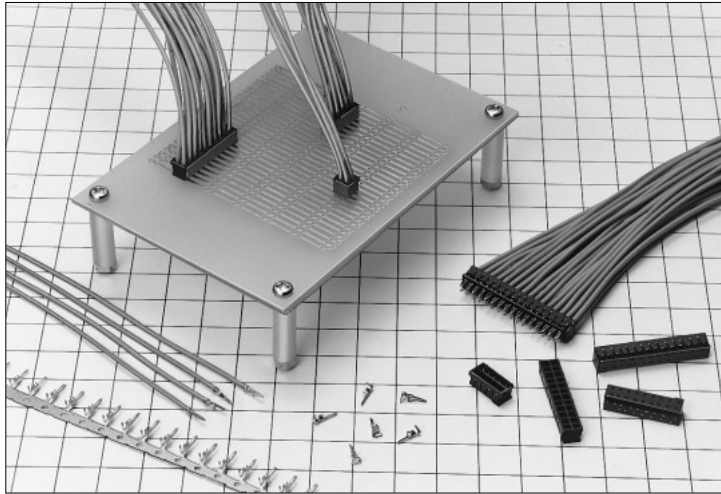


# 2mm Pitch Connector Directly Mounted on Board

DF4 Series



## ■ Features

### 1. Cost Saving for Header

Thanks to the insertion/extraction socket and the harness product at the both connector edges, one of two headers necessary at both edge sockets can be saved without losing the function to separate individual boards.

### 2. Miniature and Multiple Contacts

The miniature connector has broad variations in contact number.

Board mounting height : **4mm (Crimping )**

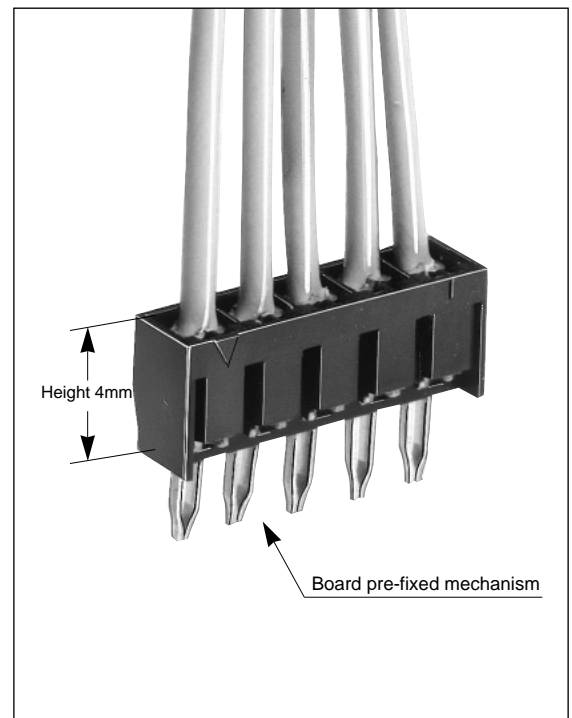
Maximum contact number : **32 contacts (Crimping )**

### 3. Board Pre-fixed Mechanism

The insertion state to the board is a light crimping, which enables the pre-fixed process to the board.

## ■ Applications

Note PC, Small business equipment



## ■Product Specifications

|                        |                            |          |             |                         |             |                             |                      |
|------------------------|----------------------------|----------|-------------|-------------------------|-------------|-----------------------------|----------------------|
| Rating                 | Current rating<br>(Note 1) | Crimping | Cable Size  |                         |             | Operating Temperature Range | -30 to +85°C(Note 2) |
|                        |                            |          | AWG 24 : 3A | AWG 26 : 2A             | AWG 28 : 1A | Operating Moisture Range    | 40 to 80%            |
|                        | Voltage rating             | Crimping | 250V AC     | Insulation Displacement | 100V AC     | Storage Temperature Range   | -10 to +60°C         |
| Storage Moisture Range |                            |          |             |                         |             | 40 to 70%                   |                      |

| Item                            | Specification  | Condition   |
|---------------------------------|--|---|
| 1. Insulation Resistance        | 1000M ohms Min   | 500V DC   |
| 2. Withstanding voltage         | No flashover or insulation breakdown.                                  | 650V AC/1 minute  |
| 3. Crimping Area Resistance     | 30m ohms Max.  | 100mA   |
| 4. Vibration                    | No damage, cracks, or parts looseness.                                 | Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions. |
| 5. Humidity (Steady state)      | Contact resistance: 30m ohms Max Insulation resistance: 500M ohms Min  | 96 hours at temperature of 40°C and humidity of 90% to 95%                                |
| 6. Temperature Cycle            | Contact resistance: 30m ohms Max Insulation resistance: 1000M ohms Min | Flow: 250°C for 10 seconds  |
| 7. Resistance to Soldering heat | No deformation of components affecting performance.                    | Manual soldering: 300°C for 3 seconds   |

Note 1: Includes temperature rise caused by current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non conducting condition of installed connectors in storage, shipment or during transportation.

## ■Material

| Product                     | Part      | Material        | Finish      | Remarks |
|-----------------------------|-----------|-----------------|-------------|---------|
| Crimping Plug               | Insulator | Polyamide       | Black       | UL94V-0 |
| Crimping Contact for Plug   | Contact   | Brass           | Tin plating | ————    |
| Insulator Displacement Plug | Insulator | Polyamide       | Black       | UL94V-0 |
|                             | Contact   | Phosphor copper | Tin plating | ————    |

## ■Ordering Information

### ●Connector

DF4   -   \* P   -   2 C  
 ①                      ②   ③                      ④   ⑤

|   |  |
|---|--|
| ① Series Name: DF4  | ④ Contact Pitch: 2mm   |
| ② Number of Contact: 2 to 15, 4 to 32                         | ⑤ Connection Type  |
| ③ Connector Type<br>P: Single row plug<br>DP: Double row plug | C: Crimping socket<br>R26: Insulator displacement plug for AWG26<br>R28: Insulator displacement plug for AWG28 |

### ●Contact

DF4   -   2428- PCE  
    ①                      ②

|   |  |
|---|--|
| ① Applicable cable size<br>2428 : AWG24 to 28 | ② Packaging Type<br>PCF: Plug contact/Reel<br>PC: Plug contact/Bag |
|---|--|

## Single Row Crimping Plug

[Specific No.] – \*\*, (\*\*)  
 Blank: 1 bag: 100pcs.  
 (40): 500pcs. packaging  
 (41): 1000pcs. packaging

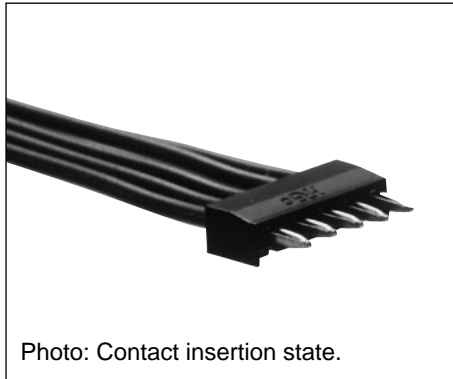
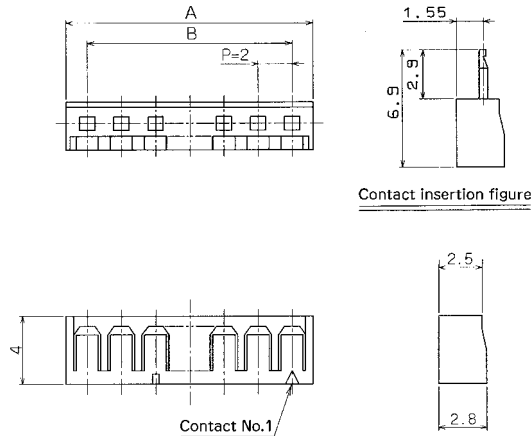


Photo: Contact insertion state.

●Applicable Through-hole Diameter :  $\phi 0.8^{+0.1}$



Unit:mm

| Part Number     | CL No.        | Number of Contacts | A    | B    | Part Number     | CL No.         | Number of Contacts | A    | B    |
|-----------------|---------------|--------------------|------|------|-----------------|----------------|--------------------|------|------|
| DF4- 2P-2C (**) | 544-0003-4-** | 2                  | 4.5  | 2.0  | DF4- 9P-2C (**) | 544-0010-0- ** | 9                  | 18.5 | 16.0 |
| DF4- 3P-2C (**) | 544-0004-7-** | 3                  | 6.5  | 4.0  | DF4-10P-2C (**) | 544-0011-2- ** | 10                 | 20.5 | 18.0 |
| DF4- 4P-2C (**) | 544-0005-0-** | 4                  | 8.5  | 6.0  | DF4-11P-2C (**) | 544-0012-5- ** | 11                 | 22.5 | 20.0 |
| DF4- 5P-2C (**) | 544-0006-2-** | 5                  | 10.5 | 8.0  | DF4-12P-2C (**) | 544-0013-8- ** | 12                 | 24.5 | 22.0 |
| DF4- 6P-2C (**) | 544-0007-5-** | 6                  | 12.5 | 10.0 | DF4-13P-2C (**) | 544-0014-0- ** | 13                 | 26.5 | 24.0 |
| DF4- 7P-2C (**) | 544-0008-8-** | 7                  | 14.5 | 12.0 | DF4-14P-2C (**) | 544-0015-3- ** | 14                 | 28.5 | 26.0 |
| DF4- 8P-2C (**) | 544-0009-0-** | 8                  | 16.5 | 14.0 | DF4-15P-2C (**) | 544-0016-6- ** | 15                 | 30.5 | 28.0 |

Note 1.The quantity at the specific No. "None" is delivered per bag (100pcs.). If needed, please order the products per bag.

## Crimping Contact

| Part Number | CL No.     | Packaging Type | Quantity | Finish      |
|-------------|------------|----------------|----------|-------------|
| DF4-2428PCF | 544-0020-3 | Reel           | 10,000   | Tin plating |
| DF4-2428PC  | 544-0021-6 | Bag            | 100      | Tin plating |

●Applicable Cable (Tin plating Annealed copper wire)

| Conductor Size           | Recommended Cable | Jacket Diameter              |
|--------------------------|-------------------|------------------------------|
| AWG24 (11 cores./0.16mm) | UL1061            | $\phi 0.75$ to $\phi 1.2$ mm |
| AWG 26 (7cores./0.16mm)  |                   |                              |
| AWG 28 (7cores./0.127mm) |                   |                              |

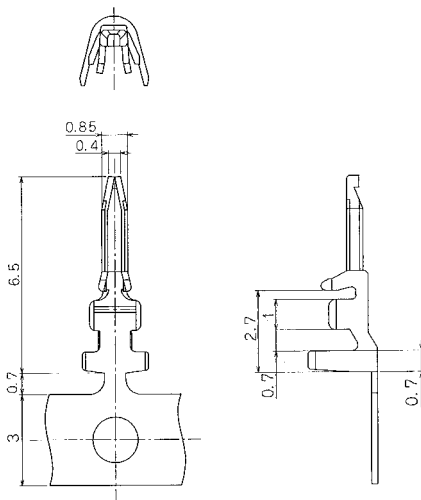
Note:If other cables are used instead of the applicable cable, contact Hirose sales department.

● Strip Length: 1.3 to 1.9mm

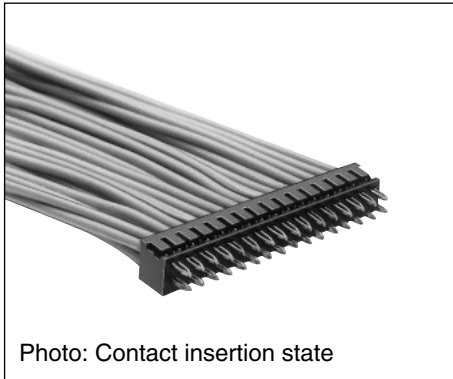
## Applicable Crimping Tool

| Type                 | Part Number     | CL No.     | Applicable Contact |
|----------------------|-----------------|------------|--------------------|
| Applicator           | AP105-DF4-2428P | 901-4539-0 | DF4-2428PCF        |
| Press Main Unit      | CM-105          | 901-0005-4 | —————              |
| Manual Crimping Tool | DF4-TA2428HC    | 550-0173-6 | DF4-2428PC         |
| Extraction Tool      | DF-C-PO (B)     | 550-0179-2 | DF4-2428PCF        |

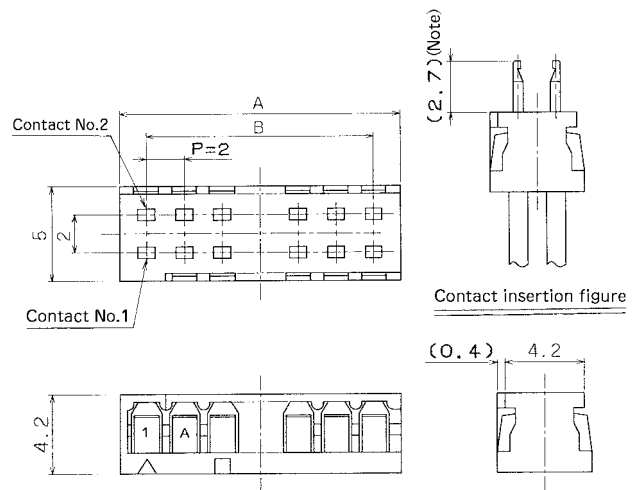
Note: If any trouble has occurred due to other tools, which are not designated by Hirose, Hirose won't guarantee any products.



## ■Double Row Crimping Plug



- Applicable Through-hole Diameter  $\phi 0.9 \pm 0.05$



Note: The dip side may be deviated according to the cable thickness and the crimping contact bent up/down.

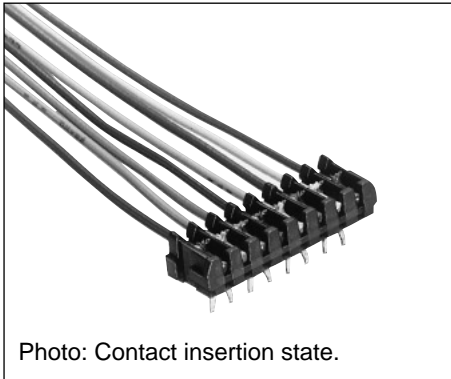
Unit:mm

| Part Number      | CL No.        | Number of Contacts | A    | B    |
|------------------|---------------|--------------------|------|------|
| DF4- 4DP-2C (**) | 544-0078-3-** | 4                  | 4.8  | 2.0  |
| DF4- 6DP-2C (**) | 544-0079-6-** | 6                  | 6.8  | 4.0  |
| DF4- 8DP-2C (**) | 544-0080-5-** | 8                  | 8.8  | 6.0  |
| DF4-10DP-2C (**) | 544-0081-8-** | 10                 | 10.8 | 8.0  |
| DF4-12DP-2C (**) | 544-0082-0-** | 12                 | 12.8 | 10.0 |
| DF4-14DP-2C (**) | 544-0083-3-** | 14                 | 14.8 | 12.0 |
| DF4-16DP-2C (**) | 544-0084-6-** | 16                 | 16.8 | 14.0 |
| DF4-18DP-2C (**) | 544-0085-9-** | 18                 | 18.8 | 16.0 |
| DF4-20DP-2C (**) | 544-0086-1-** | 20                 | 20.8 | 18.0 |
| DF4-22DP-2C (**) | 544-0087-4-** | 22                 | 22.8 | 20.0 |
| DF4-24DP-2C (**) | 544-0088-7-** | 24                 | 24.8 | 22.0 |
| DF4-26DP-2C (**) | 544-0089-0-** | 26                 | 26.8 | 24.0 |
| DF4-28DP-2C (**) | 544-0090-9-** | 28                 | 28.8 | 26.0 |
| DF4-30DP-2C (**) | 544-0091-1-** | 30                 | 30.8 | 28.0 |
| DF4-32DP-2C (**) | 544-0092-4-** | 32                 | 32.8 | 30.0 |

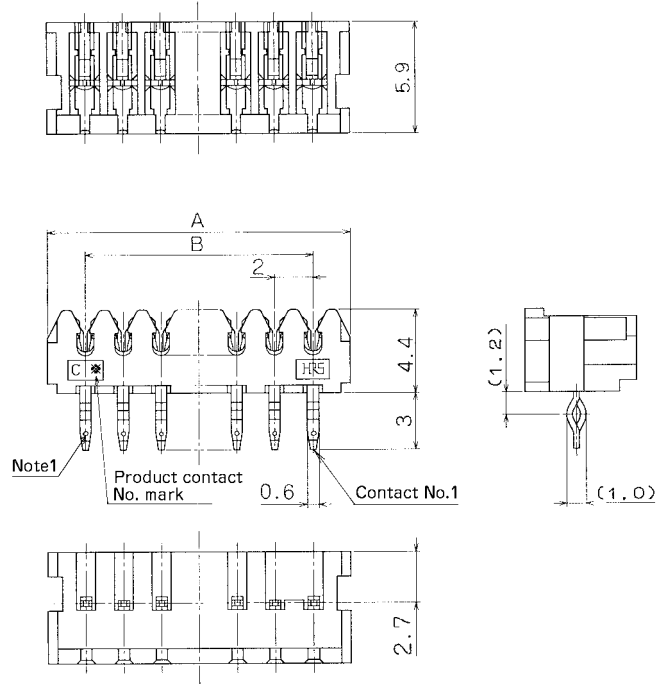
[Specific No.] – \*\*, (\*\*)  
Blank: 1 bag: 100pcs.

Note 1. The quantity at the specific No. "None" is delivered per bag (100pcs.). If needed, please order the products per bag.

## Right Angle Type ID Plug



●Applicable Through-hole Diameter :  $\phi 0.8 \pm 0.1$



Note 1. The plug, which has the mark at the designated position, is for AWG26.

Note 2. The cleaning by heat and trichloroethylene can't be implemented.

### ●Applicable Cable (Tin plating Annealed copper wire)

| Part Number  | Applicable Cable       | Jacket Diameter   |
|--------------|------------------------|-------------------|
| DF4-*PA-2R26 | UL1061 AWG26 (7/0.16)  | $\phi 0.9$ to 1mm |
| DF4-*PA-2R28 | UL1061 AWG28 (7/0.127) | $\phi 0.9$ to 1mm |

[Specific No.] – \*\*, (\*\*)  
Blank: Tin plating, 1 pack: 100pcs.

### ●AWG26

Unit:mm

| Part Number        | CL No.        | Number of Contacts | A    | B    |
|--------------------|---------------|--------------------|------|------|
| DF4- 2PA-2R26 (**) | 544-0022-9-** | 2                  | 6.0  | 2.0  |
| DF4- 3PA-2R26 (**) | 544-0023-1-** | 3                  | 8.0  | 4.0  |
| DF4- 4PA-2R26 (**) | 544-0024-4-** | 4                  | 10.0 | 6.0  |
| DF4- 5PA-2R26 (**) | 544-0025-7-** | 5                  | 12.0 | 8.0  |
| DF4- 6PA-2R26 (**) | 544-0026-0-** | 6                  | 14.0 | 10.0 |
| DF4- 7PA-2R26 (**) | 544-0027-2-** | 7                  | 16.0 | 12.0 |
| DF4- 8PA-2R26 (**) | 544-0028-5-** | 8                  | 18.0 | 14.0 |
| DF4- 9PA-2R26 (**) | 544-0029-8-** | 9                  | 20.0 | 16.0 |
| DF4-10PA-2R26 (**) | 544-0030-7-** | 10                 | 22.0 | 18.0 |
| DF4-11PA-2R26 (**) | 544-0031-0-** | 11                 | 24.0 | 20.0 |
| DF4-12PA-2R26 (**) | 544-0032-2-** | 12                 | 26.0 | 22.0 |
| DF4-13PA-2R26 (**) | 544-0033-5-** | 13                 | 28.0 | 24.0 |
| DF4-14PA-2R26 (**) | 544-0034-8-** | 14                 | 30.0 | 26.0 |
| DF4-15PA-2R26 (**) | 544-0035-0-** | 15                 | 32.0 | 28.0 |

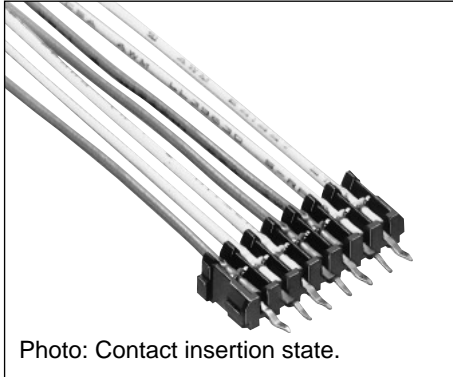
### ●AWG28

Unit:mm

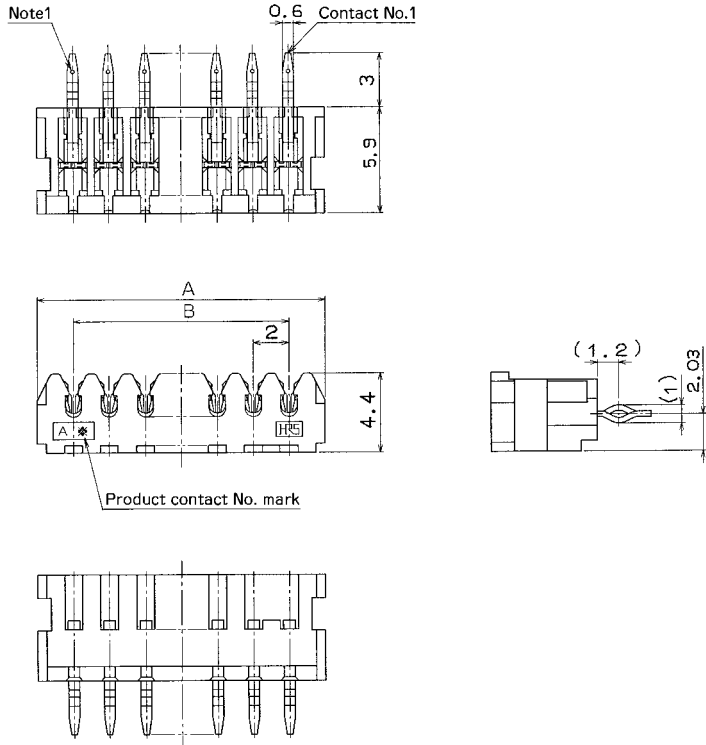
| Part Number        | CL No.        | Number of Contacts | A    | B    |
|--------------------|---------------|--------------------|------|------|
| DF4- 2PA-2R28 (**) | 544-0036-3-** | 2                  | 6.0  | 2.0  |
| DF4- 3PA-2R28 (**) | 544-0037-6-** | 3                  | 8.0  | 4.0  |
| DF4- 4PA-2R28 (**) | 544-0038-9-** | 4                  | 10.0 | 6.0  |
| DF4- 5PA-2R28 (**) | 544-0039-1-** | 5                  | 12.0 | 8.0  |
| DF4- 6PA-2R28 (**) | 544-0040-0-** | 6                  | 14.0 | 10.0 |
| DF4- 7PA-2R28 (**) | 544-0041-3-** | 7                  | 16.0 | 12.0 |
| DF4- 8PA-2R28 (**) | 544-0042-6-** | 8                  | 18.0 | 14.0 |
| DF4- 9PA-2R28 (**) | 544-0043-9-** | 9                  | 20.0 | 16.0 |
| DF4-10PA-2R28 (**) | 544-0044-1-** | 10                 | 22.0 | 18.0 |
| DF4-11PA-2R28 (**) | 544-0045-4-** | 11                 | 24.0 | 20.0 |
| DF4-12PA-2R28 (**) | 544-0046-7-** | 12                 | 26.0 | 22.0 |
| DF4-13PA-2R28 (**) | 544-0047-0-** | 13                 | 28.0 | 24.0 |
| DF4-14PA-2R28 (**) | 544-0048-2-** | 14                 | 30.0 | 26.0 |
| DF4-15PA-2R28 (**) | 544-0049-5-** | 15                 | 32.0 | 28.0 |

Note : A packaging quantity is delivered in the bag unit (100 pcs.). If needed, please order the product per bag.

# ■Straight Type ID Plug



●Applicable Through-hole Diameter :  $\phi 0.8 \pm 0.1$



Note 1. The plug, which has the mark at the designated position, is for AWG26.

Note 2. The cleaning by heat and trichloroethylene can't be implemented.

## ●Applicable Cable (Tin plating Annealed copper wire)

| Part Number        | Applicable Cable       | Jacket Diameter   |
|--------------------|------------------------|-------------------|
| DF4- $\ast$ P-2R26 | UL1061 AWG26 (7/0.16)  | $\phi 0.9$ to 1mm |
| DF4- $\ast$ P-2R28 | UL1061 AWG28 (7/0.127) | $\phi 0.9$ to 1mm |

[Specific No.] –  $\ast\ast$ , ( $\ast\ast$ )  
Blank: Tin plating, 1 pack: 100pcs.

## ●AWG26

Unit:mm

| Part Number                 | CL No.                 | Number of Contacts | A    | B    |
|-----------------------------|------------------------|--------------------|------|------|
| DF4- 2P-2R26 ( $\ast\ast$ ) | 544-0050-4- $\ast\ast$ | 2                  | 6.0  | 2.0  |
| DF4- 3P-2R26 ( $\ast\ast$ ) | 544-0051-7- $\ast\ast$ | 3                  | 8.0  | 4.0  |
| DF4- 4P-2R26 ( $\ast\ast$ ) | 544-0052-0- $\ast\ast$ | 4                  | 10.0 | 6.0  |
| DF4- 5P-2R26 ( $\ast\ast$ ) | 544-0053-2- $\ast\ast$ | 5                  | 12.0 | 8.0  |
| DF4- 6P-2R26 ( $\ast\ast$ ) | 544-0054-5- $\ast\ast$ | 6                  | 14.0 | 10.0 |
| DF4- 7P-2R26 ( $\ast\ast$ ) | 544-0055-8- $\ast\ast$ | 7                  | 16.0 | 12.0 |
| DF4- 8P-2R26 ( $\ast\ast$ ) | 544-0056-0- $\ast\ast$ | 8                  | 18.0 | 14.0 |
| DF4- 9P-2R26 ( $\ast\ast$ ) | 544-0057-3- $\ast\ast$ | 9                  | 20.0 | 16.0 |
| DF4-10P-2R26 ( $\ast\ast$ ) | 544-0058-6- $\ast\ast$ | 10                 | 22.0 | 18.0 |
| DF4-11P-2R26 ( $\ast\ast$ ) | 544-0059-9- $\ast\ast$ | 11                 | 24.0 | 20.0 |
| DF4-12P-2R26 ( $\ast\ast$ ) | 544-0060-8- $\ast\ast$ | 12                 | 26.0 | 22.0 |
| DF4-13P-2R26 ( $\ast\ast$ ) | 544-0061-0- $\ast\ast$ | 13                 | 28.0 | 24.0 |
| DF4-14P-2R26 ( $\ast\ast$ ) | 544-0062-3- $\ast\ast$ | 14                 | 30.0 | 26.0 |
| DF4-15P-2R26 ( $\ast\ast$ ) | 544-0063-6- $\ast\ast$ | 15                 | 32.0 | 28.0 |

## ●AWG28

Unit:mm

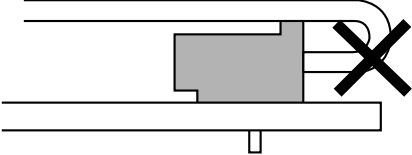
| Part Number                 | CL No.                 | Number of Contacts | A    | B    |
|-----------------------------|------------------------|--------------------|------|------|
| DF4- 2P-2R28 ( $\ast\ast$ ) | 544-0064-9- $\ast\ast$ | 2                  | 6.0  | 2.0  |
| DF4- 3P-2R28 ( $\ast\ast$ ) | 544-0065-1- $\ast\ast$ | 3                  | 8.0  | 4.0  |
| DF4- 4P-2R28 ( $\ast\ast$ ) | 544-0066-4- $\ast\ast$ | 4                  | 10.0 | 6.0  |
| DF4- 5P-2R28 ( $\ast\ast$ ) | 544-0067-7- $\ast\ast$ | 5                  | 12.0 | 8.0  |
| DF4- 6P-2R28 ( $\ast\ast$ ) | 544-0068-0- $\ast\ast$ | 6                  | 14.0 | 10.0 |
| DF4- 7P-2R28 ( $\ast\ast$ ) | 544-0069-2- $\ast\ast$ | 7                  | 16.0 | 12.0 |
| DF4- 8P-2R28 ( $\ast\ast$ ) | 544-0070-1- $\ast\ast$ | 8                  | 18.0 | 14.0 |
| DF4- 9P-2R28 ( $\ast\ast$ ) | 544-0071-4- $\ast\ast$ | 9                  | 20.0 | 16.0 |
| DF4-10P-2R28 ( $\ast\ast$ ) | 544-0072-7- $\ast\ast$ | 10                 | 22.0 | 18.0 |
| DF4-11P-2R28 ( $\ast\ast$ ) | 544-0073-0- $\ast\ast$ | 11                 | 24.0 | 20.0 |
| DF4-12P-2R28 ( $\ast\ast$ ) | 544-0074-2- $\ast\ast$ | 12                 | 26.0 | 22.0 |
| DF4-13P-2R28 ( $\ast\ast$ ) | 544-0075-5- $\ast\ast$ | 13                 | 28.0 | 24.0 |
| DF4-14P-2R28 ( $\ast\ast$ ) | 544-0076-8- $\ast\ast$ | 14                 | 30.0 | 26.0 |
| DF4-15P-2R28 ( $\ast\ast$ ) | 544-0077-0- $\ast\ast$ | 15                 | 32.0 | 28.0 |

Note : A packaging quantity is delivered in the bag unit (100 pcs.). If needed, please order the product per bag.

## ◆ID Tool

| Type   | Part Number             | Objective Connector           | Remarks          |
|--|-------------------------|-------------------------------|------------------|
| DF3-DF4 Table Insulation<br>Displacement Machine | SA701/DF3<br>903-4507-7 | DF3-*S-2R**<br>DF4-*P/PA-2R** | Desk top machine |

## ◆Precautions

|   |  |
|---|--|
| <p>1. Recommended<br/>Soldering Condition</p> | <p>Flow: 250°C for 3 seconds<br/>Manual soldering: 290°C for 2 seconds</p> <p>■ If the cable neighboring the connector is bent and unstraightened, secure a large bending radius because the Jacket will be broken by the solder heat and the contact wire will be exposed. The Jacket in this part will be tore.</p>  <p>■ After the soldering process. If a stress is applied to the cable in the state where the connector and the cable has heat inside, the Jacket hold area will be loosen. Therefore, carry out the post-soldering operation after the connector has returned to the room temperature..</p> |
| <p>2. Cleaning Condition</p>                  | <p>Refer to Nylon Connector Use Hand book.<br/>Don't use a solvent such as trichloroethylene which invades the cable Jacket. In addition, avoid heat cleaning by a solvent.</p>  |
| <p>3. Connection Condition</p>                | <p>Refer to the Nylon Connector Use Hand book.</p>   |