



SPECIFICATION

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SPEC. NO.: PS-51430-XXXXX-XXX REVISION: A

PRODUCT NAME: 1.50 mm PITCH WIRE TO BOARD

PRODUCT NO: 51430 SERIES ; 52229 SERIES; 52230 SERIES;

PREPARED: Zhang,Hongjun DATE: 2021/05/17	CHECKED: Lu,Jingquan DATE: 2021/05/17	APPROVED: Hsieh,fu yu DATE: 2021/05/17
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2 SCOPE

This specification covers performance, tests and quality requirements for 1.5mm pitch WTB

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: Pls see P/N LEGEND

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

4.3 Ratings

4.3.1 Working voltage less than 36 volts (per pin)

4.3.2 Voltage : 50 Volts AC (per pin)

4.3.3 Current : AWG # 24: 3.5 A (per pin)

AWG # 26: 3.0 A (per pin)

AWG # 28: 2.5 A (per pin)

AWG # 30: 1.5 A (per pin)

4.3.4 Operating Temperature : -40°C to +105°C

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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 10 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	1000 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°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 METHOD 2)
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 3 mm/min. (EIA-364-09)
Mating / Unmating Forces	See item 8	Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/unmated connector. Unmated connector angle θ is +/- 20 degree max. See figure 1 (EIA-364-13)

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Crimping Terminal Pull Strength of the housing(Cable Side)	0.50 kgf Min.	Operation Speed : 25.4 ± 3 mm/minute. Measure the Terminal retention force with Tensile strength tester .
Contact Retention Force (Board Side)	0.50 kgf Min.	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Vibration	1 us 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 us 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 6 (Lead Free)	Pre Heat : 150°C~180°C , 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max.

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Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 °C, 30 minutes +105 +3/-0 °C, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40°C, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Temperature life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 105°C for 96 hours. (EIA-364-17, Test condition A)
Salt Spray(Only for Gold)	See Product Qualification and Test Sequence Group 10	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 24 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5°C , for 4-5 sec. (EIA-364-52)

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

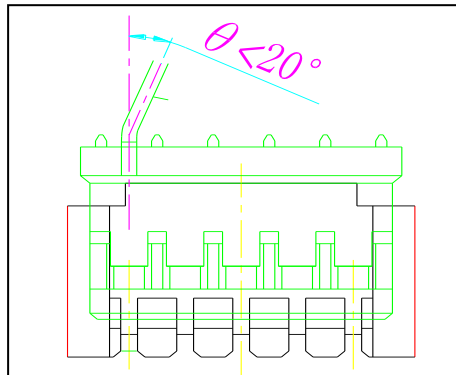


Figure 1(Unmated connector angle)

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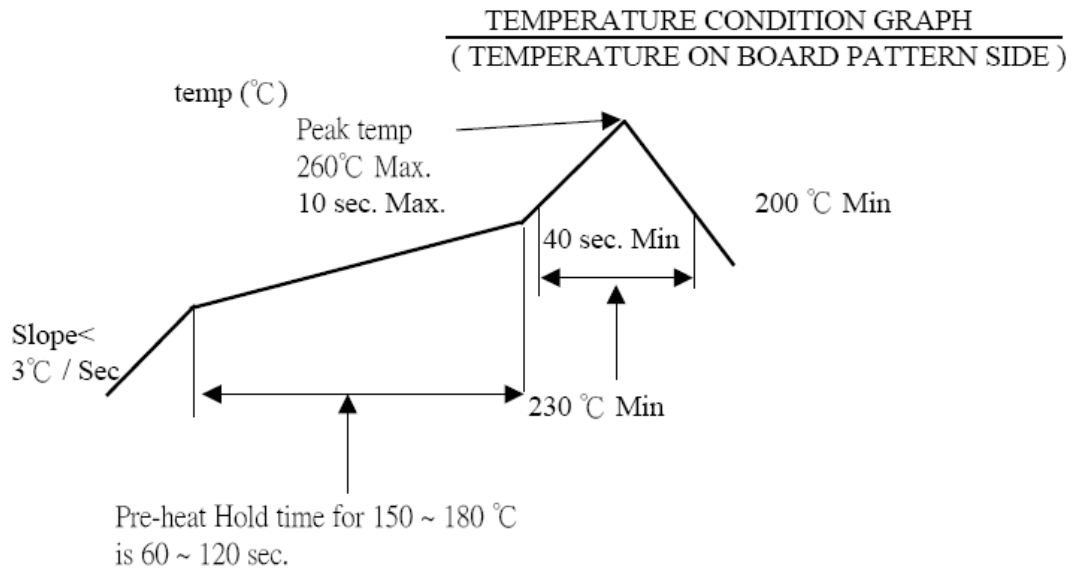
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6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



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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
	Test Sequence									
Examination of Product				1、7	1、6	1、4				1、4
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				2、5
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	1									
Mating / Unmating Forces		2、4								
Durability		3								
Contact Retention Force (Board Side)								1		
Vibration			2							
Shock (Mechanical)			3							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray(Only for Gold)										3
Crimping Terminal Pull Strength of the housing (Cable Side)									1	
Solder ability								1		
Resistance to Soldering Heat						3				
Sample Size	2	4	4	4	4	2	2	2	2	2

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8 Mating / Unmating Force:

Unit: N

NO. OF CKT.	At initial		At 30th
	Mating Force. (Max)	Unmating Force (Min)	Unmating Force (Min)
2	20	2	2
3	20	2	2
4	20	2	2
5	30	3	3
6	30	3	3
7	30	3	3
8	40	4	4
9	40	4	4
10	40	4	4
11	50	5	5
12	50	5	5
13	50	5	5
14	60	6	6
15	60	6	6
16	60	6	6
17	70	7	7
18	70	7	7

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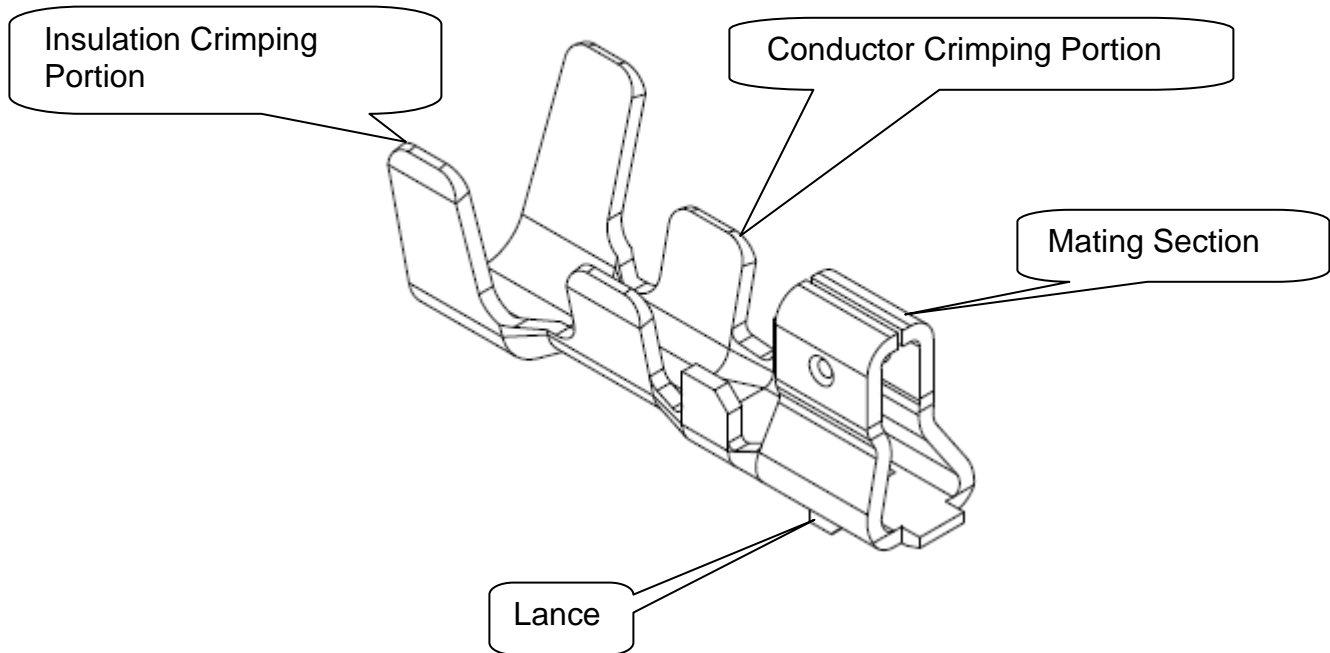
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9 ANATOMY OF CRIMPING TERMINAL



10 APPLICABLE WIRES: UL1061 ETFE WIRE

AWG Size: AWG#30~#24

Insulation OD: Φ 0.70~1.00mm

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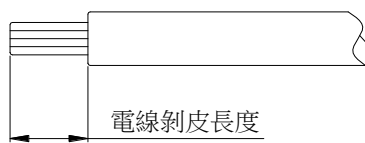
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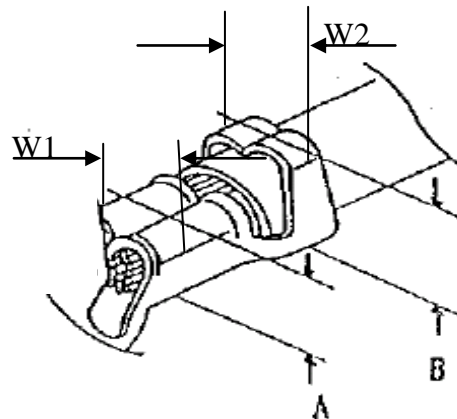
11 CRIMPING CONDITION

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
91203-Txxx	UL1061	24	1.10	0.52~0.58	1.57~1.63	0.90(Ref)	1.05 max.
	UL1061	26	1.00	0.52~0.58	1.47~1.53	0.80(Ref.)	1.05 max.
	UL1061	28	0.90	0.52~0.58	1.37~1.43	0.70(Ref.)	1.05 max.
	UL1061	30	0.70	0.52~0.58	1.25~1.31	0.60(Ref.)	1.05 max.



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)：1.2~1.6mm(參考值)

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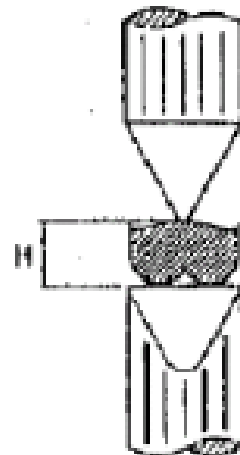
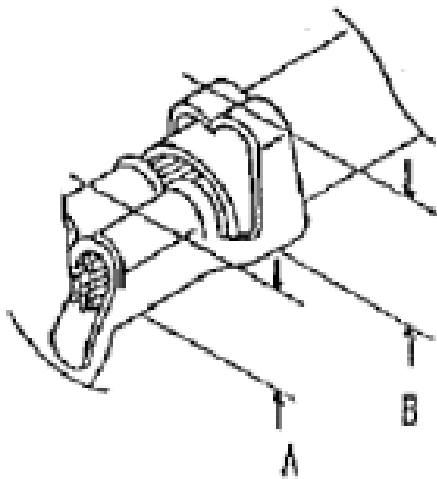
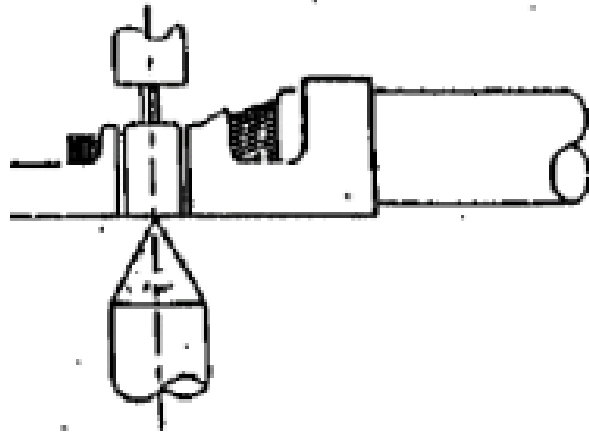
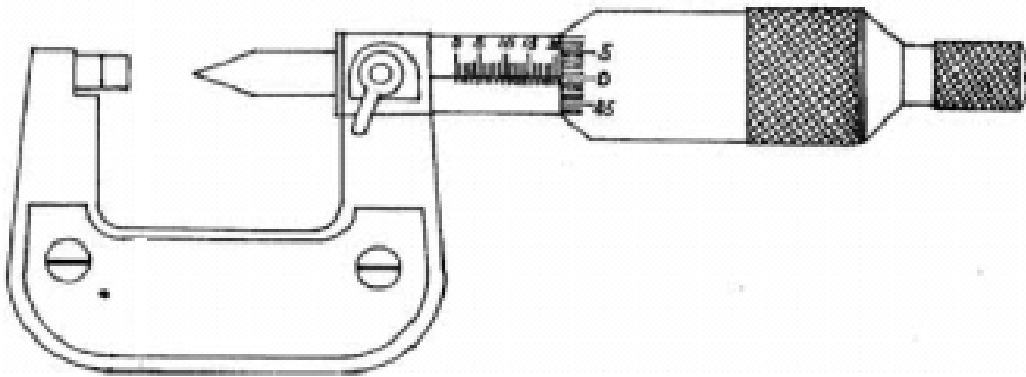
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12 CRIMPING HEIGHT MEASUREMENT



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13 PULL FORCE OF CRIMPING SECTION MEASUREMENT

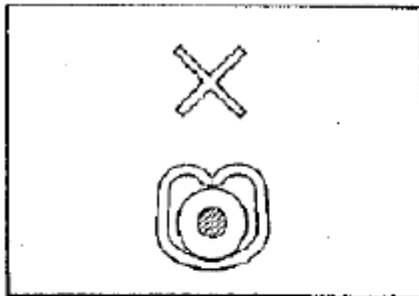


Before test samples, please measure crimp height and do not crimp insulation.

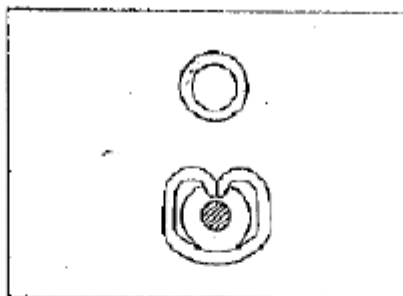


Pull Force of Crimp Section Measurement

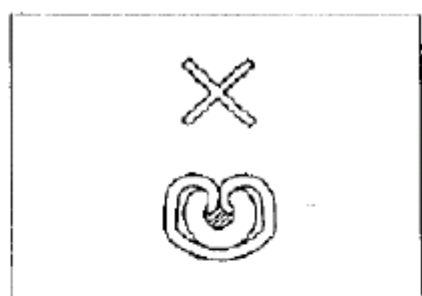
14 STANDARD INSULATION CRIMPING



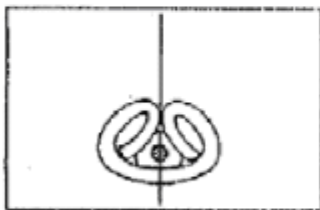
Not enough crimp



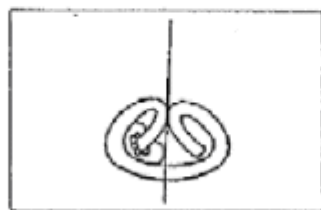
Good



Crimp too much

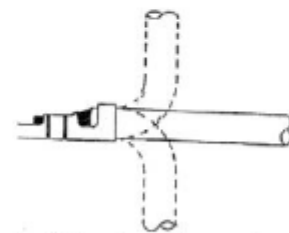


Good



NG

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.

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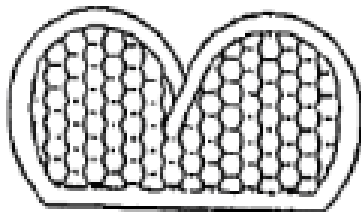
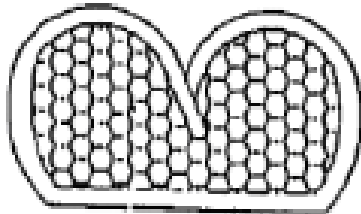
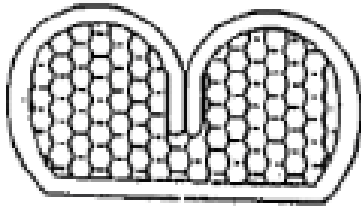
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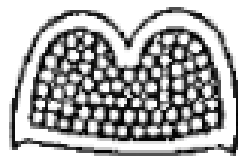
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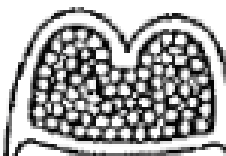
15 CONDUCTORS CRIMPING CONDITION



Lower conduct
retension force



Good



NG

Large burr

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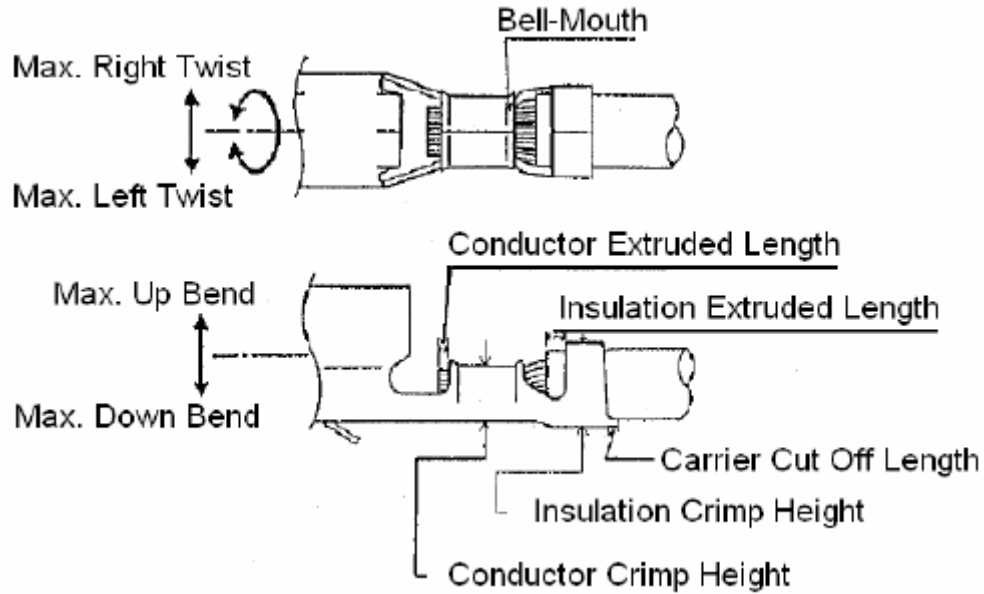
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16 CRIMPING REQUIREMENT



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	0.1~0.3mm