



## SPECIFICATION

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SPEC. NO.: PS-50254-XXXXX-XXX

REVISION: B

PRODUCT NAME: 1.0mm Pitch WTB CONN

PRODUCT NO: 88252-T0XX 50254-XXXXX SERIES

|                                                                    |                                                                |                                                                 |
|--------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|
| PREPARED:<br><br><b>ZHANGHAO</b><br><br>DATE:<br><b>2018.08.06</b> | CHECKED:<br><br><b>BRAVE</b><br><br>DATE:<br><b>2018.08.06</b> | APPROVED:<br><br><b>BRAVE</b><br><br>DATE:<br><b>2018.08.06</b> |
|--------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|

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RELEASE DATE: 2018.08.06

REVISION:B

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## 1 Revision History

| Rev. | ECN #        | Revision Description             | Prepared | Date       |
|------|--------------|----------------------------------|----------|------------|
| O    | ECN- 0812210 | New release                      | Jason    | 2008.11.25 |
| A    | ECN-1401187  | ADD WORKING VOLTAGE              | Xufei    | 2014/01/10 |
| B    | ECN-1808078  | RENEWING ELECTROPLATING STANDARD | ZHANGHAO | 2018/08/06 |
|      |              |                                  |          |            |
|      |              |                                  |          |            |
|      |              |                                  |          |            |
|      |              |                                  |          |            |
|      |              |                                  |          |            |

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## 2 SCOPE

This specification covers performance, tests and quality requirements for **1.0mm pitch wire-to-board connector**. These connectors are **used to computer or other application**. (Lead free product)  
ACES P/N : 88252-T0xx Crimping Terminal; 50254-XXXHXXX HOUSING

## 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 or 120u" MIN. Matt tin over all.**  
(b) Under plate: **Nickel-plated all over**

### 4.3 Ratings

- 4.3.1 Working voltage less than 36 volts (per pin)**  
4.3.2 Voltage Rating: **125 Volts ( AC(rms) /DC )**  
4.3.3 Current Rating:  
**AWG#28-1.0A ( AC(rms) /DC )**  
**AWG#30-1.0A ( AC(rms) /DC )**  
**AWG#32-0.8A ( AC(rms) /DC )**  
4.3.4 Operating Temperature : **-40°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-signal Level Contact Resistance | 20 m $\Omega$ Max.(initial)<br>40 m $\Omega$ Max. (After 30 times durability, mechanical and/ or environmental test) | Mate connectors, measure by dry circuit, 20mV Max., 10mA Max.<br>(EIA-364-23)                                                                                                                                          |
| Insulation Resistance               | 1000 M $\Omega$ Min.                                                                                                 | Unmated connectors, apply 500 V DC between adjacent terminals.<br>(EIA-364-21)                                                                                                                                         |
| Dielectric Withstanding Voltage     | 500 VAC Min. at sea level for 1 minute.<br>No discharge, flashover or breakdown.<br>Current leakage: 1 mA max.       | Test between adjacent contacts of unmated connectors.<br>(EIA-364-20)                                                                                                                                                  |
| Temperature rise                    | 30°C Max. Change allowed                                                                                             | Mate connector: measure the temperature rise at rated current after: 1.0 A/Power contact. The temperature rise above ambient shall not exceed 30°C The ambient condition is still air at 25°C<br>(EIA-364-70 METHOD 2) |
| 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 $\pm$ 3mm/min.<br>(EIA-364-09)                                                               |

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| <b>MECHANICAL</b>                                          |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Item</b>                                                | <b>Requirement</b>                            | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Mating / Unmating Forces                                   | Please see item7 Mating / Unmating Forces Tab | Operation Speed :<br><b>25.4 ± 3</b> mm/minute..<br>Measure the force required to mate/Unmate connector.<br>(EIA-364-13)                                                                                                                                                                                                                                                                                                                                                                 |
| Crimping Terminal Pull Strength of the housing(Receptacle) | 0.5kgf Min.                                   | Operation Speed :<br><b>25.4 ± 3</b> mm/minute..<br>Measure the Terminal retention force with Tensile strength tester.                                                                                                                                                                                                                                                                                                                                                                   |
| Crimping Terminal V.S Housing Insertion Force              | 0.5kgf Max                                    | Operation Speed :<br><b>25.4 ± 3</b> mm/minute..<br>Measure the Terminal Insertion force                                                                                                                                                                                                                                                                                                                                                                                                 |
| Vibration                                                  | 1 $\mu$ s 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 <b>10 and 55 Hz</b> . The entire frequency range, from <b>10 to 55 Hz</b> and return to <b>10 Hz</b> , shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions.<br>(EIA-364-28 Condition I) |
| Shock (Mechanical)                                         | 1 $\mu$ s Max.                                | Subject mated connectors to <b>50 G's</b> (peak value) <b>half-sine</b> shock pulses of <b>11</b> 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.<br>(EIA-364-27, test condition A)                                                                                                                          |

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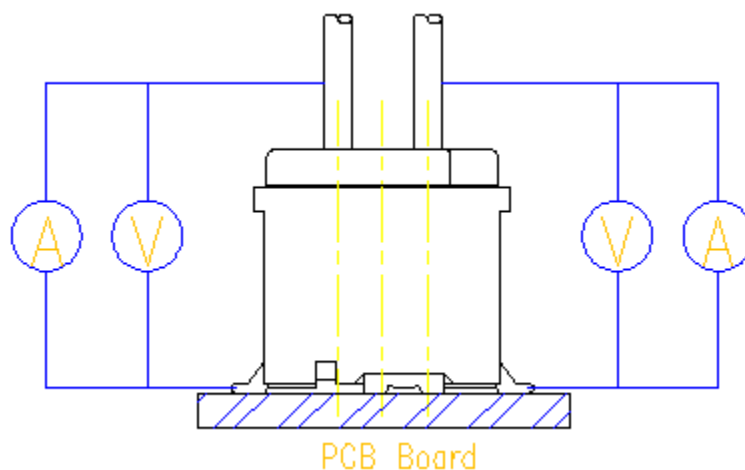
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| ENVIRONMENTAL    |                                                     |                                                                                                                                                                                                                                                                                                                        |
|------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item             | Requirement                                         | Standard                                                                                                                                                                                                                                                                                                               |
| Thermal Shock    | See Product Qualification and Test Sequence Group 4 | Mate module and subject to follow condition for 5 cycles.<br>1 cycles:<br>-40 +0/-3 °C, 30 minutes<br>+85 +3/-0 °C, 30 minutes<br>(EIA-364-32, test condition A)                                                                                                                                                       |
| Humidity         | See Product Qualification and Test Sequence Group 4 | Mated Connector<br>40°C, 90~95% RH,<br>Refer to Method II.<br>(EIA-364-31, Test condition A)                                                                                                                                                                                                                           |
| Temperature life | See Product Qualification and Test Sequence Group 5 | Subject mated connectors to temperature life at 85°C for 96 hours. Measure Signal.<br>(EIA-364-17, Test condition III Method A)                                                                                                                                                                                        |
| Salt Spray       | See Product Qualification and Test Sequence Group 6 | Subject mated/unmated connectors to 5% salt-solution concentration, 35°C, <b>Under the condition that the electroplating layer on the metal surface is not destroyed</b><br>(I)Gold flash for 8 hours<br>(II)Gold plating 3 u" for 48 hours.<br>(III) Gold plating 5 u" for 96 hours.<br>(EIA-364-26,Test condition B) |

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



Contact Resistance Measuring Point

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## 6 PRODUCT QUALIFICATION AND TEST SEQUENCE

|                                                             | Test Group    |     |     |      |     |     |   |   |   |
|-------------------------------------------------------------|---------------|-----|-----|------|-----|-----|---|---|---|
|                                                             | 1             | 2   | 3   | 4    | 5   | 6   | 7 | 8 | 9 |
|                                                             | Test Sequence |     |     |      |     |     |   |   |   |
| Examination of Product                                      | 1             |     |     | 1、7  | 1、6 | 1、4 |   |   |   |
| Low-signal 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 |   |
|                                                             |               |     |     |      |     |     |   |   |   |
| Sample Size                                                 | 2             | 4   | 4   | 4    | 4   | 4   | 2 |   |   |

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## 7 Mating / Unmating Forces Tab

| NO. OF Ckt. | Initial                   |                            | After 30 <sup>th</sup> Cycle |
|-------------|---------------------------|----------------------------|------------------------------|
|             | Insertion Force<br>(Max.) | Withdrawal Force<br>(Min.) | Withdrawal Force<br>(Min)    |
| 6~10        | 1.8Kgf                    | 0.4Kgf                     | 0.35Kgf                      |
| 12~20       | 2.6Kgf                    | 0.5Kgf                     | 0.45Kgf                      |
| 22~30       | 3.4Kgf                    | 0.6Kgf                     | 0.55Kgf                      |
| 32~40       | 4.2Kgf                    | 0.7Kgf                     | 0.65Kgf                      |
| 42~50       | 5.0Kgf                    | 0.8Kgf                     | 0.75Kgf                      |
| 52~60       | 5.8Kgf                    | 0.9Kgf                     | 0.85Kgf                      |

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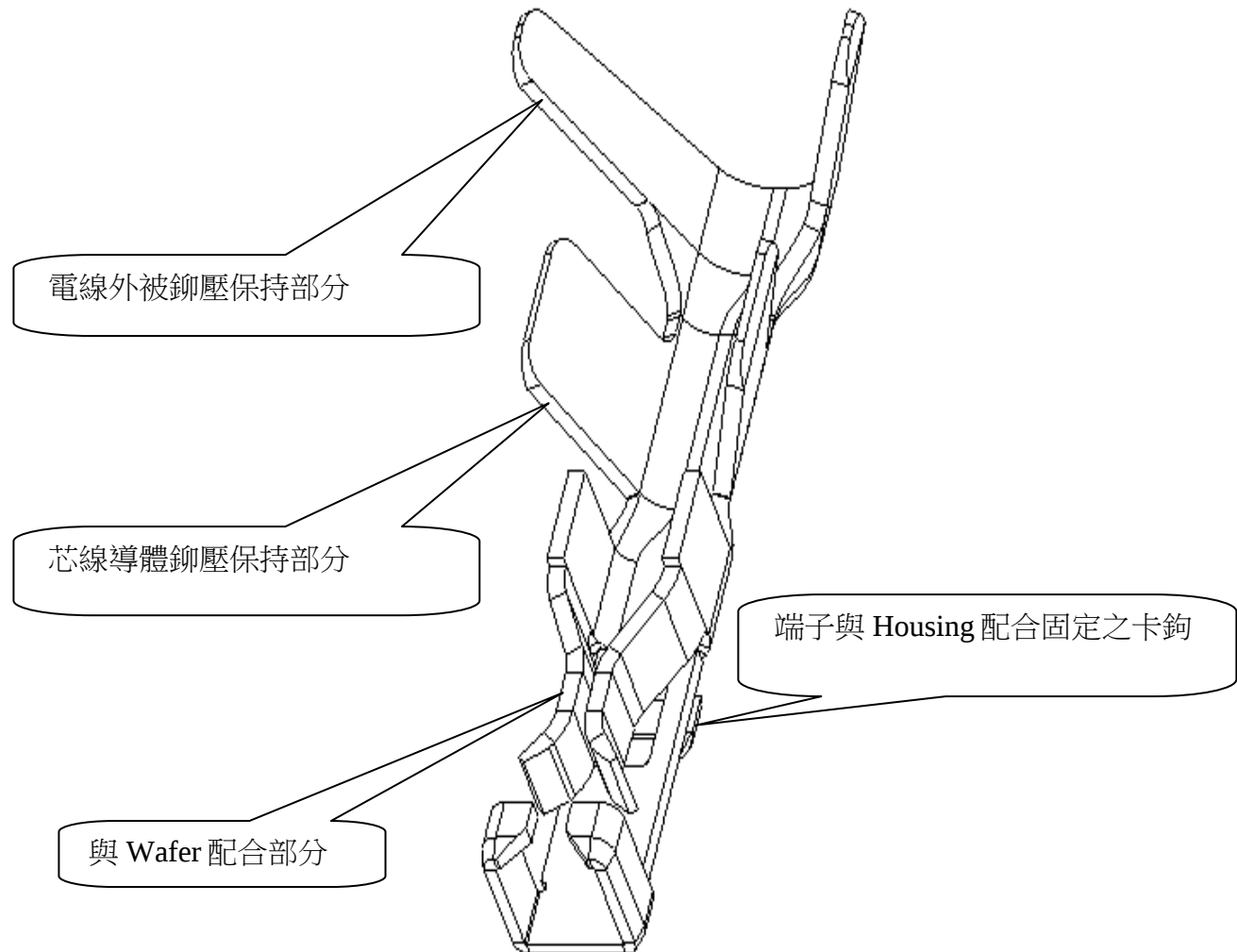
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## 8 端子結構名稱：



## 9 適用電線：UL1571 電子線：

電線規格：AWG # 32~ # 28

電線外被 OD：Φ0.41~0.8mm

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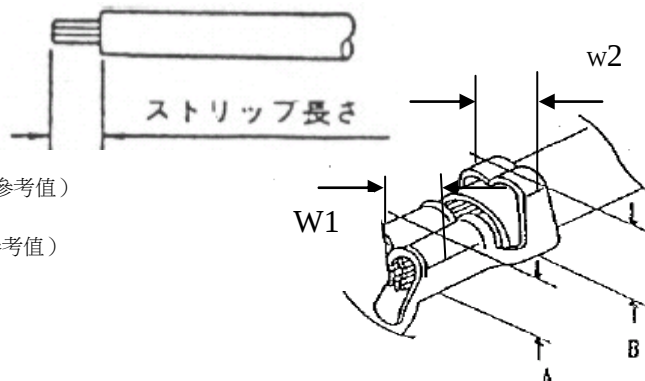
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**10 鉚線作業：**

## 鉚線條件表 CRIMPING CONDITION

| 件編號<br>Part number       |                                   | 品名<br>Description       |                       | 適用電線 Applicable wire                               |                                                    |                                |                                                |
|--------------------------|-----------------------------------|-------------------------|-----------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------|------------------------------------------------|
| 87214-T ,<br>87214-WX-HT |                                   | 1.0mm crimping terminal |                       | AWG Size                                           | 計算截面積<br>(m m <sup>2</sup> ) Sec.<br>area          | 外被外徑(mm)<br>InsulationOD       |                                                |
| NO.                      | 電線 Wire                           |                         |                       | 28~32                                              | 0.35~0.089                                         | Φ0.41~Φ0.8                     |                                                |
|                          | 電線名                               | 規格                      |                       | 芯線鉚壓<br>高度<br>Conductor<br>crimping<br>height (mm) | 外被鉚壓<br>高度<br>Insulator<br>crimping<br>height (mm) | 保持力                            | 備注<br><br>Remarks                              |
|                          | UL Style                          | Specification           |                       |                                                    |                                                    | Crimping<br>retention<br>force |                                                |
| 1                        | UL1571<br>電子線<br>Stranded<br>wire | AWG Size                | 28                    | 0.55~0.62                                          | 1.1~1.35                                           | 16N 以上                         | 鍍錫軟銅線<br>Tin plated<br>annealed<br>copper wire |
|                          |                                   | 芯線構成 Consruction        | 7C*Φ0.127mm           |                                                    |                                                    |                                |                                                |
|                          |                                   | 計算截面積 Sec. area         | 0.089m m <sup>2</sup> |                                                    |                                                    |                                |                                                |
|                          |                                   | 外被外徑 Insulation<br>OD   | 0.8mm                 |                                                    |                                                    |                                |                                                |
| 2                        | UL1571<br>電子線<br>Stranded<br>wire | AWG Size                | 30                    | 0.50~0.57                                          | 1.0~1.25                                           | 7N 以上                          | 鍍錫軟銅線<br>Tin plated<br>annealed<br>copper wire |
|                          |                                   | 芯線構成 Consruction        | 7C*Φ0.102mm           |                                                    |                                                    |                                |                                                |
|                          |                                   | 計算截面積 Sec. area         | 0.057m m <sup>2</sup> |                                                    |                                                    |                                |                                                |
|                          |                                   | 外被外徑 Insulation OD      | 0.7mm                 |                                                    |                                                    |                                |                                                |
| 3                        | UL1571<br>電子線<br>Stranded<br>wire | AWG Size                | 32                    | 0.45~0.52                                          | 0.95±0.1                                           | 4.5N 以上                        | 鍍錫軟銅線<br>Tin plated<br>annealed<br>copper wire |
|                          |                                   | 芯線構成 Consruction        | 7C*Φ0.08mm            |                                                    |                                                    |                                |                                                |
|                          |                                   | 計算截面積 Sec. area         | 0.035m m <sup>2</sup> |                                                    |                                                    |                                |                                                |
|                          |                                   | 外被外徑 Insulation OD      | 0.41mm                |                                                    |                                                    |                                |                                                |

Note:

- 1、W1為芯線導體鉚壓後之寬度：W1=0.65mm(參考值)
- 2、W2為電線外被部分鉚壓後之寬度：W2=0.70~0.75mm(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(Insulator Crimping height)：B值如上表(參考值)
- 5、電剝皮長度：1.5~1.9mm(參考值)



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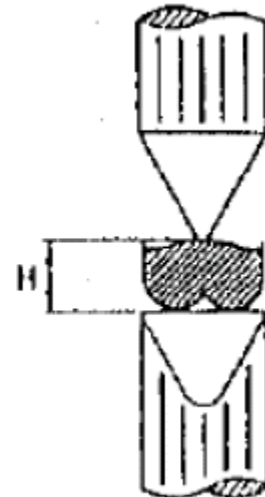
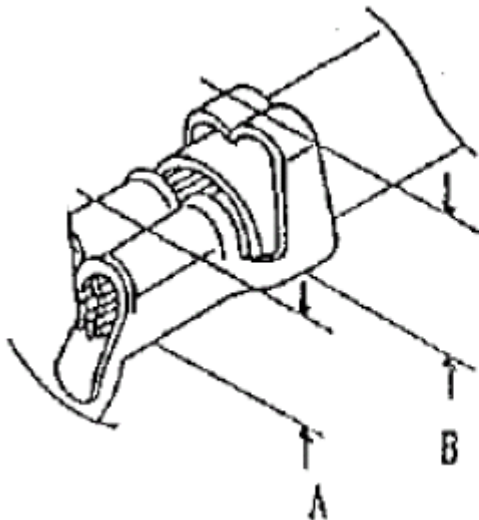
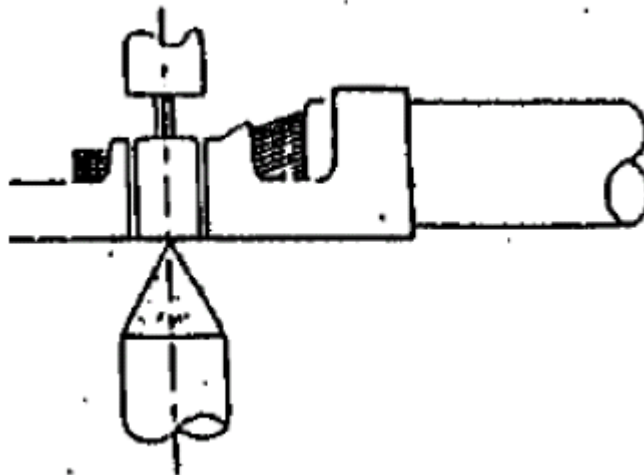
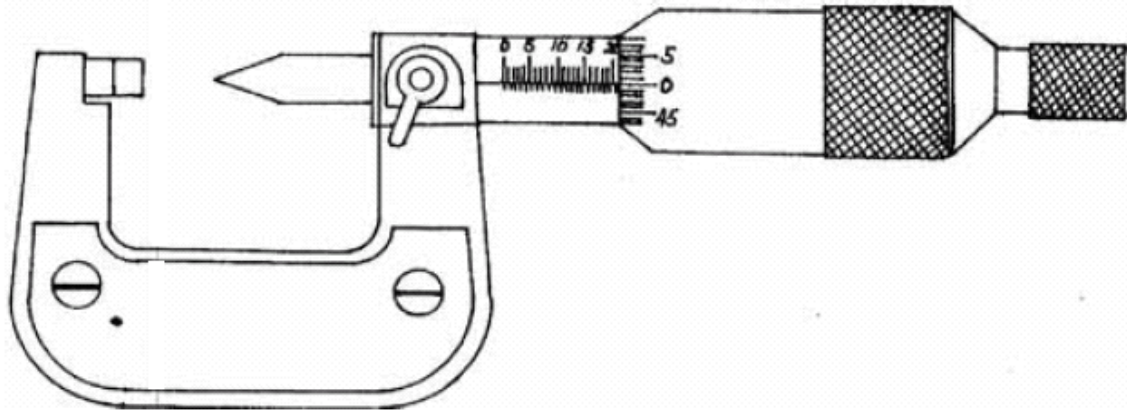
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# **11 鉗壓高度測量方法：**



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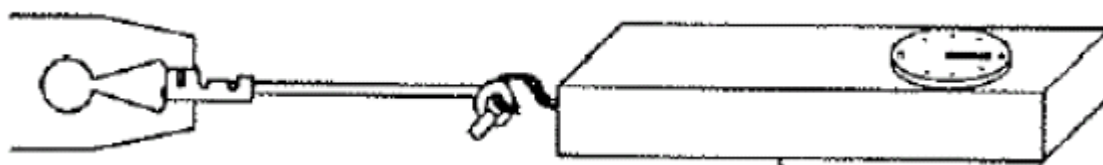
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## 12 鉗線後保持力量測方法：



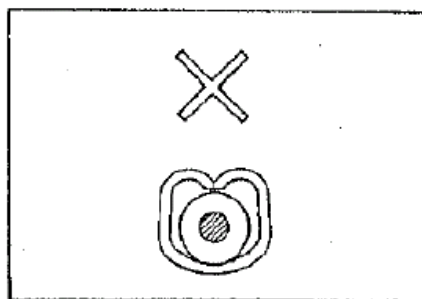
測量鉗線保持力之標準線樣



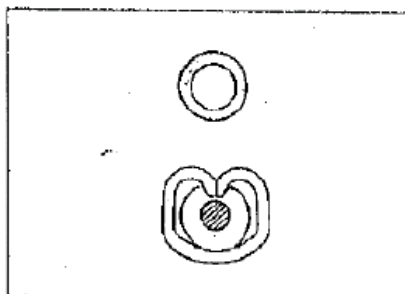
保持力量測方法示意圖

## 13 鉗壓狀態確認：

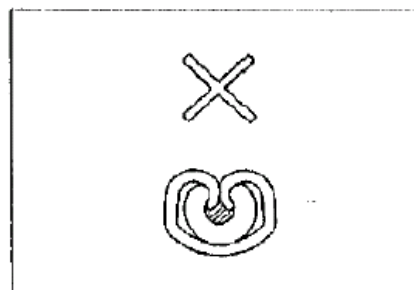
### 1、電線外被鉗壓狀態：



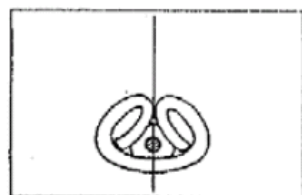
太鬆，線皮會鬆開



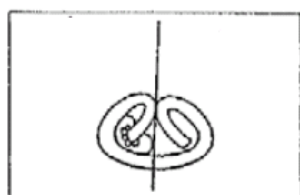
良好



太緊，會太傷芯線

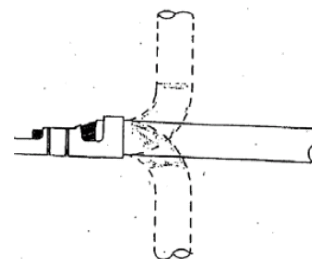


良好



NG

細線鉗壓狀態



上、下、左、右各擺一次，線皮不可鬆開

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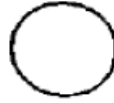
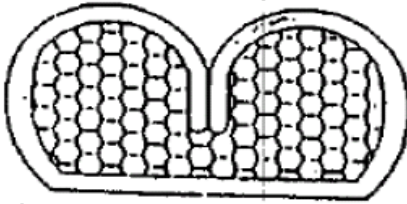
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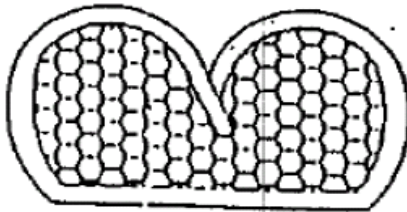
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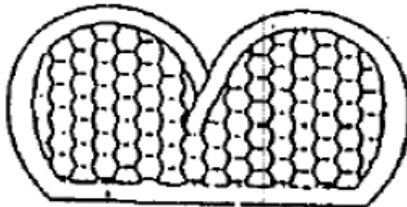
**14 芯線導體鉚壓狀態：**



鉚壓良好



鉚壓不良

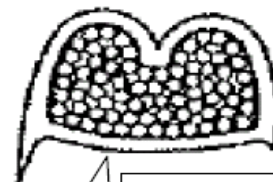


鉚壓不良

此不良會導致  
芯線鉚壓後保  
持力不穩定



鉚壓良好



鉚壓不良

此不良會導致保  
持力不足和電氣  
性能不良

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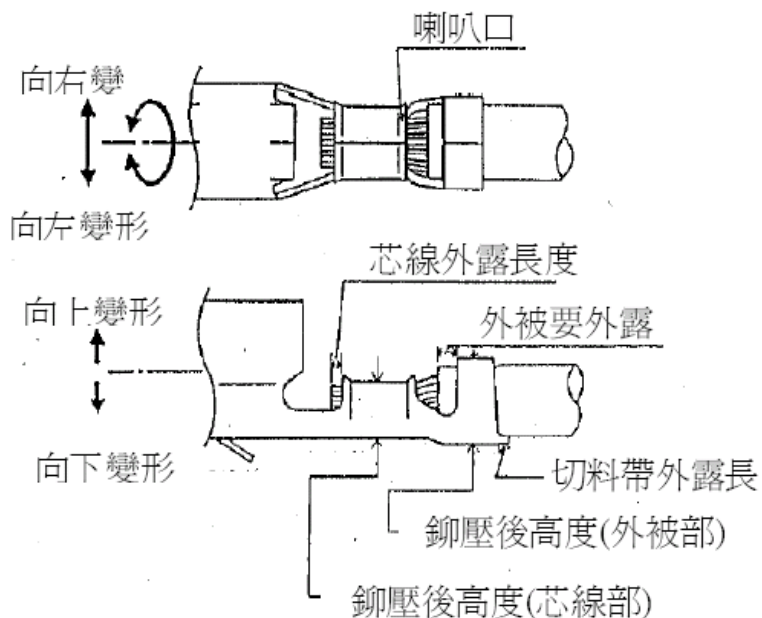
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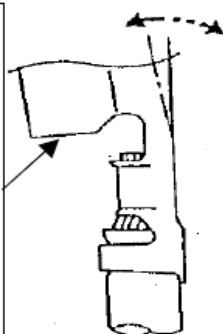
**15 鉤線外觀要求：**



| 項 目     | 參 考 值      |
|---------|------------|
| 向上變形    | 約6°以下      |
| 向下變形    | 約6°以下      |
| 向左變形    | 約5°以下      |
| 向右變形    | 約5°以下      |
| 喇叭口長度   | 約0.1~0.3mm |
| 切料帶外露長度 | 約0~0.5mm   |
| 芯線外露長度  | 約0.3~0.6mm |

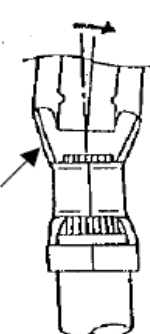
上下變形示意圖

端子上下變形不良會導致插入Housing後容易鬆脫



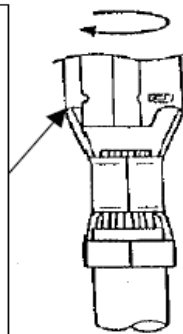
左右變形示意圖

端子左右變形不良會導致插入Housing後配合Wafer時插入力過大



扭轉變形示意圖

端子扭轉變形不良會導致插入Housing後配合Wafer時插入力過大



**鉤線不良實例示意圖：**



1、芯線外露長度過長不良：會引起插入力變大



2、外被鉤入芯線鉤壓部不良：會引起導通不良



3、芯線外露長度過短不良：會引起保持力下降



4、外被鉤壓長度過短不良：會導致易鬆脫，線在被扭時易



5、芯線未鉤完全不良：會引起A、電阻值變大，B、端子插入Housing時插入力變大