0.50-mm Receptacle Contacts

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 ±0.13 mm 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 0.50-mm receptacle contacts. The contact is designed to mate with a 0.40 mm thick by 0.50 mm wide male blade. The contact features a wire barrel with serrations, terminal box, and insulation barrel. A wire barrel form ID is embossed on the side of the terminal box.

The contact is designed for automotive temperature Class T2 (-40° to 100°C [-40° to 212°F]), vibration Class V1. The contact is available in strip form only to terminate using a semi-automatic or automatic machine.

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.

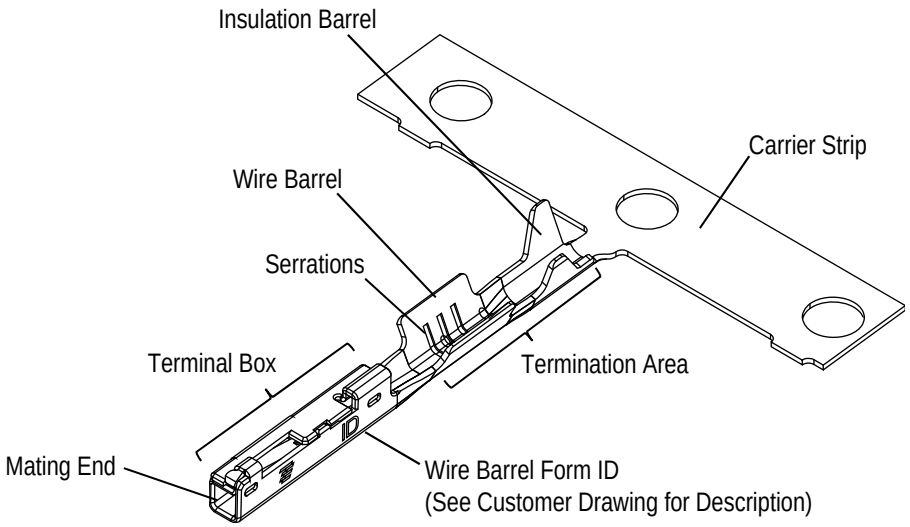


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated temperature in section 1.
- Updated information in tables in Figures 2, 3 and 5.

2.2. Customer Assistance

Reference Product Base Part Number 2098583 is representative of 0.50-mm receptacle contacts. Use of this number 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, or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers at the bottom of this page.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, call PRODUCT INFORMATION at the number at the bottom of this page.

2.4. Instructional Material

Instruction Sheets (408-series) provide product assembly instructions or tooling setup and operation procedures and Customer Manuals (409-series) provide machine setup and operating procedures. Documents available that pertain to this product are:

408-3295 Preparing Reel of Contacts for Application Tooling
408-7424 Checking Terminal Crimp Height or Gaging Die Closure
408-8053 Conversion Guide for Miniature Quick-Change Applicators
408-8059 General Preventive Maintenance for Applicators
408-9816 Handling of Reeled Products
408-10390 Ocean End-Feed Applicators
409-5842 AMP-O-LECTRIC* Model “G” Terminating Machines 354500-[ ]
409-10047 AMP 3K* Terminating Machines 1725950-[ ] and AMP 5K* Terminating Machines 1725900-[ ]

3. REQUIREMENTS

3.1. Safety

Do NOT stack contact reels so high that they buckle or become deformed.

3.2. Storage

A. Ultraviolet Light

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

B. Reeled Contacts

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

C. Shelf Life

The contacts should remain in the shipping containers until ready for use to prevent deformation or damage to the contacts. The contacts should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

3.3. Material

The contact is made of copper alloy pre-plated with tin.

3.4. Wire Size and Preparation

The contact accepts 7-strand wire sizes 0.13 to 0.35 mm² (26 to 22 AWG, reference only) with an insulation diameter range of 0.85 mm through 1.40 mm. A cross-reference of wire size and insulation diameter to contact wire barrel form ID is given in Figure 2.

The wire must be stripped within the dimension given in Figure 2.

Do NOT nick, scrape, or cut the wire conductor during the stripping operation.

3.5. Crimp Requirements

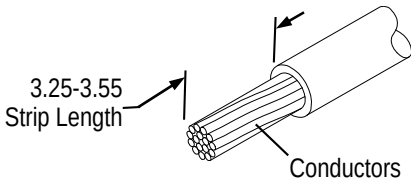
The contact must be crimped according to the instruction sheet included with the tooling.

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

NOTE

The wire stripping tool jaws may leave corrugated indentions on the surface of the wire insulation. This is especially severe with cross-linked polyethylene (high temperature) insulation.

Note: Not to Scale



WIRE (All 7-Strand)			CONTACT WIRE BARREL FORM ID
SIZE		INSULATION DIAMETER RANGE	
mm²	AWG (Ref Only)		
0.13	26	0.85-1.05	S
0.35	22	1.10-1.40	N

Figure 2

A. Wire Barrel Crimp

The crimp applied to the wire barrel 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 dimension provided in Figure 3.

NOTE

The applied crimp dimension (within the functional range of the product) is dependent on the termination tooling being used. Refer to the documentation (applicator logs and instruction sheets) supplied with the termination tooling for the applied crimp height.

B. Insulation Barrel Crimp

The insulation barrel shall grip the wire insulation firmly. A slight cut in the insulation created by the insulation barrel is permissible as this causes no problems in actual use. The insulation barrel crimp shall comply to width and height provided in Figure 3.

C. Bellmouths

The front bellmouth is permissible to the dimension given in Figure 3.

The rear bellmouth shall be evident and must be within the dimensions given in Figure 3.

D. Cutoff Tab

The cutoff tab shall be cut to the dimension given in Figure 3.

E. Burr

The cutoff burr shall not exceed the dimension given in Figure 3.

F. Wire Barrel Flash

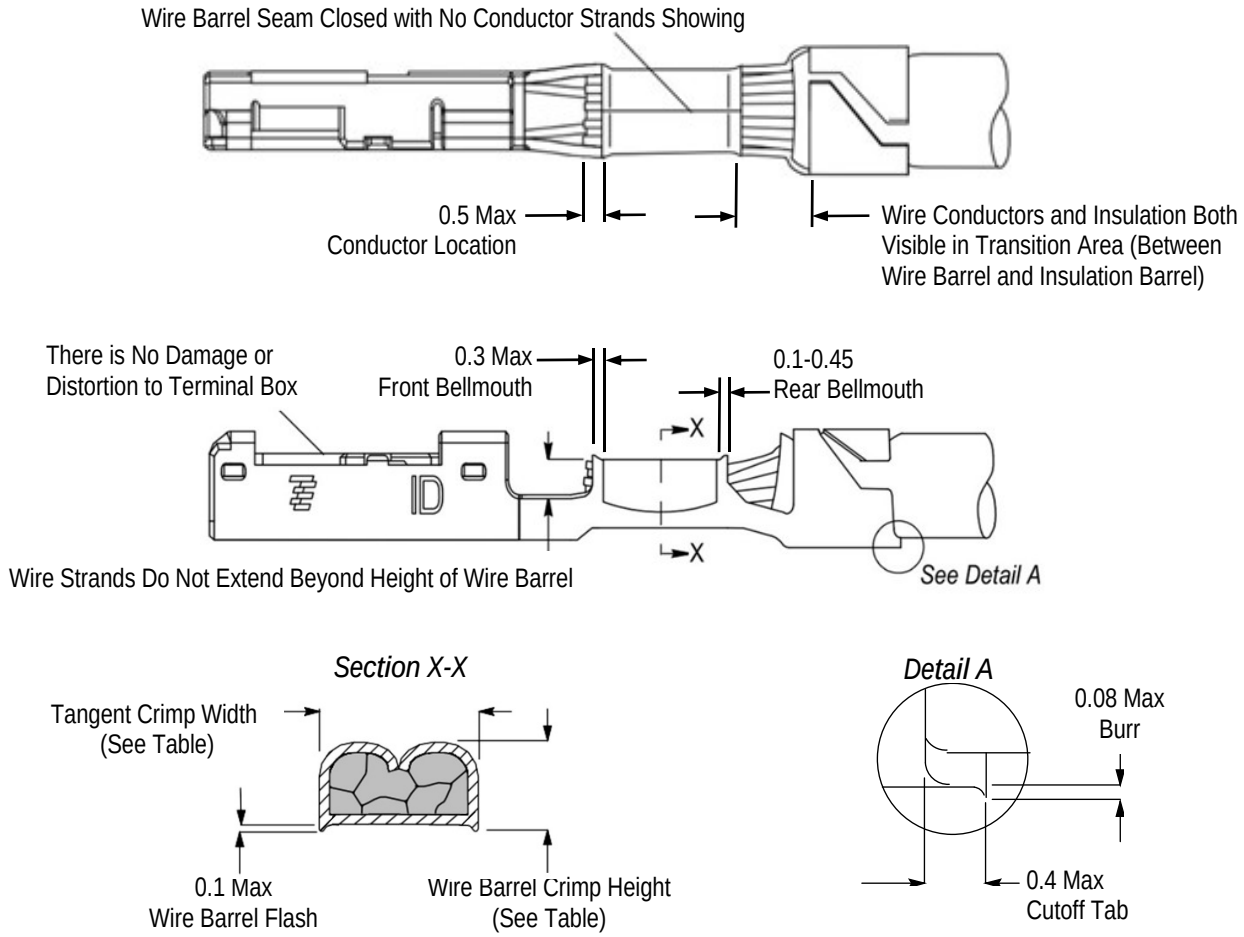
The wire barrel flash shall not exceed the dimension given in Figure 3.

G. Wire Barrel Seam

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

H. Twist and Roll

There shall be no twist, roll, or deformation or other damage to the terminal box of the crimped contact that will impair usage of the contact. See Figure 3.



WIRE SIZE (All 7-Strand)		CONTACT				
mm²	AWG (Ref Only)	WIRE BARREL FORM ID	WIRE BARREL CRIMP		INSULATION BARREL CRIMP	
			HEIGHT	TANGENT WIDTH (Ref Only)‡	HEIGHT ±0.1	WIDTH (Ref Only)‡
0.13	26	S	0.52±0.02	1.00	1.05	1.07
0.35	22	N	0.70±0.02	1.07	1.40	1.27

‡ Crimp width is the not contact width after crimping; it is the width of the tooling crimping slot given as reference.

Figure 3

I. Wire Location

The wire conductor and insulation must be visible in the transition area (between the contact wire barrel and insulation barrel). The wire conductor may extend beyond the contact wire barrel to the maximum dimension given in Figure 3.

J. Straightness

The force applied during crimping may cause some bending between the crimped wire barrel and the terminal box of the contact. Such deformation is acceptable within the limits provided in Figure 4.

1. The up and down bend of the crimped contact, including cutoff tab and burr, shall not be bent above or below the datum established by the bottom of the terminal box more than the amount provided.
2. The twist and roll of the terminated area relative to the terminal box shall not exceed the limits provided.

NOTE

Periodic inspections must be made to ensure crimped contact formation is consistent.

K. Transition Area Width

The width of the transition area (between the terminal box and termination area) must not exceed the dimension given in Figure 4.

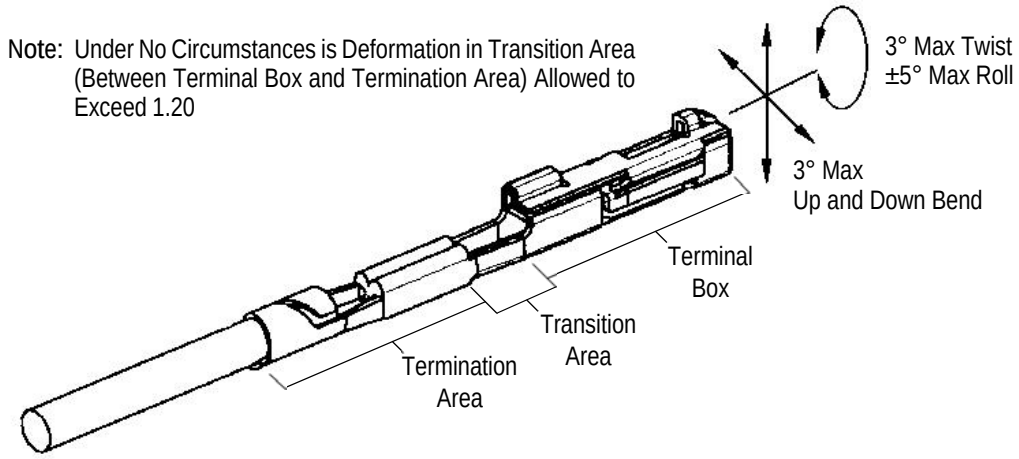


Figure 4

3.6. Replacement and Repair

Defective or damaged contacts must not be used. A contact must be cut from the wire and replaced with a new contact.

4. QUALIFICATIONS

The 0.50-mm receptacle contact is not required to be agency approved.

5. TOOLING

The applicator is designed to crimp these strip-fed contacts and provide for high-volume, heavy-duty production requirements. The applicator must be installed onto a power unit (automatic or semi-automatic machine), which provides the force required to drive the applicator.

A list of tooling recommendations and instructional material packaged with the tooling is provided in Figure 5.

NOTE

For assistance in setting up prototype and production line equipment, contact the TOOLING ASSISTANCE CENTER at the number at the bottom of page 1.

Ocean End-Feed (Mechanical Feed) Applicator (See Table) (408-10390)

CONTACT WIRE BARREL FORM ID	APPLICATOR
S	2836554-[ ]
N	2151678-[ ]

AMP-O-LECTRIC* Model "G" Terminating Machines 354500-[ ] (409-5842)

AMP 3K Terminating Machines 1725950-[ ] and AMP 5K Terminating Machines 1725900-[ ] (409-10047)

Figure 5

6. VISUAL AID

The illustration below shows a typical application of this 0.50-mm receptacle contacts. 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.

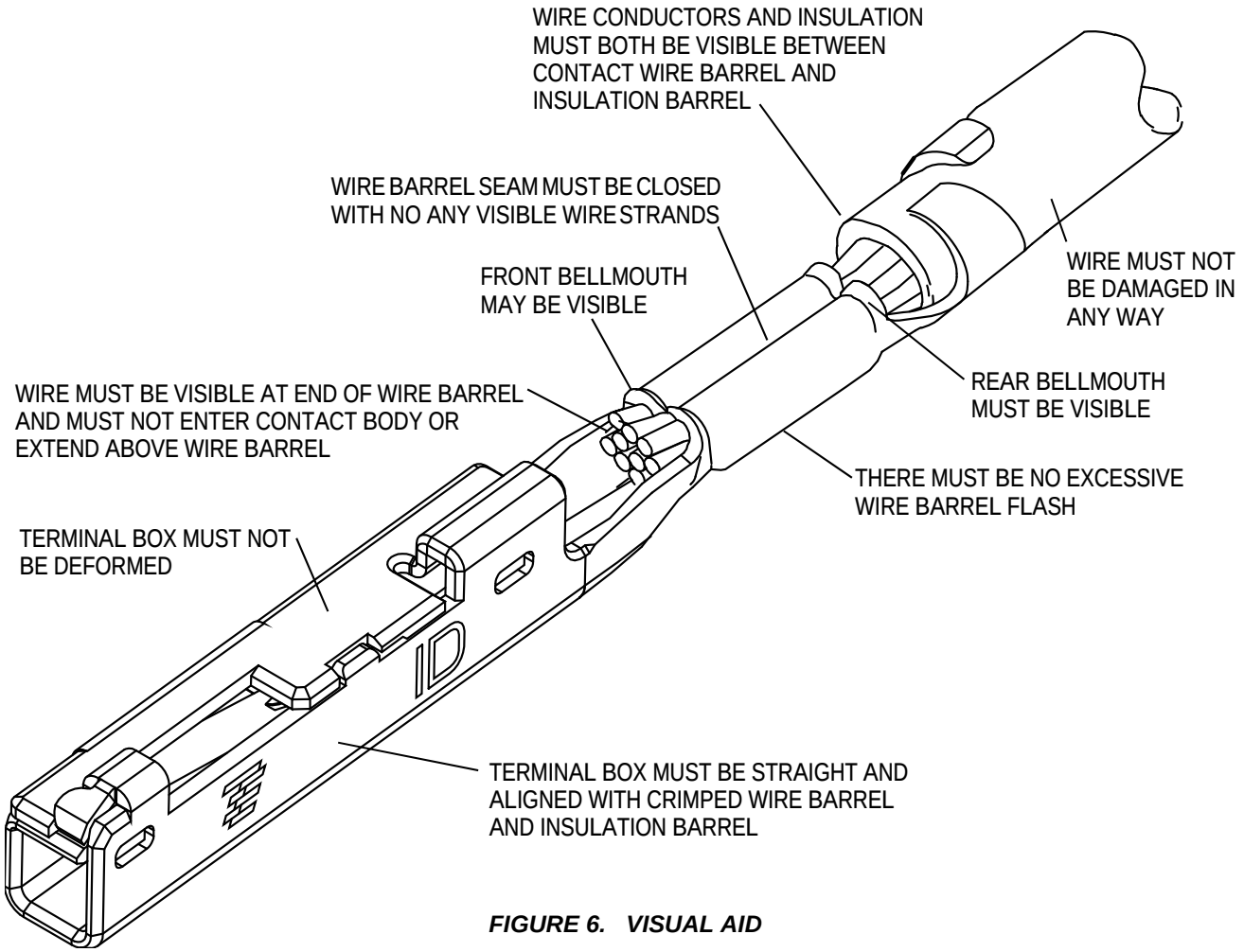


FIGURE 6. VISUAL AID