SPECIFICATION

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SPEC. NO.: PS-50280-XXXXX **REVISION:** F

PRODUCT NAME: 1.25 mm PITCH WTB CONNECTOR

PRODUCT NO: 50277, 50278,50279,50280,88232, 51214, 51215,51330 ,51414,Series

PREPARED:	CHECKED:	APPROVED:
TIANYINGHONG	**XUZHIYONG**	**XUZHIYONG**
DATE: **2019-03-06**	DATE: **2019-03-06**	DATE: **2019-03-06**

1 REVISION HISTORY

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN- 0812210	NEW RELEASE	JASON	2008.11.25
A	ECN-1005167	REVISE SPEC	VIOLET	2010/05/06
A1	ECN-1103110	ADD CRIMPING	GAVIN	2011/03/23
A2	ECN-1107379	ADW1106049 ADD AWG#28 1.8A/PER PIN	CHUNBO	2011/07/03
A3	ECN-1205062	ADD 51214,51215 SERIES	ZHIWU	2012/05/07
B	ECN-1301018	ECR-1211149 ADD AWG#26 2.3A/PER PIN	CANDY	2013/04/22
C	ECN-1401188	ADD WORKING VOLTAGE	XUFEI	2014/01/13
D	ECN-1512198	Update Mating / Unmating Forces	JUGG	2015/11/23
E	ECN-1607235	ADD 51330 Series	CHENYA	2016/04/14
F	ECN-1904035	ADD 51414 Series	YINGHONG	2019/03/06

2 SCOPE

This specification covers performance, tests and quality requirements for 1.25 mm pitch WTB connector. These connectors are this Product Spec. refers to Aces' P/N: 50277, 50278,50279,50280,88232, 51214, and 51215,51330,51414, Series

3 APPLICABLE DOCUMENTS

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION

4 REQUIREMENTS

4.1 Design and Construction

4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
4.1.2 All materials conform to R.o.H.S. and the standard depends on TQ-WI-140101.

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: 200 Volts AC (per pin)
4.3.3 Current: AWG#26:2.3 Amperes (per pin)
AWG#28:1.8 Amperes (per pin)
AWG#30:1.0 Amperes (per pin)
AWG#32:0.8 Amperes (per pin)
Operating Temperature: -40℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

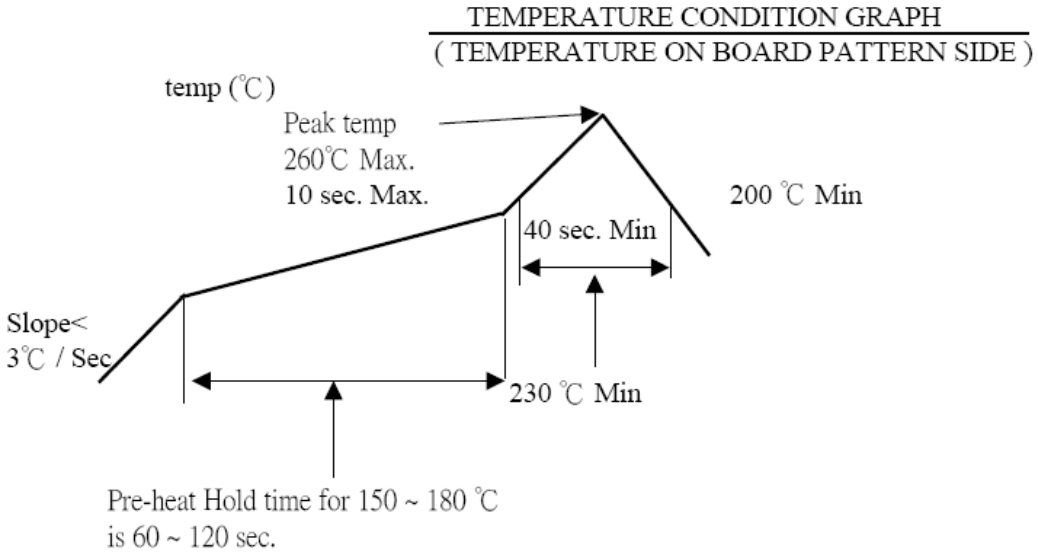
Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	55 m Ω Max.(initial)per contact △R 20 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.	500V AC 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,METHOD1,CONDITION1)
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	50 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.
Mating / Unmating Forces	Mating force: 0.4 Kgf / pin MAX Unmating force: 0.05 Kgf / pin MIN	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/unmated connector. (EIA-364-13)
Contact Retention Force (Board Side)	0.30 Kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force(Board Side)	0.40 Kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.

Crimping Terminal / Housing Retention Force (Cable Side)	0.5 Kgf 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	26AWG:9.8N Min. 28AWG:9.8N Min. 30AWG:4.9N Min. 32AWG:3.0N Min.	Operation Speed： 25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire.
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 (Board Side)	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. 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 5 cycles. 1 cycles: -40 +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, 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℃ (I) Gold flash for 8 hours (II) Gold plating 5 u" for 96 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℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance (Board Side)	Appearance: No damage	T≧350℃, 3sec at least.

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

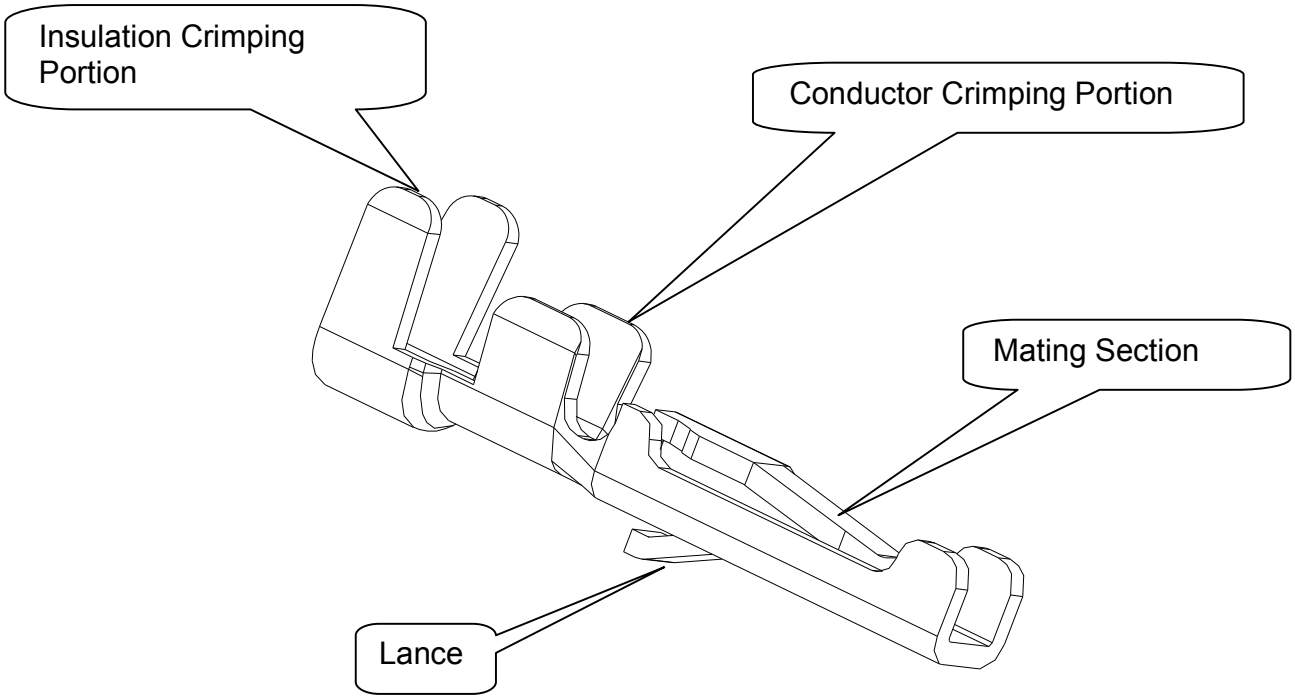
6 INFRARED REFLOW CONDITION



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

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

8 ANATOMY OF CRIMPING TERMINAL



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

9 APPLICABLE WIRES:

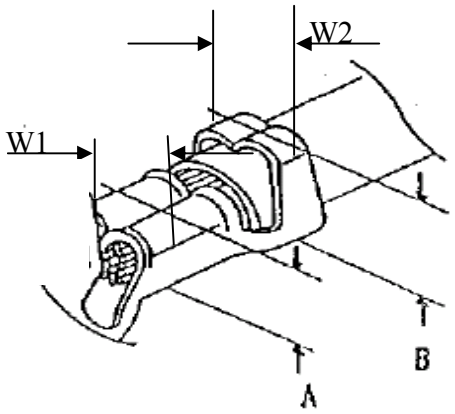
AWG Size: AWG#26 UL3302 Insulation OD: Φ0.90mm
AWG#28 UL1571 Insulation OD: Φ0.80mm
AWG#30 UL3302 Insulation OD: Φ0.60mm
AWG#32 UL10064 Insulation OD: Φ0.50mm

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
88232	UL3302	26	0.90	0.51~0.60	1.10~1.20	0.87~0.93	1.00MAX
	UL1571	28	0.80	0.51~0.56	1.10~1.15	0.87~0.93	1.00MAX
	UL3302	30	0.60	0.50~0.55	1.05~1.10	0.85~0.90	1.00MAX
	UL10064	32	0.50	0.45~0.50	0.80~0.85	0.85~0.90	1.00MAX

Strip length



Note:

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

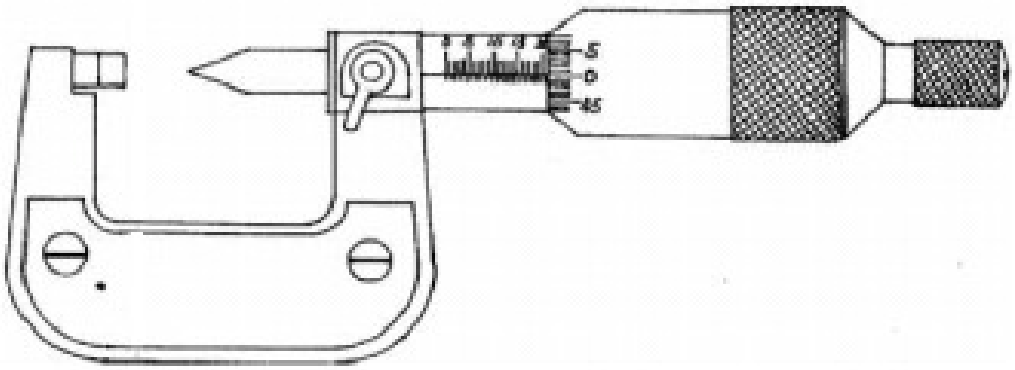
2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表

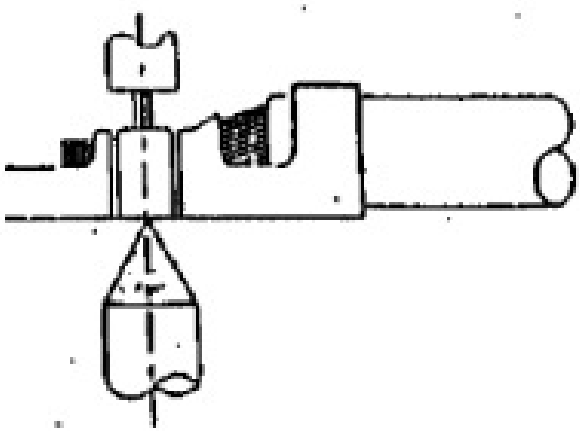
3、A為芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值）

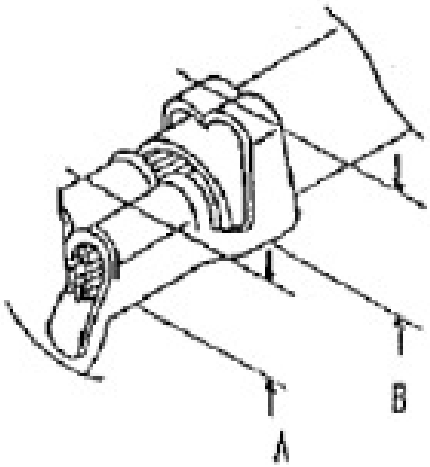
4、B為電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值）

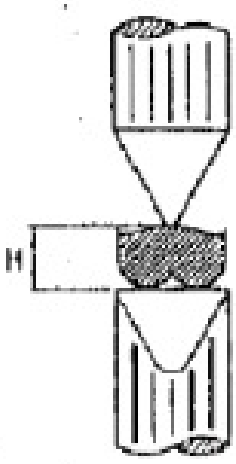
5、電線剝皮長度(Strip length)：1.5~1.9mm(參考值)

11 CRIMPING HEIGHT MEASUREMENT



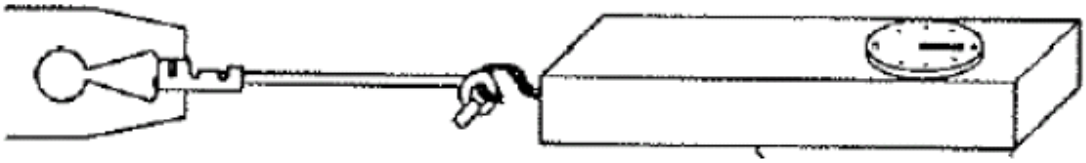



A
B


H

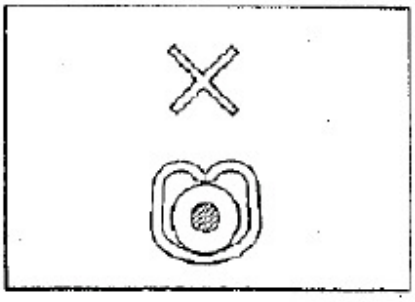
12 PULL FORCE OF CRIMPING SECTION MEASUREMENT

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

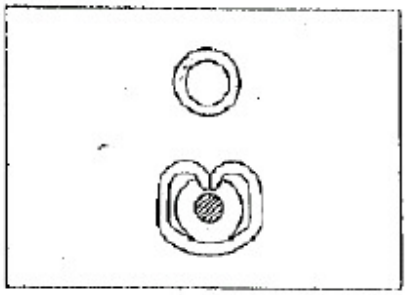


Pull Force of Crimp Section Measurement

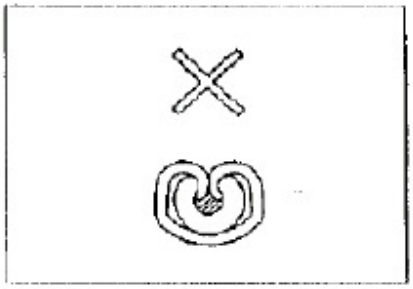
13 STANDARD INSULATION CRIMPING



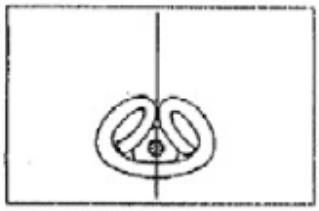
Not enough crimp



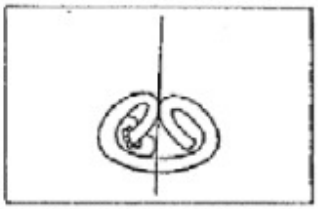
Good



Crimp too much

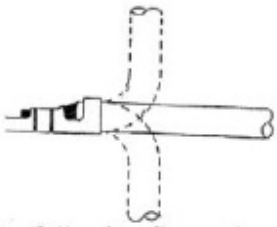


Good



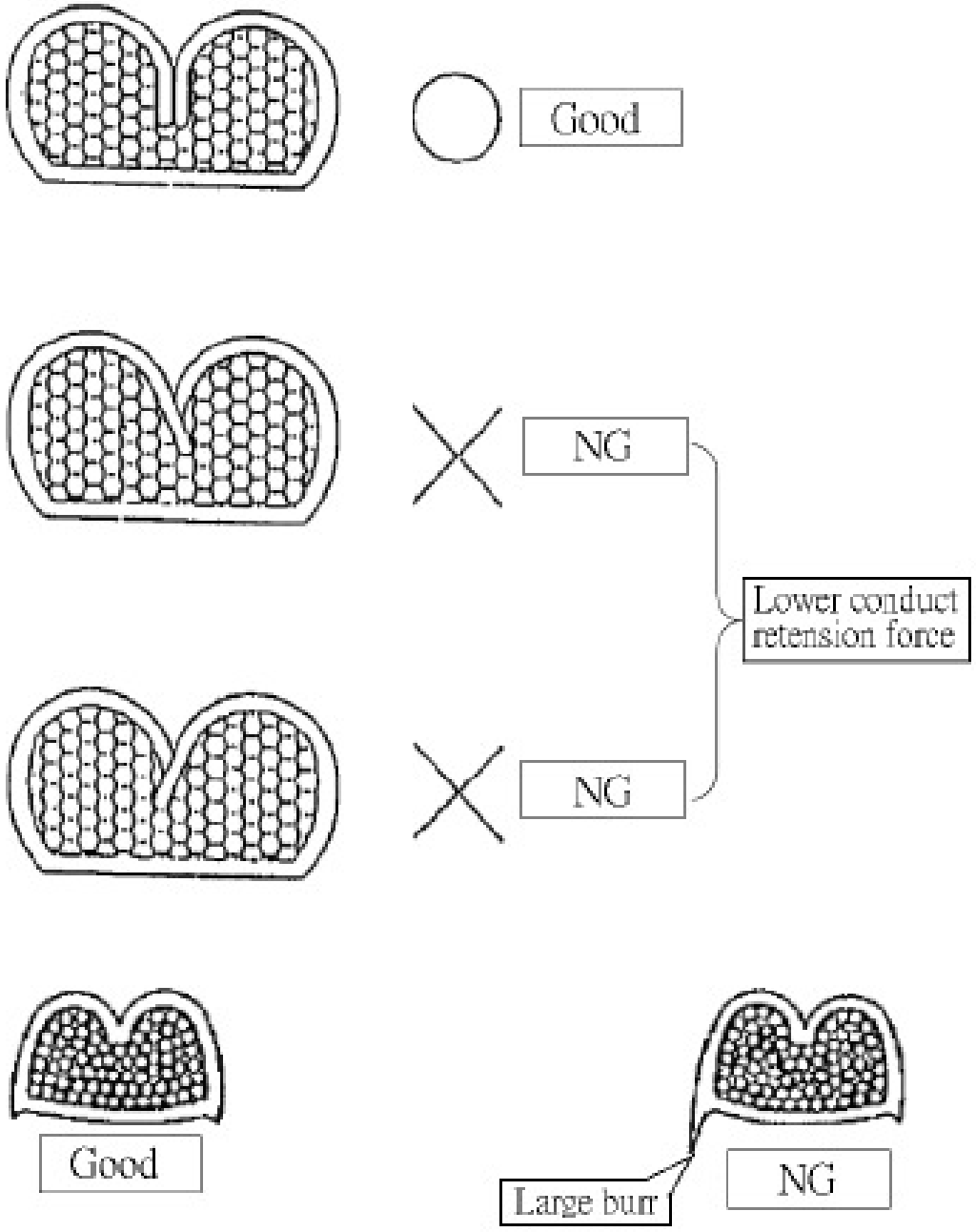
NG

Insulation Crimp Condition

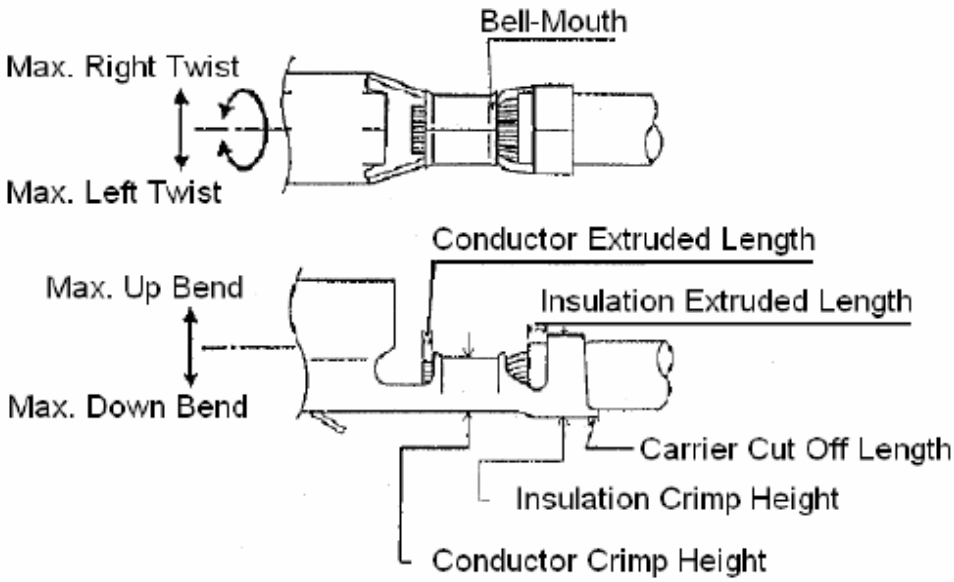


As following figure shown. It is no problem if wire bent up down 90 degrees 1 cycle and insulation position still in ideal position.

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	0~0.3mm
Carrier Cut Off Length	0~0.2mm
Conductor Extruded Length	0.1~0.3mm