



SPECIFICATION

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SPEC. NO.: PS-91225-XXXXX REVISION: C

PRODUCT NAME: 1.0mm WTW CONN S/R TYPE

PRODUCT NO: 91225-XXXXX

| | | |
|---|---|--|
| PREPARED: WULING DATE: 2014/01/13 | CHECKED: JERRY DATE: 2014/01/13 | APPROVED: JASON DATE: 2014/01/13 |
|---|---|--|



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Aces P/N: **91225 series**

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1 Revision History

| Rev. | ECN # | Revision Description | Approved | Date |
|------|-------------|----------------------|----------|------------|
| O | ECN-0809066 | Released | JASON | 2008.09.10 |
| A | ECN-0908002 | For English version | JASON | 2009.08.01 |
| B | ECN-1003046 | Add crimp spec | JASON | 2010.03.09 |
| C | ECN-1401225 | ADD Working voltage | JASON | 2014.01.13 |
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| | | | | |
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2 SCOPE

This specification covers performance, tests and quality requirements for **1.00mm pitch WTW connector**.

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: **Gold 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 AC (per pin)

4.3.2 Voltage: **125 Volts AC (MAX)**

4.3.3 Rated Current (MAX)

| | | |
|----------------------|--------|--------------------|
| And Applicable wires | AWG#28 | 1 A 【AC(rms)/DC】 |
| | AWG#30 | 1 A 【AC(rms)/DC】 |
| | AWG#32 | 0.8 A 【AC(rms)/DC】 |

4.3.4 Operating Temperature : **-40°C to +85°C**

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. |

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ELECTRICAL

| Item | Requirement | Standard |
|-------------------------------------|--|--|
| Low-signal Level Contact Resistance | 20 m Ω Max.(initial)per contact ΔR 20 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 500 V DC between adjacent terminals. (EIA-364-21) |
| Dielectric Withstanding Voltage | 300 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 1 mA max. | 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 after:1A/Power contact. The temperature rise above ambient shall not exceed 30°C The ambient condition is still air at 25°C (EIA-364-70 METHOD 2) |

MECHANICAL

| | | |
|--------------------------|---|---|
| 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 | See item 7 | Card mating/Unmating sequence: a.) Insert the card at the angle specified by the manufacturer b.) Rotate the card into position. c.) Reverse the installation sequence to unmated Operation Speed : 25.4 ± 3 mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13) |
| Crimping Pull Out Force | AWG# 28 : 10N(1.0kgf) MIN AWG# 30 : 5N(0.5kgf) MIN AWG# 32 : 3N(0.3kgf) MIN | Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester. |

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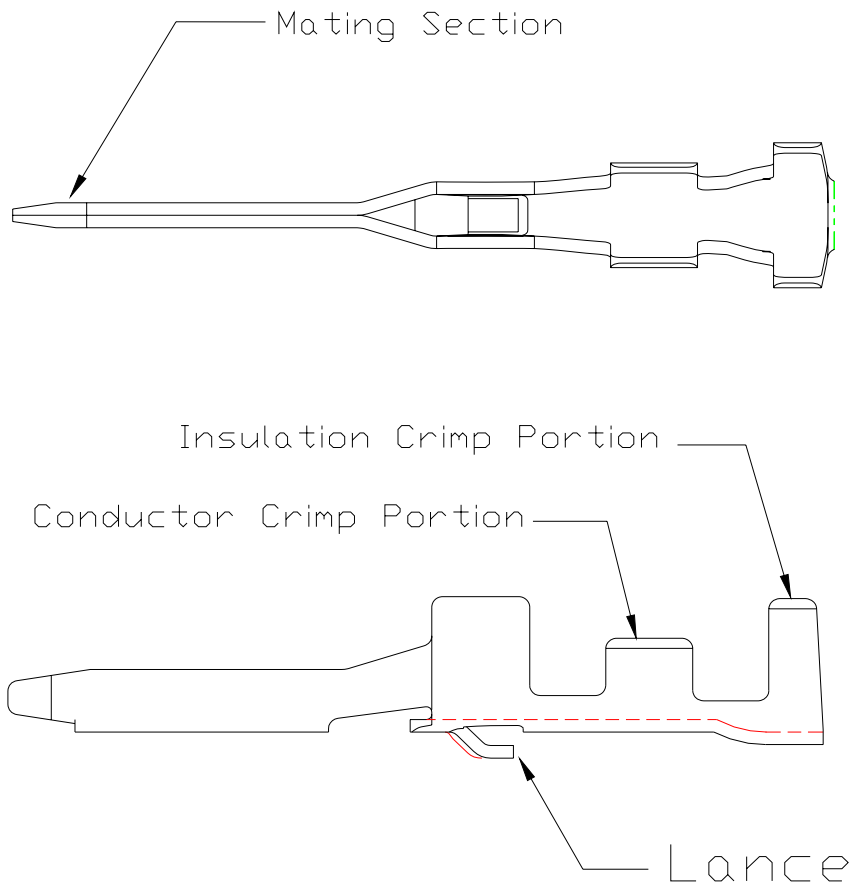
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| MECHANICAL | | |
|------------------------------------|---|--|
| Item | Requirement | Standard |
| Terminal / Housing Retention Force | 5N(0.5kgf) MIN. | Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing. |
| Terminal Insertion Force | 5N(0.5kgf) Max. | Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing. |
| 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 | | |
| Heat Resistance | See Product Qualification and Test Sequence Group 3 | Subject mated connectors to temperature life at 85+/-2°C for 96 hours. Measure Signal. (EIA-364-17, Test condition A) |
| Cold Resistance | See Product Qualification and Test Sequence Group 4 | Subject mated connectors to temperature life at -40+/-3°C for 96 hours. Measure Signal. (EIA-364-17, Test condition A) |
| Humidity | See Product Qualification and Test Sequence Group 6 | Mated Connector 40°C, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A) |

| ENVIRONMENTAL | | |
|---------------|---|---|
| Item | Requirement | Standard |
| Thermal Shock | See Product Qualification and Test Sequence Group 9 | Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 °C, 30 minutes +105 +3/-0 °C, 30 minutes (EIA-364-32, test condition A) |
| Salt Spray | See Product Qualification and Test Sequence Group 7 | Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours. (EIA-364-26, Test condition B) |

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

6 Anatomy of a terminal :



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7 Applicable Wires : UL1007 wire

AWG Size : AWG # 28~ # 32

Insulation OD : Φ 0.41-0.8MAX

8 Crimping Condition :

CRIMPING CONDITION

| Part number | Description | Applicable wire | | | | | |
|-------------|--------------------------|-----------------|--------------------------------|--------------------------------|--------------------------|-------------------|---|
| | | AWG Size | | | Insulation OD (mm) | | |
| 91225-TXXX | 2.54mm crimping terminal | #28~#32 | | | Φ 0.41~ Φ 0.8 | | |
| NO. | Wire UL Style | Specification | Conductor crimping height (mm) | Insulator crimping height (mm) | Crimping retention force | Insulation OD(mm) | Crimp the terminal's wire barrel and conductor together, fasten them altogether and pill the wire axially at 25mm/min |
| 1 | UL1007 Stranded wire | AWG Size 28 | 0.55~0.62 | 1.1~1.35 | 16N MIN | 0.8 | |
| 2 | UL1007 Stranded wire | AWG Size 30 | 0.50~0.57 | 1.0~1.25 | 7 N MIN | 0.7 | |
| 3 | UL1007 Stranded wire | AWG Size 32 | 0.45~0.52 | 0.95 \pm 0.1 | 4.5N MIN | 0.41 | |

Note:

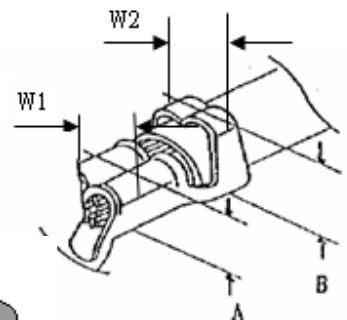
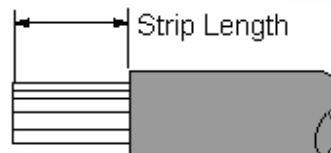
1、W1(Conductor Crimping Width) : $W1=0.65\sim 1.0\text{mm(Ref.)}$

2、W2(Insulator Crimping Width) : $W2=0.7\sim 1.2\text{mm(Ref.)}$

3、A (conductor Crimping height) : Refer to table (Ref.)

4、B (Insulator Crimping height) : Refer to table (Ref.)

5、Strip Length : 1.5~1.9mm(Ref.)



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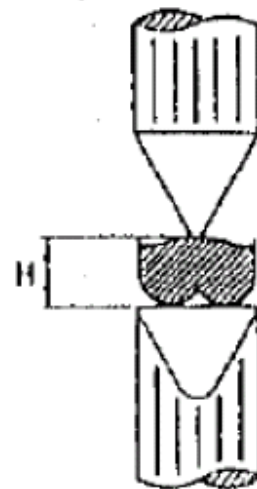
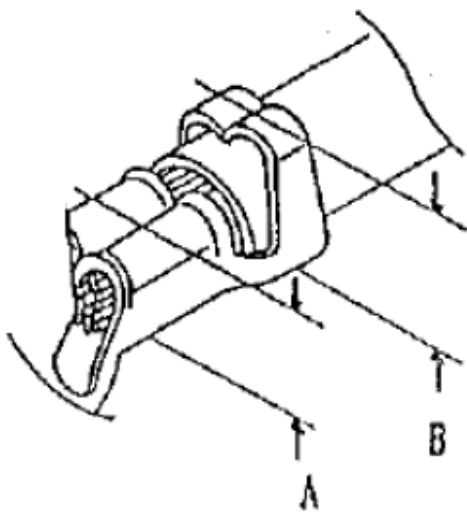
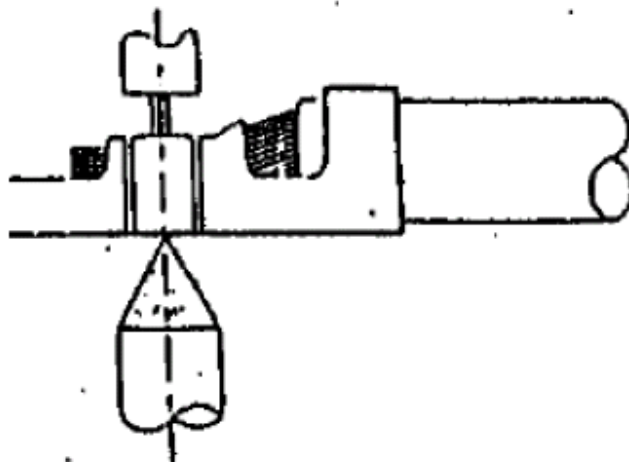
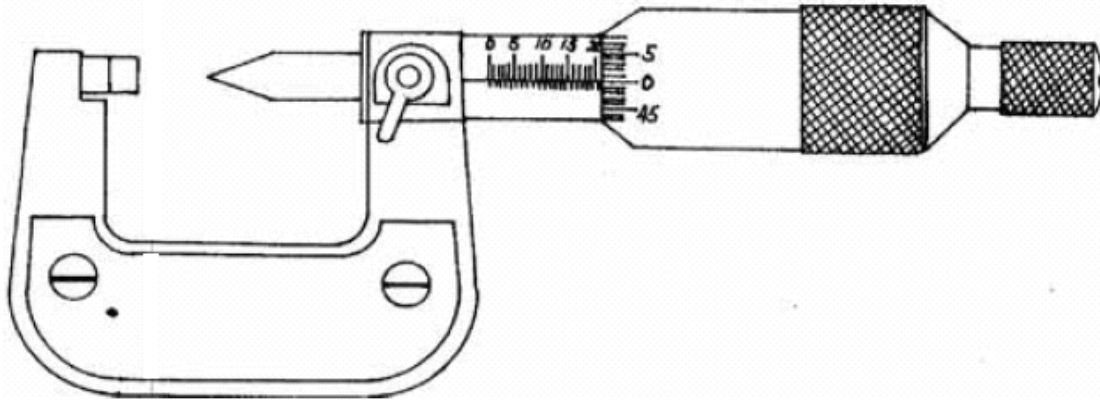
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9 Crimp Height Measurement :



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10 Pull Force of Crimp Section Measurement :

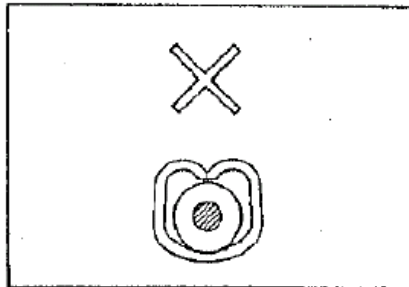


Before test samples, please measure crimp height and do not crimp insulation.

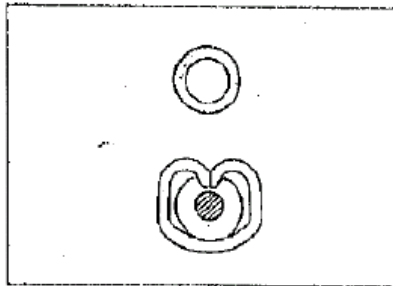


Pull Force of Crimp Section Measurement

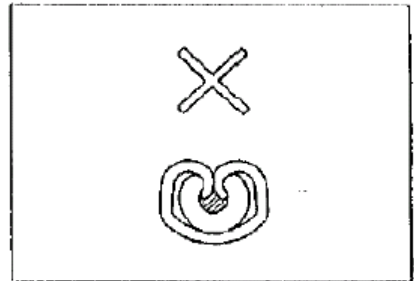
11 Standard Insulation Crimp :



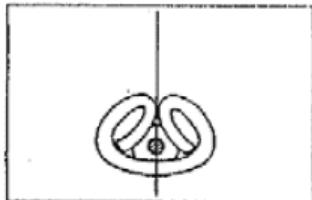
Not enough crimp



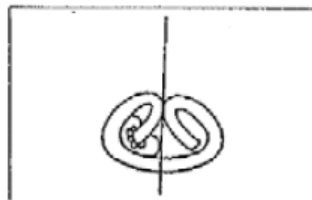
Good



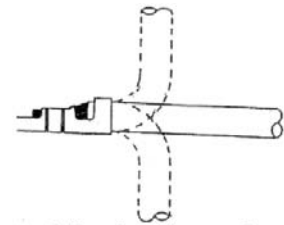
Crimp too much



Good



NG



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

Insulation Crimp Condition

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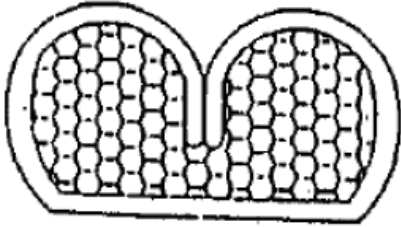
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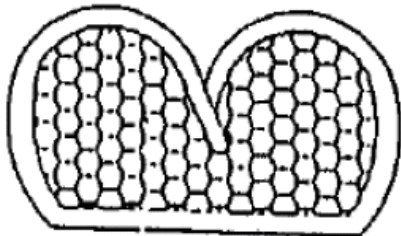
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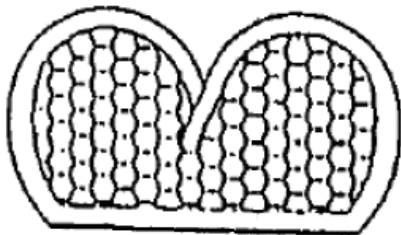
12 Conductors Crimp Condition :



Good

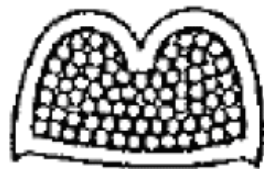


NG



NG

Lower conduct
retension force



Good



Large burr

NG

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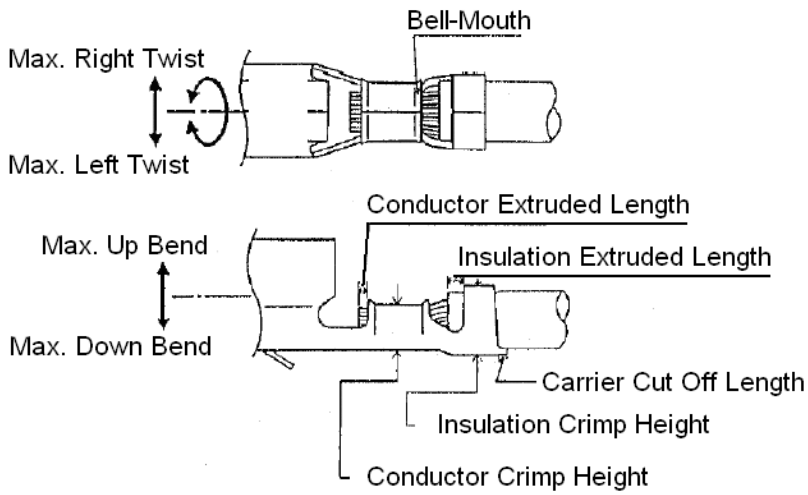
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13 Crimping Requirements :



| Item | Range (Ref.) |
|---------------------------|--------------|
| Max. Up Bend | 6° |
| Max. Down Bend | 6° |
| Max. Left Twist | 5° |
| Max. Right Twist | 5° |
| Bell-Mouth Length | 0.1~0.3 mm |
| Carrier Cut Off Length | 0~0.5 mm |
| Conductor Extruded Length | 0.3~0.6 mm |

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14 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 | | | 1,6 | 1,4 | | 1,4 | 1,4 | 1,3 | 1,4 | | | |
| Low-signal Level Contact Resistance | 1,5 | 1,4 | 2,9 | 2,5 | | 2,5 | 2,5 | | 2,5 | | | |
| Insulation Resistance | | | 3,8 | | | | | | | | | |
| Dielectric Withstanding Voltage | | | 4,7 | | | | | | | | | |
| Temperature rise | | | | | | | | 2 | | | | |
| Mating / Unmating Forces | 2,4 | | | | | | | | | | | |
| Durability | 3 | | | | | | | | | | | |
| Crimping Pull Out Force | | | | | 1 | | | | | | | |
| Vibration | | 2 | | | | | | | | | | |
| Shock (Mechanical) | | 3 | | | | | | | | | | |
| Heat Resistance | | | 5 | | | | | | | | | |
| Cold Resistance | | | | 3 | | | | | | | | |
| Humidity | | | | | | 3 | | | | | | |
| Salt Spray | | | | | | | 3 | | | | | |
| Thermal Shock | | | | | | | | | 3 | | | |
| Terminal / Housing Retention Force | | | | | | | | | | 1 | | |
| Terminal Insertion Force | | | | | | | | | | | 1 | |
| Sample Size | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 2 | 4 | 2 | 2 | |

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15 Mating / Unmating Forces

UNIT:N(kgf)

| NO. OF Ckt. | Insertion (Max) | | Withdrawal (Min) | |
|-------------|-----------------|---------|------------------|----------|
| | 1st | 30th | 1st | 30th |
| 2 | 20(2.0) | 20(2.0) | 2 (0.20) | 2 (0.20) |
| 3 | 20(2.0) | 20(2.0) | 2 (0.20) | 2 (0.20) |
| 4 | 20(2.0) | 20(2.0) | 2 (0.20) | 2 (0.20) |
| 5 | 30(3.1) | 30(3.1) | 3(0.31) | 3(0.31) |
| 6 | 30(3.1) | 30(3.1) | 3(0.31) | 3(0.31) |
| 7 | 30(3.1) | 30(3.1) | 3(0.31) | 3(0.31) |
| 8 | 40(4.1) | 40(4.1) | 4(0.41) | 4(0.41) |
| 9 | 40(4.1) | 40(4.1) | 4(0.41) | 4(0.41) |
| 10 | 40(4.1) | 40(4.1) | 4(0.41) | 4(0.41) |