ELCON Micro Series Connectors

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 ELCON Micro Series Connectors. These connectors are designed for use in wire-to- board applications of power supplies. The connectors are available in a variety of custom configurations from 2 to 24 circuits. The pin side connector accepts pin contacts, and the socket side connector accepts socket contacts.

All connectors are also designed with standoffs to allow easy printed circuit (pc) board cleaning after soldering.

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.

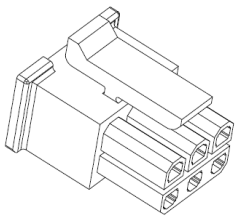
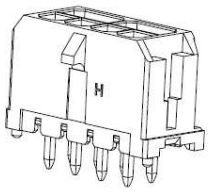
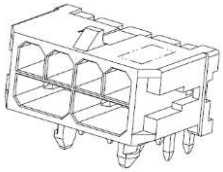
Notes	2-24 Circuits
Crimp Receptacle Terminal	
Cable Receptacle Housing	
Header	 Vertical Dip Type
	 Right Angle Dip Type

Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

2.2. Customer Assistance

Reference Product Base Part Number 2204801(vertical dip), 2204748(cable housing) and 2204749(receptacle terminal and Product Code K844 are representative of the ELCON Micro Series 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 TE 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 page 1.

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 by TE, call Product Information at the number at the bottom of page 1.

2.4. Specifications

Product Specification 108-128068 provides product performance and test information.

3. REQUIREMENTS

3.1. Material

Crimp type contacts are made of copper alloy plated with tin or gold. Solder type contacts are made of copper alloy plated with tin or gold. Connector housings are made of polyester, glass filled, UL94-V0.

3.2. Storage

A. Ultraviolet Light

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

B. Shelf Life

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

3.3. Chemical Exposure

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

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

3.5. Wire Selection and Preparation

The contacts will accept stranded wire sizes 30 through 16 AWG. Proper strip length is necessary to properly insert the wire into the contact. The strip length of the wire is shown in Figure 2.

CAUTION
Reasonable care must be taken not to nick, scrape, or cut any strands during the stripping operation.

Figure 2

3.6. Crimp Type Contacts

Crimp contact to wire according to instructions packaged with applicable tooling.

A. Wire Barrel Crimp and

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 wire insulation must not enter the contact wire barrel. The crimp height is controlled by below referenced dimensions.

CAUTION
Reasonable care must be taken not to cut or break the wire insulation during the crimping operation.

Crimp Terminal P/N	Wire Size	Conductor (mm)		Insulation (mm)	
		Crimp Width (Ref)	Crimp Height(Ref)	Crimp Width(Ref)	Crimp Height(Ref)
2204749-*	AWG #16	1.85	1.3	2.4	2.3
	AWG #18	1.85	1.1	2.1	2
	AWG #20	1.85	0.95	1.85	1.75
1-2204749-*	AWG #20	1.4	0.95	1.85	1.7
	AWG #22	1.4	0.9	1.7	1.6
	AWG #24	1.4	0.85	1.7	1.6
2-2204749-*	AWG #26	1.1	0.8	1.4	1.38
	AWG #28	1.1	0.75	1.4	1.38
	AWG #30	1.1	0.7	1.4	1.38

Figure 3

B. Tensile Strength

Crimped splices must hold the wire firmly and have a crimp pull-out test value meeting that specified in Figure 5 (the test value is that of the smallest wire size used in the contact).

NOTE
Adjust tensile testing machine for head travel of 25.4 mm [1.0 in.] per minute. Directly and gradually apply force for one minute.

Crimp Terminal P/N	Wire Size	Crimp Strength
2204749-*	AWG #16	133.5N min
	AWG #18	89N min
	AWG #20	57.9N min
1-2204749-*	AWG #20	57.9N min
	AWG #22	35.6N min
	AWG #24	22.3N min
2-2204749-*	AWG #26	13.3N min
	AWG #28	8.9N min
	AWG #30	6.6N min

Figure 4

NOTE
Each crimp dimension represents the functional range of wire and contact combination. The developed crimp configuration is unique for each tool design and is acceptable provided the crimp height is within the functional range. For crimp dimensions relating to a specific tool, refer to the instruction sheet packaged with manual tools and the applicator log packaged with power tools.

C. Terminal after crimping process

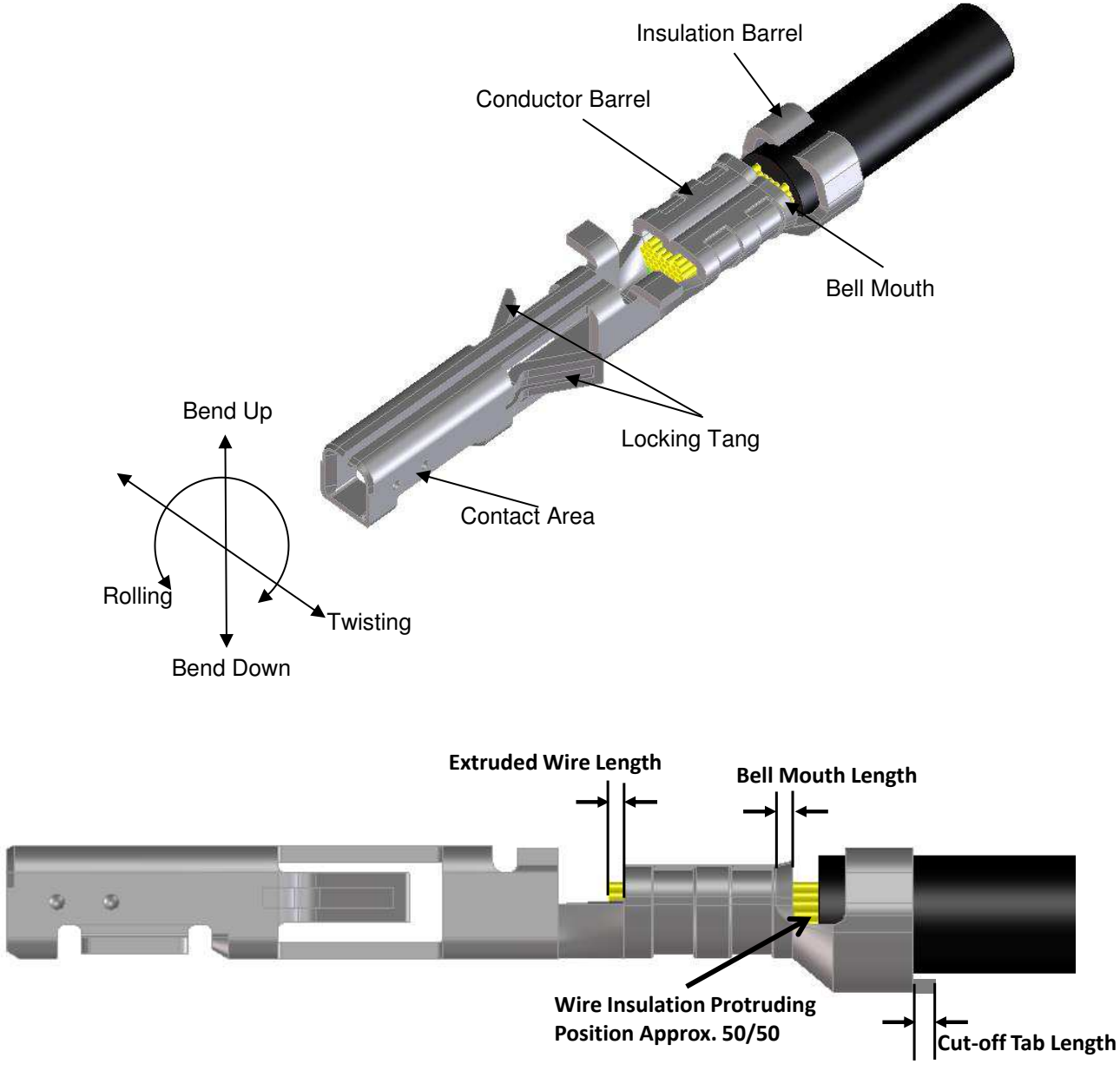


Figure 5

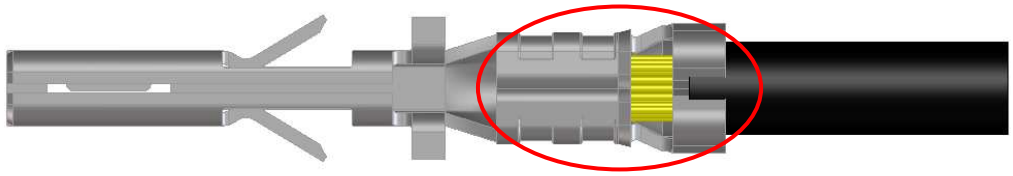
D. Crimping condition

No.	Item	Specification
1	Bend up Bend down	3 degree Max.
2	Twisting	3 degree Max.
3	Rolling	5 degree Max.
4	Cut-off Tab Length	0.25mm Max.
5	Bell mouth Length	0.1~0.3mm
6	Extruded Wire Length	0.1~0.65mm

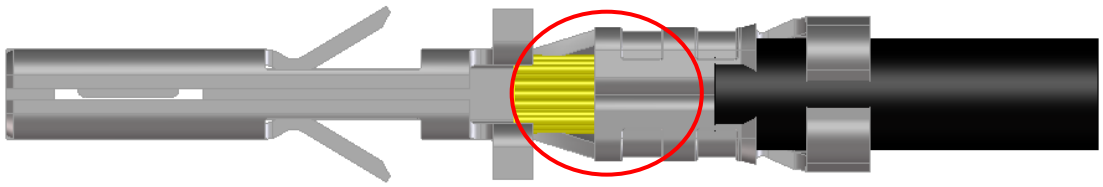
Figure 6

Unacceptable terminal after crimping process.

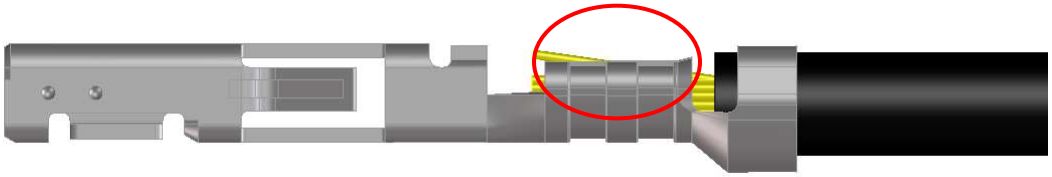
a. Conductors are not fully inserted into conductor barrel.



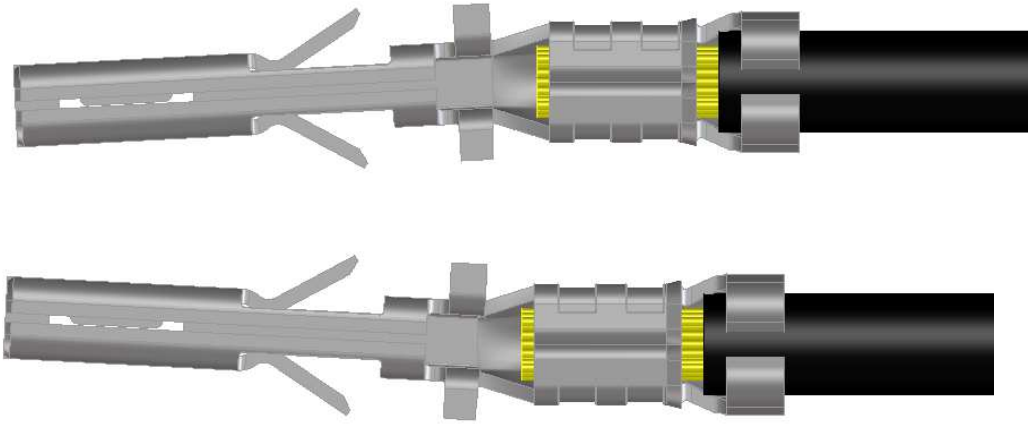
b. Insulation is inserted inside insulation barrel due to shorter insulation stripped length.



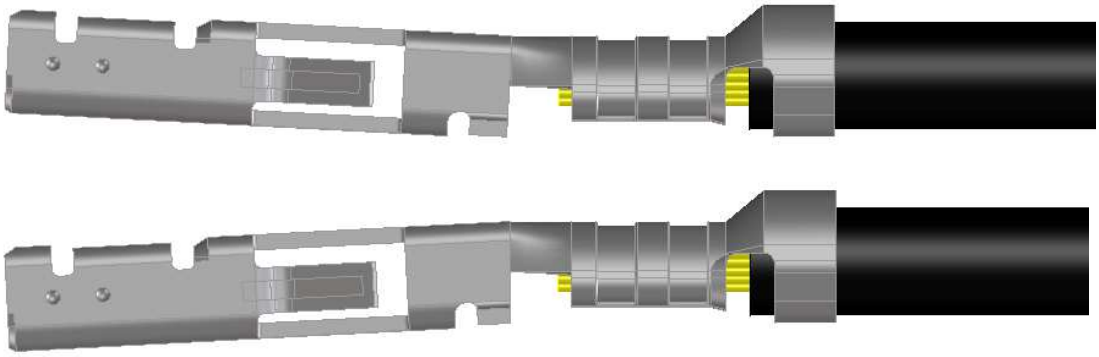
c. The conductors are protruded from the crimping conductor barrel.



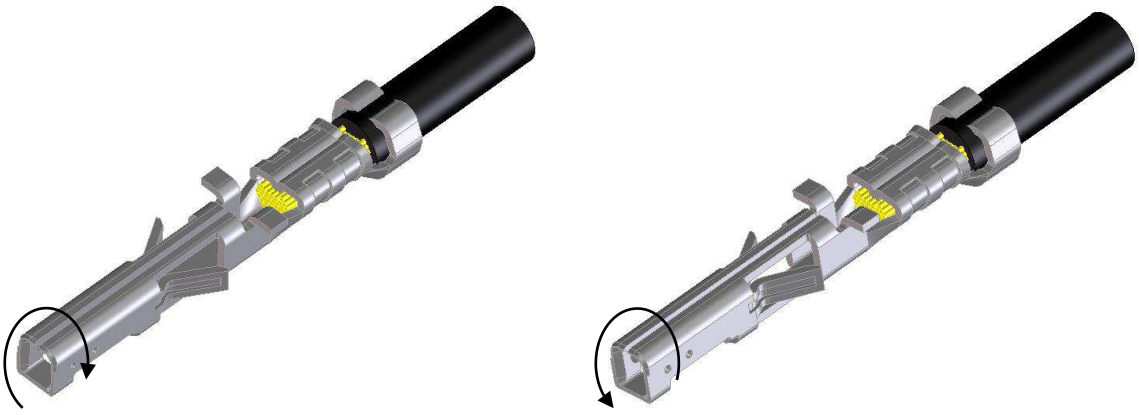
d. Twisting angle of terminal is more than 3 degrees.



e. The angle of Bent-up or Bent-down of the terminal is more than 3 degrees.



f. Rolling angle of crimped barrel axis from mating axis is more than 5 degrees both right and left.



g. The locking tang of the terminal is deformed after crimping process as below figure.

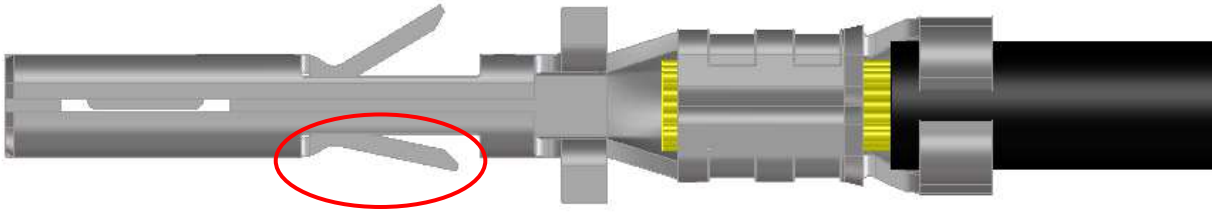


Figure 7

E. Storage method of crimped contact and reminder at storage

a. Less than 100 crimped cables shall be bundled. No more than three crimped cables shall be stacked. Place a soft spacer between cables so that contacts are tangled each other.

b. Care shall be taken not to damage the terminal of contact area.

F. Insertion of crimped terminal into housing

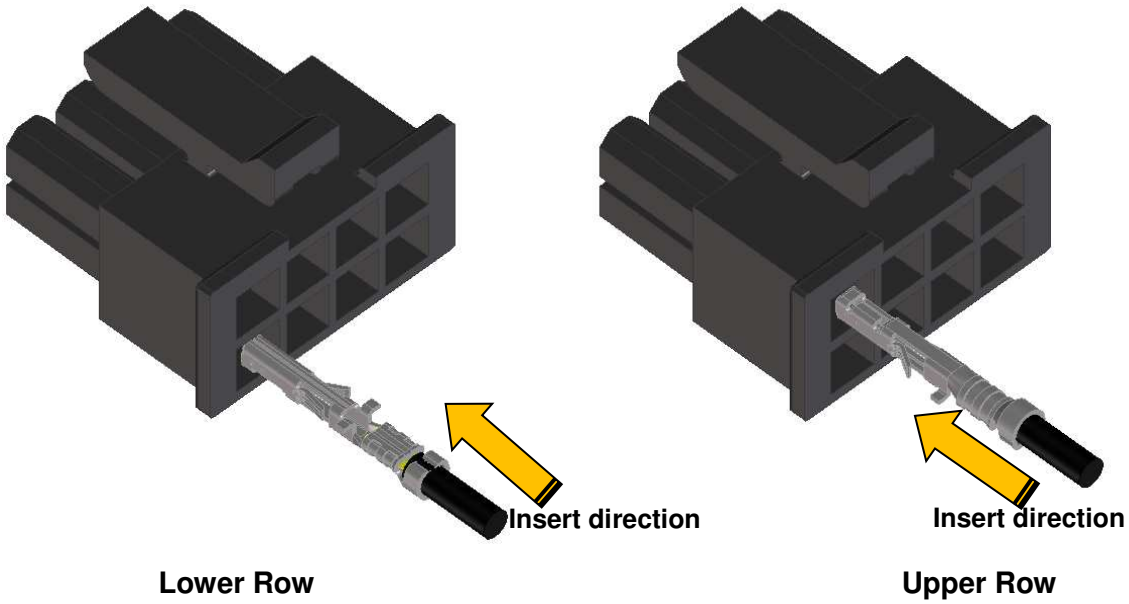


Figure 8

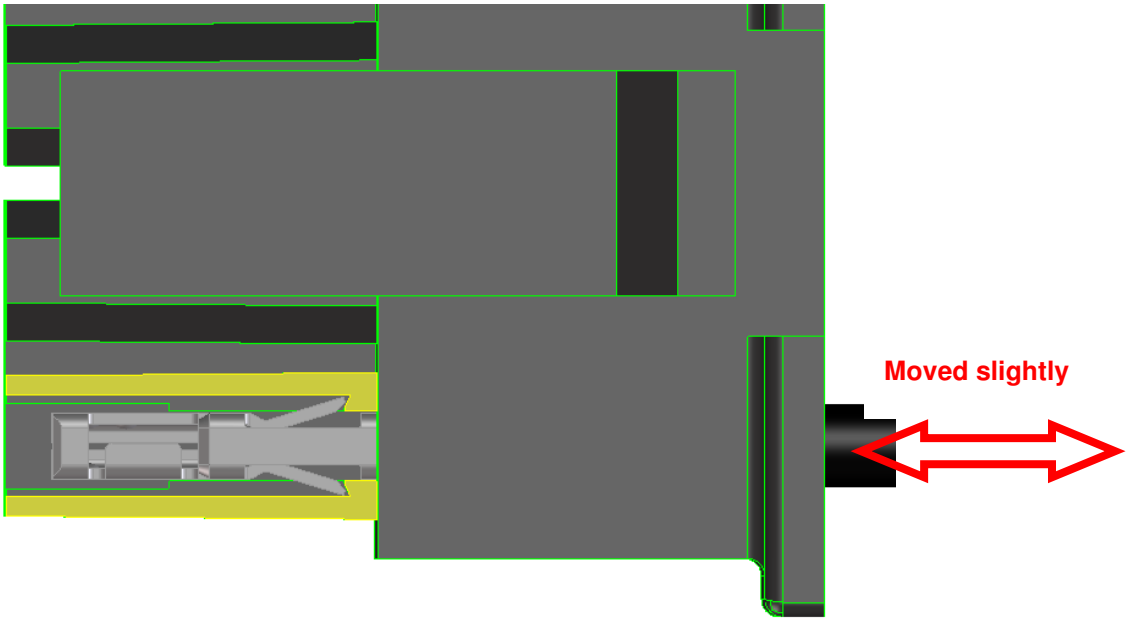


Figure 9

Notes:

a. Hold the insulation barrel as shown in the figure to check the crimped configuration. Don't touch the terminal of contact area and locking tang by hand.

b. Hold the insulation barrel must be selected the right insertion direction as shown in the figure. Don't insertion the housing by reverse direction, or the locking tang maybe damaged.

c. To confirm that contact is properly inserted into the housing, ascertain that the locking tang has some floating allowance when the cable is moved slightly as shown in the figure. if don't have the step in process, the terminal maybe pin-out.

d. The locking tang of the housing and the terminal, can't be reworked if the cable is damaged.

3.7 Cable tie and or wire twist location

CKT Size	Dim T Min.
2-8	12.70mm
10-16	19.10mm
18-24	25.40mm

Figure 10

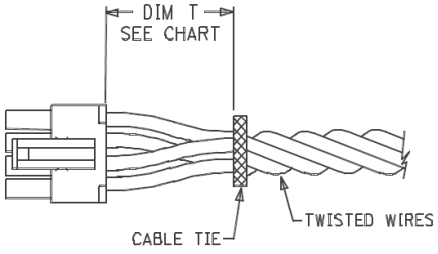


Figure 11

The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket.

3.8. The method of un-mating the receptacle housing from the header.

Care must be taken to avoid interference between adjacent connectors and/or other components. There is no required spacing between connectors, however spacing may be dependent on variable hardware used and the clearance required for mating connectors.

a. Correct demonstration

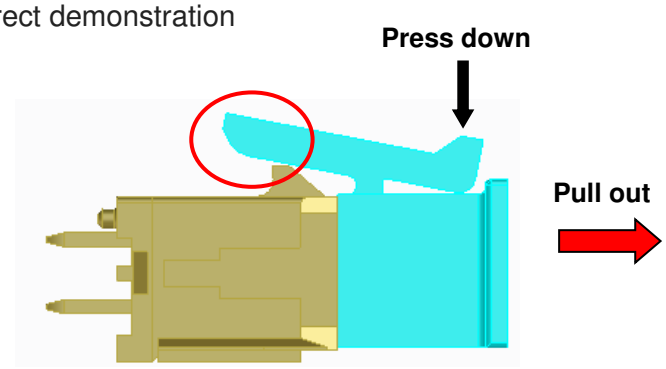


Figure 12

a. Error demonstration

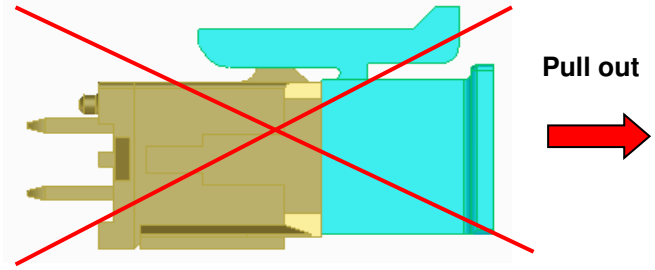


Figure 13