



SPECIFICATION

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SPEC. NO.: PS-50276-XXXXX-XXX REVISION: G

PRODUCT NAME: 1.25mm PITCH WTB CONNECTOR

PRODUCT NO: 50276 85206-T 85106-T 51345 SERIES

PREPARED: SHI,YANAN DATE: 2019.12.25	CHECKED: XUZHUYONG DATE: 2019.12.25	APPROVED: XUZHUYONG DATE: 2019.12.25
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Aces P/N: **50276** series

TITLE: **1.25MM SMT WTB CONN.**

RELEASE DATE: 2019/12/25

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ECN No: ECN-2001059

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN- 0812210	New RELEASE	JASON	2008.11.25
A	ECN-0906061	UPDATE SPEC	JASON	2009.06.08
B	ECN-1005167	REVISE SPEC	VIOLET	2010/05/05
C	ECN-1207438	W.F(MIN)	CHUNBO	2012/07/25
D	ECN-1401188	ADD WORKING VOLTAGE	XUFEI	2014/01/13
E	ECN-1803478	ADD AWG#34	SHI,YANAN	2018/03/22
F	ECN-1909137	ADD 51345 SERIES	SHISONGTA O	2019/08/24
G	ECN-2001059	Update Crimping	SHI,YANAN	2019/12/25

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2 SCOPE

This specification covers performance, tests and quality requirements for 1.25mm pitch WTB connector.

This Product Spec. Refer to...Aces- P/N : **50276 85206-T 85106-T 51345 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 (**Phosphor Bronze**)

Finish: (a) Contact Area: **plated 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 (per pin)

4.3.2 Voltage: **100 Volts AC (per pin)**

4.3.3 Current & Applicable wire: AWG#28: 1.0 Amperes (per pin)

AWG#30: 1.0Amperes (per pin)

AWG#32: 0.8Amperes (per pin)

AWG#34: 0.8Amperes (per pin)

4.3.4 Operating Temperature : **-25°C to +85°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	55 m Ω Max.(initial)per contact 20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	200 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 1,CONDITION 1)
Contact Resistance on Crimped Portion	5 m Ω Max.	5 m Ω Max. The applicable wire shall be crimped on to the terminal, measure by dry circuit, 20m V Max., 10mA.
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 $\pm$ 3mm/min. (EIA-364-09)
Mating / Unmating Forces (Board Side)	See Page 8	Operation Speed : 25.4$\pm$ 3 mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13)
Crimping Terminal / Housing Retention Force (Cable Side)	4.9N 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)	AWG#28:9.8N Min. AWG#30:4.9N Min. AWG#32:3.0N Min. AWG#34:3.0N Min.	Operation Speed : 25.4 ± 3 mm/minute. Fix the crimped terminal; apply axial pull out force on the wire.
Terminal / Housing Retention Force(Board Side)	4.9N Min.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
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

Resistance to Reflow Soldering Heat(Board Side)	See Product Qualification and Test Sequence Group 4 (Lead Free)	Pre Heat : 150°C~180°C, 60~ 120 sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. (2 Times)
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 25 cycles. 1 cycles: -55 +0/-3 °C, 30 minutes +85 +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 8	Subject mated connectors to temperature life at 85°C for 96 hours . (EIA-364-17, Test condition A)



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Salt Spray	See Product Qualification and Test Sequence Group 5	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 8 hours . (EIA-364-26, Test condition B)
Solder ability(Board Side)	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.

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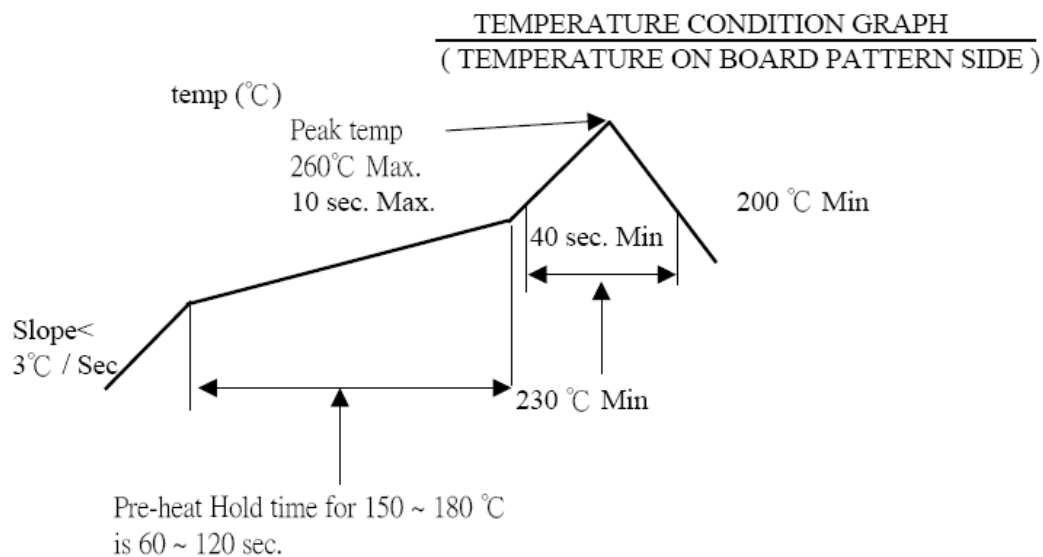
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6 INFRARED REFLOW CONDITION

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
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 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						3				
Solder ability(Board Side)							1			
Terminal / Housing Retention Force(Board Side)									1	
Fitting Nail /Housing Retention Force(Board Side)									2	
Resistance to Soldering Heat										2
Sample Size	2	4	4	4	4	4	2	4	4	4

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8 INSERTION / WITHDRAWAL FORCE

Unit: Kgf

No of CKT	At initial		At 50th
	I.F (MAX)	W.F (MIN)	W.F. (MIN)
Single	1.00	0.15	0.07
2	2.00	0.28	0.18
3	2.50	0.30	0.20
4	3.00	0.33	0.23
5	3.50	0.38	0.28
6	4.00	0.43	0.33
7	4.50	0.48	0.38
8	5.00	0.53	0.43
9	5.50	0.56	0.46
10	6.00	0.59	0.49
11	6.50	0.62	0.52
12	7.00	0.65	0.55
13	7.50	0.68	0.58
14	8.00	0.71	0.61
15	8.50	0.74	0.64

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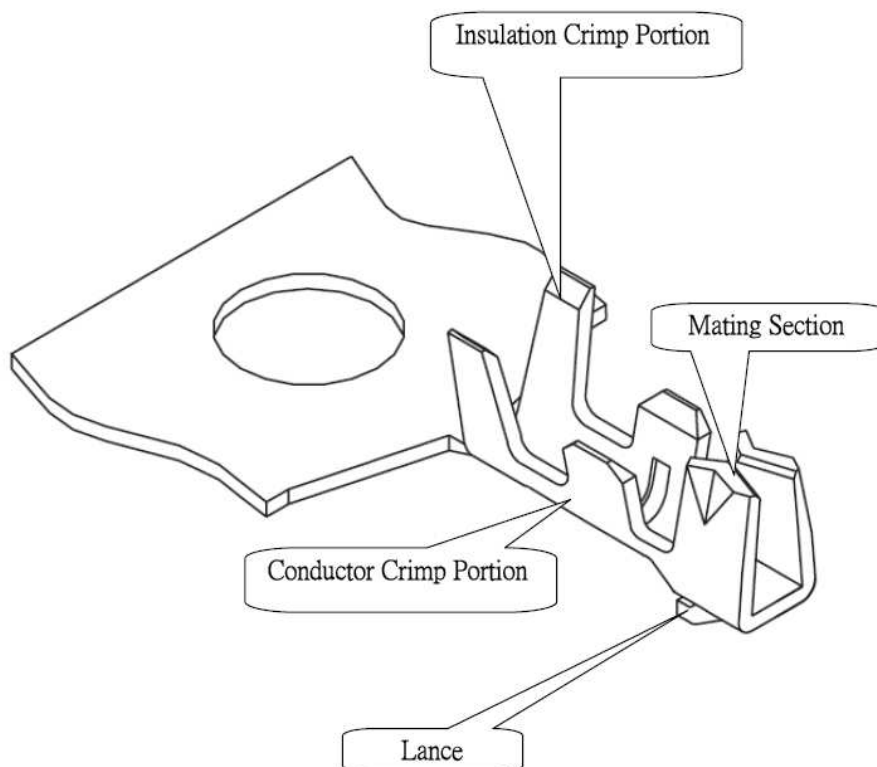
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9 ANATOMY OF CRIMPING TERMINAL



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

10 APPLICABLE WIRES:

AWG Size:UL1571	AWG#28	Insulation OD: $\Phi 0.90\text{mm}$
AWG Size:UL1571	AWG#30	Insulation OD: $\Phi 0.80\text{mm}$
AWG Size:UL1571	AWG#32	Insulation OD: $\Phi 0.55\text{mm}$
AWG Size:UL10064	AWG#32	Insulation OD: $\Phi 0.39\text{mm}$
AWG Size:UL10064	AWG#34	Insulation OD: $\Phi 0.32\text{mm}$

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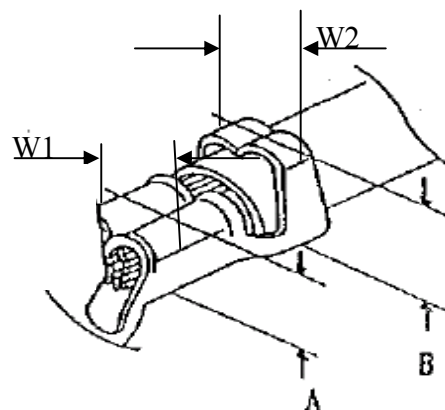
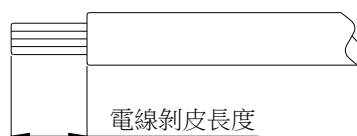
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11 CRIMPING CONDITION

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
85206-T	UL1571	28	0.90	0.62~0.67	1.15~1.35	0.70Max	0.85Max
		30	0.80	0.57~0.62	1.05~1.25	0.70Max	0.85Max
		32	0.55	0.52~0.57	0.85~1.05	0.70Max	0.85Max
85106-T	UL10064	32	0.39	0.45~0.52	0.65~0.85	0.70Max	0.75Max
		34	0.32	0.35~0.42	0.65~0.85	0.70Max	0.75Max

Strip length



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)：1.3~1.6mm (參考值)

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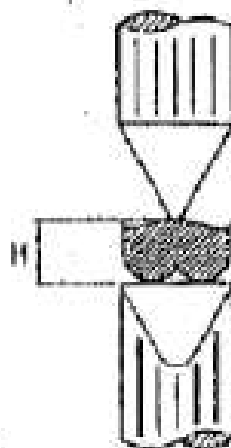
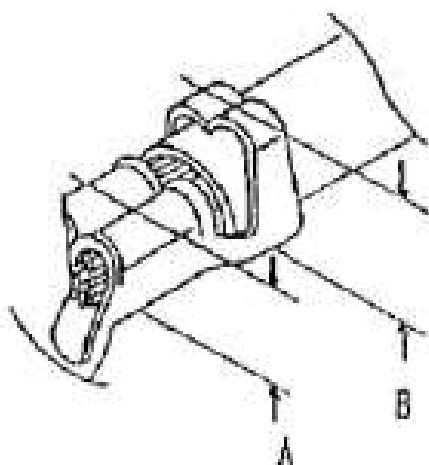
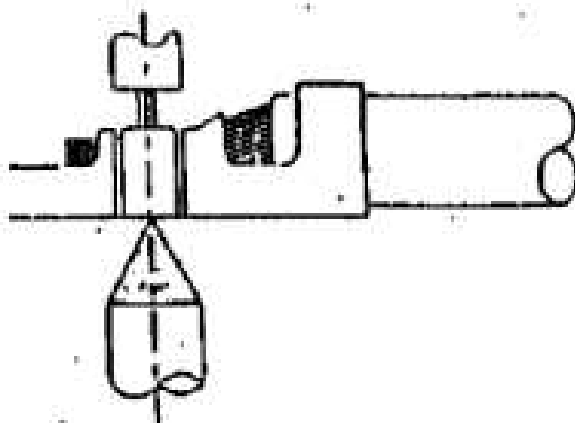
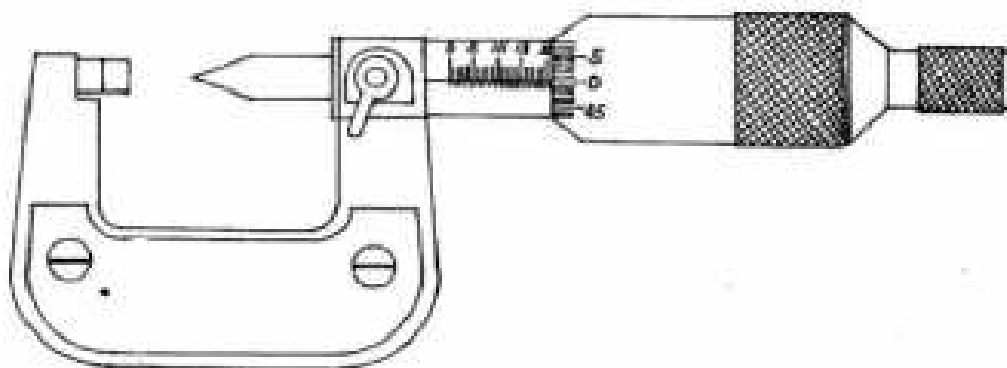
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12 CRIMPING HEIGHT MEASUREMENT



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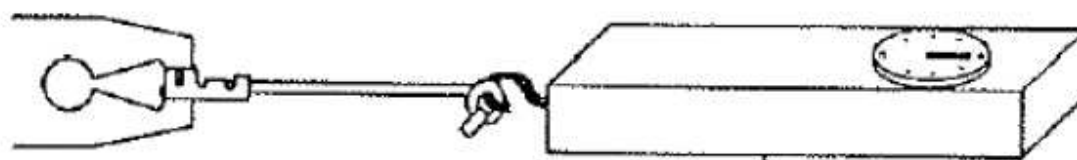
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13 PULL FORCE OF CRIMPING SECTION MEASUREMENT

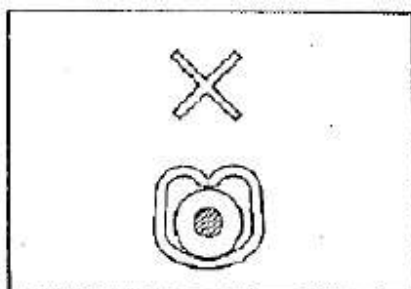


Before test samples, please measure crimp height and do not crimp insulation.

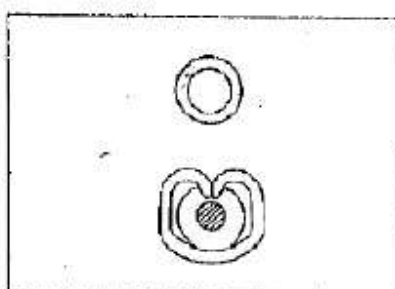


Pull Force of Crimp Section Measurement

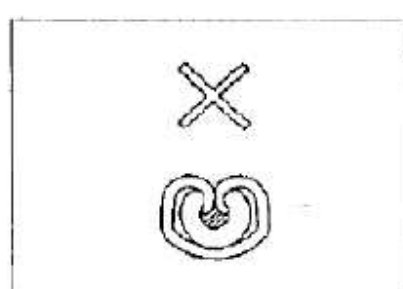
14 STANDARD INSULATION CRIMPING



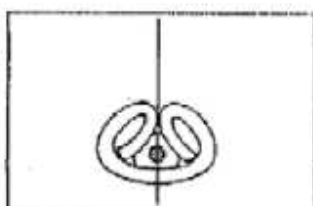
Not enough crimp



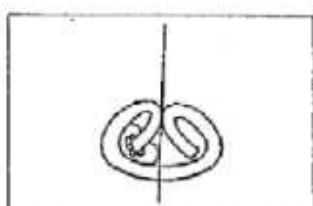
Good



Crimp too much

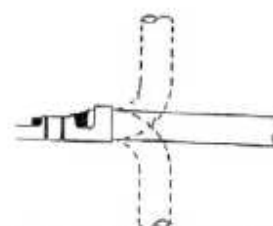


Good



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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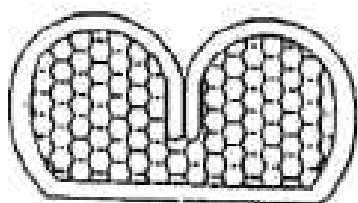
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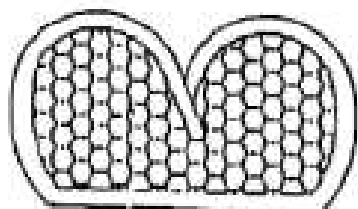
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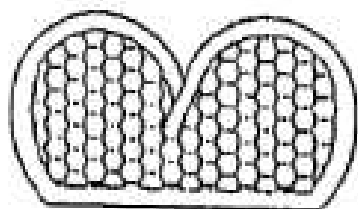
15 CONDUCTORS CRIMPING CONDITION



Good

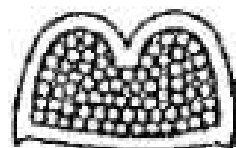


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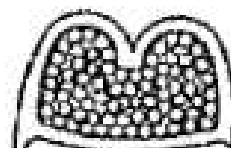


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Lower conduct
retension force



Good



Large burr

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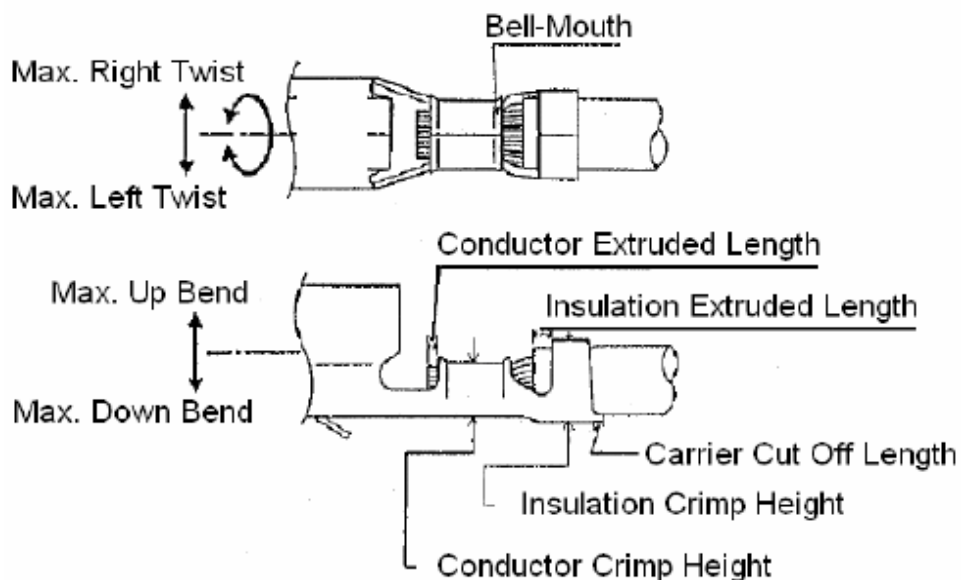
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16 CRIMPING REQUIREMENT



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	0.05~0.2mm