



**NOTE**

All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  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 FORGE electrical connectors designed for use in pluggable float or fixed panel-mount or free-hanging applications of power supplies. The connectors consist of a pin side and socket side, available in a variety of custom configurations. The pin side connector accepts pin contacts, and the socket side connector accepts socket contacts. These connectors accept the contacts listed in Figure 1.



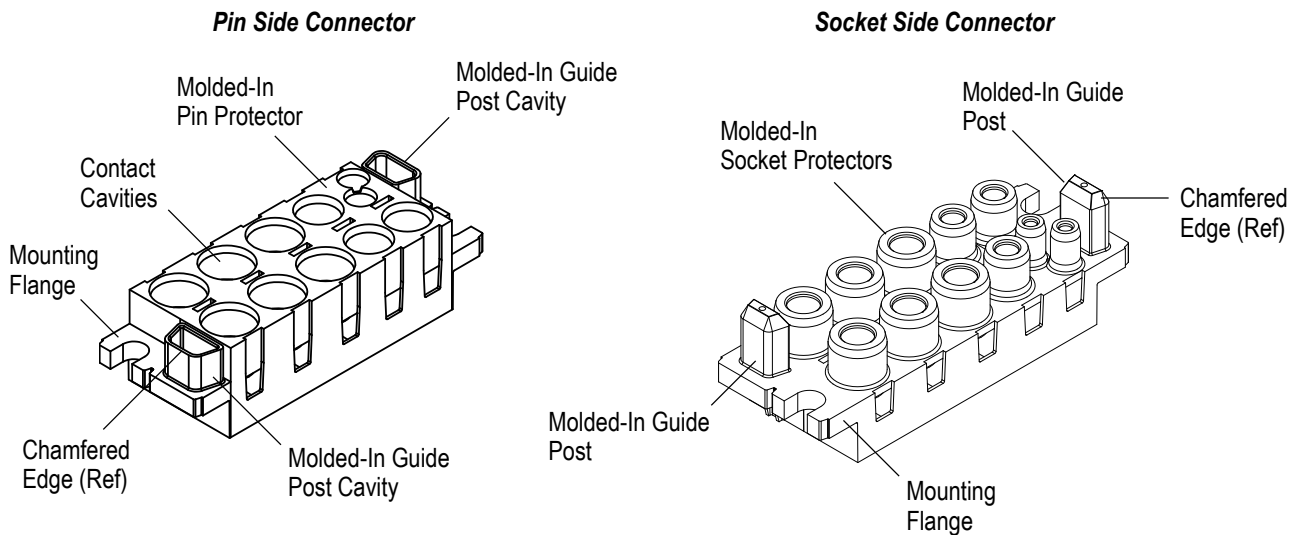
**NOTE**

For detailed application requirements for the contacts, refer to the application specifications listed in Figure 1. Contact insertion and extraction requirements for FORGE electrical connectors are covered in this application specification.

The contact cavities on both sides of the connector are marked for circuit identification. Each contact cavity contains retention fingers that hold the contact after it is inserted in to the contact cavity and prevents the contact from backing out during mating of the connector.

Each connector has molded-in guides (post cavities for pin side and posts for socket side) to ensure positive mating of connectors and molded-in pin protector to prevent damage to the contacts. These features have chamfered edges to allow blind mating with misalignment. Each connector features a mounting flange that accepts hardware for mounting to a panel.

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



CONTACT		APPLICATION SPECIFICATION
TYPE	SIZE	
Drawer Series Crimp Type and Threaded Type	0, 4, 12	<a href="#">114-13206</a>
POWERBAND* Crimp Type	8	<a href="#">114-10043</a>
AMPLIMITE* HD-22 Crimp Snap-In	22	<a href="#">114-10001</a>

Figure 1

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## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

Revisions to this application specification include:

- Added contact size 22 to Paragraph 3.9 and Figure 6 as non-removable

### 2.2. Customer Assistance

Reference Product Base Part Number 2212339 and Product Code D033 are representative of FORGE electrical connectors. Use of these numbers will identify the product line and help you to obtain product and tooling information. Such information can be obtained through a local Representative, by visiting our website at [www.te.com](http://www.te.com), or by calling PRODUCT INFORMATION at the number at the bottom of page 1.

### 2.3. Drawings

Customer Drawings for product part numbers are available from our website at [www.te.com](http://www.te.com). If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, the information contained in the Customer Drawings takes priority.

### 2.4. Specifications

Application specifications (114-series) provides product description and application requirements. Application specifications that pertain to this product are:

- [114-10001](#) AMPLIMITE HDP-22 Connectors and High-Density 22DF Contacts
- [114-10043](#) 3.18-mm [.125-in.] POWERBAND Contacts
- [114-13206](#) Drawer Series Connectors

### 2.5. Instructional Material

Instruction Sheets (408-series) provide product assembly instructions or tooling setup and operation procedures. Documents available that pertain to this product are:

- [408-9404](#) Insertion/Extraction Tool 91285-1 and Replacement Tip Kits 543382-[ ] for AMPLIMITE HD-22 Contacts
- [408-10159](#) Insertion/Extraction Tools for Drawer Series, Domino Series, and FORGE\* Circular Contacts

## 3. REQUIREMENTS

### 3.1. Safety

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

### 3.2. Material

Connector housings are made of polyester, 30% glass filled, UL94-V0.

### 3.3. 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. 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	

### 3.4. Contact Insertion

Contacts can be inserted into the contact cavities of the connector manually; however, if the wire bundle is large or individual wires are fragile, using an insertion tool is recommended. Refer to Section 5 for recommended tool.

The contact must be pushed straight into the contact cavity from the back of the connector until it bottoms (there should be an audible click). The retention fingers of the contact cavity must engage the contact. After insertion, the wire must be lightly pulled to ensure that the contact is fully seated.

### 3.5. Panel

#### A. Material and Thickness

The panel thickness must accommodate the length and thickness of the mounting hardware. The panel must flex and be made of sufficient gage to support mating loads.

#### B. Cutout

Dimensions for the panel cutout is given on the specific customer drawing for the connector. A sample cutout is shown in Figure 2.

**Sample Panel Cutout**

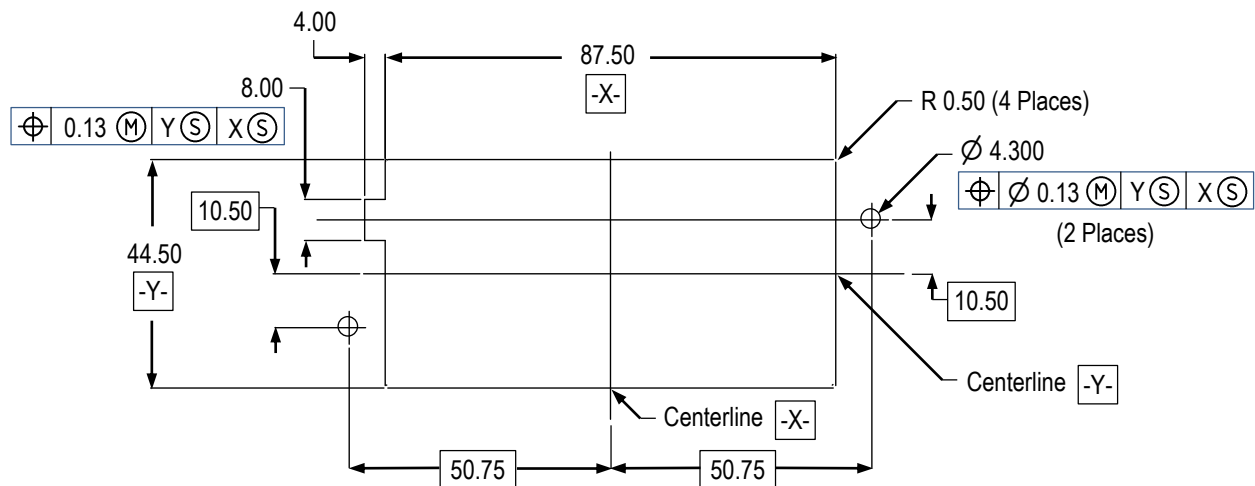


Figure 2

### 3.6. Panel Mounting and Hardware

The connectors can be mounted to either the front or back of the panel (front is recommended). Typically, the socket side connector is mounted in the cabinet (energized) panel, and the pin side connector is mounted in the drawer (passive) panel. The mounting hardware must be installed in the same side as the mating face of the connector.

For float mounting, M4×0.7 and No. 6-32 UNC-2A float-mount screws are available and must be used to secure the connector to the panel. These screws provide 2.5 mm of the total connector float in the x and y directions. The screws should be tight, but must allow some movement of the assembly for connector mating.

For fixed mounting, M4×0.7 and No. 6-32 UNC-2A fixed-mount screws are available and must be used to secure the connector to the panel. These screws have a head that will not interfere with connector mating. Washers can be used to compensate for the hardware diameter. The screws should be tight.

### 3.7. Mating

#### A. Contact Length

The length of the contact, designated by standard, pre-mate, and post-mate, that protrudes from the connector (measured from face of pin protector to end of contact) after insertion is given in Figure 3.

**i** **NOTE**  
Mating contacts accept all contact lengths of the same contact size.

CONTACT SIZE	CONTACT LENGTH (After Insertion)		
	Standard	Pre-Mate	Post-Mate
22	7.14	8.30	6.50
12	11.97	12.50	11.21
8	8.81	11.00	—
4	12.30	14.00	—
0	10.92 Probe Proof	—	—
	12.57		

Figure 3

#### B. Alignment and Dimension

The guide posts of the mating connectors must align, then the connectors must be push together. When fully engaged, the dimension between the front of the panels for panel mount connectors and the dimension between the mounting flanges for free-hanging connectors must be within the limit provided in Figure 4.

When panel mounted, the design allows blind mating with gatherability up to 2.54.

**Note:** Panel mount connectors shown; dimension also applies to free-hanging connectors measuring between mounting flanges.

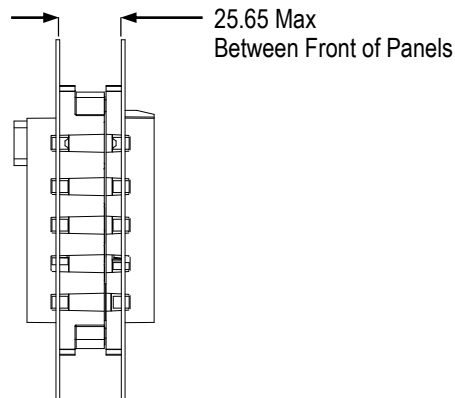


Figure 4

### 3.8. Strain Relief and Wire Dress

Wires can be bundled together and supported with cable ties. Wires must not be stretched or confined in any way that would restrict the floating action of the connectors. Therefore, the wires must remain perpendicular to the connector and avoid an excessively sharp bend radius. The minimum distance for the cable tie, measured from the wire end of the connector to the cable tie, and the minimum bend radius of a wire bundle is shown in Figure 5.

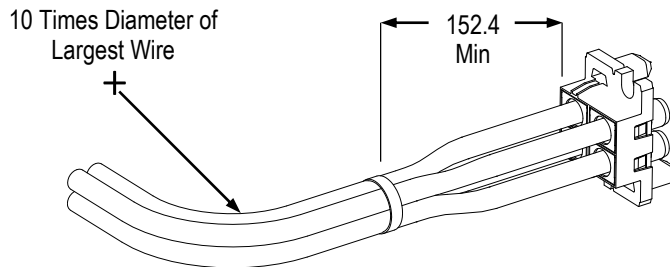


Figure 5

### 3.9. Disassembly

The connectors can be removed from the panel by removing the hardware.

Contacts must be removed from the connector using an extraction tool; except for contact sizes 8 and 22, which are non-removable. The extraction tool must disengage the connector retention fingers, then the contact can be removed from the back of the connector. Refer to Section 5 for the recommended tool.

### 3.10. Repair

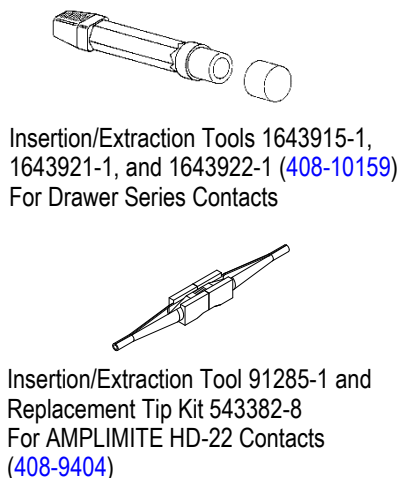
Connectors cannot be repaired. Damaged or defective connectors must not be used.

## 4. QUALIFICATION

No outside agency approval was defined at the time of publication of this document for FORGE electrical connectors.

## 5. TOOLING

Tooling part numbers and instructional material packaged with the tooling are given in Figure 6.

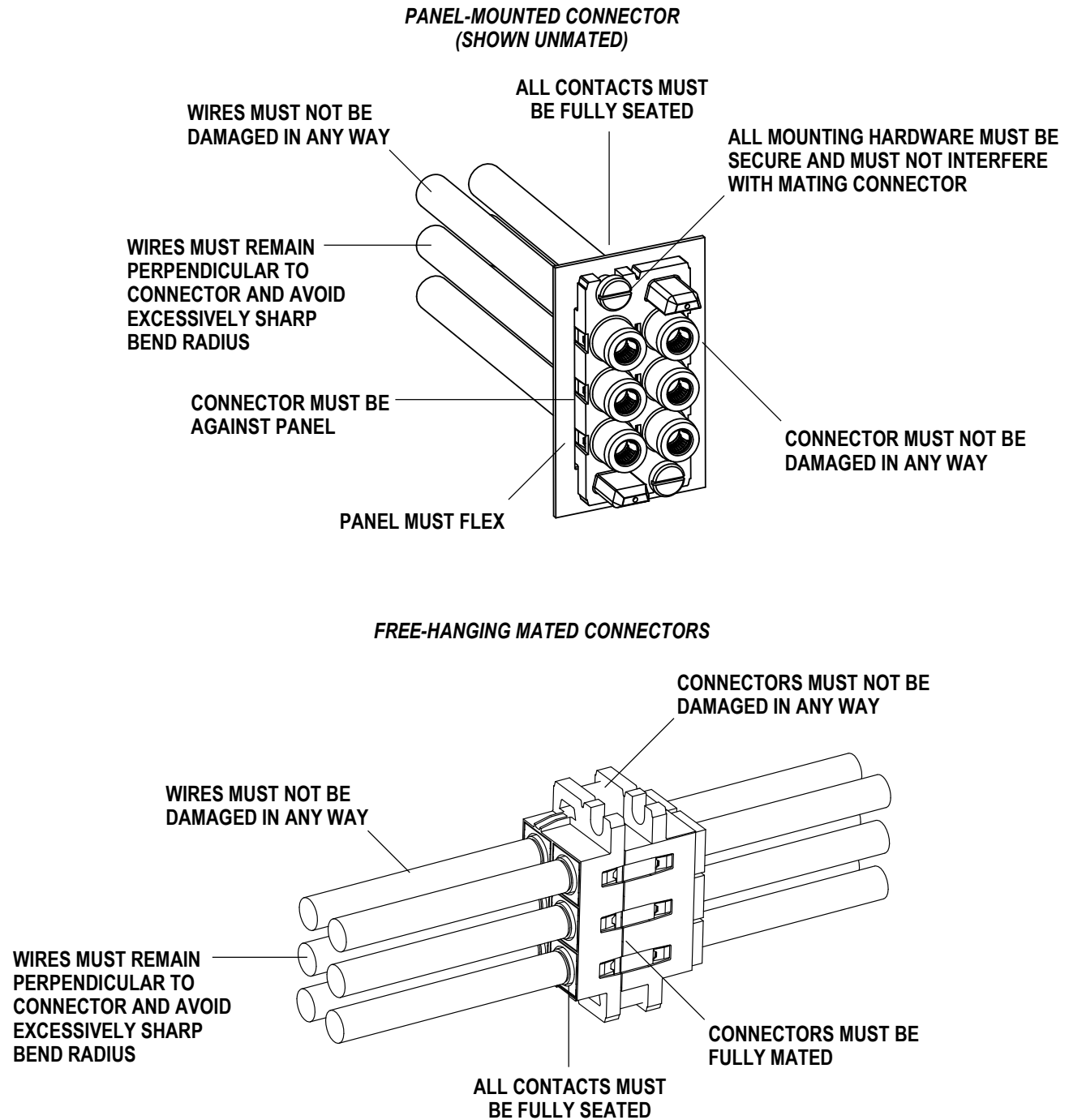


CONTACT SIZE	INSERTION/EXTRACTION TOOL	
	FOR INSERTION (Tip Color)	FOR EXTRACTION (Tip Color)
0	N/A	1643921-1 (Yellow)
4	N/A	1643922-1 (Blue)
8	N/A	Size 8 is Non-Removable
12	1643915-1 (Yellow)	1643915-1 (White)
22	91285-1 (Green)	Size 22 is Non-Removable

Figure 6

## 6. VISUAL AID

The illustration below shows a typical application of FORGE electrical connectors. 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 7. VISUAL AID**