

Micro Hi 3MM PITCH Cable Assembly

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 and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

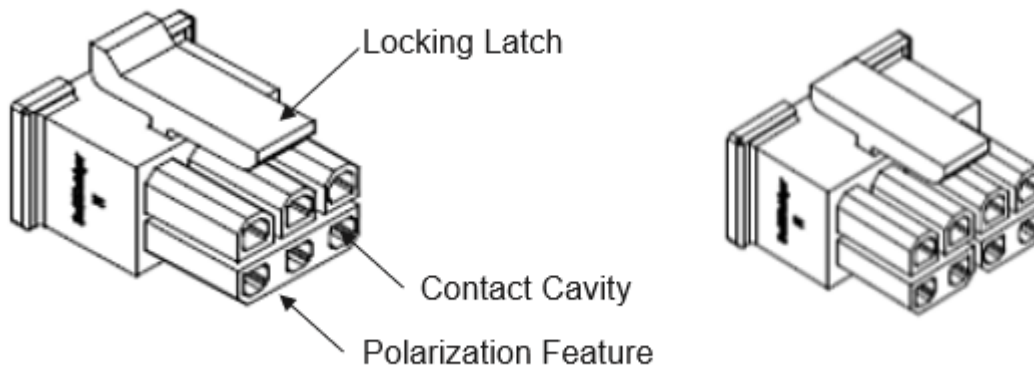
This specification covers the requirements for application of Micro Hi connectors for printed circuit (pc) board, panel mount, and free-hanging applications. Connectors are available in dual row with 2 through 24 contact positions, and single row with 2 through 12 positions on 3.00 mm centerline spacing. End cavities are marked with a number to provide circuit identification. The pin header is available, for wire-to-board applications, in vertical or right-angle configurations for through hole mount application or surface mount technology (SMT). The plug housings are available for panel mount or free-hanging wire-to-wire applications. The receptacle locking latch ensures positive mating of the connectors.

The pin header contains pre-installed solder type contacts with precision formed solder tines. The pin header is available with integral boardlocks (mechanical or plastic) or surface mount boardlocks (contacts with a board retention feature). These boardlocks provide stability for connector placement on the pc board. The connectors are placed on the pc board by hand application using tooling or electrically-powered machines. The receptacle housing accepts only Micro Hi receptacle contacts sizes for 30-26, 24-20 or 18-16 AWG wire. To ensure proper placement, the contact orientation barrel aligns with an orientation feature on the receptacle contact cavity. The contact contains a locking lance designed to engage the housing contact retention shoulder and prevent backing out during mating of the connector. The contacts are in strip form for terminating with semi-automatic or automatic electrically- powered machines.

The plug housing accepts only Micro Hi plug contacts sizes for 30-26, 24-20, or 18-16 AWG wire. The plug contact can be inserted into the plug housing in one of two orientations 180° opposite of each other. The contacts have locking lances that will engage the housing retention shoulder in either contact orientation and prevent backing out during mating of the connector. 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.

Receptacle Connector

Dual Row, 2~24 Circuits



Receptacle Contact

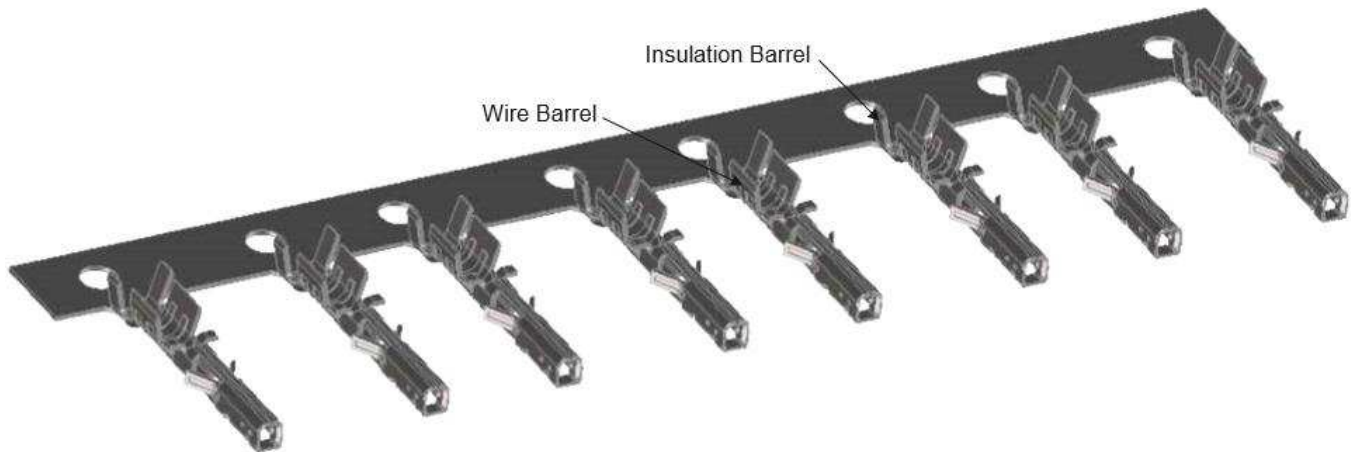


Figure 1 (End)

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this application specification include:

- New release

2.2. Customer Assistance

Reference Product Base Part Number 2354120, 2354149, and 2354173. Product Code C89 are representative of Micro Hi Cable Assembly. 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 specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by TE.

2.4. Specifications

Product Specification 108-152065 provides product performance and test information.

2.5. Instructional Material

The following list includes available instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling, as well as setup and operation procedures of applicators; and customer manuals (409-series) that provide setup, operation, and maintenance procedures of machines.

<u>Document Number</u>	<u>Document Title</u>
408-3295	Preparing Reel of Contacts for Applicator Tooling
408-7424	Checking Terminal Crimp Height
408-7497	Recommended Procedures for "Crush" Crimp Technique
408-8040	Heavy Duty Miniature Quick-Change Applicators (Side-Feed Type)
408-8053	Conversion Guide for Miniature Quick-Change Applicators
408-8059	General Preventive Maintenance for Miniature Quick-Change Applicators
408-8547	CERTI-CRIMP* II Straight Action Hand Tools

<u>Document Number</u>	<u>Document Title</u>
408-9816	Handling of Reeled Products
408-9453	Extraction Reset Tool 843996-[]
409-5128	AMP-O-LECTRIC* Model "K" Terminating Machine 565435-5
409-5842	AMP-O-LECTRIC Model "G" Terminating Machine 354500-[]
409-5852	AMPOMATOR* CLS III-G Lead-Making Machine 122500-[]
409-5866	AMPOMATOR CLS IV Lead-Making Machine 217500-[]
409-5878	AMPOMATOR CLS IV+ Lead-Making Machine 356500-[]
409-10016	Entry Level Terminator (ELT) Machine 1338600-[]
409-10027	Stripping Modules 1490500 and 1490502
409-10029	Stripping Modules 1490501 and 1490503

3. REQUIREMENTS

3.1. Safety

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

3.2. Material

The receptacle housings are made of flame-retardant thermoplastic. Micro Hi (receptacle) contacts are made of copper alloy with 30u" gold, 15u" gold, 5u" gold, bright tin or matte tin plating.

3.3. Storage

A. Ultraviolet Light

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

B. Shelf Life

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

C. Reeled Contacts

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

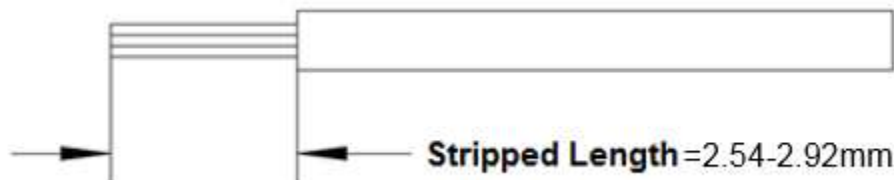
3.4. Chemical Exposure

Do not store connectors or contacts near any chemical listed below as they may cause stress corrosion cracking in the connectors or 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 with an insulation diameter range of 2.4 mm Minimum. Proper strip length is necessary to properly insert the wire into the contact. The strip length of the wire is shown in Figure 2.



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

Terminal Type	Wire size	Conductor (mm)		Insulation (mm)		Crimp Strength
		Crimp Width (Ref.)	Crimp Height (Ref.)	Crimp Width (Ref.)	Crimp Height (Ref.)	
AWG 18~16#	AWG 16#	1.85	1.30	2.40	2.30	133.5N Min.
	AWG 18#	1.85	1.10	2.10	2.00	89N Min.
AWG 20~16#	AWG 16#	1.85	1.30	2.40	2.30	133.5N Min.
	AWG 18#	1.85	1.10	2.10	2.00	89N Min.
	AWG 20#	1.85	0.95	1.85	1.75	57.9N Min.
AWG 24~20#	AWG 20#	1.40	0.95	1.85	1.70	57.9N Min.
	AWG 22#	1.40	0.90	1.70	1.60	35.6N Min.
	AWG 24#	1.40	0.85	1.70	1.60	22.3N Min.
AWG 30~26#	AWG 26#	1.10	0.80	1.40	1.38	13.3N Min.
	AWG 28#	1.10	0.75	1.40	1.38	8.9N Min.
	AWG 30#	1.10	0.70	1.40	1.38	6.6N Min.

Figure 2

3.6. Crimp Requirements

The contact must be crimped to the wire according to instructions packaged with applicable tooling.

A. Wire Barrel Crimp

Quality Crimp should be meet IPC/WHMA A-620 Class 2 requirement. The wire barrel crimp height and width must be within the dimensions provided in Figure 2 and Figure 3.

B. Insulation Barrel Crimp

Quality Crimp should be meet IPC/WHMA A-620 Class 2 requirement. See Figure 3.

C. Note

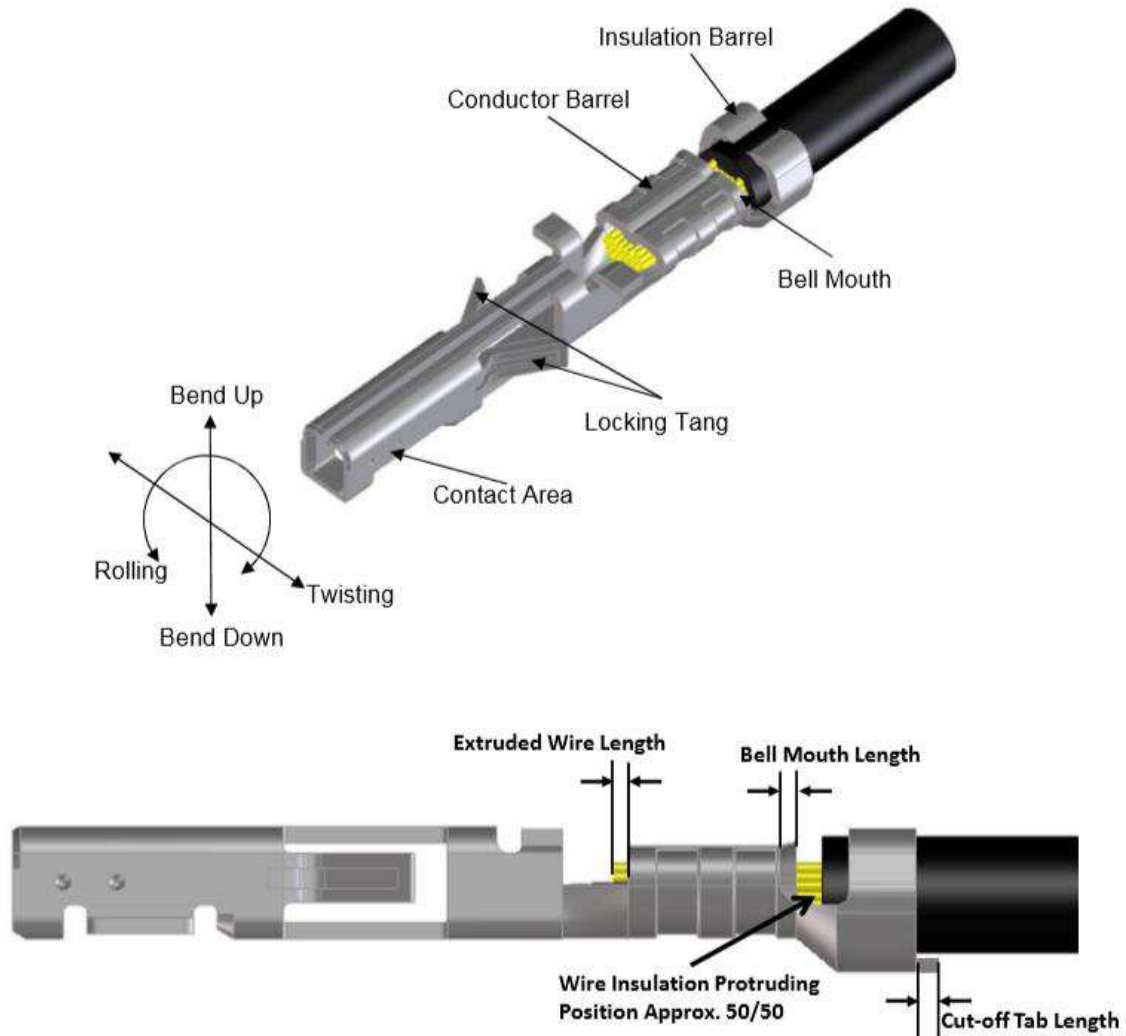
Ensure that there shall be no damaged, disturbed conductors in the cable. If conductors are disturbed, correct conductors before crimping.

D. Unacceptable Terminal after crimping process

See Figure 4.



Wire insulation must NOT be cut or broken during the crimping operation. Reasonable care should be taken to provide undamaged wire terminations.



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 3

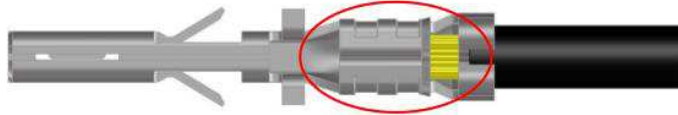
NOTE



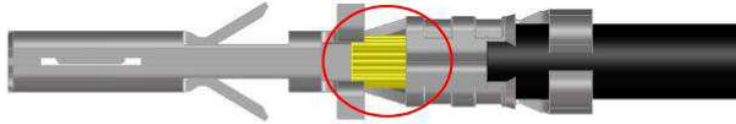
The developed crimp configurations result from using the specific tooling described in Section 5, TOOLING.

Unacceptable Terminal after crimping process:

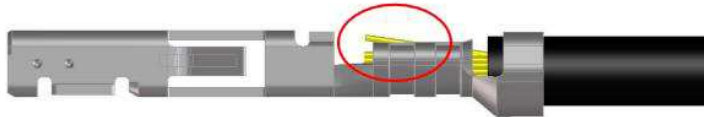
- a. Conductors are not fully inserted into conductor barrel.



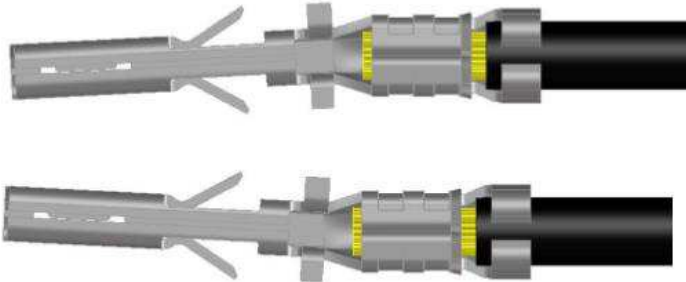
- b. Insulation is inserted inside insulation barrel due to shorter insulation stripped length.



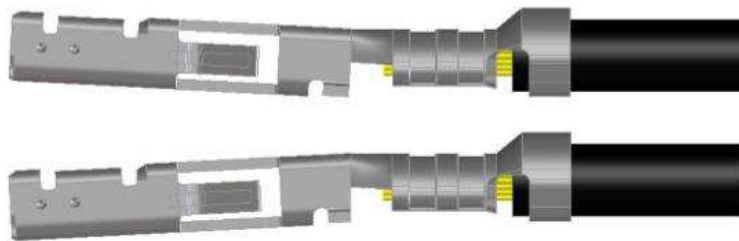
- c. The conductors are protruded from the crimping conductor barrel.



- 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.

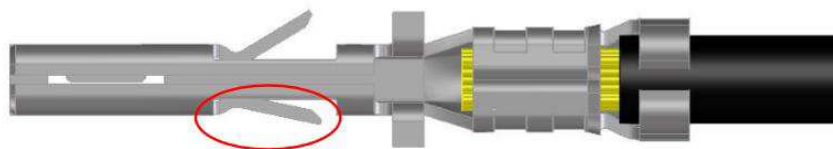


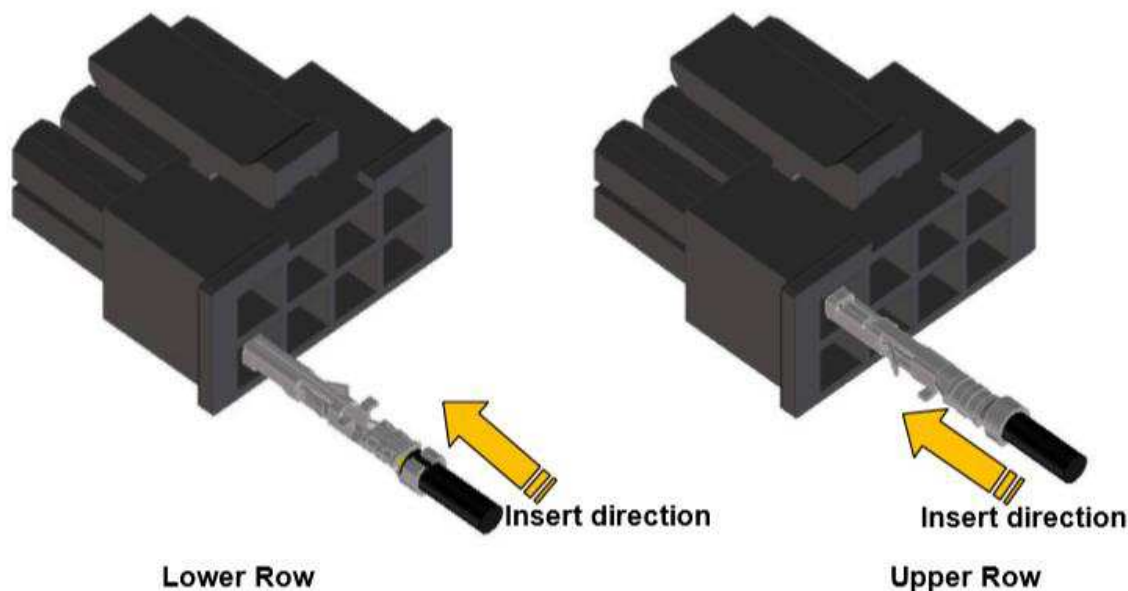
Figure 4

3.7. Storage method of crimped contact and reminder at storage

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

3.8. Placement of Crimped Contacts

- A. Hold the insulation barrel as shown in the figure 5 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 show 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 5. 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.



Receptacle contacts are for use with receptacle housings only. Do not insert receptacle contacts into plug housings.

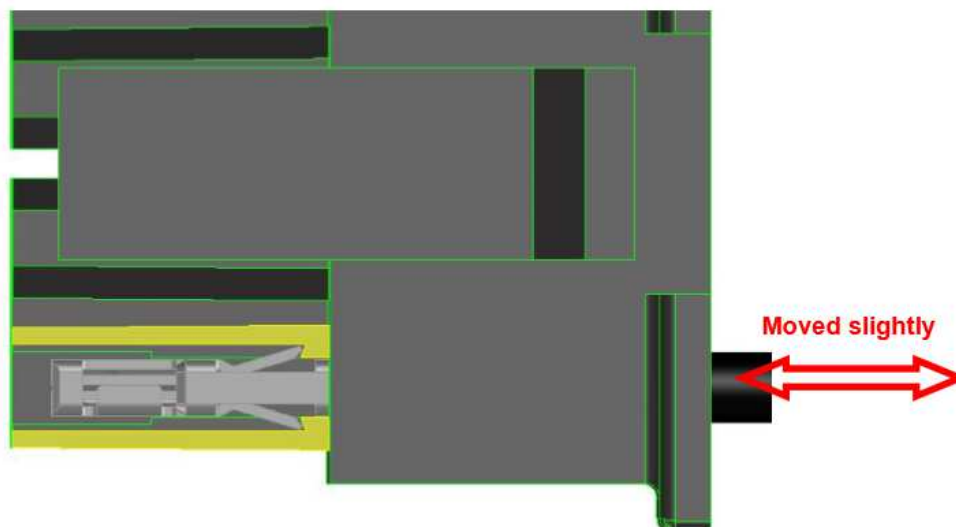
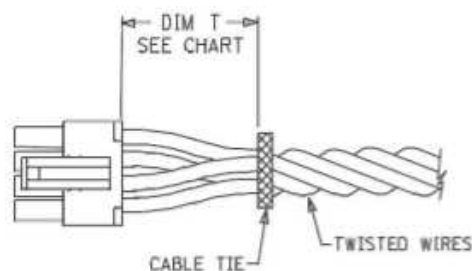


Figure 5

3.9. Cable tie and or wire twist location

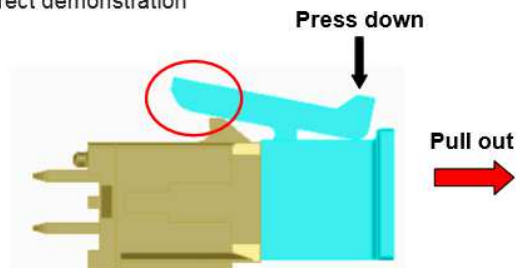
The 'T' dimension defines a 'free' length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state of location where they enter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

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



3.10. The method of pull out receptacle housing from the header

a. Correct demonstration



b. Error demonstration

