SPECIFICATION

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SPEC. NO.: PS-91203-XXXXX **REVISION:** G

PRODUCT NAME: 1.50mm PITCH WIRE TO BOARD CONNECTOR

PRODUCT NO: 91203-XXXXX EK29D-T0XX-XXX

PREPARED:	CHECKED:	APPROVED:
Xu,Bin	Xu,Zhi Yong	Xu,Zhi Yong
DATE: 2018.08.13	DATE: 2018.08.13	DATE: 2018.08.13

1. Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0606074	RELEASE	JASON	2006/06/20
A	ECN-0907015	APD980174 ADD TO 18 PIN	JASON	2009/07/02
B	ECN-1006172	UPDATED SPEC.	VIOLET	2010.06.15
C	ECN-1107033	FOR DWR1106050 MODIFY CURRENT	CHUNBO	2011.06.20
D	ECN-1204313	ADD AWG#24 CRIMPING CONDITION	CHUNBO	2012.04.17
E	ECN-1401234	ADD Working voltage	WULING	2014.01.13
F	ECN-1803457	ADD EK29D-T0XX-XXX	Chai,Yunhe	2018.04.10
G	ECN-1808250	Updated Salt Spray	Xu,Bin	2018.08.13

2. SCOPE

This specification covers performance, tests and quality requirements for 1.5mm pitch wire-to-board connector. These connectors are used to computer or other application. (Lead free product)

ACES : P/N ： 91203-XXXXX Wire Housing
P/N ： 91203-000XX Crimping Terminal
Matting : P/N ： 88314-XXXX Wafer
P/N ： 88315-XXXX Wafer

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 Crimping Terminal: High performance copper alloy (Phosphor Bronze)
Finish: (a) Area: Gold plated all over based on order information
(b) Under plate: Nickel-plated all over
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.3 Ratings

4.3.1 Working voltage less than 36 volts AC (per pin)
4.3.2 Voltage Rating: 50 Volts AC （per pin）
4.3.3 Current Rating: AWG#24: 3.0 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℃ 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	20 m Ω Max.(initial) 40 m Ω Max. (After 30 times durability, mechanical and/ or environmental test)	Mate connectors, measure by dry circuit, 20mV Max., 100mA 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℃ 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)

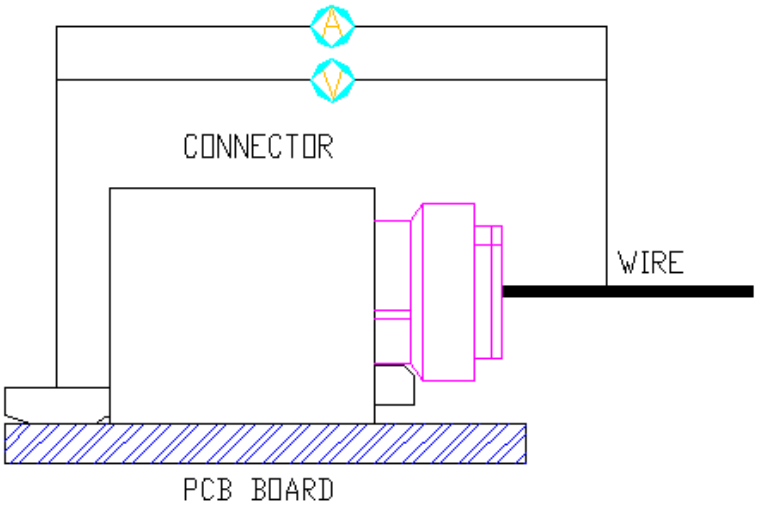
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
Mating / Unmating Forces	Please see item7	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/unmated connector. (EIA-364-13)
Crimping Terminal Pull Strength of the housing(Receptacle)	0.5kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the Terminal retention force with Tensile strength tester.

Crimping Terminal V.S Housing Insertion Force	0.5kgf Max	Operation Speed： 25.4 ± 3 mm/minute. Measure the Terminal Insertion force
Wire Crimping Strength	AWG# 26: 2.0Kgf Min AWG# 28: 1.0Kgf Min AWG# 30: 0.5Kgf Min.	Pull wire axially from at the speed rate of 25.4 ± 3 mm/min.
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**
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 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 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 85℃ for 96 hours. (EIA-364-17, Test condition A)
Salt Spray (Only for gold plating)	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. (I) Gold flash for 8 hours (II) Gold plating 3 u" for 48 hours. (III) Gold plating 5 u" Min. for 96 hours. (EIA-364-26,Test condition B)
Solder ability(Board Side)	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)

Note. Flowing Mixed Gas shell be conduct by customer request



Contact Resistance Measuring Point

6. PRODUCT QUALIFICATION AND TEST SEQUENCE

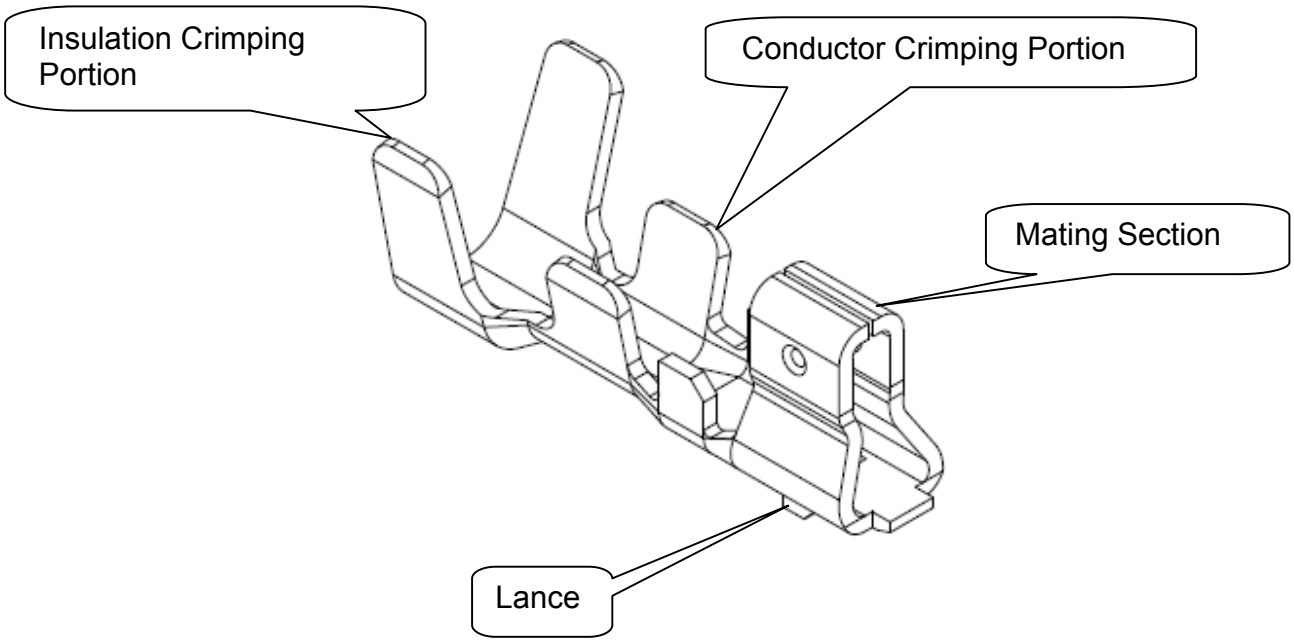
Test or Examination	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence									
Examination of Product	1			1、7	1、6	1、4				
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	2									
Mating / Unmating Forces		2、4								
Durability		3								
Vibration			2							
Shock (Mechanical)			3							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray						3				
Crimping Terminal Pull Strength of the housing (Receptacle)							1			
Wire Crimping Strength								1		
Crimping Terminal V.S Housing Insertion Force									1	
Solder ability										1
Sample Size	2	4	4	4	4	4	4	4	4	2

7. Mating / Unmating Forces

Unit: Kgf

NO. OF Ckt.	At initial		At 30th
	Mating Force. (Max)	Unmating Force (Min)	Mating Force. (Max)
2	2.5	1.0	0.6
3	3.0	1.0	0.6
4	3.5	1.2	0.7
5	4.0	1.2	0.7
6	4.5	1.3	0.8
7	5.0	1.3	0.8
8	5.5	1.4	0.9
9	5.5	1.4	0.9
10	6.0	1.5	1.0
11	6.0	1.5	1.0
12	6.5	1.5	1.0
13	6.5	1.5	1.0
14	7.0	1.5	1.0
15	7.0	1.5	1.0
16	7.5	1.5	1.0
17	7.5	1.5	1.0
18	8.0	1.5	1.0

8 ANATOMY OF CRIMPING TERMINAL

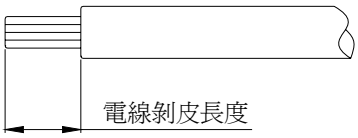


9 APPLICABLE WIRES: UL10584 ETFE WIRE

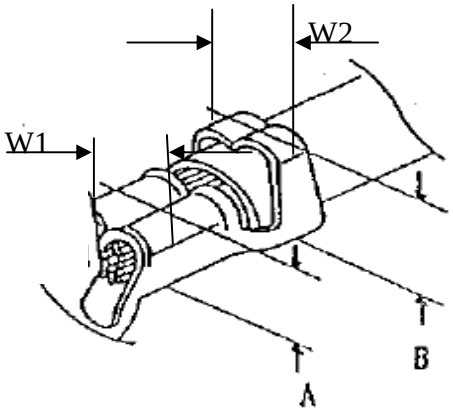
AWG Size:AWG#30~#24
Insulation OD: Φ0.70~1.00mm

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
91203-00001	UL10368	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.
	UL1571	30	0.70	0.52~0.58	1.25~1.31	0.60(Ref.)	1.05 max.



Strip length



Note:

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

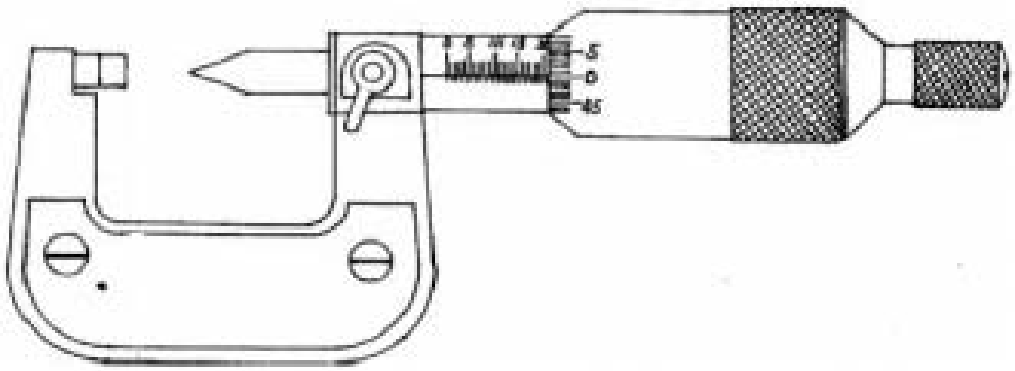
2、W2爲電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表

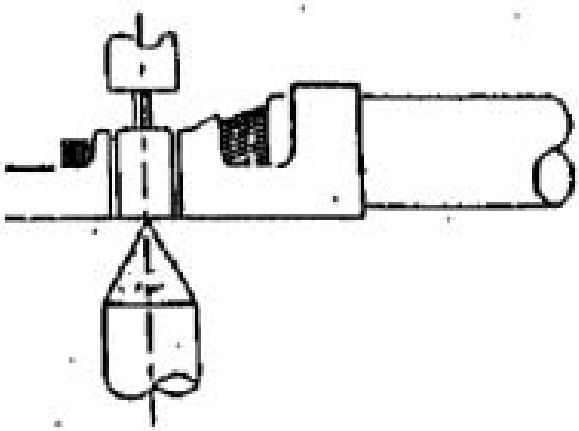
3、A爲芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值)

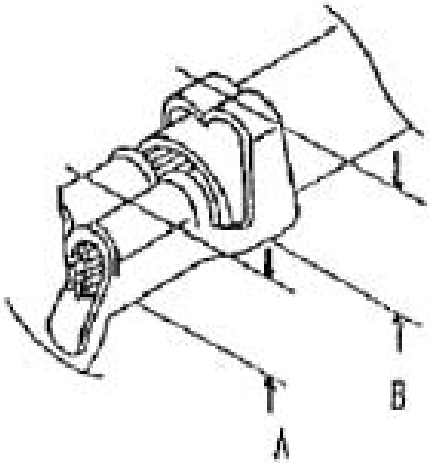
4、B爲電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值)

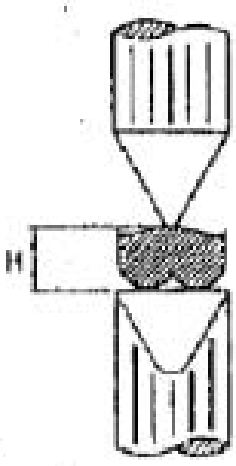
5、電線剝皮長度(Strip length)：1.2~1.6mm(參考值)

11 CRIMPING HEIGHT MEASUREMENT



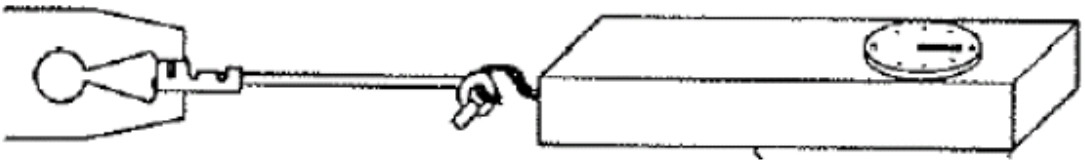






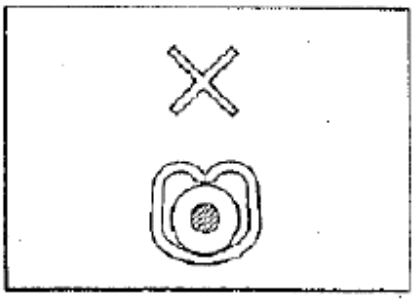
12 PULL FORCE OF CRIMPING SECTION MEASUREMENT

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

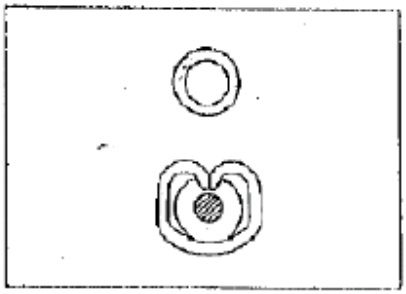


Pull Force of Crimp Section Measurement

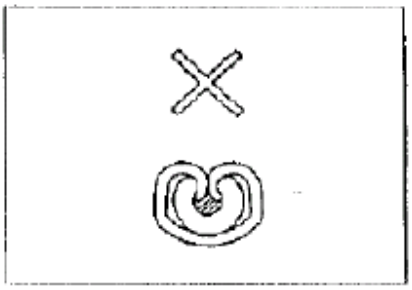
13 STANDARD INSULATION CRIMPING



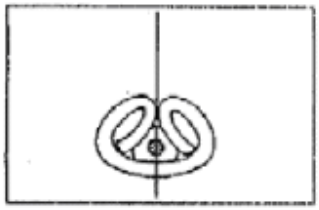
Not enough crimp



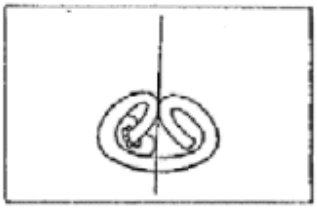
Good



Crimp too much



Good



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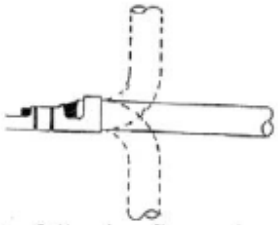
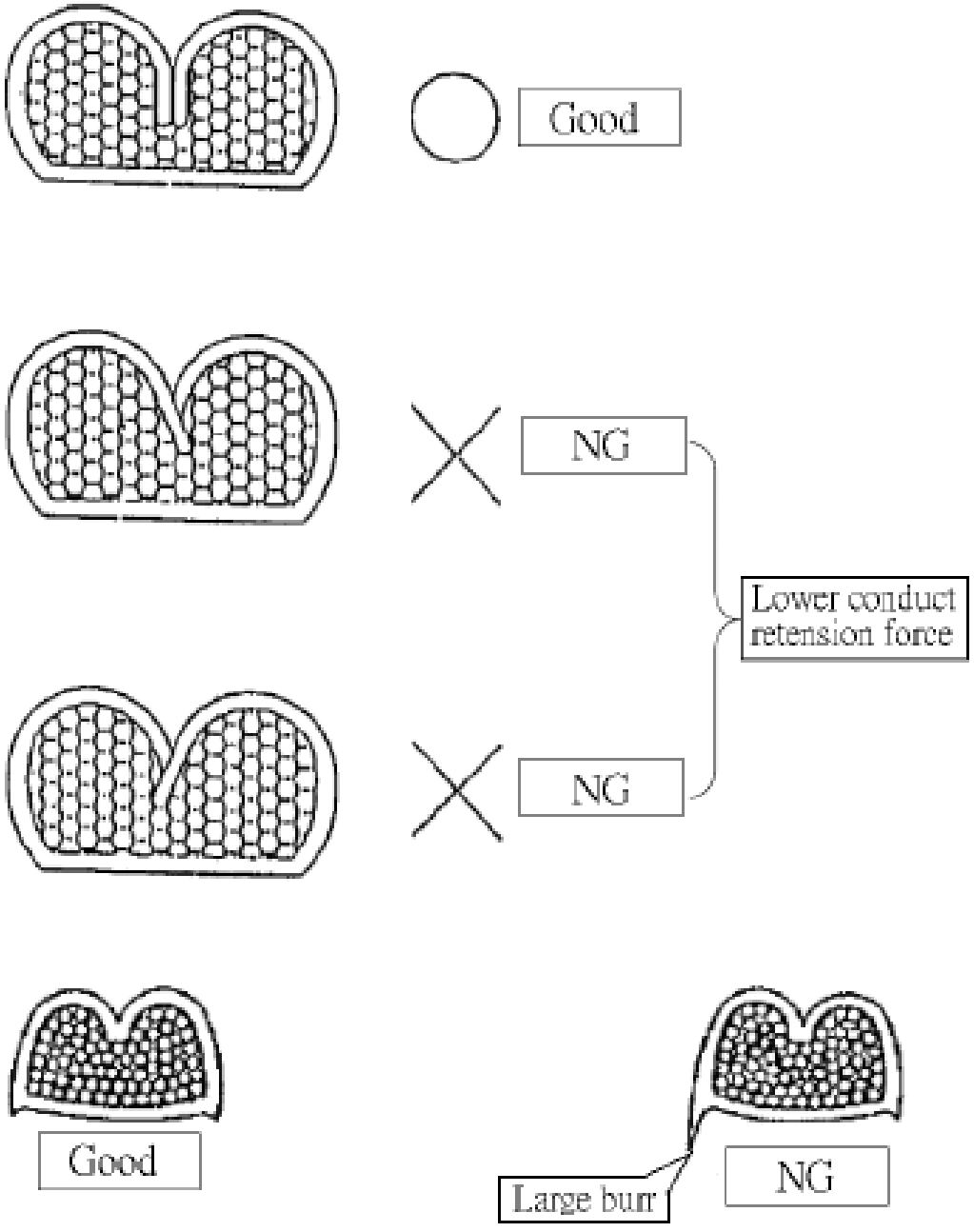
Insulation Crimp Condition

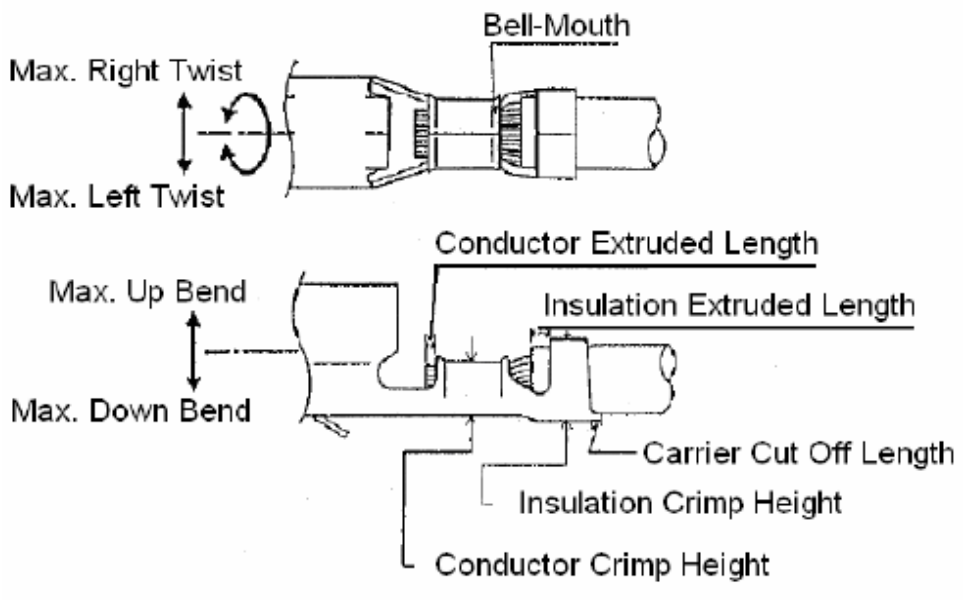


As following figure shown.
It is no problem if wire bent up down 90 degrees 1 cycle and insulation position still in ideal position.

14 CONDUCTORS CRIMPING CONDITION



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	0.1~0.3mm