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 Grace Inertial (GI) 2.0 connector system includes through hole (TH) header assembly, vertical surface mount technology (SMT) header assembly, cap assembly and plug assembly used in the wire-to-board and wire to wire interconnections. The GI2.0 connector system is available in 2~10 positions for single row. Wire size ranges from 22AWG to 28AWG.

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

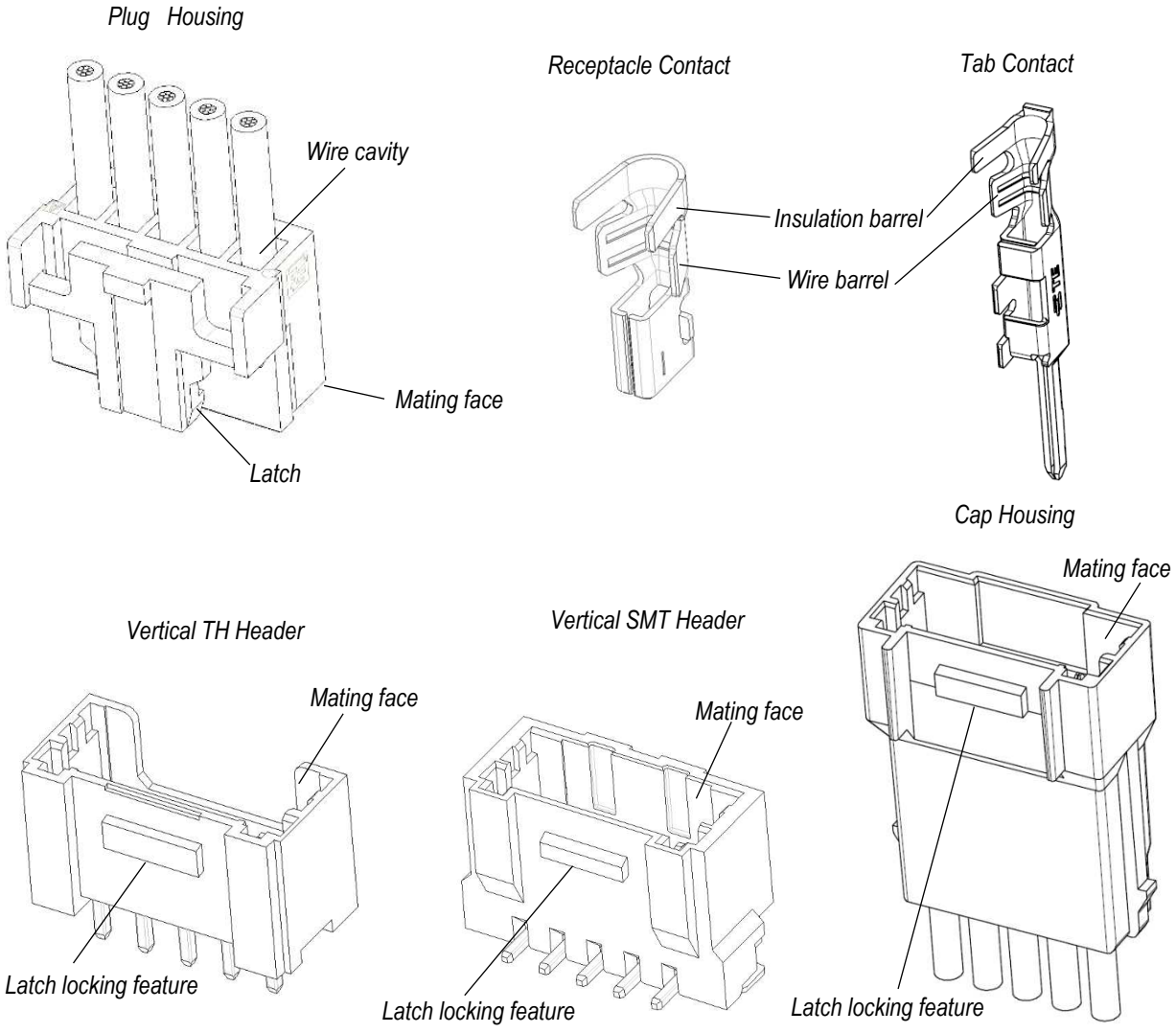


Figure 1

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this specification include:

- Updated template to corporate requirements
- Add 22AWG crimping parameter

2.2. Customer Assistance

Reference Product Base Part numbers are stated in Figure 2. 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.

GI2.0 EV connector (Single Row)	
Product Type	Base Part Numbers
Header Assembly	1971032 (VT TH) 2367943 (VT SMT)
Cap Housing	2400014 (2~5 position)
Plug Housing	1971030 (2~10 position)
Receptacle Contact	1971031 (AWG22-28)
Tab Contact	2400015 (AWG22-28)

Figure 2

2.3. Drawings

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

2.4. Specifications

Product Specification 108-106001 and Qualification Report 501-106010 & 501-160967 provide 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.

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

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

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

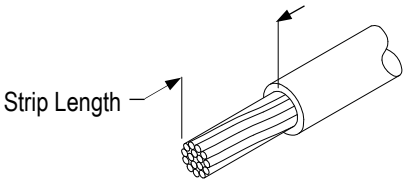
3.3. Wire Selection and Preparation

The contacts accept stranded copper wire sizes 22 AWG to 28 AWG [0.3 to 0.089 mm²] with an insulation diameter range given in Figure 3.

Each wire must be stripped to the dimension given in Figure3. A visual aid is given in Figure4.

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

Note: Not to Scale



CONTACT			WIRE	
TYPE	**PART NUMBER**	**WIRE SIZE (AWG) [mm²]**	**INSULATION DIAMETER**	**STRIP LENGTH**
GI2.0EV Receptacle Contact	1971031-1	22-28 [0.3 – 0.089]	Φ 0.98– Φ 1.58	24-28AWG: 1.7±0.3 22AWG: 2.2±0.2
GI2.0EV Tab Contact	2400015-1	22-28 [0.37 – 0.08]	Φ 1.06~ Φ 1.60	2.0±0.3

Figure 3

3.4. Contact Crimp

Contacts must be terminated according to the instructions packaged with the tooling.

A. Bellmouth

The rear bellmouth shall be evident and be within the dimensions given in Figure 4.

B. Cutoff Tab and Burr

The cutoff tab is the remaining portion of the carrier strip after the contact is cut from the strip. The cutoff tab and burr shall not exceed the dimension given in Figure 4.

C. 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. The wire barrel flash shall not exceed the dimension given in Figure 4.

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

D. 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 4.

E. Insulation Barrel Crimp

The crimp applied to the insulation barrel of the contact must result in an “F” crimp. The crimp height and width must be within the dimensions provided in Figure 4. Slight scratch is acceptable on insulation crimp.

F. Effective Crimp Length

Effective crimp length shall be defined as that portion of the wire barrel, excluding the rear bellmouth, fully formed by the crimping tool. Refer to Figure 4.

G. 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 insulation and conductors must be visible in the transition area between the wire barrel and insulation barrel. See Figure 4.

H. Wire Brush

The conductors may extend beyond the wire barrel within the dimensions given 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.

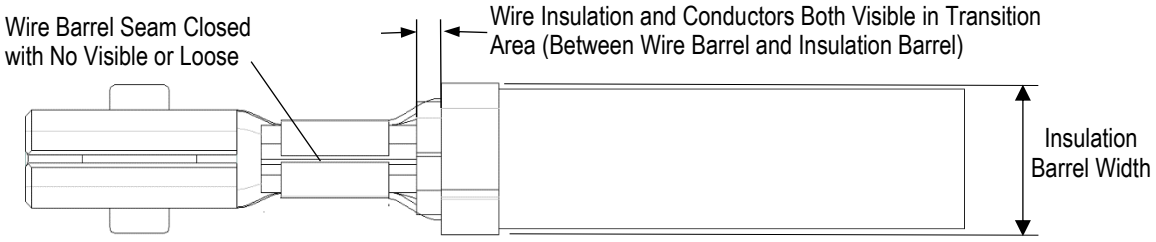
J. Terminal Gap

The gap after crimping should be within tolerance which shown in Figure4.

K. Twist and Roll

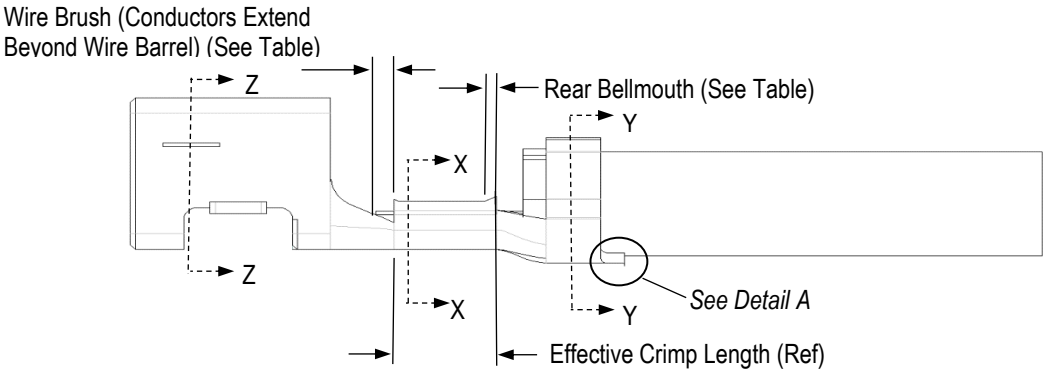
There should be no twist or roll of the wire barrel or mating portion of the crimped contact that would cause overstress or impair usage. See Figure 4 for allowable limits.

NOTE
The effective crimp length depends on the crimping dies used and should not be measured for inspection purposes.

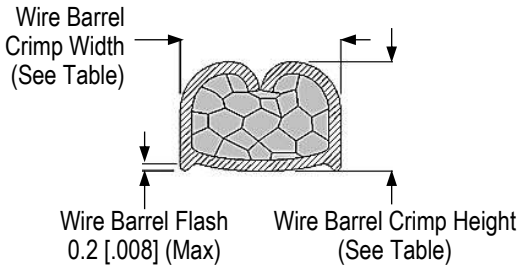


© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

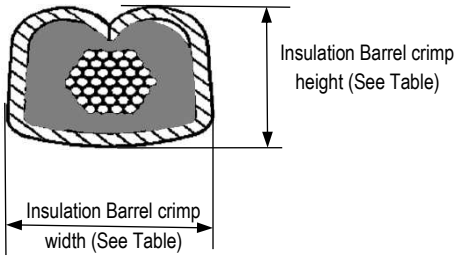
TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.



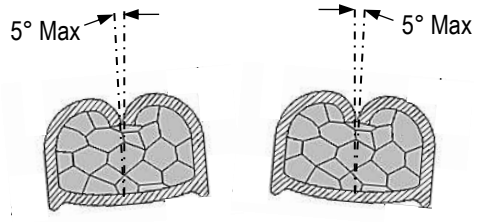
Section X-X



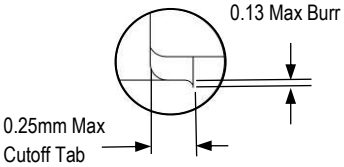
Section Y-Y
F crimp



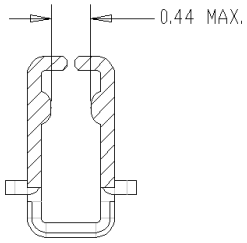
Avoid rolling



Detail A



Section Z-Z of
contact 1971031



© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

Ocean Applicator No.	RECEPTACLE CONTACT	WIRE SIZE		WIRE BARREL CRIMP		±0.3 (mm) Insulation Stripping Length	INSULATION BARREL CRIMP		Crimp Tensile Strength (kg) Min	WIRE BRUSH	REAR BELLMOUTH	GAP
		mm²	AWG	HEIGHT ±0.03	WIDTH		WIDTH	HEIGHT				
2151076-1	1971031-1	0.079-0.093	28	0.56	1.07 Ref. F shape	1.7	1.45 Ref. F shape	2.0mm Max.	1	0.0 - 0.5	0.1-0.4	0.44 MAX.
		0.12-0.15	26	0.59					2			
		0.20-0.24	24	0.65					3			
TBD	1971031-1	0.31~0.32	22	0.80	0.94 Ref. F shape	2.2±0.2	0.94 Ref. F shape	2.0mm Max.	4.5			
2151082-1	2400015-1	0.08-0.10	28	0.64	1.16 Ref.	2.0	1.35 Ref. F shape	2.2mm Max.	1	0.1-0.65	0.1-0.3	/
		0.12-0.15	26	0.67					2			
		0.21-0.23	24	0.73					3			
		0.34~0.37	22	0.80					4.5			

Figure 4

Hand tool

Hand tool No.	RECEPTACLE CONTACT	WIRE SIZE		WIRE BARREL CRIMP		±0.3 (mm) Insulation Stripping Length	INSULATION BARREL CRIMP		Crimp Tensile Strength (kg) Min	Finished insulation Diameter	GAP
		mm²	AWG	HEIGHT ±0.03	WIDTH		WIDTH	HEIGHT			
1999798-1	1971031-1	0.079-0.15	28, 26	0.53-0.63	1.07 Ref.	1.7	1.45 "F"	2.0Max	2	Φ0.98- Φ 1.58	0.44 Max.
		0.2-0.24	24	0.61-0.71							

L. Straightness

The force applied during crimping may cause some bending between the crimped wire barrel and the mating portion of the contact. Such deformation is acceptable within the following limits:

The side-to-side bending of the contact may not exceed the limits provided in Figure 5.

The crimped contact, including cutoff tab and burr, shall not be bent above or below the datum line more than the amount given in Figure 5.

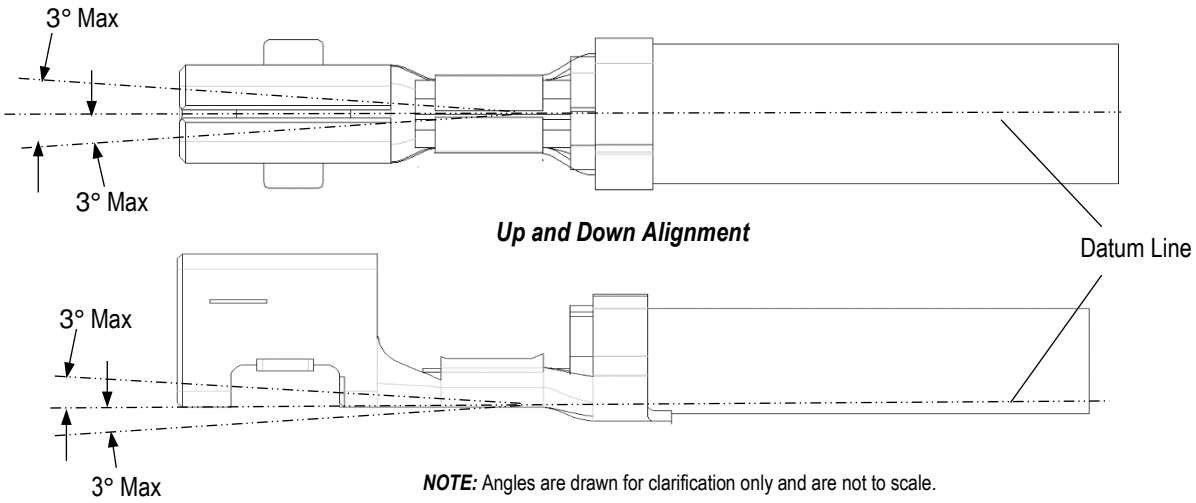


Figure 5

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

3.5. Inserting Contact into Housing

Grasp the wire directly behind the contact insulation barrel and push the contact straight into the cavity until it touches the bottom (there should be an audible click). Be aware that the contact must be installed in correct orientation as specified below. Pull back lightly on the wire to be sure the contact is locked in place. Refer to Figure 6

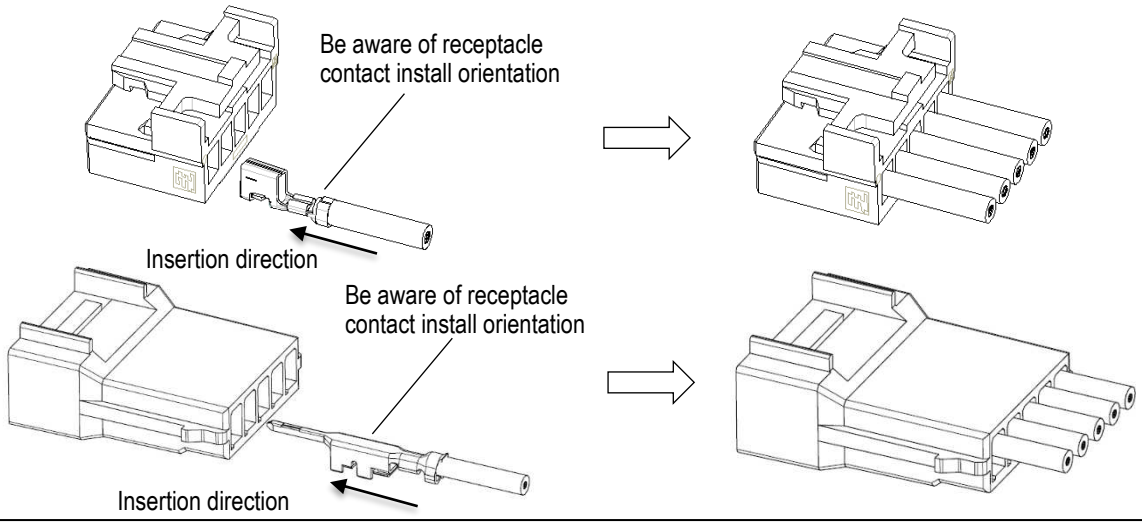


Figure 6

3.6. Mating Connectors

Be aware that the mating connectors have unique color and should be inserted into header cavities with the same color. Align the mating faces of the connectors and push them together until the locking latch fully engages the locking tab. Pull back to ensure proper engagement and to prevent any deformation of the locking mechanism. See Figure 7.

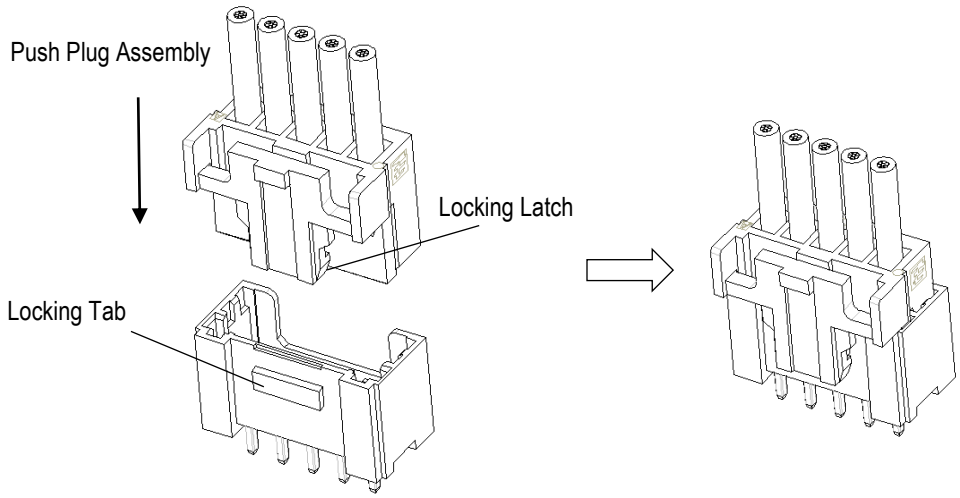


Figure 7

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

3.7. Unmating Connectors

To disengage mating connectors, depress latch of plug housing with thumbnail, and pull the connectors apart. Refer to Figure 8.

NOTE
DO NOT pull the connectors by the wires.

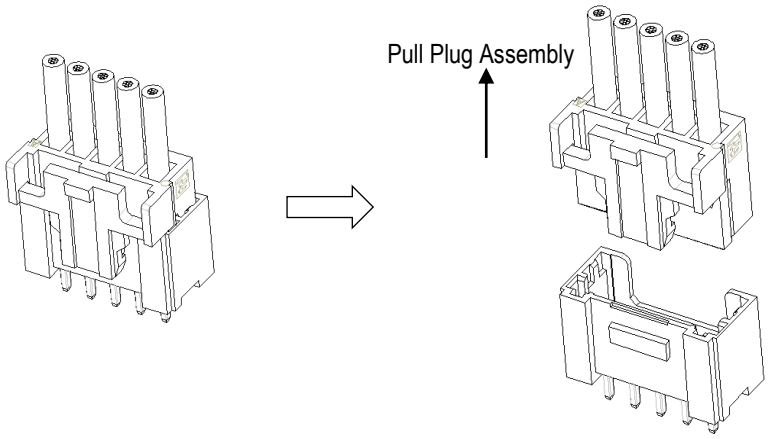


Figure 8

4. TOOLING

Applicators contain the tooling for feeding and crimping strip-form terminals. Automatic machines provide the power to operate the applicator. See Figure 9 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.

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

Figure9

© 2023 TE Connectivity Ltd. family of companies.
All Rights Reserved.
*Trademark

TE Connectivity, TE connectivity (logo), and TE (logo) are trademarks. Other logos, product, and/or company names may be trademarks of their respective owners.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

TE Connectivity:

1393431-1 2380312-2 RH73H2A40MKTN ROX05SJ18R TE50BR39J 175977-2 2-292161-3 2834055-1 3-1393225-0 SMW73R0JT 1969656-1 1-794222-0 1743455-2 1903112-2 2310537-1 3631B101LL CPF0402B37K4E1 2377783-2 SBCHE64R7K U5254-000005-030PA 2005330-1 917696-1 936348-1 CRGCQ2010J3K3 1-962915-1 141991-2 3430B2F51RTDF SBCHE154R7K 650075-000 MPT100C18RF