6.22-5.46 [.245-.215]	1.65 [.065]	3.05[.120] F	5.08 [.200] Box	
	14						1.85 [.073]			
	14						1.85 [.073]			
12		2299280-3 3-2299280-3	2238100-5			2.15 [.085]				
187 Straight Series	24	400-1000	2299286-1 3-2299286-1	2299285-1	1.52-2.79 [.060-.110]	4.10-4.90 [.161-.193]	0.94[.037] ±0.025 [.001]	1.57[.062] F	2.79[.110] OV 3.3[.130] F	1855706
	22						0.99[.039] ±0.025 [.001]			
	20						1.09[.043]			
	20	1000-2600	2299286-2 3-2299286-2	2299130 -1	2.29-3.30 [.090-.130]	4.30-5.10 [.169-.201]	1.19[.047]	2.29[.090] F	3.30[.13] OV 3.94 [.155] F	
	18						1.32[.052]			
	16						1.50[.059]			
187 Flag Series	24	400-1000	2299287-1 3-2299287-1	2299291-1	1.52-2.79 [.060-.110]	4.10-4.90 [.161-.193]	0.97[.038] ±0.025 [.001]	1.57[.062] F	2.79[.110] OV 3.3[.130] F	1855708
	22						1.02[.040]			

	20					1.09[.043]			
	20					1.19[.047]			
	18	1000-2600	2299287-2 3-2299287-2	2299293-1	2.29-3.30 [.090-.130]	4.30-5.10 [.169-.201]	2.29[.090] F	3.30[.13] OV 3.94[.155] F	1855709
	16					1.50[.059]			

**POD-LOK CONTACT APPLICATOR CRIMPING DATASHEET**

SERIES	WIRE SIZE		POD-LOK P/N	INSULATION DIAMETER	STRIP LENGTH	WIRE BARREL		INSULATION BARREL CRIMP WIDTH (REF)	APPLICATOR
	REFERENCE SIZE (AWG)	CMA	CONTACT			CRIMP HEIGHT ±0.05 [.002]	CRIMP WIDTH (REF)		
250 Straight Series	22	700-1600	2299283-2	2.2-3.0 [.090-.110]	5.17-4.39 [.203-.173]	1.32[.051] ±0.025 [.001]	2.03 [.080] F	3.30 [.130] OV 3.56 [.140] F	2836705
	20					1.42[.056]			
	18					1.44[.057]			
	18	1600-4100	2238099-2	3.0-4.0 [.110-.150]	5.17-4.39 [.203-.173]	1.47[.058]	2.79[.110] F	4.06[.160] OV 4.78 [.188] F	
	16					1.65 [.065]			
	14					1.88[.074]			
	14	4100-6500	2299278-2	3.40-5.08 [.134-.200]	6.22-5.46 [.245-.215]	1.85 [.073]	3.05[.120] F	5.08[.200] OV 5.6 [.220] F	
12	2.15 [.085]								
250 Flag Series	22	700-1600	2299281-2	2.29-3.30 [.090-.130]	5.17-4.39 [.203-.173]	1.32[.052] ±0.025 [.001]	2.03 [.080] F	3.56 [.140] Box	2150794
	20					1.37[.054]			
	18					1.52[.060]			
	22	700-1600	2399538-1	2.29-3.30 [.090-.130]	5.17-4.39 [.203-.173]	1.32[.052] ±0.025 [.001]	2.03 [.080] F	3.56 [.140] Box	
	20					1.37[.054]			
	18					1.52[.060]			
	16	2600-6500	2238100-2	3.40-4.32 [.134-.170]	6.22-5.46 [.245-.215]	1.65 [.065]	3.05[.120] F	5.08 [.200] Box	
	14					1.85 [.073]			
	14		2238100-7			1.85 [.073]			
	12					2.15 [.085]			
	16	2600-6500	2399565-1	3.40-4.32 [.134-.170]	6.22-5.46 [.245-.215]	1.65 [.065]	3.05[.120] F	5.08 [.200] Box	
	14					1.85 [.073]			
	14					1.85 [.073]			
	12					2.15 [.085]			
187	24	400-1000	2299285-2	1.52-2.79 [.060-.110]	4.10-4.90 [.161-.193]	0.94[.037] ±0.025 [.001]	1.57[.062] F	2.79[.110] OV 3.3[.130] F	2836707

Straight Series	22					0.99[.039] ±0.025 [.001]			
	20					1.09[.043]			
	20	1000-2600	2299130-2	2.29-3.30 [.090-.130]	4.30-5.10 [.169-.201]	1.19[.047]	2.29[.090] F	3.30[.13] OV 3.94 [.155] F	2836708
	18					1.32[.052]			
	16					1.50[.059]			
187 Flag Series	24	400-1000	2299291-2	1.52-2.79 [.060-.110]	4.10-4.90 [.161-.193]	0.97[.038] ±0.025 [.001]	1.57[.062] F	2.79[.110] OV 3.3[.130] F	2150792
	22					1.02[.040]			
	20					1.09[.043]			
	20	1000-2600	2299293-2	2.29-3.30 [.090-.130]	4.30-5.10 [.169-.201]	1.19[.047]	2.29[.090] F	3.30[.13] OV 3.94 [.155] F	2150793
	18					1.32[.052]			
16	1.50[.059]								

Figure 2



**CAUTION**

Care must be taken not to nick, scrape, or cut any part of the wire during the stripping operation.

Note: Not to Scale

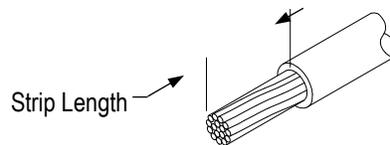


Figure 3

### 3.5. Contact Crimp

Locate the contact to be crimped in the appropriate tooling per the instructions packaged with that tooling. Detailed instructions covering the placement of contacts in the tooling and the use of such tooling is packaged with each tool.

Terminate the contact according to the directions shipped with the appropriate tooling. See Section 4, TOOLING.



**CAUTION**

Wire insulation shall NOT be cut or broken during the crimping operation, nor shall the insulation be crimped into the contact wire barrel. Reasonable care should be taken by tooling operators to provide undamaged wire terminations.

#### A. Crimp Height

The crimp applied to the wire portion of the contact is the most compressed area and is most critical in ensuring optimum electrical and mechanical performance of the crimped contact. The crimp height must be within the dimensions provided in Figure 2.

**B. Crimp Length**

For optimum crimp effectiveness, the crimp must be within the area shown and must meet the crimp dimensions provided in Figure 2. Effective crimp length shall be defined as that portion of the wire barrel, excluding bellmouth(s), fully formed by the crimping tool. Instructions for adjusting, repairing, and inspecting tools are packaged with the tools.

**C. Bellmouths**

Front and rear bellmouths shall be evident and conform to the dimensions given in Figure 4.

**D. Cutoff Tab**

The cutoff tab shall be cut to the dimensions shown in Figure 4.

**E. Burrs**

The cutoff burr shall not exceed the dimensions shown in Figure 4.

**F. Wire Barrel Flash**

The wire barrel flash shall not exceed the dimensions shown in Figure 4 in Section X-X.

**G. Wire Location**

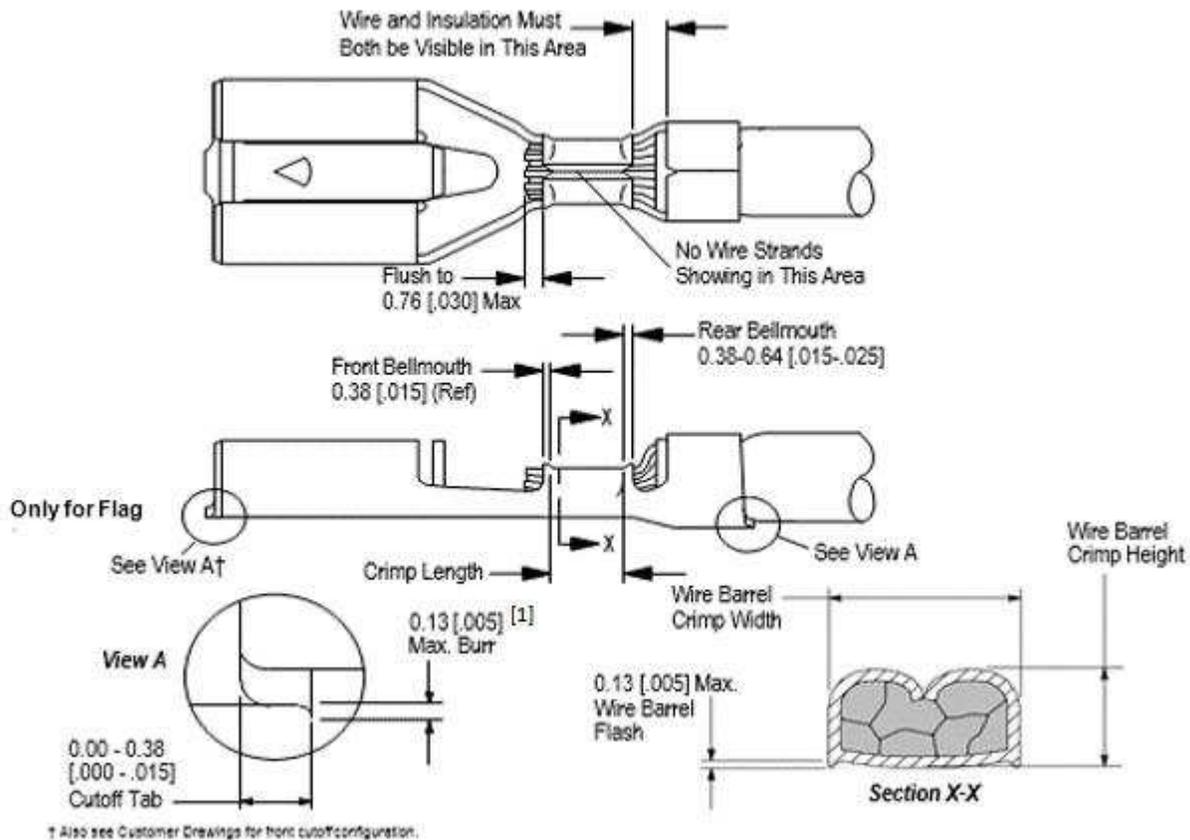
After crimping, the wire conductor and insulation must be visible in the transition area between the wire and insulation barrels.

**H. Conductor Location**

The conductor may extend beyond the wire barrel to the maximum shown in Figure 4.

**I. Wire Barrel Seam**

The wire barrel seam must be closed with no evidence of loose wire strands visible in the seam.



[1]: 0.20[.008] Max. Burr for the applicator of crimping and pushing.

Figure 4

### J. Twist and Roll

There shall be no twist, roll, deformation or other damage to the mating portion of the crimped contact that will prevent proper mating. See Figure 5.

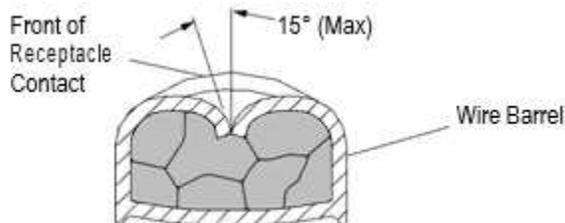


Figure 5

### K. Wire Barrel Crimp

The crimp applied to the wire barrel portion of the contact is the most compressed area and is most critical in ensuring optimum electrical and mechanical performance of the crimped contact. The crimp must be centered on the closed wire barrel and care must be taken to ensure that insulation does not enter the wire barrel crimp. The crimp must result in an “F” crimp where the wire barrel forms a closed seam with no evidence of loose wire strands or wire strands visible in the seam. The crimp height and width must be within the dimensions provided in Figure 2.

### L. Insulation Barrel Crimp

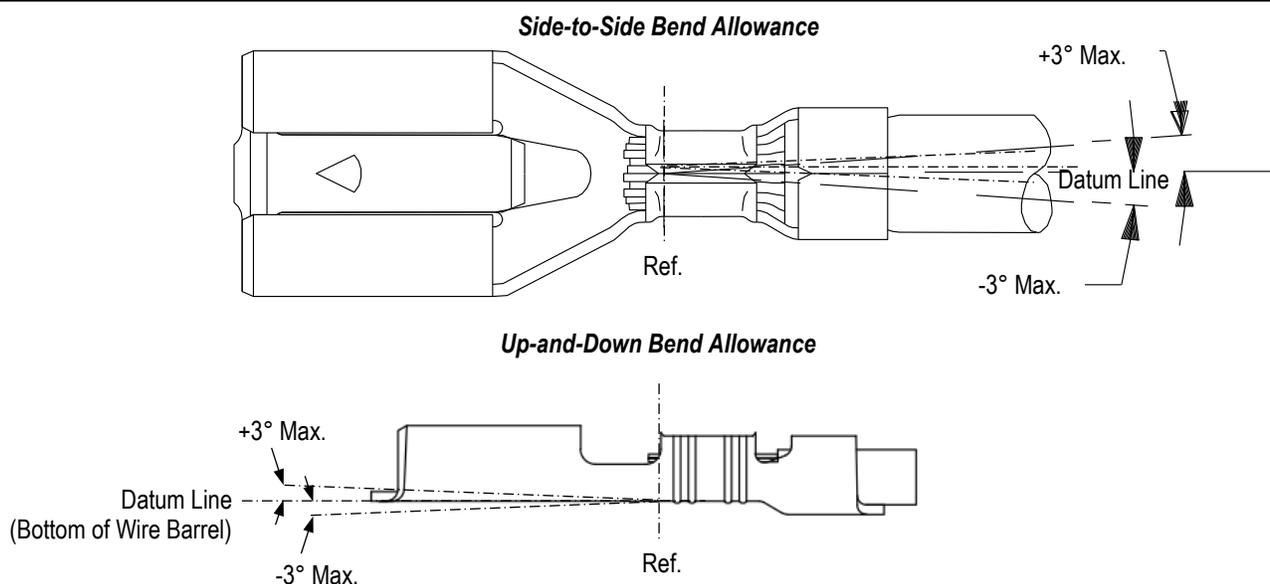
The crimp applied to the insulation barrel of the contact must result in an “F” or “Box” crimp. The crimp height and width must be within the dimensions provided in Figure 2.

### M. Wire Location

All conductors must be held firmly inside the wire barrel. No strands can be folded back over the wire insulation. The wire insulation must be inside the insulation barrel, but must not enter the wire barrel. The wire conductors and insulation must be visible within the area between the wire barrel and insulation barrel as shown in Figure 4.

### N. Bend Allowance

The bend allowance between the wire barrel and cable is acceptable within the limits given in Figure 6.



**i** **NOTE**  
Angles are drawn for clarification only and are not to scale

**Figure 6**

**i** **NOTE**  
Periodic inspections must be made to ensure crimped contact formation is consistent as shown.

### 3.6. Crimp Tensile Test

Crimped receptacles shall not be separated from their associated wires when subjected to forces as specified in Figure 7.

**i** **NOTE**  
Adjust tensile testing machine for head travel of 25.4 mm [1 inch] per minute. Directly and gradually apply force for 1 minute.

Wire Size/AWG	Minimum Force/N
24	22.3
22	36

20	58
18	89
16	133
14	223
12	311

Figure 7

### 3.7. Mating Tab Dimensions

Fig.8 and Fig.9 show features and dimensional requirements for tab terminals intended for mating with POD-LOK receptacles. This information can also be found in customer drawing.

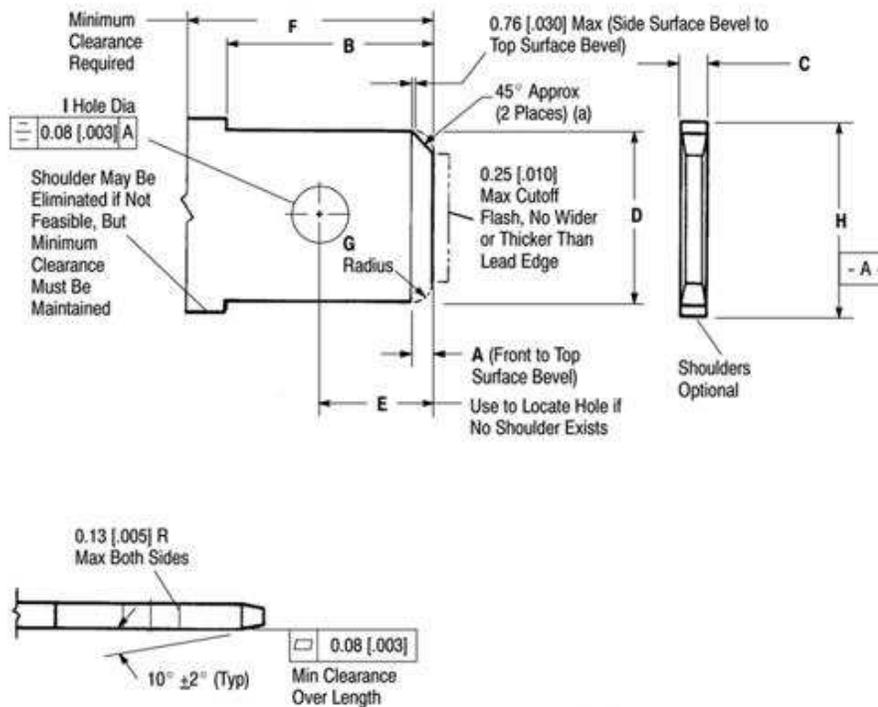


Figure 8

TAB SIZE	A	B min.	C	D	E	F min.	G	H	I, DIA
6.35 x 0.81 [.250 x .032]	1.0-0.5 [.004-.002]	7.8 [.307]	0.84-0.77 [.033-.030]	6.4-6.2 [.253-.244]	4.7-4.3 [.186-.169]	10.1 [.398]	1.8-0.7 [.071-.027]	8.26-8.8 [.325-.346]	2.0-1.6 [.078-.063]
4.80 x 0.50 [.187 x .020]	0.9-0.6 [.035-.024]	6.2 [.244]	0.54-0.47 [.021-.019]	4.90-4.67 [.193-.184]	3.4-3.0 [.134-.117]	8.1 [.319]	1.7-0.6 [.067-.024]	5.7-7.2 [.224-.283]	1.5-1.3 [.06-.05]

Figure 9

**NOTE**

(a) Bevel need not be a straight line if within confines as shown, or a radius of  $G \pm 0.51$  [.020] may be substituted.

**NOTE**

Dimensional measurements shall not include plating, burrs, or flatness tolerance.

### 3.8. Repair

These receptacles are not repairable once termination has been made. Any defective receptacles should be removed and replaced with a new one.

## 4. TOOLING

Figure 2 provides tool part numbers and instructional material related to wire size.

**NOTE**

TE Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact TE Tool Engineering through your local TE Representative or call the Tooling Assistance Center number at the bottom of page 1.

### 4.1. Machine (Power Unit)

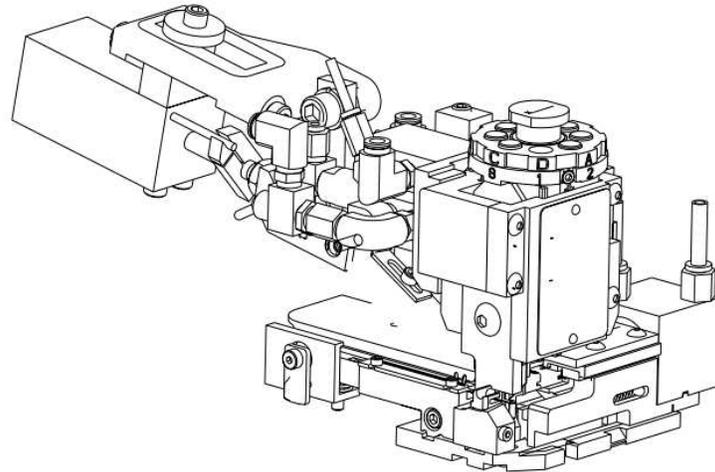
The machine provides the force required to drive an applicator for crimping the contacts. These machines can be set up to automatically measure, cut, strip, and terminate the wire.

### 4.2. Applicator

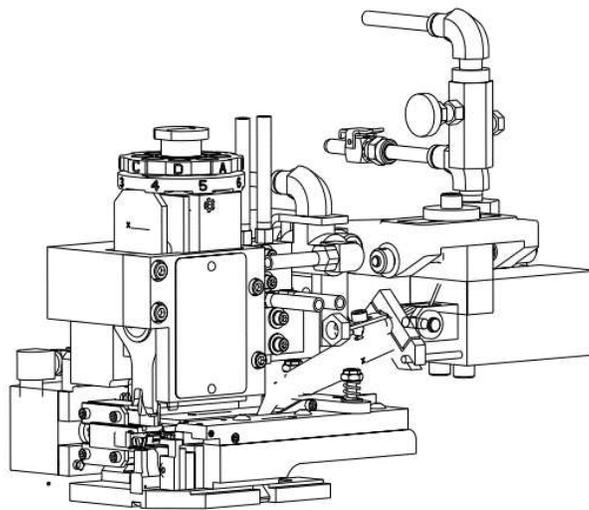
Applicators are designed for the full wire size range of strip-fed, precision formed contacts, and provide for high volume, heavy duty production requirements. The applicators can be used in bench or floor model power units.

**NOTE**

Each applicator is shipped with a metal identification tag attached. DO NOT remove this tag or disregard the information on it. Also, a packet of associated paperwork is included in each applicator shipment. This information should be read before using the applicator; then it should be stored in a clean, dry area near the applicator for future reference. Some changes may have to be made to the applicators to run in all related power units. Contact the Product Information number located at the bottom of page 1 for specific changes.



**Figure 10** POD-LOK Straight Applicator



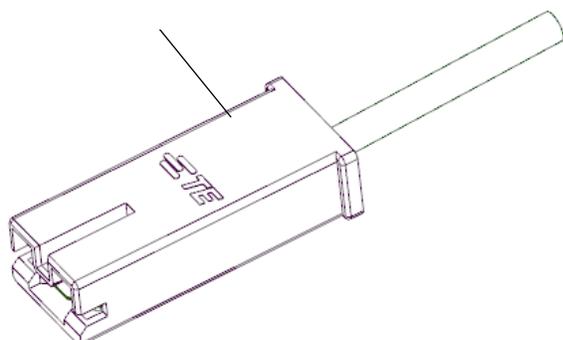
**Figure 11** POD-LOK Flag Applicator

### 5. VISUAL AID

The illustration below shows the typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which do not appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

#### POD-LOK 250/187 Straight series

Contact shall be locked in place. Pull gently back on wire to ensure locking.



Wire and Insulation both visible

No insulation in insulation barrel seam

Release latch shall not be deformed.

Contact not deformed

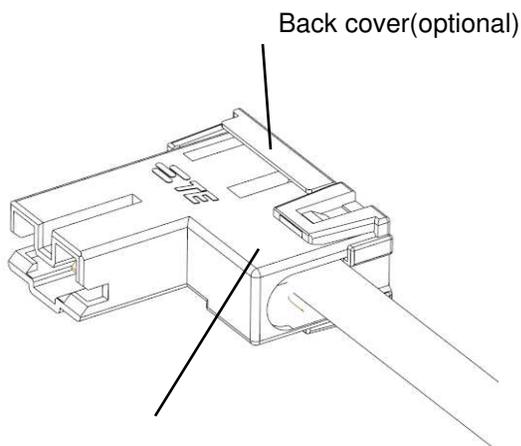


No Wire in wire barrel seam

Wire must be flush or slightly protruded

#### POD-LOK 250/187 Flag series

Contact shall be locked in place. Pull gently back on wire to ensure locking.

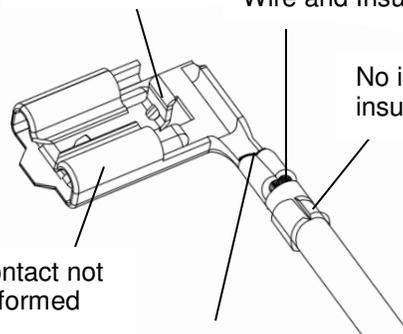


Release latch shall not be deformed.

Wire and Insulation both visible

Contact not deformed

No insulation in insulation barrel seam



Wire must be flush or slightly protruded

Contact shall be locked in place. Pull gently back on wire to ensure locking.

Figure 12



**NOTE**

Minute plastic debris may be formed during the contact insertion into the glass fiber housing. This is normal during high speed lead maker processing and can be cleaned with high speed Air jet pistol after the crimp process is completed.

**Working Instruction for Back cover, for reference**

