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 ±0.13 [±.005] and angles have a tolerance of ±2°. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of the waterproof signal double lock connector system and twist and lock connector system with a 2.5 mm centerline. The waterproof signal double lock connector system is available in a 2 through 6 position, single row free hanging panel mount configuration for a 22 to 26 AWG wire range.

The twist and lock connector system is available in a 4 or 6 position, dual row and 12 position, triple row free hanging panel mount configuration for a 22 to 26 AWG wire range.

The optional seals on the waterproof signal double lock and the twist and lock connector system are rated to IP67. If seals are required, the mating interface seal must be used in conjunction with the gang seal. Terminal position assurance (TPA) accessories are available for all wire sizes and may be used on connectors with or without optional seals.

Basic terms and features of this product are provided in Figure 1.

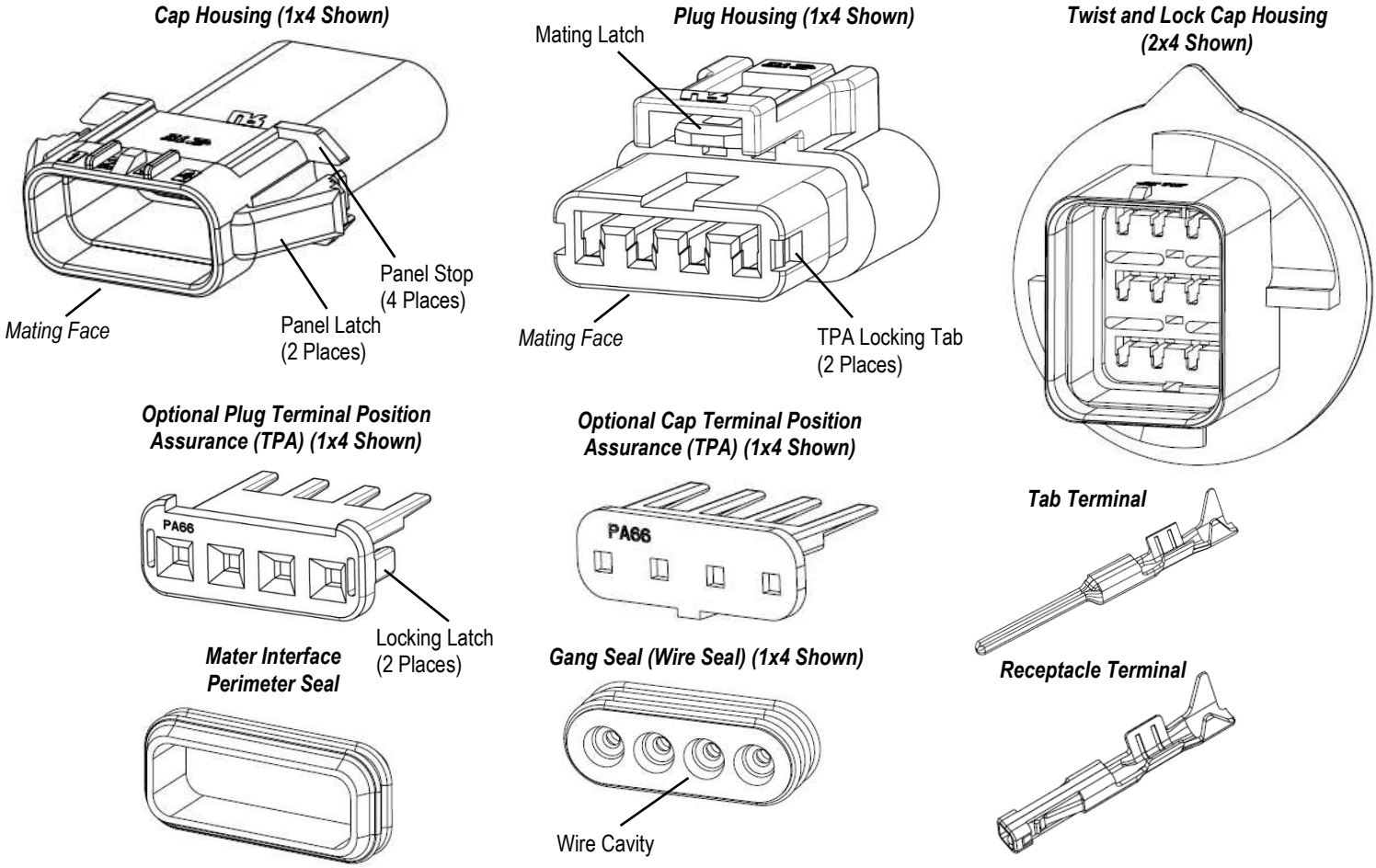


Figure 1

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2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this specification include:

- Release to revision A

2.2. Customer Assistance

Reference Product Base Part Number 2321918, 2321921, 2321922 and Product Code 3933, 3935, 3940 are representative of the Waterproof Signal Double Lock Connector System. Use of these numbers will identify the product line and help you to obtain product and tooling information when visiting www.te.com or calling the number at the bottom of page 1.

2.3. Drawings

Customer drawings for product part numbers are available from www.te.com. Information contained in the customer drawing takes priority.

2321918	Plug Housing (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321919	Plug Terminal Position Assurance (TPA) Accessory
2321920	Perimeter Seal (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321921	Receptacle Terminal
2321922	Gang Seal
2321924	Receptacle Housing Free Hanging (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321926	Receptacle Housing Panel Mount (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321927	Receptacle Terminal Position Assurance (TPA) Accessory
2321928	Tab Terminal
2329540	Plug Housing (2x2, 2x3, and 3x4 configurations)
2329542	Perimeter Seal (2x2, 2x3, and 3x4 configurations)
2329544	Twist and Lock Receptacle Housing (2x2, 2x3, and 3x4 configurations)
2321916	Waterproof Signal Double Lock Plug Connector Assembly (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321923	Waterproof Signal Double Lock Receptacle Connector Assembly (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2321925	Waterproof Signal Double Lock Receptacle Connector Assembly – Panel Mount (1x2, 1x3, 1x4, 1x5, and 1x6 configurations)
2329540	Twist and Lock Plug Connector Assembly (2x2, 2x4, and 3x4 configurations)
2329543	Twist and Lock Receptacle Connector Assembly (2x2, 2x4, and 3x4 configurations)

2.4. Instructional Material

Instructional material that pertains to this product is:

408-143098	Sealed Connectors Assembly Procedure

2.5. Specifications

Product Specification 108-143069 provides product performance and test results.

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. 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.

C. Reels

When using reeled contacts, store coil wound reels horizontally. When storing partial reeled contacts, the end of the strip should be secured to the flange using a wire tie or similar method.

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

3.3. Wire Selection and Preparation

The contacts accept 1 stranded copper wire sizes 26 AWG to 22 AWG with an insulation diameter range of 1.30 to 1.60 mm.

Each wire must be stripped to the dimension given in 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

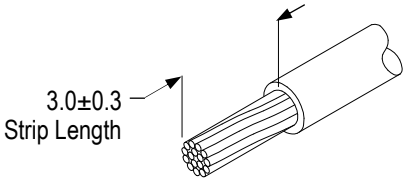


Figure 2

3.4. Contact Crimp

A. Cutoff Tab

The cutoff tab is the remaining portion of the carrier strip after the contact is cut from the strip. The cutoff tab must not exceed the dimensions given in Figure 3.

B. 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. 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 given in Figure 3.

C. Insulation Barrel Crimp

The crimp applied to the insulation barrel of the contact must result in an “O” crimp where the tips of the insulation barrel wrap firmly around the wire insulation without cutting into the wire insulation. The crimp width must be within the dimensions provided in Figure 3.

D. Wire Barrel Flash

Wire barrel flash is the formation that may appear on both sides of the wire barrel as the result of the crimping process. It must not exceed the dimension provided in Figure 3.

E. Twist and Roll

There should be no twist or roll of the wire barrel or mating portion of the crimped contact that would cause overstress or impair usage. See Figure 3 for allowable limits.

F. Wire End Extrusion

The wire conductor ends must extend beyond the end of the wire barrel within the dimensions given in Figure 3.

G. Bellmouths

The rear bellmouth shall be evident and conform to the dimensions given in Figure 3.

H. 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 3.

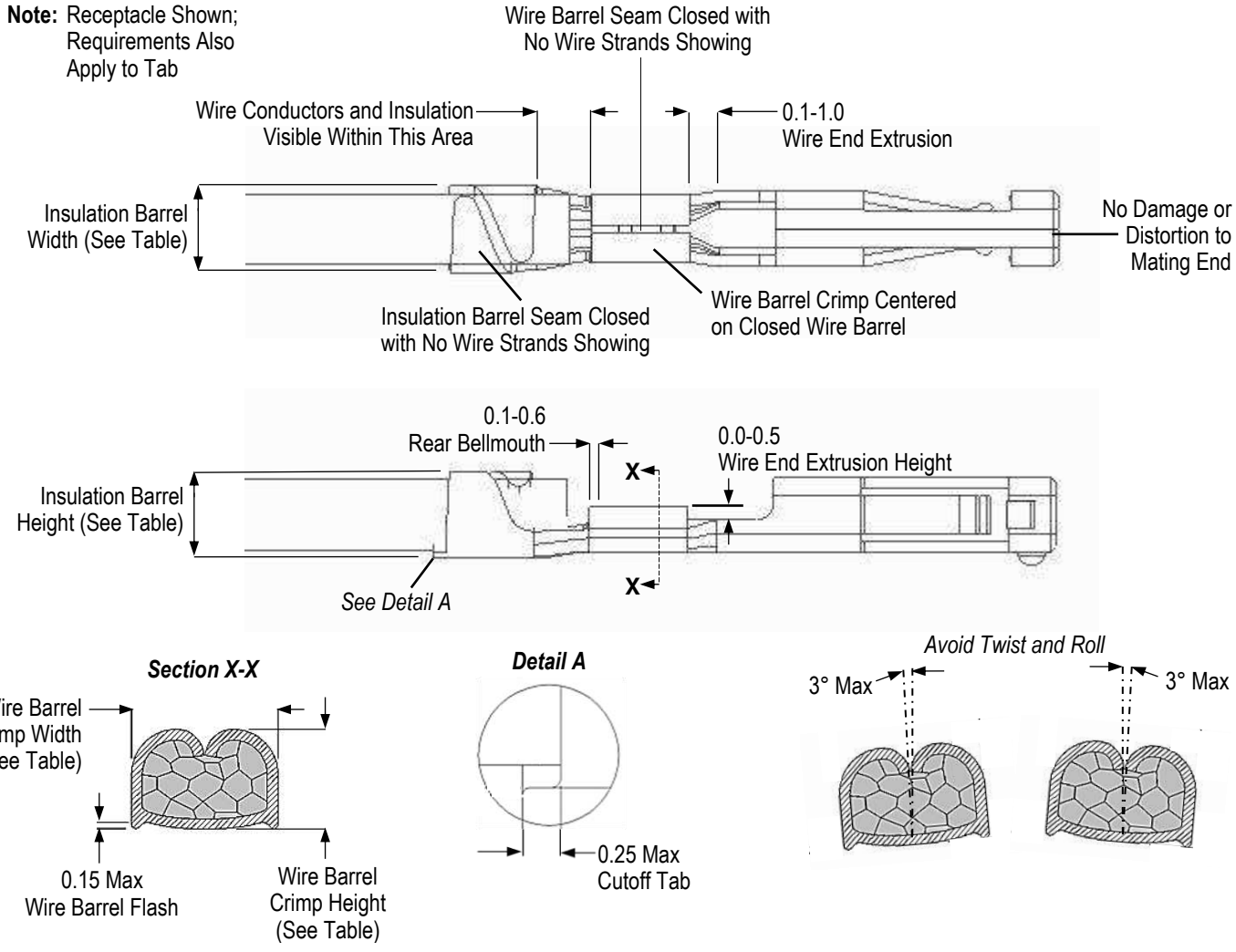


Figure 3 (continued)

Part Number	Wire Size [AWG]	Wire Barrel Crimp [mm]		Insulation Barrel Crimp Width (Ref) [mm]	Insulation Barrel Crimp Height (Ref) [mm]
		Width (Ref)	Height		
2321921	22	1.16	0.82 ± 0.05	1.9 mm (max) "O"	1.9 mm (max) "O"
	24		0.75 ± 0.05		
	26		0.69 ± 0.05		
2321928	22	1.16	0.82 ± 0.05	1.9 mm (max) "O"	1.9 mm (max) "O"
	24		0.75 ± 0.05		
	26		0.69 ± 0.05		

Figure 3 (end)

I. Bend Allowance

The bend allowance between the wire barrel and cable is acceptable within the limits given in Figure 4.

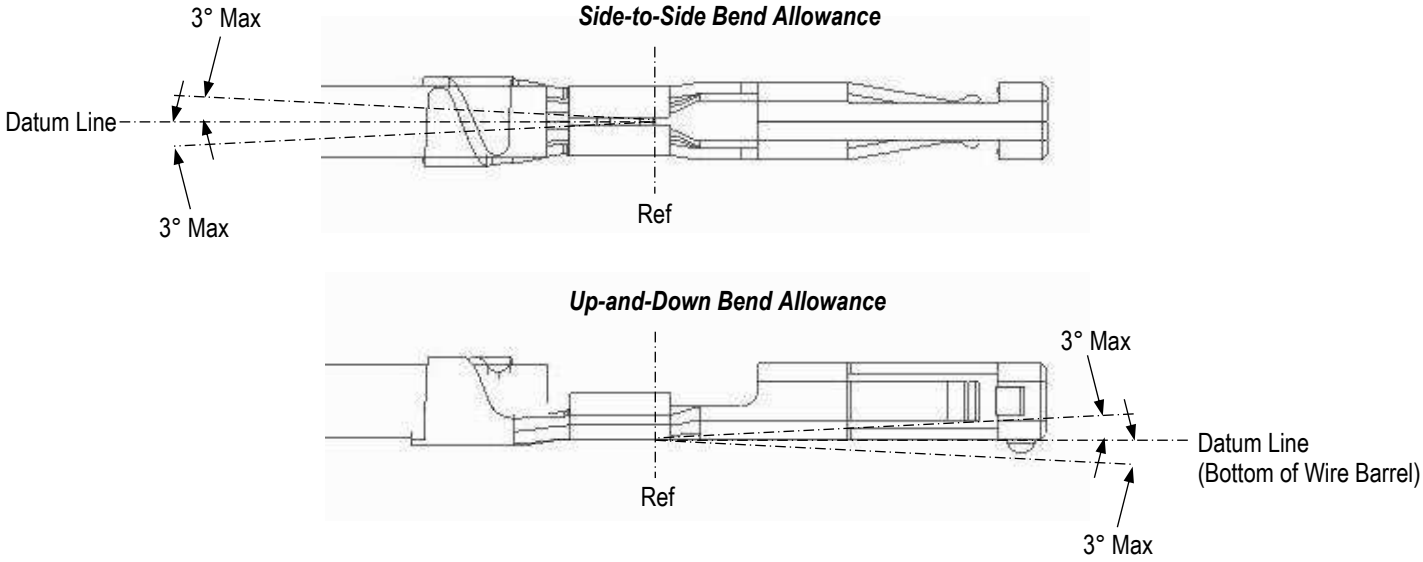


Figure 4

3.5. Optional TPA Devices

An optional TPA device is available for the plug housing and cap housing. The following requirements apply for installation:

NOTE
All contacts must be inserted before the devices can be installed into the housing.

— The TPA device must be installed onto the contact end of the housing so that the latches are secure to the housing TPA locking tabs. There should be an audible click. If the latches do not reach the locking tabs, this indicates that one or more contacts has not been fully inserted.

The following requirements apply for removal:

— The TPA device must be removed by lifting each latch so that it clears the housing TPA locking tab, and pulling the TPA device straight from the housing.

3.6. Panel Mounting

Recommended panel cutout dimensions are provided on the customer drawing for the specific cap housing.

The cap housing must be inserted through the panel in the same direction that the cutout was punched until the panel stops sit against the panel so that the flexible panel latches engage the panel. No hardware is required. See Figure 5.

To remove the cap housing from the panel, both latches must be simultaneously depressed, then the cap housing must be gently pulled straight out of the panel. If there is no damage to the cap housing, the cap housing can be re-mounted.

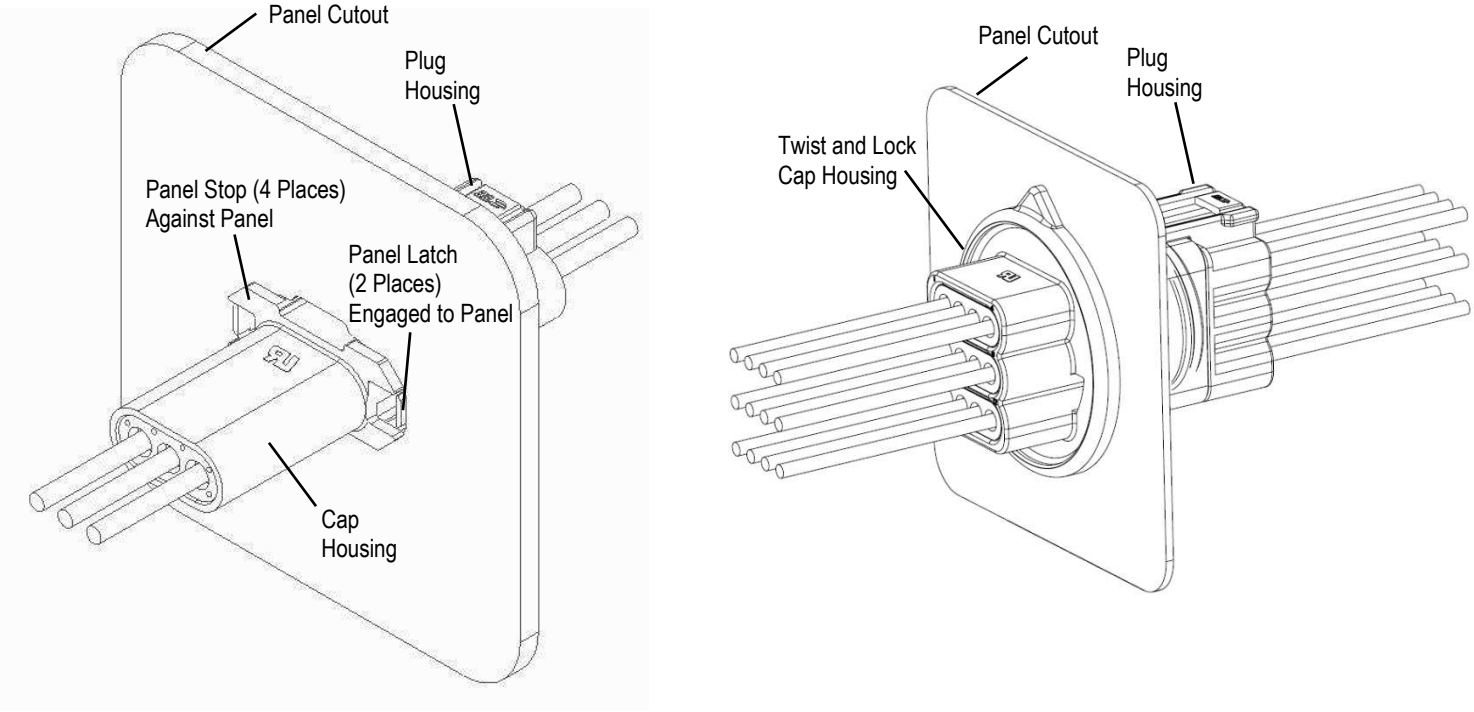


Figure 5

3.7. Mating and Unmating

The mating face of the cap housing must align with the mating face of the plug housing, then the housing must be pushed together until the mating latch is secured to the latch retainer. There should be an audible click. Refer to Figure 8.

To unmate the housings, the plug housing must be depressed until it is released from the latch retainer, then the housings can be pulled straight apart.

CAUTION
These housings are not intended to be used as an electrical interruption device. To avoid degradation to the contacts, there must be no current flow when unmating.

3.8. Strain Relief and Wire Dress

Wires can be bundled together and supported using cable ties or electrical tap. The wires must remain perpendicular to the housing and avoid an excessively sharp bend radius. The wire bundle must be at least 76 mm [3.0 inch] from the back of the housing before bending in any direction. Do not bend unsupported wires as this may cause strain on the contacts.

3.9. Assembly Procedures

See Instruction Sheet 408-143098 for assembly procedure instructions.

3.10. Replacement and Repair

Damaged or defective product must not be used. The housings, contacts, TPA device, and seals are not repairable.

4. TOOLING

Applicators contain the tooling for feeding and crimping strip-form terminals. Automatic machines provide the power to operate the applicator. See Figure 7Figure 7**Error! Reference source not found.Error! Reference source not found.** for representative images.

Tooling information for product part numbers is available from www.te.com or by calling the Product Information Center at the number at the bottom of page 1.

4.1. Hand Crimping Tools

Hand tools for product part numbers are available from the Hand Tool Search Portal on www.te.com or by calling the Product Information Center at the bottom of page 1.

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

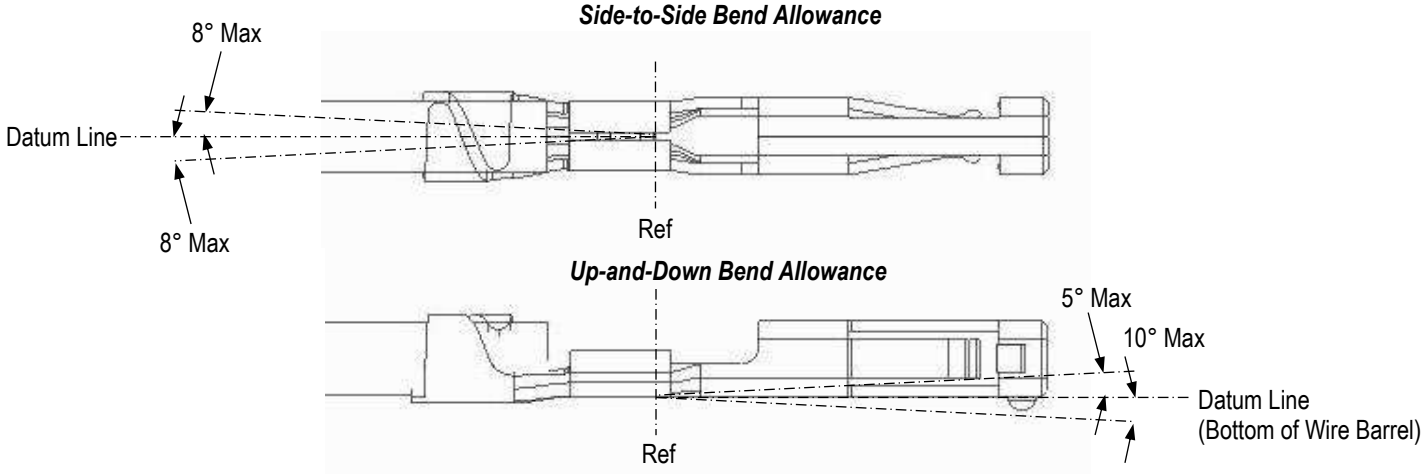


Figure 6

4.2. Applicator

Applicators for product part numbers are available from the Applicator Search Portal on www.te.com or by calling the Product Information Center at the bottom of page 1.



Ocean Applicator



Semi Automatic Machine

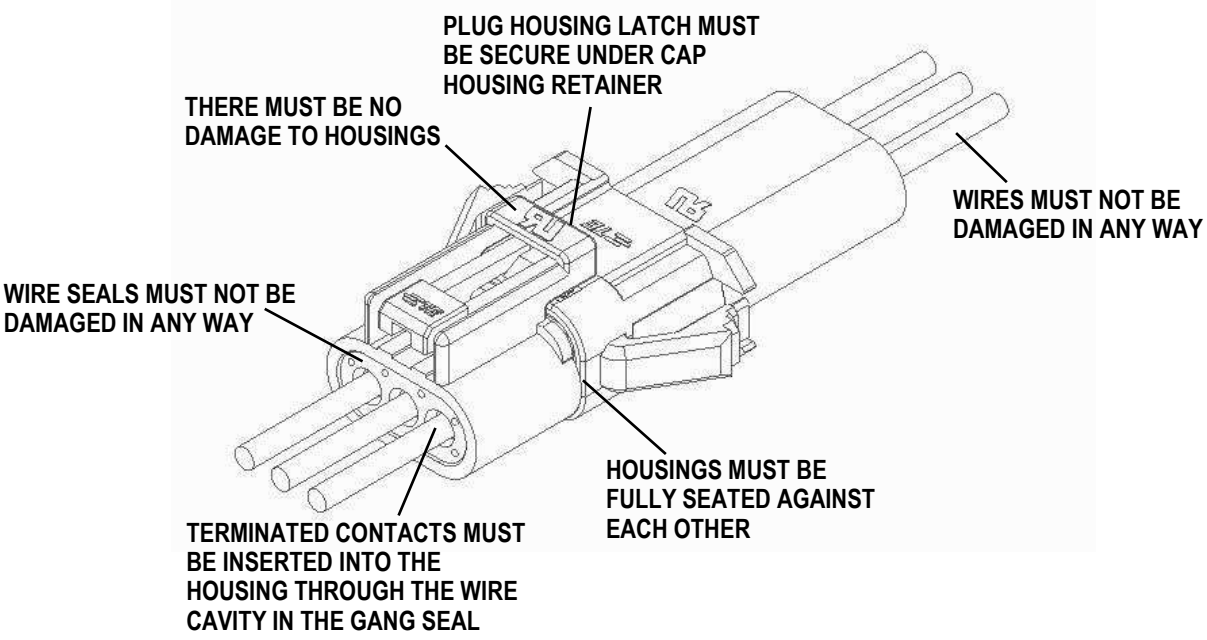


Hand Tool Assembly

Figure 7

5. VISUAL AID

The illustration below shows a 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.



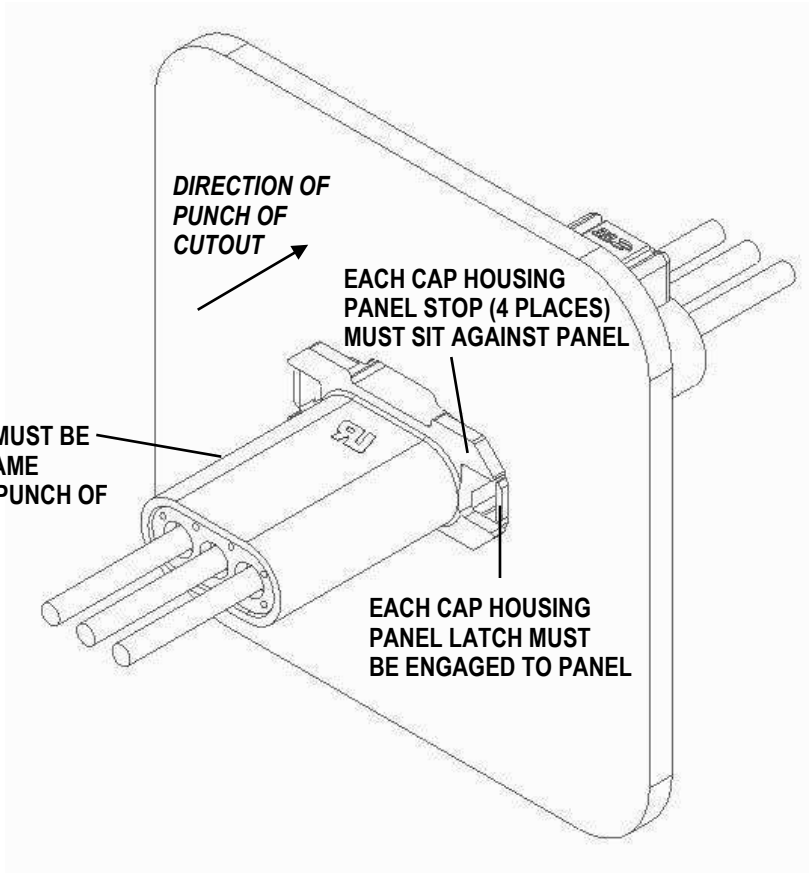


Figure 8 (continued): Visual Aid

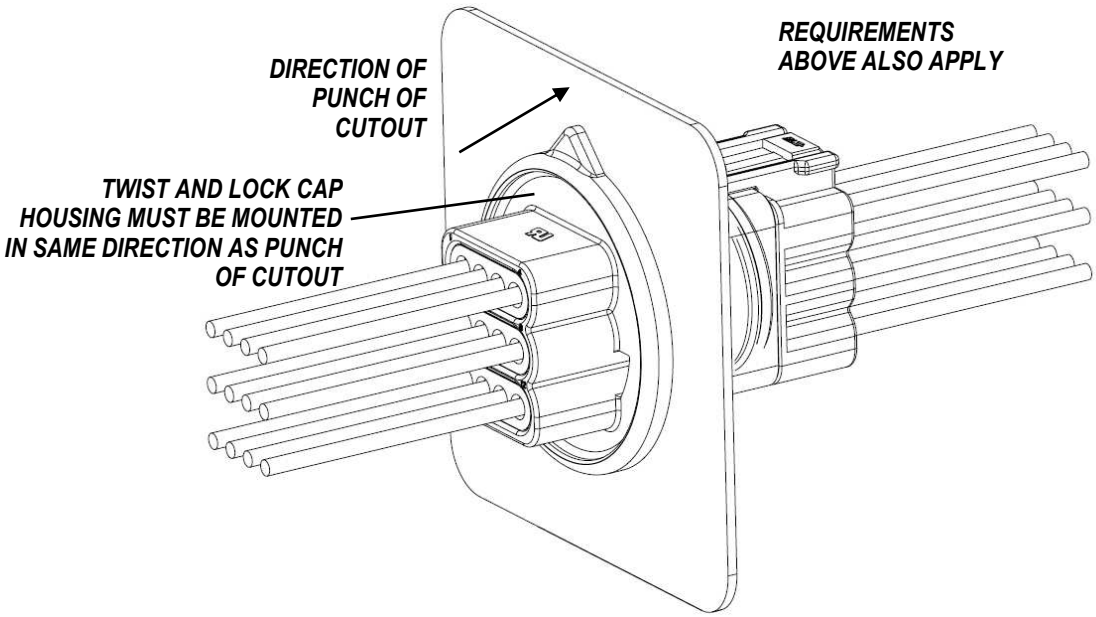


Figure 8 (end): Visual Aid