SPECIFICATION

宏 致 電 子 股 份 有 限 公 司

桃 園 縣 中 壢 市 東 園 路 13 號

No.13, Dongyuan Rd., Jhongli City,

Taoyuan County 320, Taiwan (R.O.C.)

TEL: +886-3-463-2808
FAX: +886-3-463-1800

SPEC. NO.: PS-51373-XXXXX-XXX **REVISION:** B

PRODUCT NAME: 1.0 mm PITCH WTB CONNECTOR

PRODUCT NO: 51373,51374 SERIES

PREPARED:	CHECKED:	APPROVED:
Liu，Hua	BRAVE	BRAVE
DATE: 2018.08.04	DATE: 2018.08.04	DATE: 2018.08.04

1 REVISION HISTORY

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1707470	NEW SPEC	XUBIN	2017.07.27
A	ECN-1801034	Update Crimping Retention Force& Salt Spray	XUBIN	2018.01.04
B	ECN-1808267	Revision of salt fog test standards	Liu,Hua	2018.08.14

2 SCOPE

This specification covers performance, tests and quality requirements for 1.0 mm pitch WTB wafer SMT T/H Type. These connectors are this Product SPEC. refer to Aces's P/N: 51373 Series ; 51374 Series

3 APPLICABLE DOCUMENTSS

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: 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: 50 Volts AC (per pin)
4.3.3 Current: Signal Circuit 0.5A , AC/DC (AWG#28) (per pin)
Power supply Circuit 7A ,AC/DC (AWG#20)

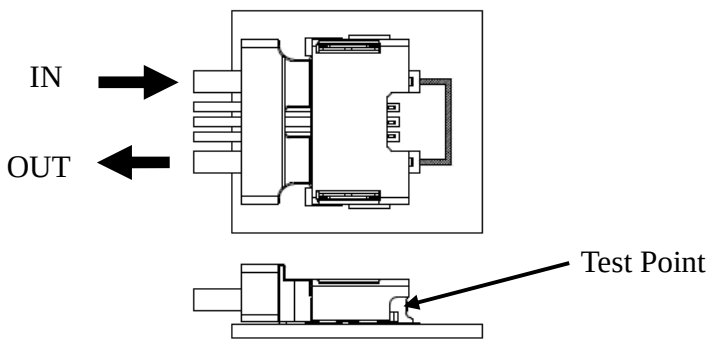
4.3.4 Operating Temperature : -40℃ to +85℃

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	Signal circui 20 m Ω Max.(initial)per contact After 40 m Ω Max. Power Supply circuit 15 m Ω Max.(initial) per contact After 30 m Ω Max.	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 500V 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,)

Power supply Circuit 7A



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.
Mating / Unmating Forces	Please see Item 8	Operation Speed：25.4 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Contact Retention Force (Board Side)	Power pin: 0.50 Kgf Min. Signal pin: 0.20 Kgf Min.	Operation Speed：25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force (Board Side)	0.20 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)	AWG# 20: 1.0 Kgf Min. AWG# 28: 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	AWG# 20: 7.0 Kgf Min. AWG# 28: 1.5 Kgf Min.	Operation Speed：25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire.
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)

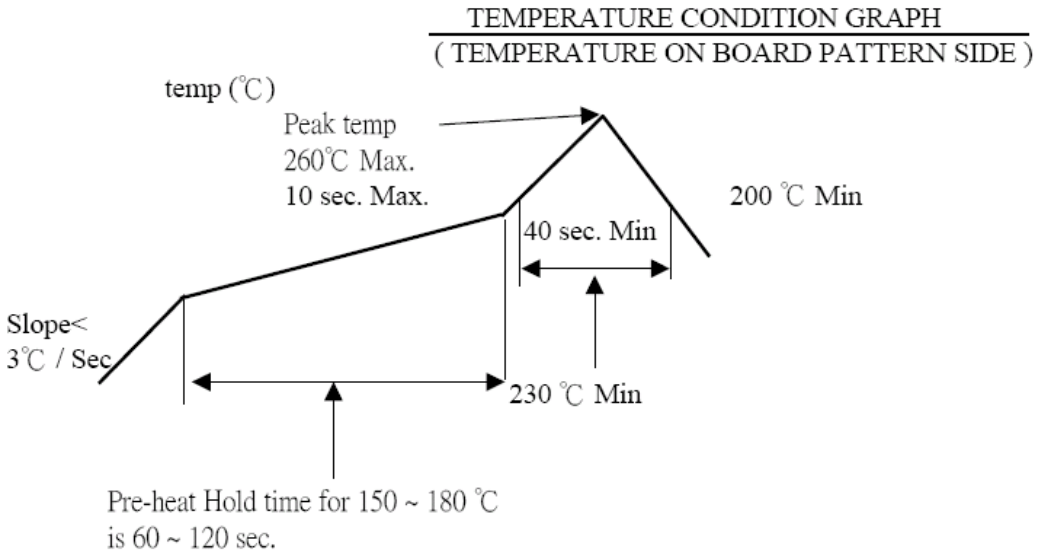
ENVIRONMENTAL

Item	Requirement	Standard
Resistance to **Wave** Soldering Heat (Board Side)	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Solder Temp.: 265±5℃, 10±0.5sec.
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: -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, 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	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 3u" for 48 hours. (III) Gold plating 5 u" for 96 hours. (Ⅳ) TIN plating for 48 hours, the appearance will turn Black, but the function is no issue. (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

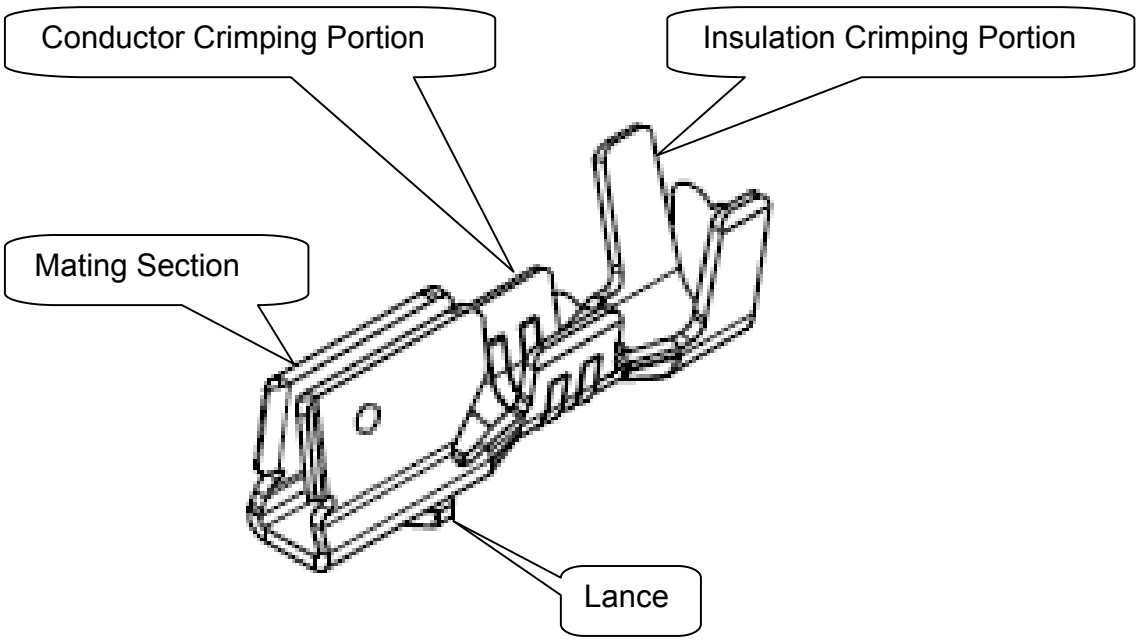
Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product				1、7	1、6	1、4				1	1
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				3	
Insulation Resistance				3、9	3、8						
Dielectric Withstanding Voltage				4、8	4、7						
Temperature Rise	1										
Mating / Unmating Force		2、4									
Durability		3									
Contact Retention Force (Board Side)									2		
Vibration			2								
Shock (Mechanical)			3								
Thermal Shock				5							
Humidity				6							
Temperature Life					5						
Salt Spray						3					
Solder ability (Board Side)							1				
Crimping Pull Out Force								1			
Crimping Terminal / Housing Retention Force (Cable Side)									1		
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 MATING / UNMATING FORCE

Unit: Kgf

Number of circuits	At initial		At 30th
	I.F.(MAX.)	W.F.(MIN.)	W.F.(MIN.)
1 signal +2 power Pin	2.5	1.0	0.7

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: ETFE WIRE

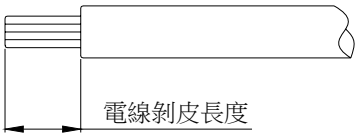
Signal Circuit
AWG Size: AWG#28 Insulation OD: Φ0.6 to Φ0.8mm
Power Supply Circuit
AWG Size: AWG #20 Insulation OD: Φ1.11 to 1.44 mm

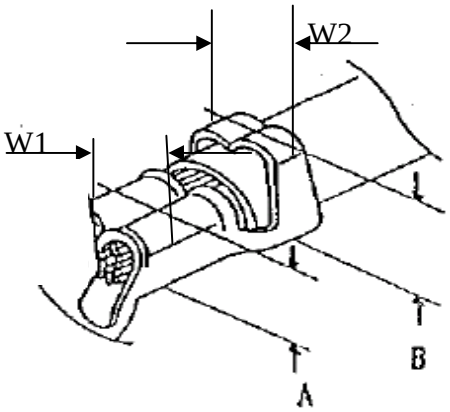
11 CRIMPING CONDITION

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
51374-T0	UL1571	28	0.6 - 0.8	0.65 Max	1.05 Max	0.55～0.65	0.75 Max
51374-T1	UL10064	20	1.11-1.44	1.45 Max	1.95 Max	1.55 Max.	1.95 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

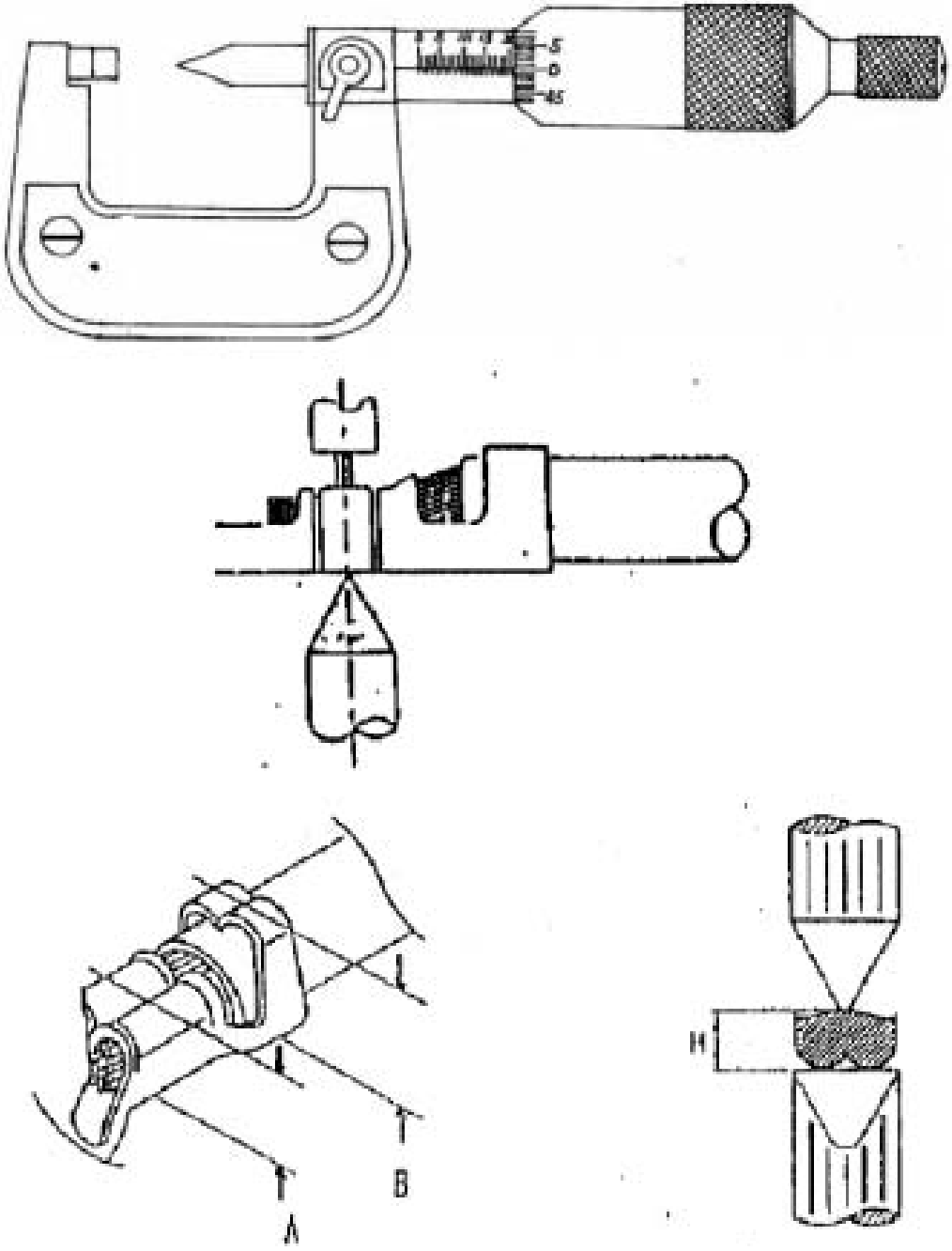
2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表

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)：1.4~1.8 mm（參考值）

12 CRIMPING HEIGHT MEASUREMENT

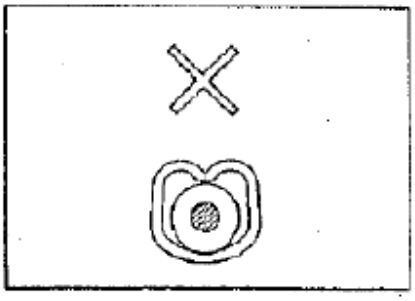


13 PULL FORCE OF CRIMPING SECTION MEASUREMENT

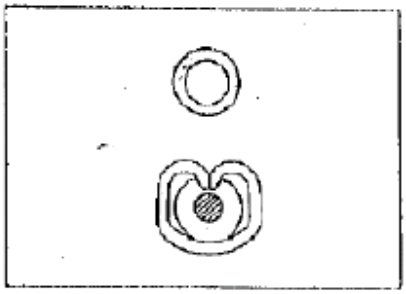
Before test samples, please measure crimp height and do not crimp insulation.

Pull Force of Crimp Section Measurement

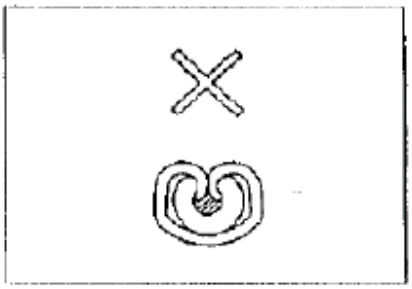
14 STANDARD INSULATION CRIMPING



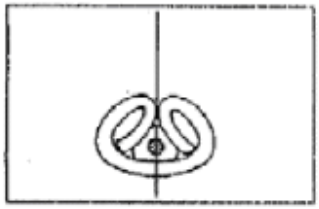
Not enough crimp



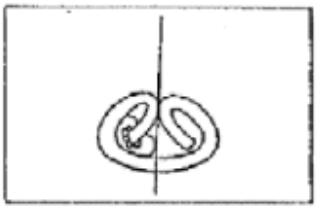
Good



Crimp too much



Good



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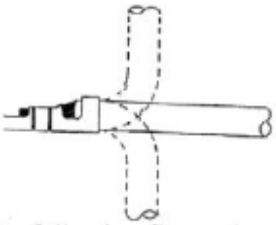
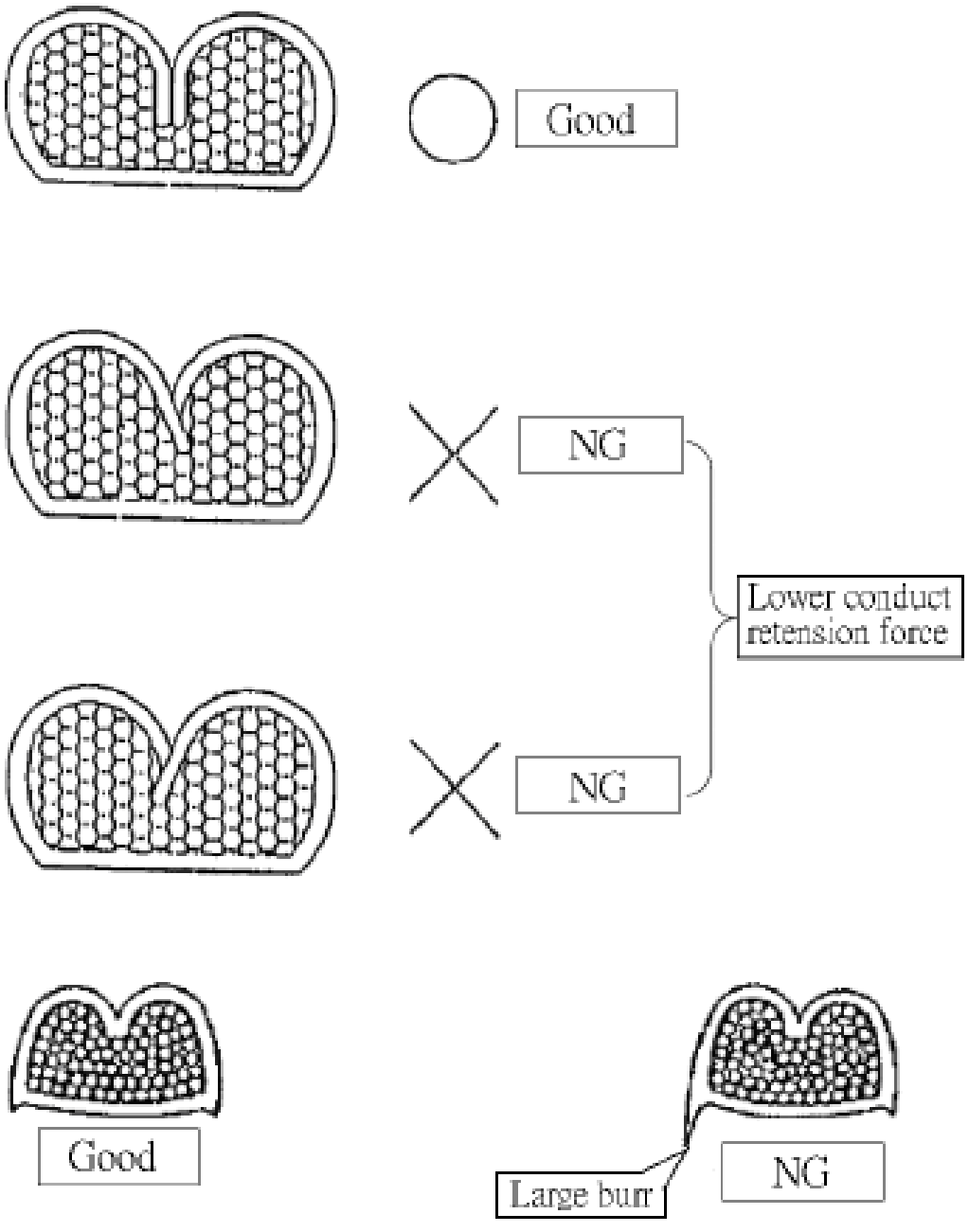
Insulation Crimp Condition

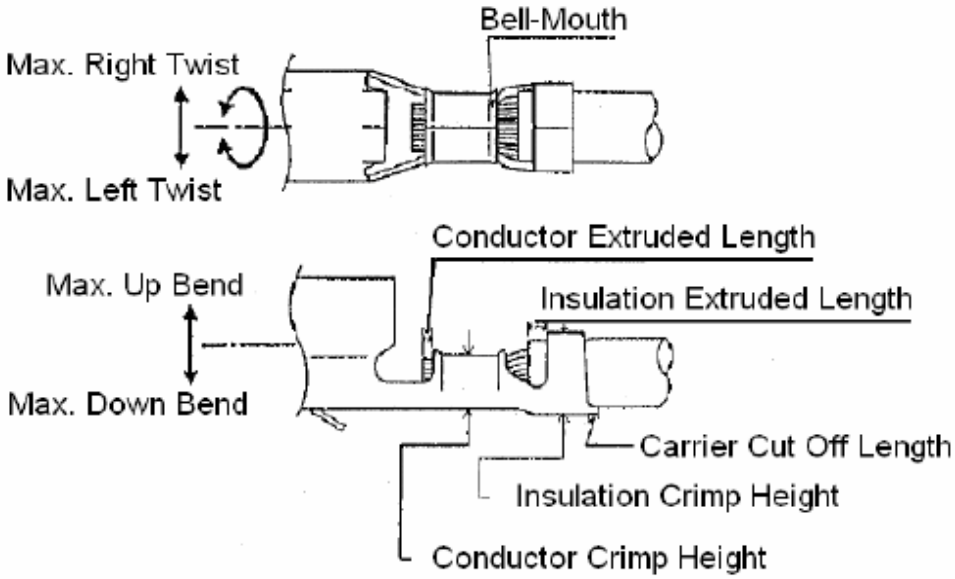


As following figure shown. It is no problem if wire bent up down 90 degrees 1 cycle and insulation position still in ideal position.

15 CONDUCTORS CRIMPING CONDITION

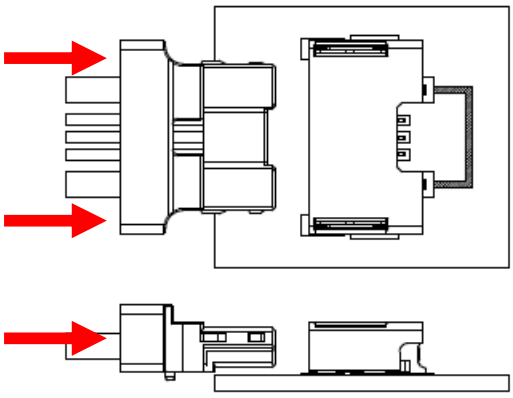


16 CRIMPING REQUIREMENT

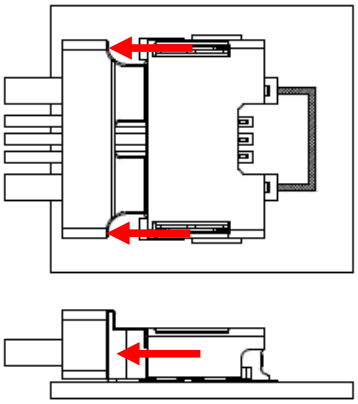


Item	Range(Ref.)
Max. Up Bend	6°
Max. Down Bend	6°
Max. Left Twist	5°
Max. Right Twist	5°
Bell-Mouth Length	0.1~0.3mm
Carrier Cut Off Length	0~0.2mm
Conductor Extruded Length	0.05~0.2mm

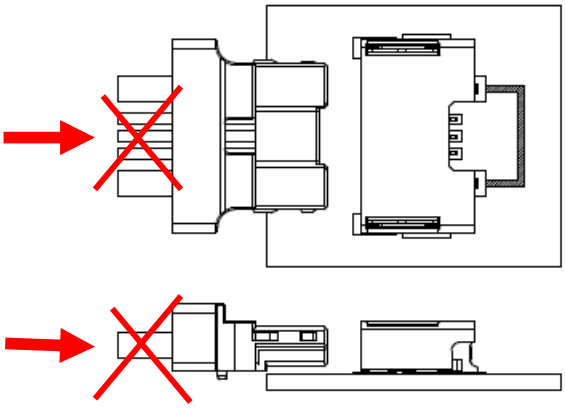
17 USER MANUAL



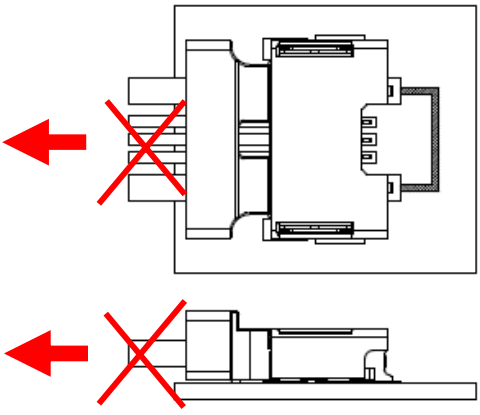
PUSH IN



PULL OUT



DON'T PULL WIRE



DON'T PULL WIRE