



SPECIFICATION

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SPEC. NO.: PS-51365XXXXX-XXX REVISION: A

PRODUCT NAME: 2.0 mm PITCH WTB CONNECTOR

PRODUCT NO: 51365-for 3C · 51367 for 3C SERIES

PREPARED: Liu, Hua DATE: 2019/07/02	CHECKED: BRAVE DATE: 2019/07/02	APPROVED: BRAVE DATE: 2019/07/02
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TITLE: **2.0mm Pitch WTB Wafer SMT S/R R/A Type**

RELEASE DATE: **2019.09.11**

REVISION: **A**

ECN No: **ECN-1909195**

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1 REVISION HISTORY

Rev.	ECN #	Revision Description	Prepared	Date
A	ECN-1909195	NEW SPEC	Liu, Hua	2019/09/11

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2 SCOPE

This specification covers performance, tests and quality requirements for **2.0mm Pitch WTB Wafer SMT S/R R/A Type** .

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: Copper alloy.

Plated: [Refer to the drawing.](#)

4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.2.3 Fitting Nail: Copper Alloy

Plated: [Refer to the drawing.](#)

4.3 Ratings

4.3.1 Operating Temperature: **-40 to +105°** .

4.3.2 Test Current: **2A Max, 125V/AC Max.**

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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	20 m Ω Max.(initial)per contact ΔR 20 m Ω Max.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	1000 M Ω Min.	500V DC Min.at sea level for 1 minute between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	500V AC Min.at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature Rise	30°C Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25°C (EIA-364-70, METHOD1,CONDITION2)
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 \pm 3mm/min.
Mating / Unmating Forces	Please see Item 8	Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Contact Retention Force (Board Side)	0.5 Kgf Min.	Operation Speed : 25.4 \pm 3 mm/minute. Measure the contact retention force with tester.
Crimping Terminal / Housing Retention Force (Cable Side)	0.5 Kgf Min.	Apply axial pull out force at the speed rate of 25.4 \pm 3 mm/minute. On the terminal assembled in the housing.

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Crimping Pull Out Force (Cable Side)	1 Kgf Min.	Operation Speed : 25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire.
Fitting Nail Peeling Strength	10kgf MIN	Mount product on PCB only by fitting nails and apply axial pull-up force at the speed rate of 2.5mm/min
Housing / Wafer Retention Force	5 kgf MIN	Mate connectors and apply pull-out force at the speed rate of 25±3mm/min. This test should be done with positive lock locked.
Vibration	1 μs Max.	Acceleration: 44m/s ² Sweep time: 20-200-20Hz in 3minutes Duration : 3hours in each X, Y, Z axes Open circuit voltage: 20mV max. Short circuit current: 10mA max. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	981m/s ² (100G), 3 strokes in each X, Y, Z axes. Operation time: 6ms

ENVIRONMENTAL

Item	Requirement	Standard
Resistance to Reflow Soldering Heat	See Product Qualification and Test Sequence Group 4 (Lead Free)	Pre Heat : 150°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max.
Temperature Cycling	See Product Qualification and Test Sequence Group 2	Mate module and subject to follow condition for 10 cycles. 1 cycles: -40 ±3 °C , 30 minutes +80 ±3 °C , 30 minutes (EIA-364-32, test condition I)
Humidity	See Product Qualification and Test Sequence Group 3	Mated Connector 40°C, 90~95% RH, 96 hours. (EIA-364-31, Condition A, Method II)
Heat Resistance	See Product Qualification and Test Sequence Group 8	Subject mated connectors to temperature life at 85°C for 96 hours . (EIA-364-17, Test condition A)



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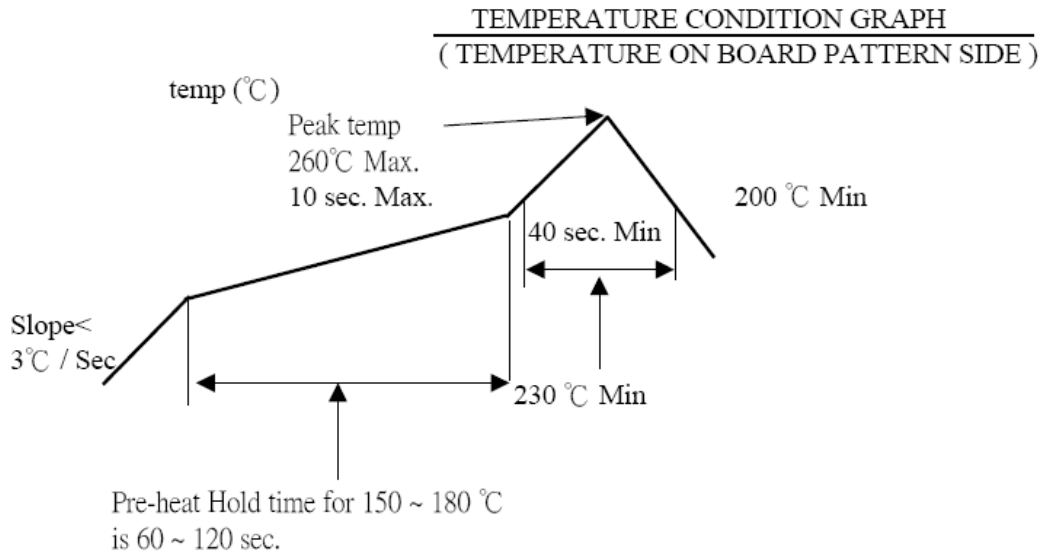
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Salt Spray	See Product Qualification and Test Sequence Group 1	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours (EIA-364-26)
Solder ability (Board Side)	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	And then into solder bath, Temperature at 245 ±5°C , for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance (Board Side)	Appearance: No damage	T ≥ 350°C, 3sec at least.

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

6 INFRARED REFLOW CONDITION





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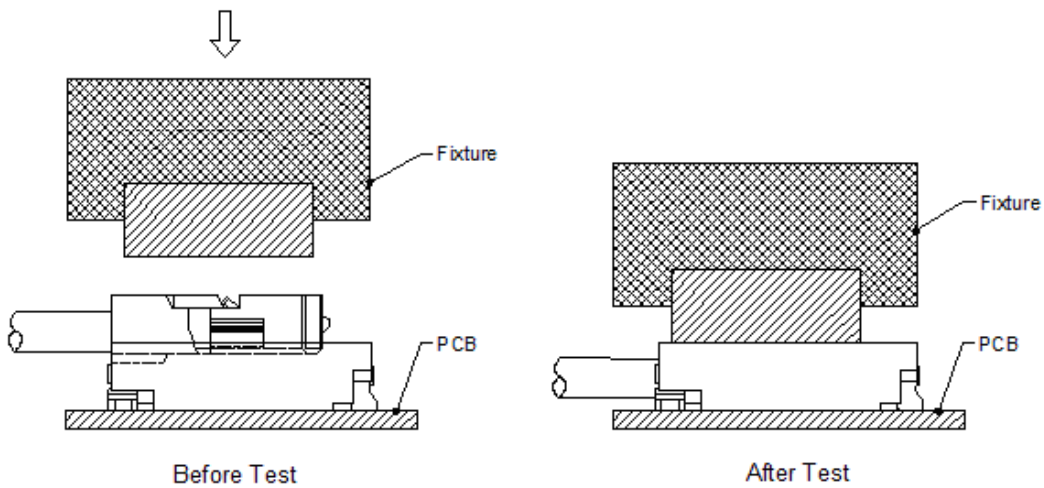
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7 PRODUCT QUALIFICATION AND TEST SEQUENCE

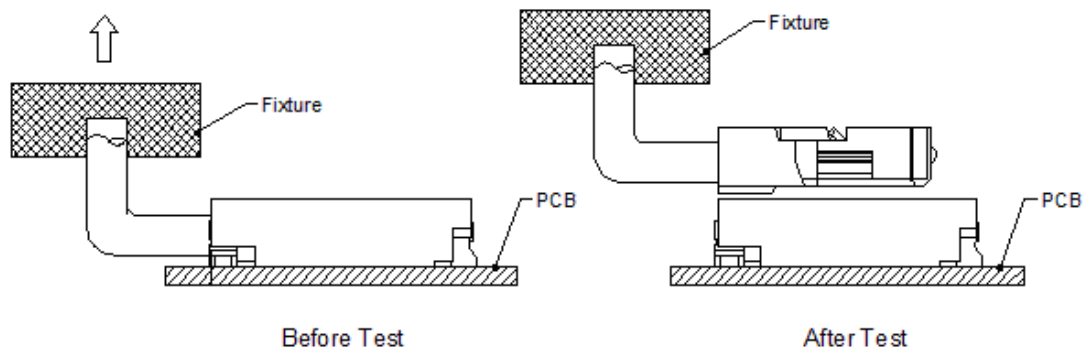
Test or Examination	Test Group													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Test Sequence													
Examination of Product		1, 4	1, 4	1, 4	1, 4	1, 4	1, 4	1, 4	1	1	1	1	1	1
Low Level Contact Resistance	1,3	2, 5	2, 5	2, 5		2, 5	2, 5	2, 5						
Insulation Resistance														
Dielectric Withstanding Voltage														
Temperature Rise										2				
Mating / Unmating Force					2, 5									
Durability					3									
Contact Retention Force (Board Side)														
Vibration						3								
Shock (Mechanical)							3							
Temperature Cycling		3												
Humidity			3											
Heat Resistance								3						
Salt Spray	2													
Solder ability (Board Side)											2			
Contact Retention Force (Board Side)												2		
Crimping Terminal / Housing Retention Force (Cable Side)													2	
Crimping Pull Out Force (Cable Side)														3
Fitting Nail Peeling Strength											3			
Housing / Wafer Retention Force														2
Resistance to Soldering Heat (Board Side)				3										
Hand Soldering Temperature Resistance (Board Side)									2					
Sample Size	4	4	4	4	4	4	2	4	4	2	4	4	4	4

8 MATING / UNMATING FORCE

Number of circuits	Mating Force. kgf. (Max.)			Unmating Force kgf. (Min.)		
	1th	6th	30th	1th	6th	30th
3	4.4	4.1	4.1	0.15	0.15	0.21
6	6.6	6.0	6.0	0.36	0.36	0.43
10	9.0	8.0	8.0	0.54	0.54	0.59



Mating Force test



Unmating Force test

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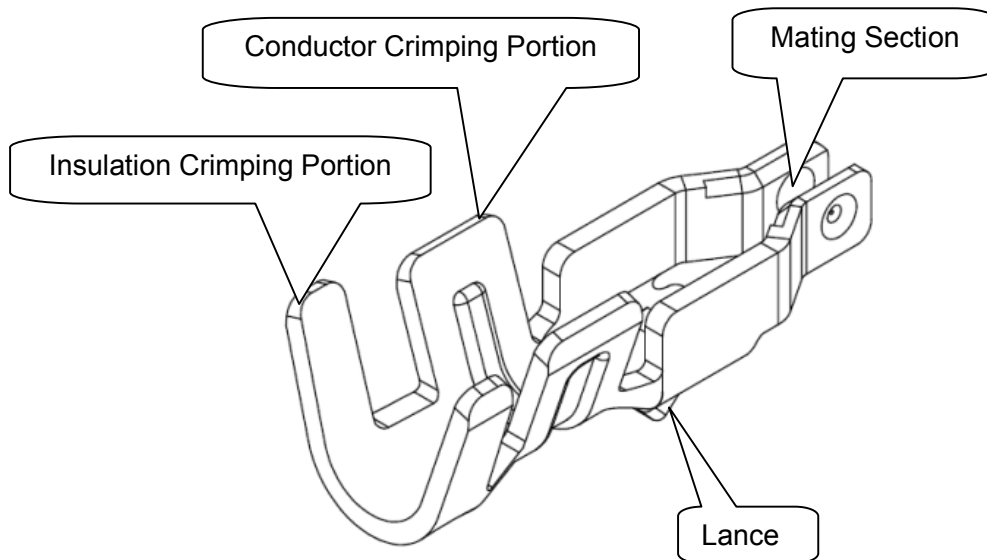
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9 ANATOMY OF CRIMPING TERMINAL



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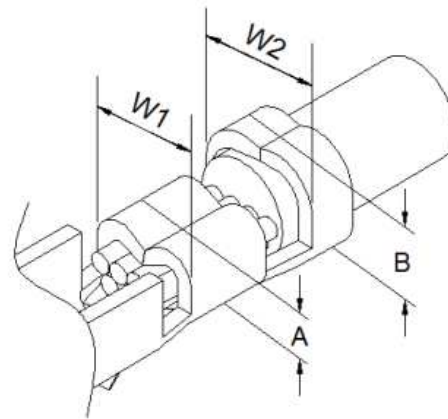
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10 CRIMPING CONDITION

鉚線條件表 CRIMPING CONDITION

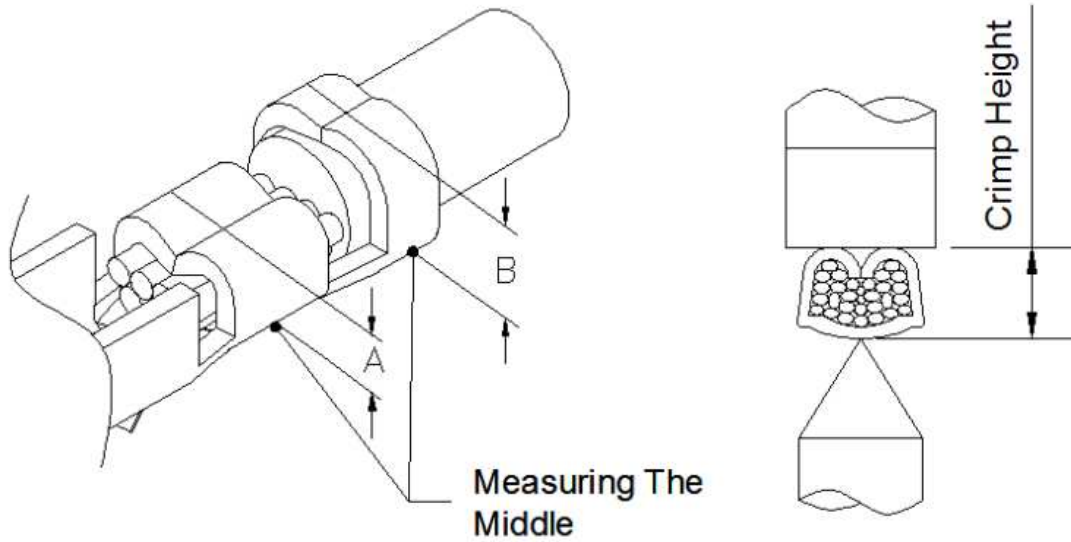
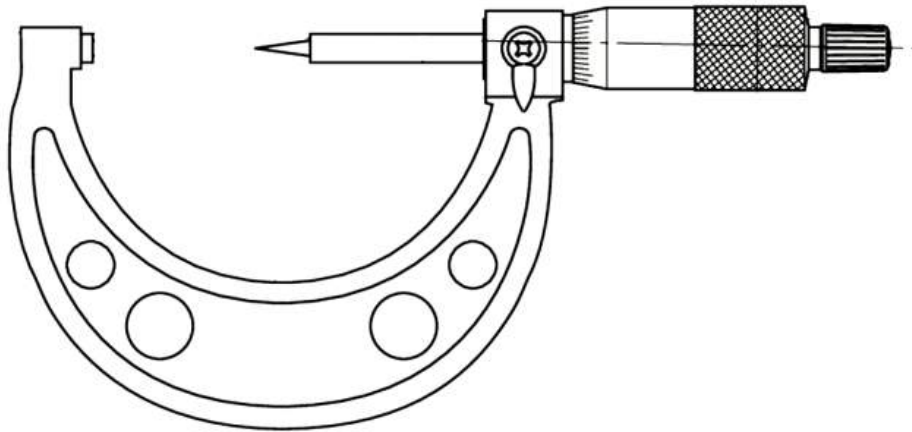
Part Number	Wire Specification			Crimp Height (mm)		Crimp Width (mm)	
	UL Style (REF.)	AWG Size	Insulation OD(mm)	Conductor A	Insulation B	Conductor W1	Insulation W2
51367-Txxx-xxx	NA	20	1.11~1.44	0.70	1.55	1.40	1.55



Note:

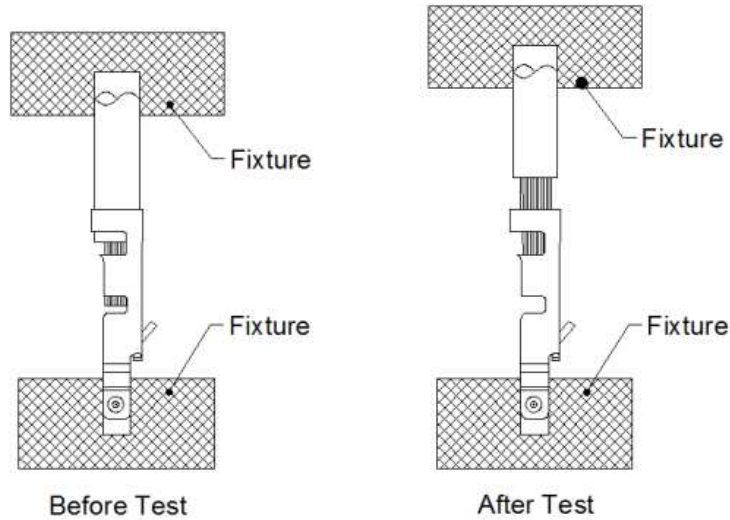
- 1、W1為芯線導體鉚壓後之寬度(Conductor Crimping Width)：W1值如上表(參考值)
- 2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表(參考值)
- 3、A為芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值)
- 4、B為電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值)
- 5、電線剝皮長度(Strip length)：0.7~1.5mm(參考值)
- 6、以上線材均須符合UL安規認證

11 CRIMPING HEIGHT MEASUREMENT

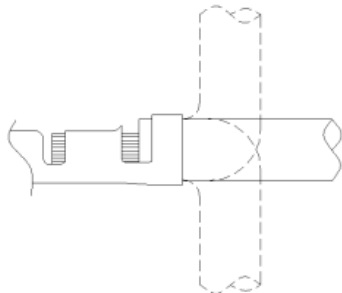
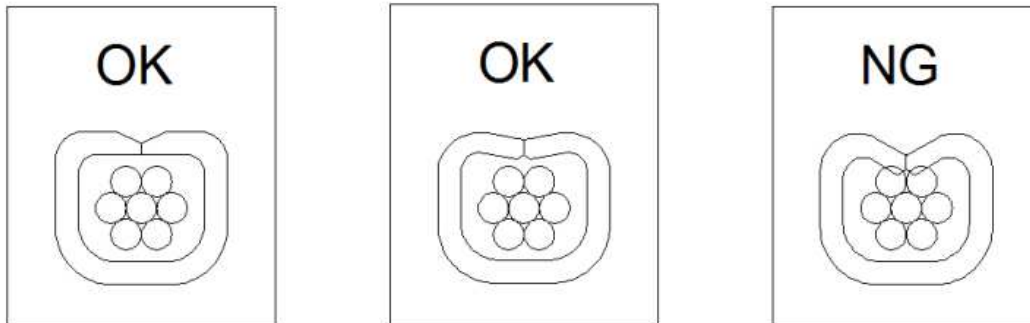


12 PULL FORCE OF CRIMPING SECTION MEASUREMENT

Note : Before test sample , please measure crimp height and do not crimp insulation.

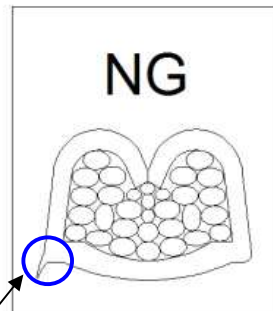
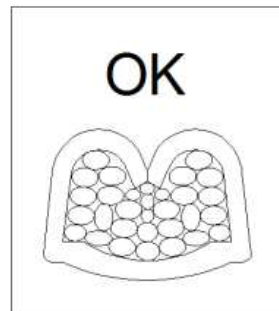
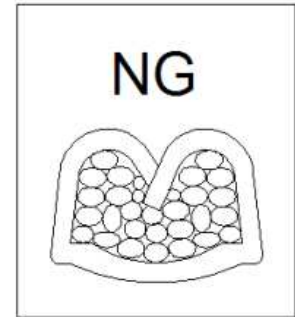
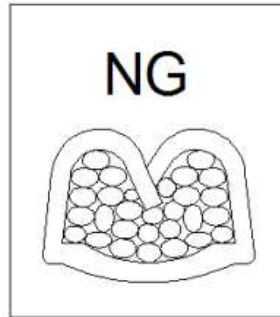
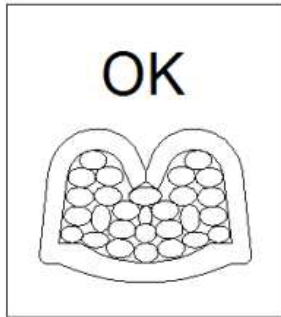


13 STANDARD INSULATION CRIMPING



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

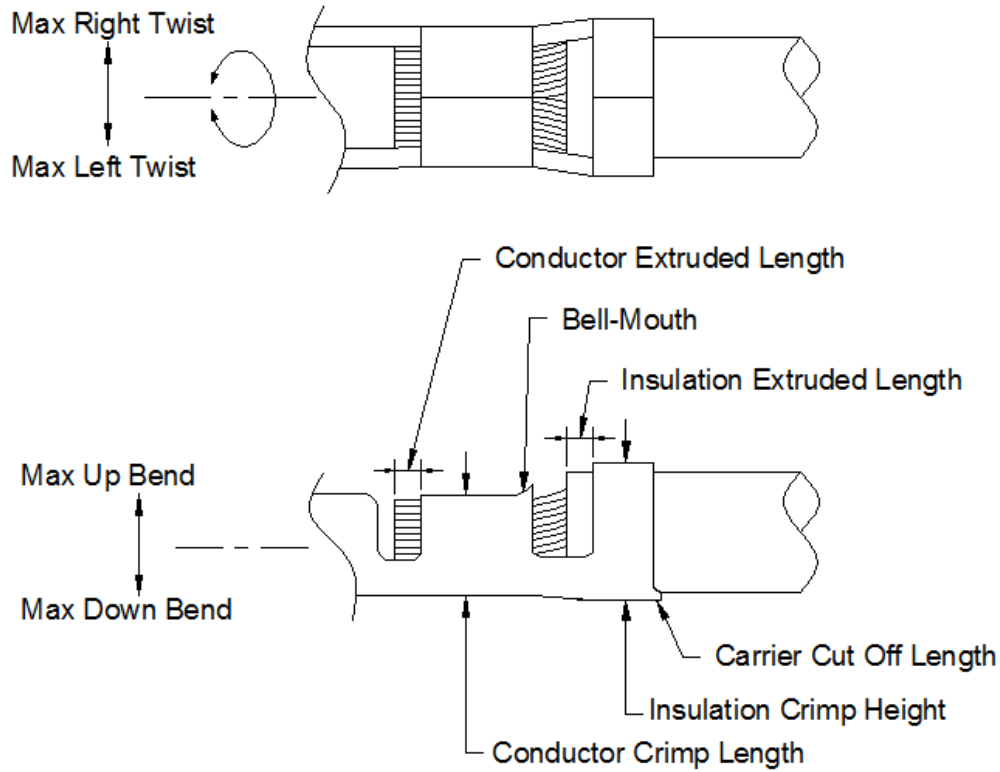
14 CONDUCTORS CRIMPING CONDITION



Large Burr



15 CRIMPING REQUIREMENT



Item	Range(Ref.)
Max. Up Bend	6°
Max. Down Bend	6°
Max. Left Twist	5°
Max. Right Twist	5°
Bell-Mouth Length	0.1~0.3mm
Carrier Cut Off Length	0~0.2mm
Conductor Extruded Length	0.05~0.2mm