SPECIFICATION

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SPEC. NO.: PS-92252-XXXXX-CA1 **REVISION:** B

PRODUCT NAME: 1.0 mm PITCH WIRE TO BOARD WAFER

PRODUCT NO: 92252 92253 92254 SERIES

PREPARED:	CHECKED:	APPROVED:
JIANG,XIUJIN	XU,ZHIYONG	XU,ZHIYONG
DATE: 2020.06.24	DATE: 2020.06.24	DATE: 2020.06.24

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
A	ECN-1910099	NEW SPEC	SHI,YANAN	2019.05.13
B	ECN-002264	Revision insertion force of change gap	JIANG,XIUJIN	2020.06.24

2 Scope

This specification covers performance, tests and quality requirements for1.0mm Wire to Board wafer SMT T/H Type. These connectors are this Product SPEC.refer to Aces's P/N: 92252,92253,92254series.

3 Applicable documents

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION

4 Requirements

4.1 Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy.
Finish: (a) Contact Area: Refer to the drawing.
(b) Under plate: Refer to the drawing.
(c) Solder area: Refer to the drawing.
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
4.2.3 Fitting Nail: Copper Alloy,
Finish: Refer to the drawing.

4.3 Ratings

4.3.1 Working voltage less than 36 volts (per pin)
4.3.2 Voltage: 30 Volts AC (per pin)
4.3.3 Current Rating:
AWG#28-1.0A (Per Pin)
AWG#30-1.0A (Per Pin)
4.3.4 Operating Temperature : -40℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	10 m Ω Max.(initial)per contact After Test: 30 m Ω max.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max	500 VAC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25℃ (EIA-364-70 METHOD 1,CONDITION 1)
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
Mating / Un-mating Forces	See item 8	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/Un-mate connector. (EIA-364-13)
Crimping Terminal / Housing Retention Force (Cable Side)	0.6Kgf Min.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Crimping Pull Out Force (Cable Side)	AWG #30: 0.5Kgf Min. AWG #28: 1.0Kgf Min	Operation Speed： 25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire.

Terminal/Housing Retention Force (Board Side)	0.15Kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester
Fitting Nail/Housing Retention Force (Board Side)	0.15Kgf Min.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the Fitting Nail assembled in the housing
Locking Force	1.5Kgf Min.	While withdrawing plug & receptacle Without terminal at speed 25.4 ± 3 mm/minute
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)

ENVIRONMENTAL

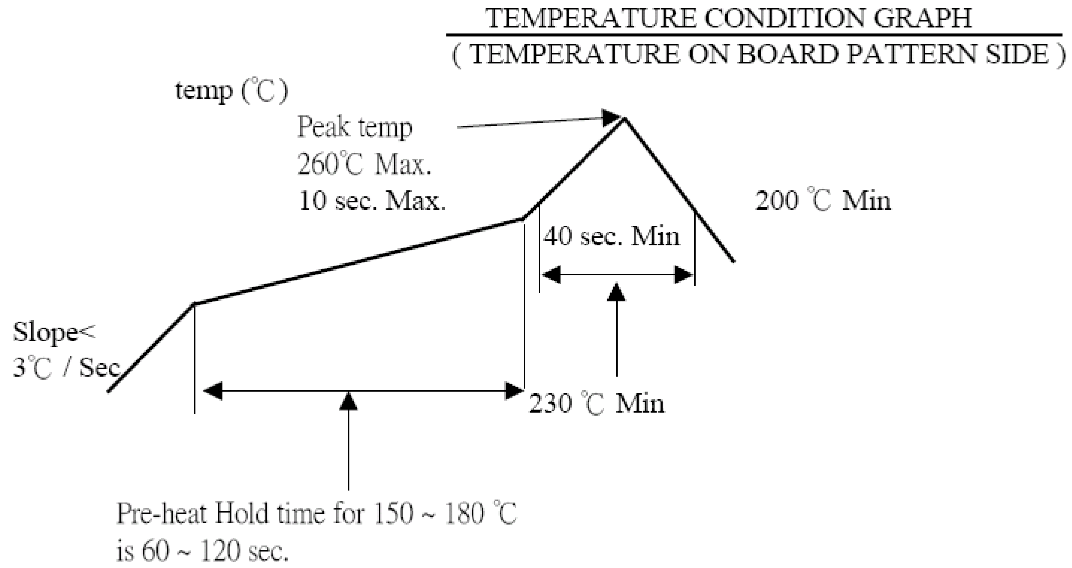
Item	Requirement	Standard
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 9**(Lead Free)**	Pre Heat：150℃~180℃, 60~90sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 25 cycles. 1 cycles: -55 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition I)

Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, 240 hours. (EIA-364-31,Condition A, Method II)
Temperature life	See Product Qualification and Test Sequence Group 5	Mated connectors to temperature life at 85℃ for 250 hours. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35 ℃, Under the condition that the electroplating layer on the metal surface is not destroyed PURE TIN for 48 hours
Solder ability	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance (Board Side)	Appearance: No damage	T≧350℃, 3sec at least.
Stress corrosion/moist ammonia (NH3) Test	See Product Qualification and Test Sequence Group 13	Ammonia gas concentration 3 to 4% Temperature :20+2°C Humidity condition :90 to 95% Testing time (h) :32 (STM-1126-06)
H2S Gas	See Product Qualification and Test Sequence Group 14	**Pretreatment** Insert or pull the connector into or out of the printed wiring board 10 times. (Ensure that the printed wiring board is not exposed to sebum.) **Test Condition 1** H_2S(ppm) 3±1 Temp.(°C) 40±2°C Humidity (%RH) 80±5% Testing time (h) :96

Note. Flowing Mixed Gas shell be conduct by customer request.

6 Infrared reflow condition

6.1. Lead-free Process



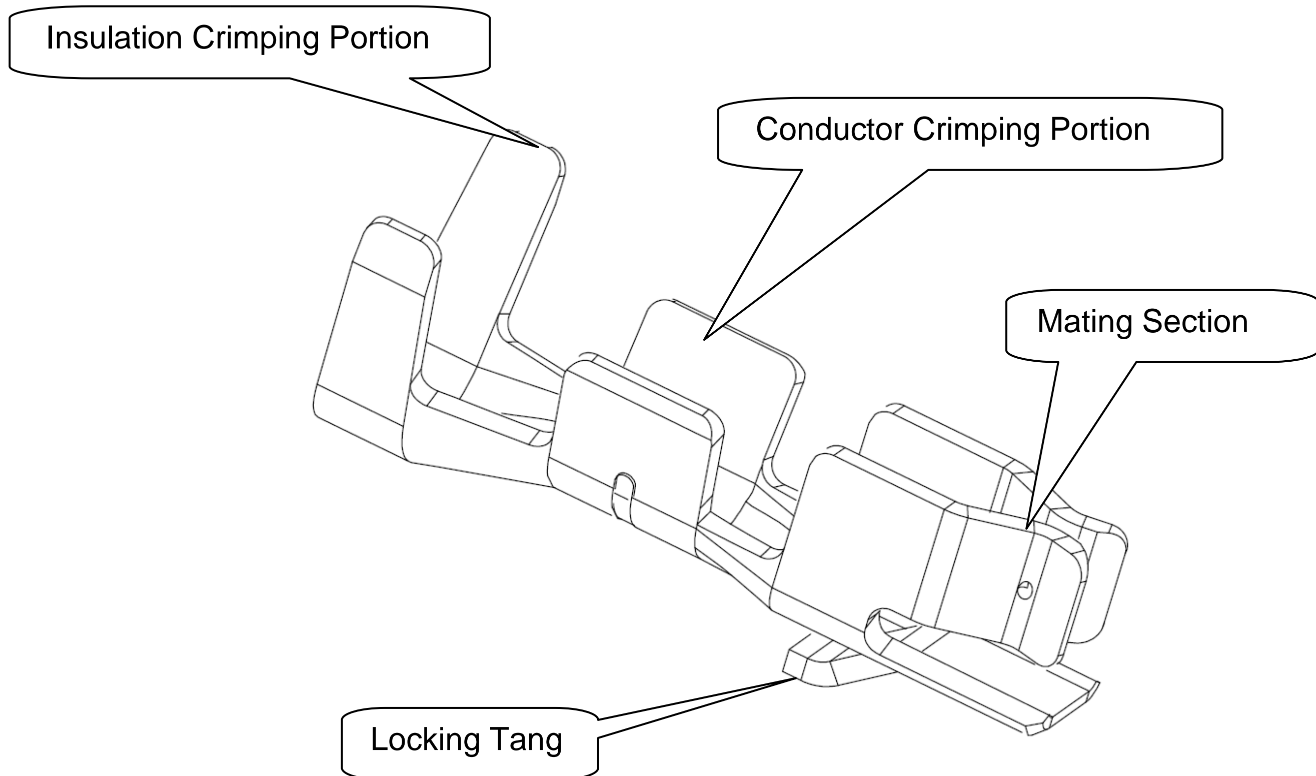
7 Product qualification and test sequence

Test or Examination	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence											
Examination of Product		1、6	1、5	1、7	1、6		1、3	1、3			1、4	1、4
Low Level Contact Resistance		2、7	2、6	2、10	2、9	1、3		4			2、5	2、5
Insulation Resistance				3、9	3、8							
Dielectric Withstanding Voltage				4、8	4、7							
Temperature rise	1											
Mating / Un-mating Forces		3、5										
Durability		4										
Crimping Retention Force (Cable Side)									1			
Crimping Pull Out Force (Cable Side)									2			
Terminal Retention Force (Board Side)										1		
Fitting Nail Retention Force (Board Side)										2		
Vibration			3									
Shock (Mechanical)			4									
Thermal Shock				5								
Humidity				6								
Temperature life					5							
Salt Spray						2						
Solder ability							2					
Resistance to reflow Soldering Heat (Board Side)								2				
Stress corrosion/moist ammonia (NH3) Test											3	
H2S Gas												3
Sample Size	5	5	5	5	5	5	5	5	5	5	5	5

8 Mating / Unmating Forces

NO. OF Ckt.	At Initial		At 30th
	Mating(kgf max)	Un-mating(kgf min)	Un-mating(kgf min)
2	5.00	0.20	0.20
3	5.00	0.20	0.20
4	5.00	0.20	0.20
5	6.00	0.30	0.30
6	6.00	0.30	0.30
7	6.00	0.30	0.30
8	7.00	0.40	0.40
9	7.00	0.40	0.40
10	7.00	0.40	0.40
11	8.00	0.50	0.50
12	8.00	0.50	0.50
13	8.00	0.50	0.50
14	9.00	0.60	0.60
15	9.00	0.60	0.60

9 ANATOMY OF CRIMPING TERMINAL



The crimping contact drawing is for reference only. May Not be the same with this P/N

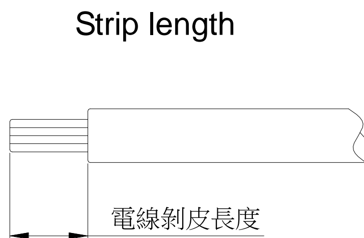
10 APPLICABLE WIRES:

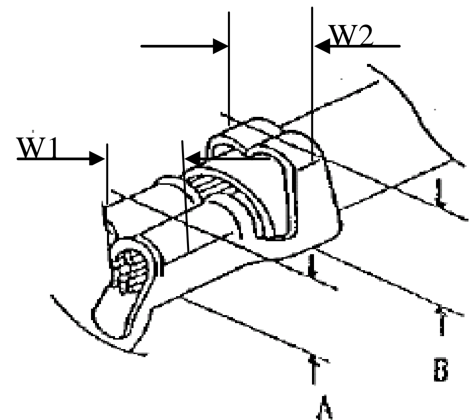
AWG Size:UL1571 AWG#28 Insulation OD: Φ0.80mm
AWG Size:UL1572 AWG#30 Insulation OD: Φ0.70mm

11 CRIMPING CONDITION

鉚線條件表 CRIMPING CONDITION							
Part Number	Wire Specification			Crimp Height (mm)		Crimp Width (mm)	
	UL Style (REF.)	AWG Size	Insulation OD(mm)	Conductor A	Insulation B	Conductor W1	Insulation W2
92254-T	UL1571	28	0.80	0.44~0.50	1.0～1.2	0.80Max	0.80Max
	UL1572	30	0.70	0.42~0.48	1.0～1.2	0.80Max	0.80Max

Strip length





Note:

1、W1為芯線導體鉚壓後之寬度(Conductor Crimping Width)：W1值如上表

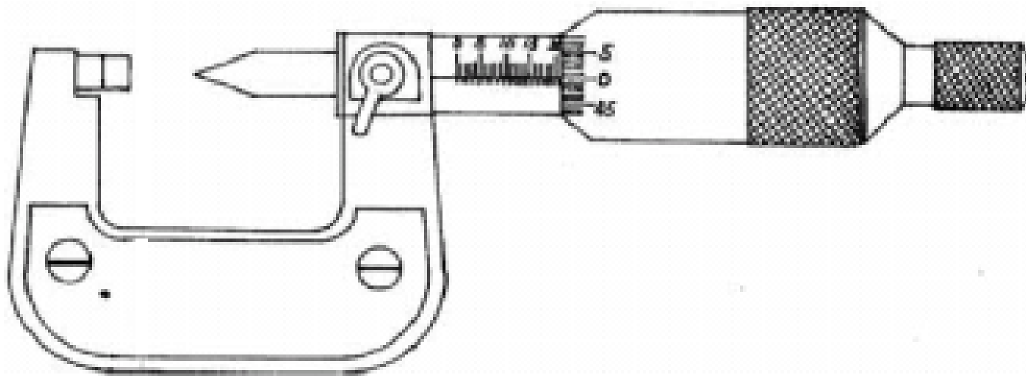
2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表

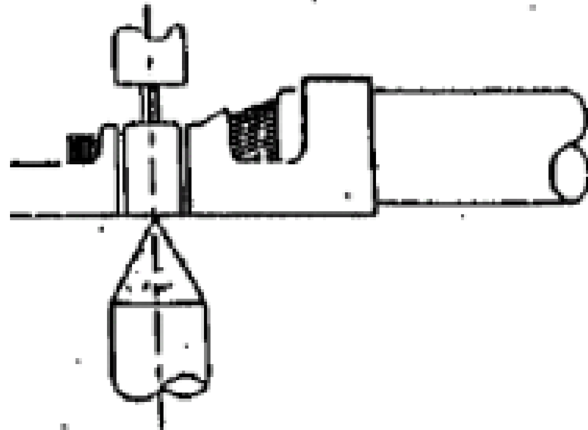
3、A為芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值）

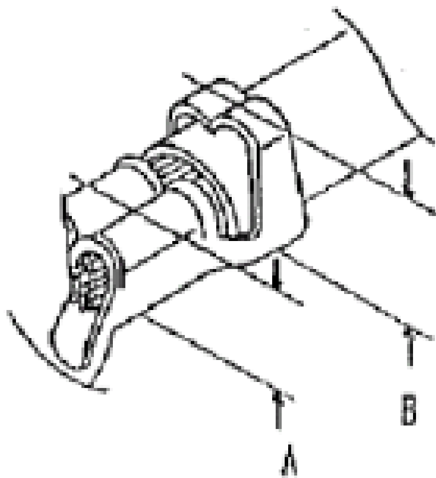
4、B為電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值）

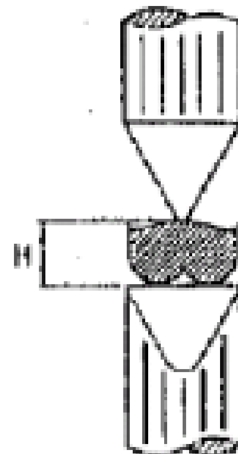
5、電線剝皮長度(Strip length)：1.3~1.6mm（參考值）

12 CRIMPING HEIGHT MEASUREMENT



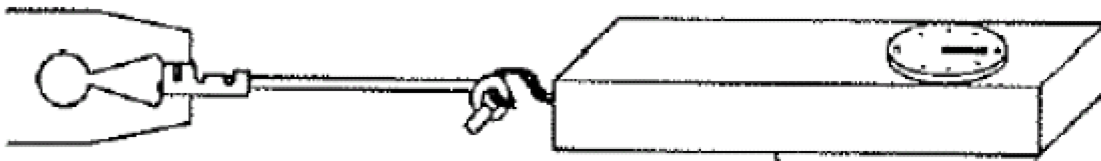






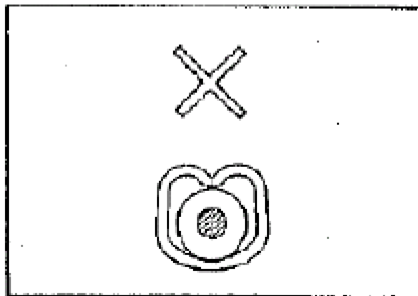
13 PULL FORCE OF CRIMPING SECTION MEASUREMENT

Before test samples, please measure crimp height and do not crimp insulation.

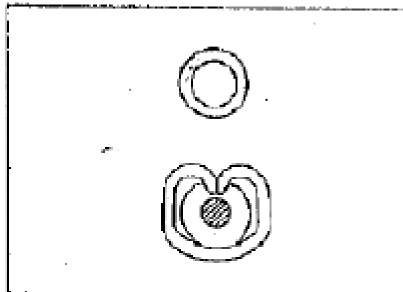


Pull Force of Crimp Section Measurement

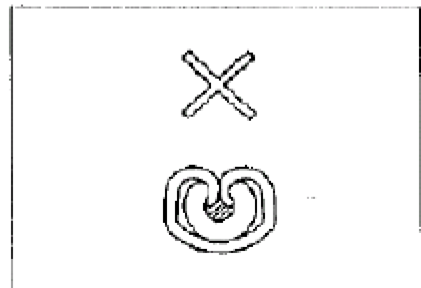
14 STANDARD INSULATION CRIMPING



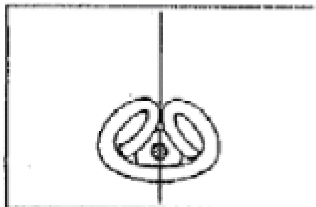
Not enough crimp



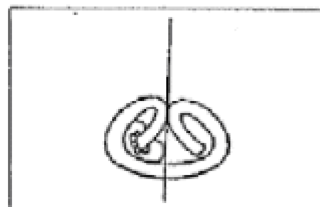
Good



Crimp too much



Good



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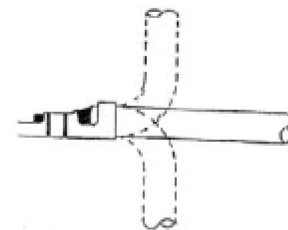
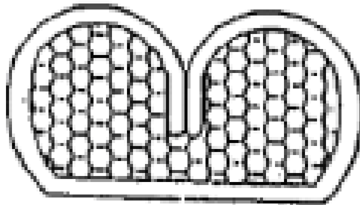
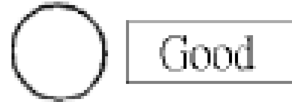
Insulation Crimp Condition

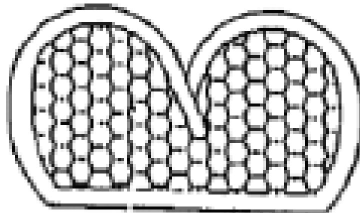


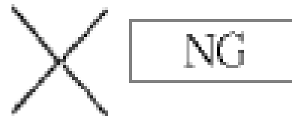
As following figure shown.
It is no problem if wire bent
up down 90 degrees 1 cycle
and insulation position still
in ideal position.

15 CONDUCTORS CRIMPING CONDITION

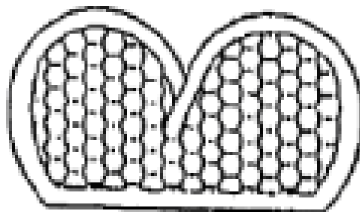


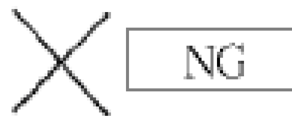


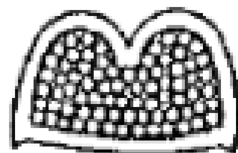




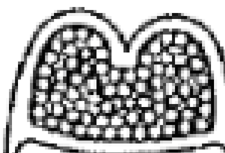
Lower conduct retension force







Good



Large burr

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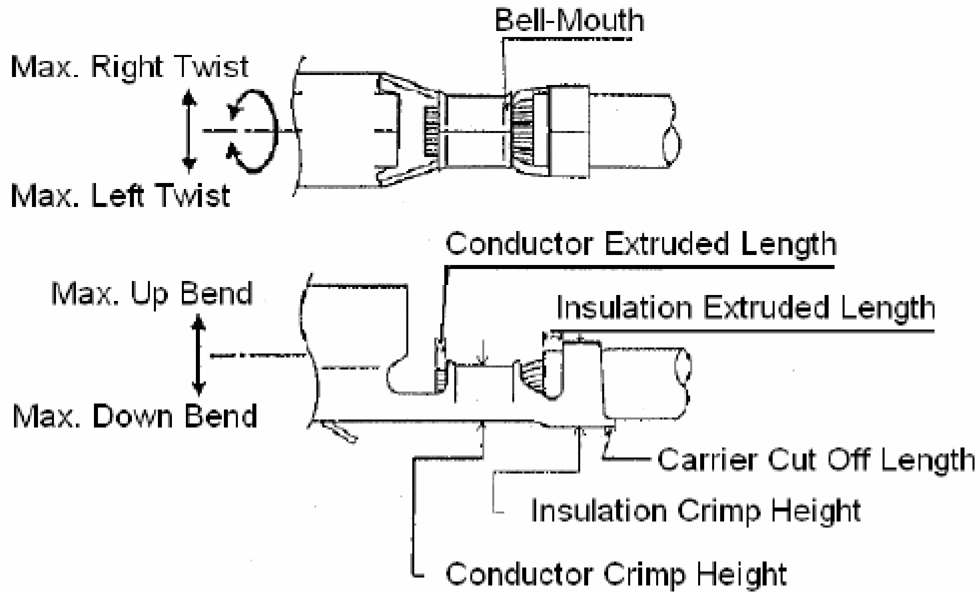
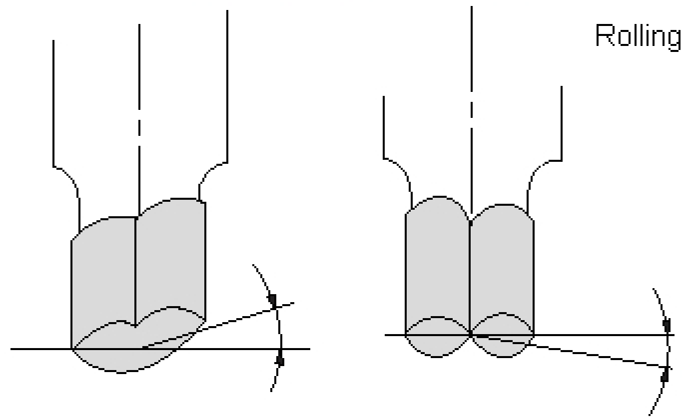
16 CRIMPING REQUIREMENT

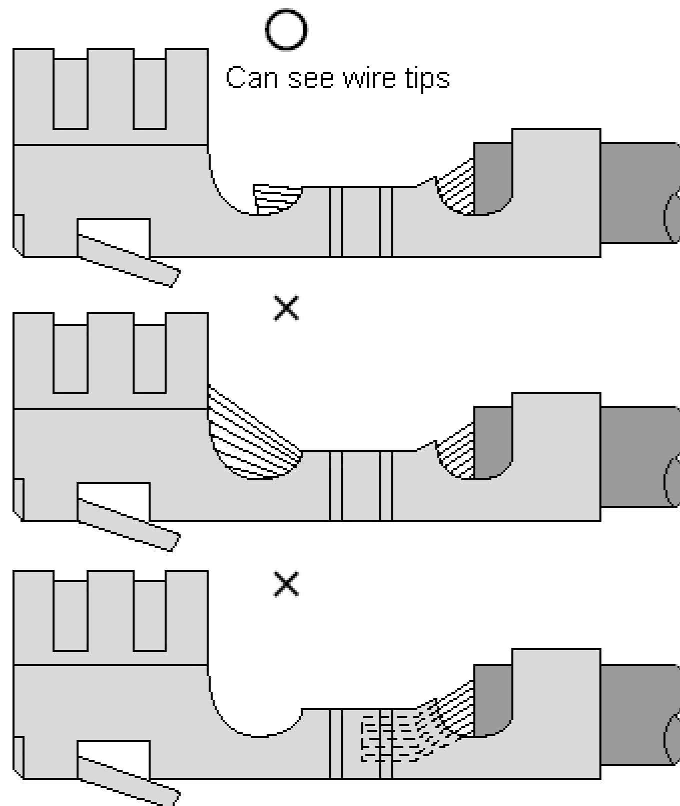


Item	Range(Ref.)
Max. Up Bend	1°
Max. Down Bend	1°
Max. Left Twist	1°
Max. Right Twist	1°
Bell-Mouth Length	0.1~0.3mm
Carrier Cut Off Length	0~0.2mm
Conductor Extruded Length	0.05~0.3mm

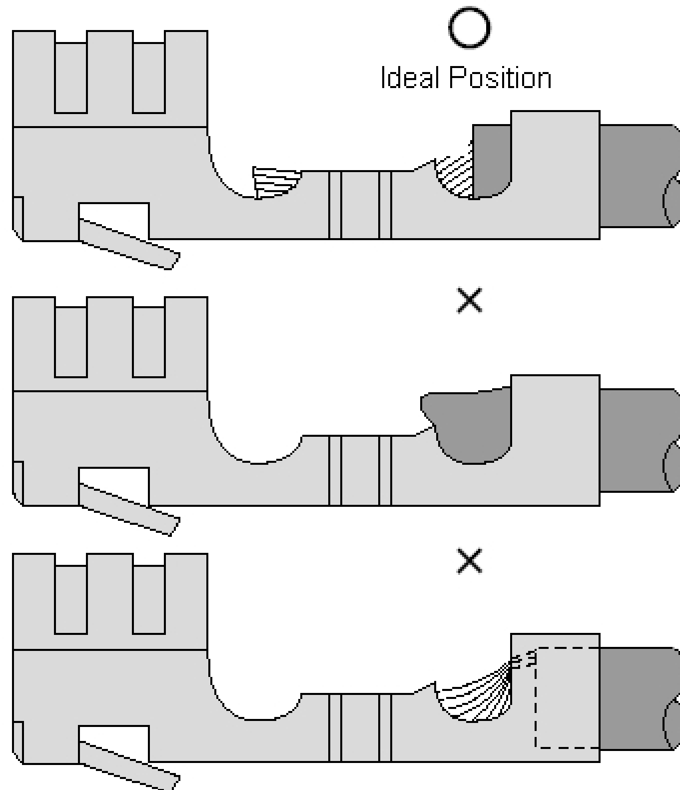
Centerline of wire crimped should be near contact centerline. If twisted, the termination may not meet the specified pull force or non-stable（Rolling max7°）



If stranded conductors are inserted too far into the crimp sections, this may cause some problems when terminal inserted into housing.
If stranded conductor's inserted length is too short, the termination may not meet the specified pull force because the metal-to-metal contact between the wire and the terminal is reduced.

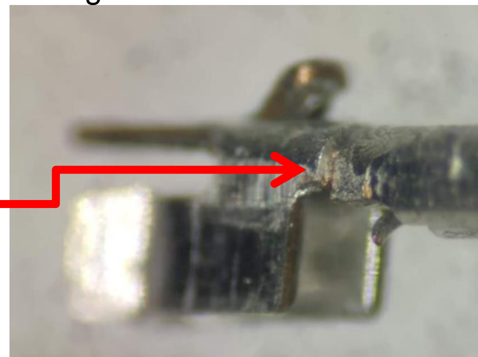


The ideal position of insulation tip is visible as following figure shown. If insulation were into crimp section, may cause unstable conduction. If too short, may not meet the specified pull force.



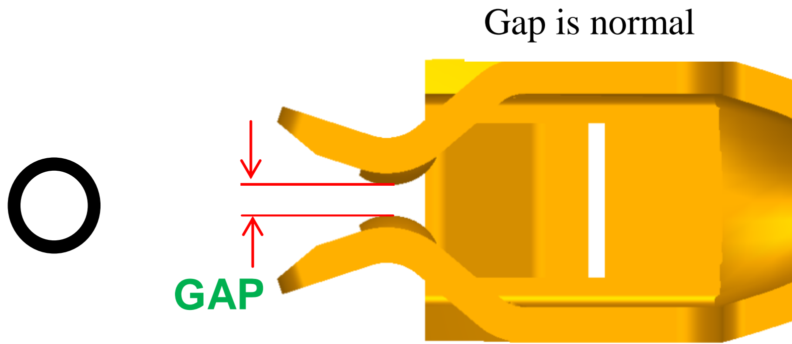
The surface of crimping terminal shall not be damaged.

After wire crimping, the terminal is torn and damaged NG

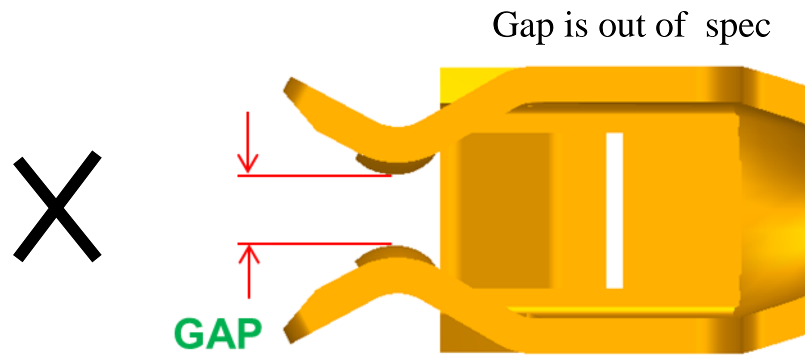


No deformation of contact area is allowed after crimping

Gap is normal



Gap is out of spec



Gap is deformation