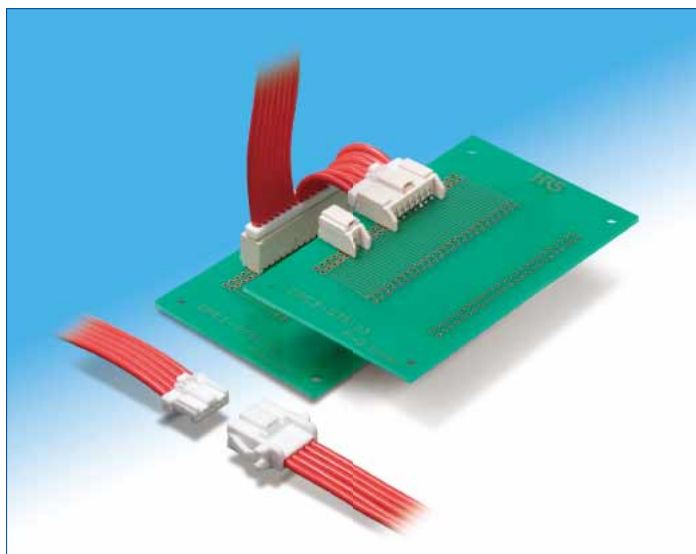


# 2.5mm Pitch Connectors for Full Lock and Discrete Wire Connection

## DF1E Series

UL, C-UL Listed



Full lock function added

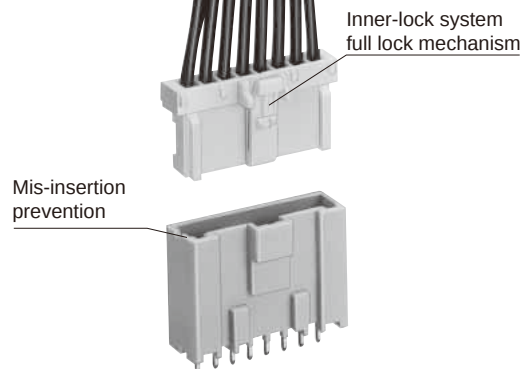


Fig.1

### ■ Features

#### 1. Full Lock Function Added

The inner lock system adopts a full lock mechanism. This mechanism prevents disengagement to occur due to an unexpected external shock. (Fig.1)

#### 2. Increase in Crimping Contact Fixation Force and Semi-insertion Prevention

The double lock is activated for the use method to give a stress to the cable, to increase crimping contact fixation force, and to prevent the semi-insertion of the crimping contact. (Fig.2)

#### 3. Mold Lance Adopted

Since the contact lance may be deformed involving in the contact after the crimping process, the mold lance has been adopted.

#### 4. Mis-insertion Prevention

Equipped with the mechanism to completely prevent reverse insertion and insertion between dissimilar contacts. (Fig.1)

#### 5. Means to Prevent Solder Crack

The glass enforcement resin is adopted for the pin header to prevent a solder crack to occur due to heat compression.

#### 6. Production Facility Cost Reduction

The female crimping contact uses the DF1B series crimping contact, which has been conventionally marketed. Investment for new facilities isn't needed. However, if the retainer is installed in the cable with 22 AWG or more wire, use the DF1E crimping contact. The female crimping contact for in-line is used together with the DF1B applicator. Therefore, no investment is needed for new facilities.

Double lock engaged

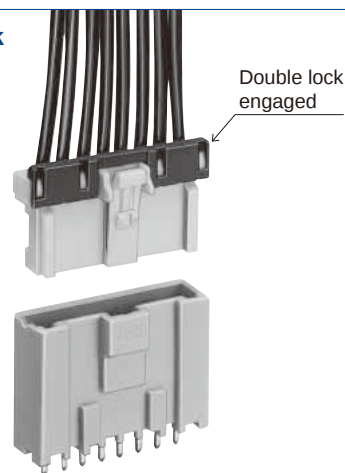


Fig.2

#### 7. Various Applications

With the same series, various applications can be used for the board solder dip type and in-line.

#### 8. Listed by UL, C-UL

■Products Specifications

|        |                                                                                                             |                                                  |                                                      |
|--------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
| Rating | Current rating (Note 1)<br>20 to 24 AWG : 3A/pin<br>26 AWG : 2A/pin<br>28 AWG : 1A/pin<br>30 AWG : 0.5A/pin | Operating Temperature :<br>-35 to +85°C (Note 2) | Storage Temperature Range :<br>-10 to +60°C (Note 4) |
|        | Voltage rating 250V AC/DC                                                                                   | Operating Moisture Range :<br>40 to 80% (Note 3) | Storage Moisture Range :<br>40 to 70% (Notes 4)      |

| UL, C-UL Rating |                |                                                                     |
|-----------------|----------------|---------------------------------------------------------------------|
| Rating          | Current rating | 20 to 22 AWG : 3A/pin<br>24 to 28 AWG : 1A/pin<br>30 AWG : 0.5A/pin |
|                 | Voltage rating | 29.9V AC/DC                                                         |

■UL/C-UL File No. and Recognition No.  
UL : E52653  
C-UL : E52653

| Item                             | Specification                                       | Condition                                                                                         |
|----------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1. Contact Resistance            | 30mΩ max.                                           | Measured at 20mV max. and 1mA                                                                     |
| 2. Insulation Resistance         | 1000MΩ min.                                         | 500V DC                                                                                           |
| 3. Withstanding voltage          | No flashover or insulation breakdown.               | 650V AC/1 minute                                                                                  |
| 4. Durability (Mating/un-mating) | 30mΩ max                                            | Tin plated : 30 cycles, Gold plated : 50 cycles                                                   |
| 5. Vibration                     | No electrical discontinuity of 1μs or more          | Frequency : 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.        |
| 6. Shock                         | No electrical discontinuity of 1μs or more          | Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis |
| 7. Humidity (Steady state)       | 30mΩ max                                            | 96 hours at temperature of 40±2°C and humidity of 90% to 95%                                      |
| 8. Temperature Cycle             | 30mΩ max.                                           | (-55°C : 30 minutes-> 5 to 35°C : 5 minutes-> 85°C : 30 minutes-> 5 to 35°C : 5 minutes) 5 cycles |
| 9. Resistance to Soldering heat  | No deformation of components affecting performance. | Flow : 260°C for 10 seconds                                                                       |
|                                  |                                                     | Manual soldering : 300°C for 3 seconds                                                            |

Note 1 : Current rating of header is 3A.  
Note 2 : Includes temperature rise caused by current flow.  
Note 3 : Use without condensation on parts.  
Note 4 : Applied for the product unused and packaged.  
Note 5 : Information contained in this catalog represents general requirements for this Series.  
Contact us for the drawings and specifications for a specific part number shown.

■Materials / Finish

| Product          | Part      | Material        | Finish                    | Remarks | RoHS2 |
|------------------|-----------|-----------------|---------------------------|---------|-------|
| Socket           | Insulator | Polyamide       | White                     | UL94V-0 | Yes   |
| Header           | Insulator | Polyamide       | Beige                     | UL94V-0 |       |
|                  | Contact   | Brass           | Tin plated or Gold plated | ————    |       |
| In-line Plug     | Insulator | Polyamide       | White                     | UL94V-0 |       |
| Retainer         | Insulator | Polyamide       | Black                     | UL94V-0 |       |
| Crimping contact | Contact   | Phosphor copper | Tin plated or Gold plated | ————    |       |

■Product Number Structure

Refer to the chart below when determining the product specifications from the product number.  
Please select from the product numbers listed in this catalog when placing orders.

●Pin Header

DF1E   C   -   \*   P   -   2.5   DSA

①   ②   ③   ④   ⑤   ⑥

|                                                                           |                                                             |
|---------------------------------------------------------------------------|-------------------------------------------------------------|
| ① Series Name : DF1E                                                      | ③ Number of Contacts : 2 to 15 contacts                     |
| ② Hold Types<br>Blank : Right Angle Pin Header<br>C : Straight Pin Header | ④ Connector Type<br>P : Pin Header                          |
|                                                                           | ⑤ Contact Pitch : 2.5mm                                     |
|                                                                           | ⑥ Form type<br>DSA : Straight Type<br>DS : Right Angle Type |

●Socket

DF1E   -   \*   S   -   2.5   C

①   ②   ③   ④   ⑤

|                                         |                                    |
|-----------------------------------------|------------------------------------|
| ① Series Name : DF1E                    | ③ Connector type<br>S : Socket     |
| ② Number of Contacts : 2 to 15 contacts | ④ Contact Pitch : 2.5mm            |
|                                         | ⑤ Form Type<br>C : Crimping socket |

●In-line Plug

DF1E   A   -   \*   EP   -   2.5   C

①   ②   ③   ④   ⑤   ⑥

|                                                                                      |                                         |
|--------------------------------------------------------------------------------------|-----------------------------------------|
| ① Series Name : DF1E                                                                 | ③ Number of Contacts : 2 to 10 contacts |
| ② In-line Plug type<br>Blank : With Panel mount Lock<br>A : Without Panel mount Lock | ④ EP : In-line plug                     |
|                                                                                      | ⑤ Contact Pitch : 2.5mm                 |
|                                                                                      | ⑥ Form Type<br>C : Crimping socket      |

●Crimping Contact

DF1E   -   \*\*   SCF

①   ②   ③

|                                                                                     |                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Series Name :<br>Socket side : DF1B (Note 1)<br>DF1E (Note 1)<br>Plug side : DF1E | ② Applicable Cable Size<br>2022 : 20 to 22 AWG<br>2428 : 24 to 28 AWG<br>30 : 30 AWG                                                                                                                                                                                                                                                         |
|                                                                                     | ③ Packaging Type<br>SCF : Female contact/reel/Tin plated<br>SCFA : Female contact/reel/Gold plated<br>SC : Female contact/pack/Tin plated<br>SCA : Female contact/pack/Gold plated<br>PCF : Male contact/reel/Tin plated<br>PCFA : Male contact/reel/Gold plated<br>PC : Male contact/pack/Tin plated<br>PCA : Male contact/pack/Gold plated |

Note 1 : When the retainer is used, use DF1E-2022SC(F)(A),  
DF1B-2428SC(F)(A), and DF1B-30SC(F)(A) contacts.  
When no retainer is used, all DF1B-\*\*SC(F)(A) and  
DF1E-2022SC(F)(A) contacts can be used.

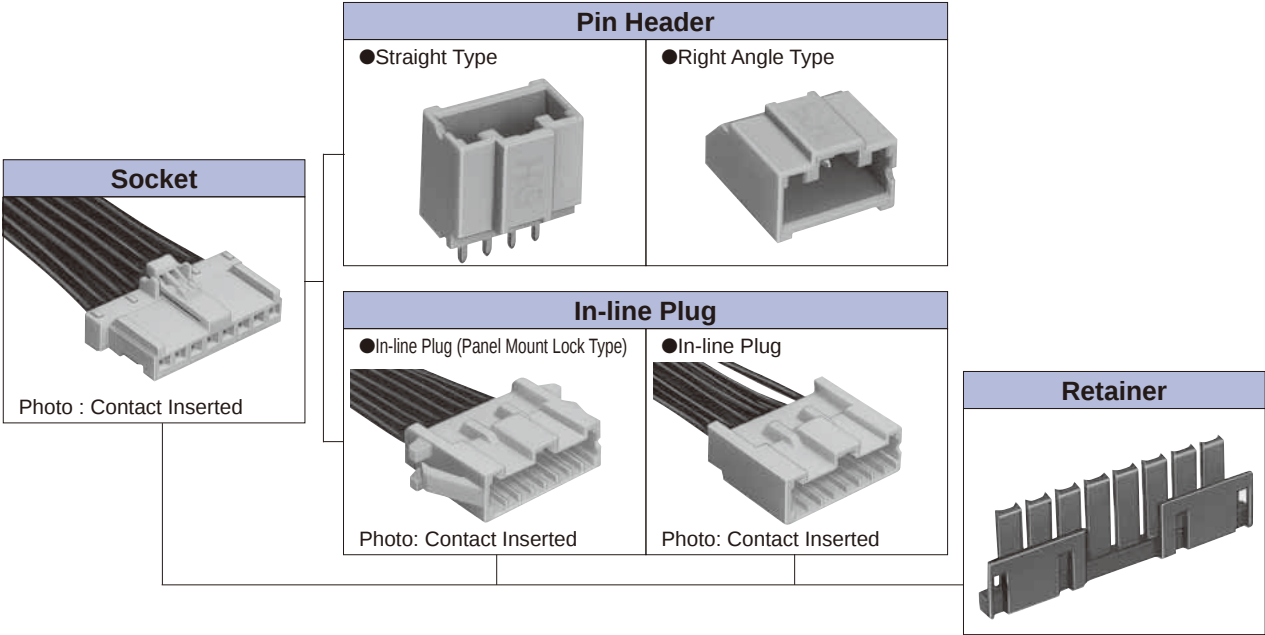
●Retainer

DF1E   -   \*   RS/P   -   2.5

①   ②   ③   ④

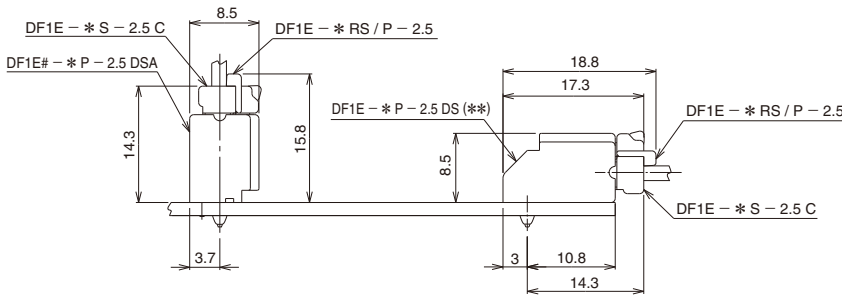
|                                         |                                                                                  |
|-----------------------------------------|----------------------------------------------------------------------------------|
| ① Series Name : DF1E                    | ③ Connector Type<br>RS/P : Retainer<br>Commonly used for socket and in-line plug |
| ② Number of Contacts : 2 to 10 contacts | ④ Contacts Pitch : 2.5mm                                                         |

◆Application Pattern

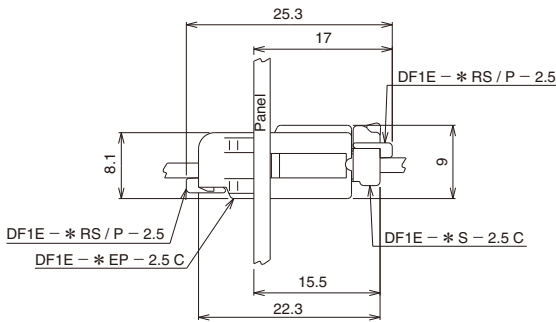


◆Mated Dimensions

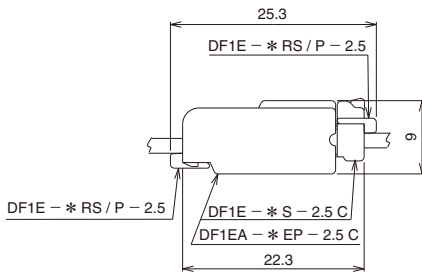
●Standard Header



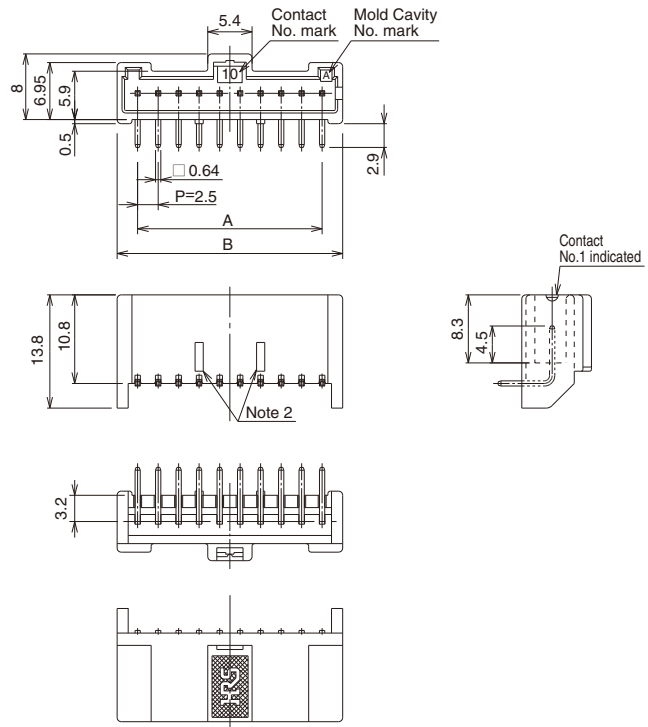
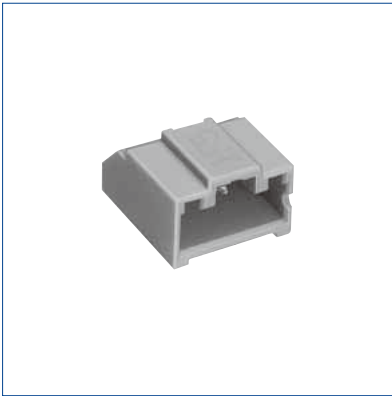
●Panel Mounting Lock In-line Plug



●In-line Plug



## ■Right Angle Pin Header



Unit : mm

| Part No.           | HRS No.       | No. of Contacts | A    | B    |
|--------------------|---------------|-----------------|------|------|
| DF1E- 2P-2.5DS(**) | 541-0985-0 ** | 2               | 2.5  | 7.5  |
| DF1E- 3P-2.5DS(**) | 541-0986-3 ** | 3               | 5.0  | 10.0 |
| DF1E- 4P-2.5DS(**) | 541-0987-6 ** | 4               | 7.5  | 12.5 |
| DF1E- 5P-2.5DS(**) | 541-0988-9 ** | 5               | 10.0 | 15.0 |
| DF1E- 6P-2.5DS(**) | 541-0989-1 ** | 6               | 12.5 | 17.5 |
| DF1E- 7P-2.5DS(**) | 541-0990-0 ** | 7               | 15.0 | 20.0 |
| DF1E- 8P-2.5DS(**) | 541-0991-3 ** | 8               | 17.5 | 22.5 |
| DF1E- 9P-2.5DS(**) | 541-0992-6 ** | 9               | 20.0 | 25.0 |
| DF1E-10P-2.5DS(**) | 541-0993-9 ** | 10              | 22.5 | 27.5 |
| DF1E-11P-2.5DS(**) | 541-0994-1 ** | 11              | 25.0 | 30.0 |
| DF1E-12P-2.5DS(**) | 541-0995-4 ** | 12              | 27.5 | 32.5 |
| DF1E-14P-2.5DS(**) | 541-0997-0 ** | 14              | 32.5 | 37.5 |
| DF1E-15P-2.5DS(**) | 541-0998-2 ** | 15              | 35.0 | 40.0 |

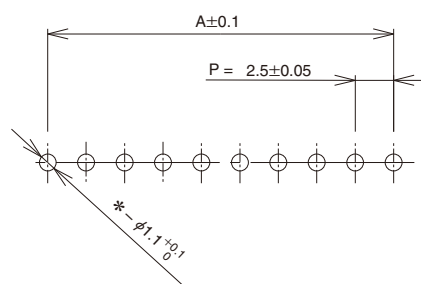
[Specific No.] -\* \*, (\* \*)  
 (36) : Gold plated  
 (35) : Tin plated

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to the Specific No.

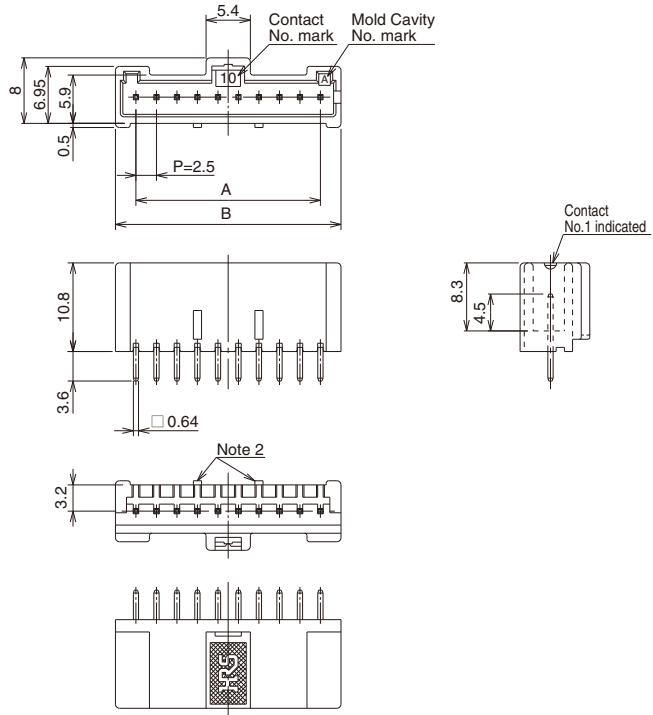
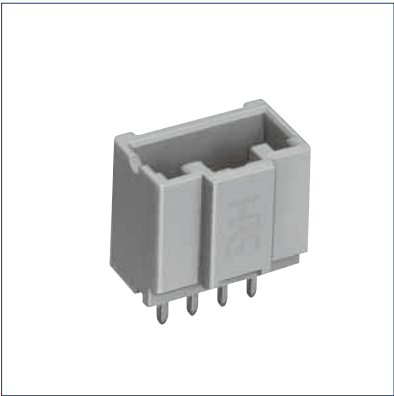
Note 2 : The 2 to 4 contacts differ in two convex portions from those in above figures. The 2 and 3 contacts are not contained, but the 4 contact connector is contained in the center at one point.

Note 3 : Styles of 2 to 4 contact connectors partially differ from those in above figures.

## ● PCB mounting pattern (Board Thickness $t = 1.6 \pm 0.1$ )



■Straight Pin Header



Unit : mm

| Part No.             | HRS No.       | No. of Contacts | A    | B    |
|----------------------|---------------|-----------------|------|------|
| DF1EC- 2P-2.5DSA(**) | 541-0867-4 ** | 2               | 2.5  | 7.5  |
| DF1EC- 3P-2.5DSA(**) | 541-0868-7 ** | 3               | 5.0  | 10.0 |
| DF1EC- 4P-2.5DSA(**) | 541-0869-0 ** | 4               | 7.5  | 12.5 |
| DF1EC- 5P-2.5DSA(**) | 541-0870-9 ** | 5               | 10.0 | 15.0 |
| DF1EC- 6P-2.5DSA(**) | 541-0871-1 ** | 6               | 12.5 | 17.5 |
| DF1EC- 7P-2.5DSA(**) | 541-0872-4 ** | 7               | 15.0 | 20.0 |
| DF1EC- 8P-2.5DSA(**) | 541-0873-7 ** | 8               | 17.5 | 22.5 |
| DF1EC- 9P-2.5DSA(**) | 541-0874-0 ** | 9               | 20.0 | 25.0 |
| DF1EC-10P-2.5DSA(**) | 541-0875-2 ** | 10              | 22.5 | 27.5 |
| DF1EC-11P-2.5DSA(**) | 541-0876-5 ** | 11              | 25.0 | 30.0 |
| DF1EC-12P-2.5DSA(**) | 541-0877-8 ** | 12              | 27.5 | 32.5 |
| DF1EC-14P-2.5DSA(**) | 541-0879-3 ** | 14              | 32.5 | 37.5 |
| DF1EC-15P-2.5DSA(**) | 541-0880-2 ** | 15              | 35.0 | 40.0 |

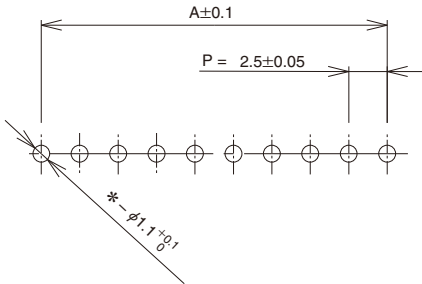
[Specific No.] -\* \*, (\* \*)  
(36) : Gold plated  
(35) : Tin plated

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to the Specific No.

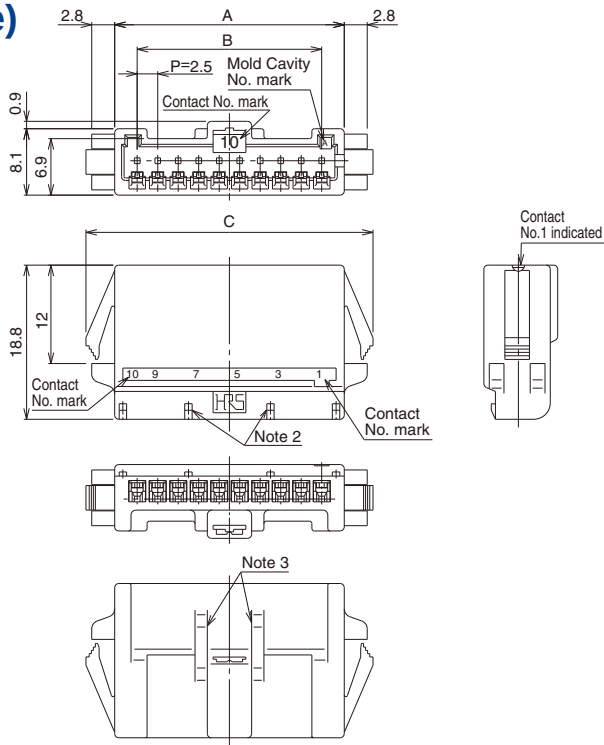
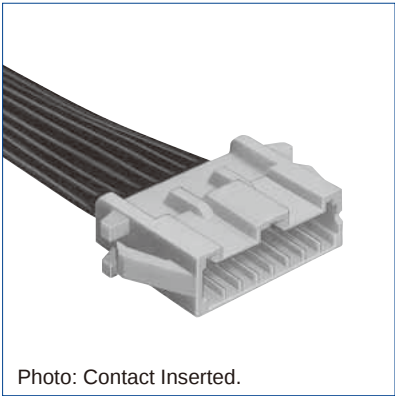
Note 2 : The 2 to 4 contacts differ in two convex portions from those in above figures. The 2 and 3 contacts are not contained, but the 2 and 3 contacts are not contained, and 4 contact is in the center at one point.

Note 3 : Styles of 2 to 4 contacts partially differ from those in above figures.

● PCB mounting pattern (Board Thickness  $t = 1.6 \pm 0.1$ )



## ■In-line Plug (Panel Mount Lock Type)



Unit : mm

| Part No.       | HRS No.    | No. of Contacts | A    | B    | C    | D    | E    |
|----------------|------------|-----------------|------|------|------|------|------|
| DF1E- 2EP-2.5C | 541-0943-0 | 2               | 8.0  | 2.5  | 15.0 | 8.4  | 11.9 |
| DF1E- 3EP-2.5C | 541-0944-3 | 3               | 10.5 | 5.0  | 17.5 | 10.9 | 14.4 |
| DF1E- 4EP-2.5C | 541-0945-6 | 4               | 13.0 | 7.5  | 20.0 | 13.4 | 16.9 |
| DF1E- 5EP-2.5C | 541-0946-9 | 5               | 15.5 | 10.0 | 22.5 | 15.9 | 19.4 |
| DF1E- 6EP-2.5C | 541-0947-1 | 6               | 18.0 | 12.5 | 25.0 | 18.4 | 21.9 |
| DF1E- 8EP-2.5C | 541-0949-7 | 8               | 23.0 | 17.5 | 30.0 | 23.4 | 26.9 |
| DF1E-10EP-2.5C | 541-0951-9 | 10              | 28.0 | 22.5 | 35.0 | 28.4 | 31.9 |

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to the Specific No.

Note 2 : In regard to 2 to 5 contacts, the retainer fixed convex portions are located at both ends.

Note 3 : In regard to 2 to 7 contacts, 2 convex portions are different from those in the above figures.

Note 4 : Use the no radius side at the panel edge in the looking area.

Note 5 : Panel fixation is loosened. (May be enlarged according to the panel board thickness.)

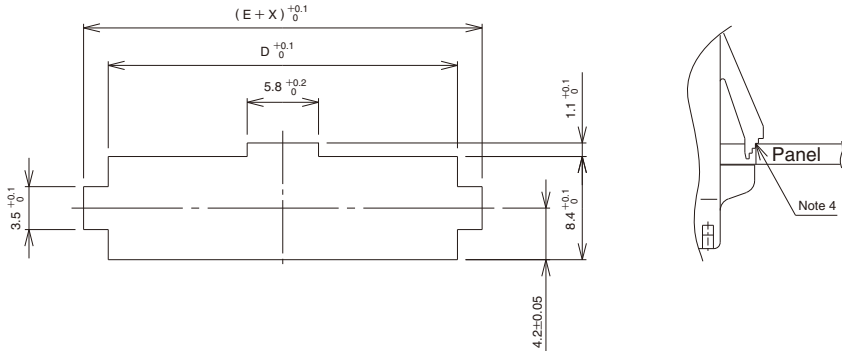
Note 6 : Styles of 2 to 4 contact partially differ from those in the above figures.

\* Refer to page 11 for the retainer.

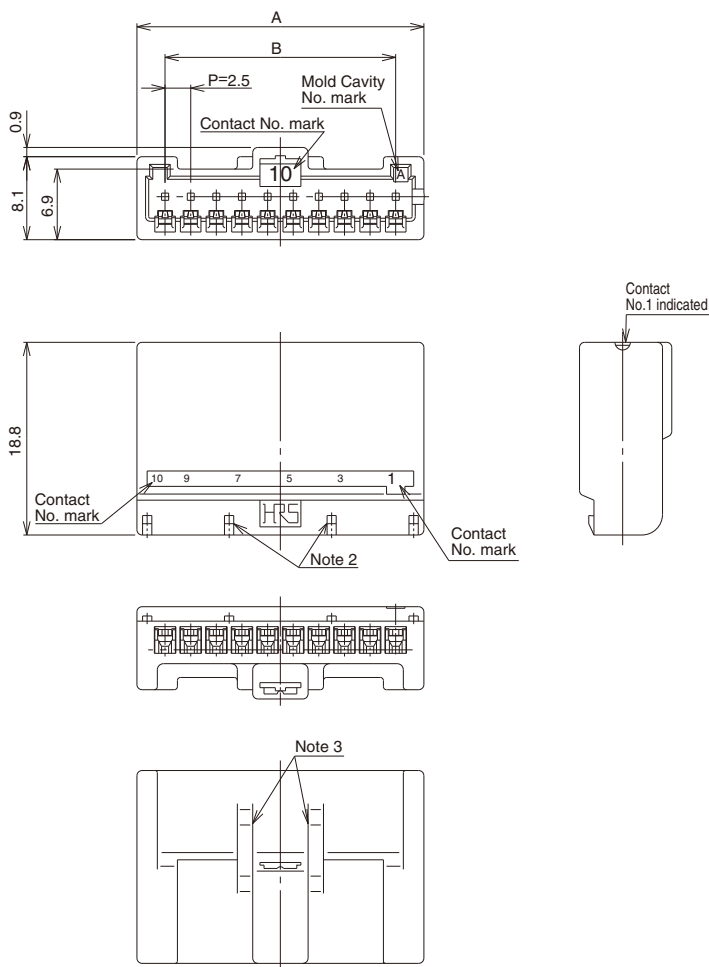
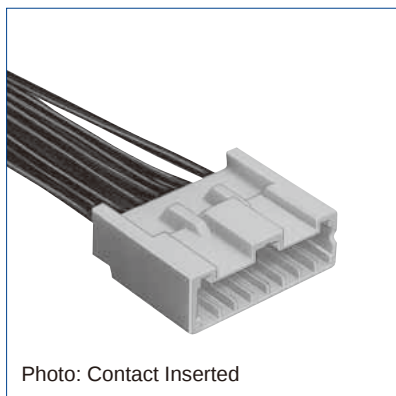
## ● Panel Cutout

Unit : mm

| Panel Thickness | X   |
|-----------------|-----|
| 1.7 to 2.0      | 1.5 |
| 1.3 to 1.6      | 1.0 |
| 0.9 to 1.2      | 0.5 |
| 0.7 to 0.8      | 0.0 |



## In-line Plug



Unit : mm

| Part No.        | HRS No.    | No. of Contacts | A    | B    |
|-----------------|------------|-----------------|------|------|
| DF1EA- 2EP-2.5C | 541-0957-5 | 2               | 8.0  | 2.5  |
| DF1EA- 3EP-2.5C | 541-0958-8 | 3               | 10.5 | 5.0  |
| DF1EA- 4EP-2.5C | 541-0959-0 | 4               | 13.0 | 7.5  |
| DF1EA- 5EP-2.5C | 541-0960-0 | 5               | 15.5 | 10.0 |
| DF1EA- 6EP-2.5C | 541-0961-2 | 6               | 18.0 | 12.5 |
| DF1EA- 9EP-2.5C | 541-0964-0 | 9               | 25.5 | 20.0 |
| DF1EA-10EP-2.5C | 541-0965-3 | 10              | 28.0 | 22.5 |

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to the Specific No.

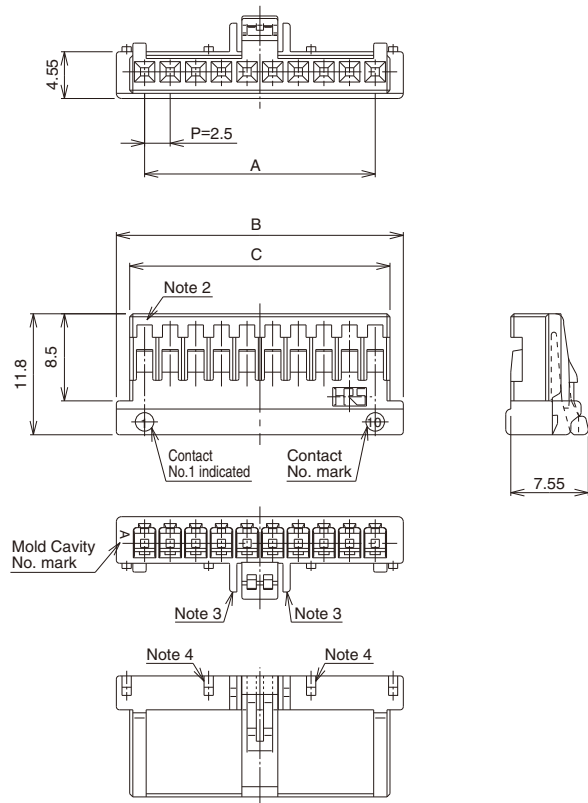
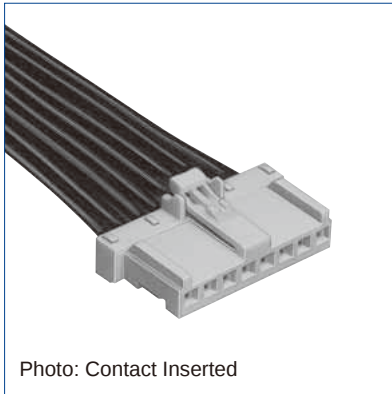
Note 2 : In regard to 2 to 5 contacts, the retainer fixed convex portions are located at both ends.

Note 3 : 2 to 7 contacts do not contain two convex portions, which is different from the above figure.

Note 4 : Styles of 2 to 4 contacts partially differ from the above figures.

\* Refer to page 11 for retainer.

## Socket



Unit : mm

| Part No.      | HRS No.    | No. of Contacts | A    | B    | C    |
|---------------|------------|-----------------|------|------|------|
| DF1E- 2S-2.5C | 541-0811-0 | 2               | 2.5  | 8.0  | 5.4  |
| DF1E- 3S-2.5C | 541-0812-2 | 3               | 5.0  | 10.5 | 7.9  |
| DF1E- 4S-2.5C | 541-0813-5 | 4               | 7.5  | 13.0 | 10.4 |
| DF1E- 5S-2.5C | 541-0814-8 | 5               | 10.0 | 15.5 | 12.9 |
| DF1E- 6S-2.5C | 541-0815-0 | 6               | 12.5 | 18.0 | 15.4 |
| DF1E- 7S-2.5C | 541-0816-3 | 7               | 15.0 | 20.5 | 17.9 |
| DF1E- 8S-2.5C | 541-0817-6 | 8               | 17.5 | 23.0 | 20.4 |
| DF1E- 9S-2.5C | 541-0818-9 | 9               | 20.0 | 25.5 | 22.9 |
| DF1E-10S-2.5C | 541-0819-1 | 10              | 22.5 | 28.0 | 25.4 |
| DF1E-11S-2.5C | 541-0820-0 | 11              | 25.0 | 30.5 | 27.9 |
| DF1E-12S-2.5C | 541-0821-3 | 12              | 27.5 | 33.0 | 30.4 |
| DF1E-14S-2.5C | 541-0823-9 | 14              | 32.5 | 38.0 | 35.4 |
| DF1E-15S-2.5C | 541-0824-1 | 15              | 35.0 | 40.5 | 37.9 |

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to spec number.

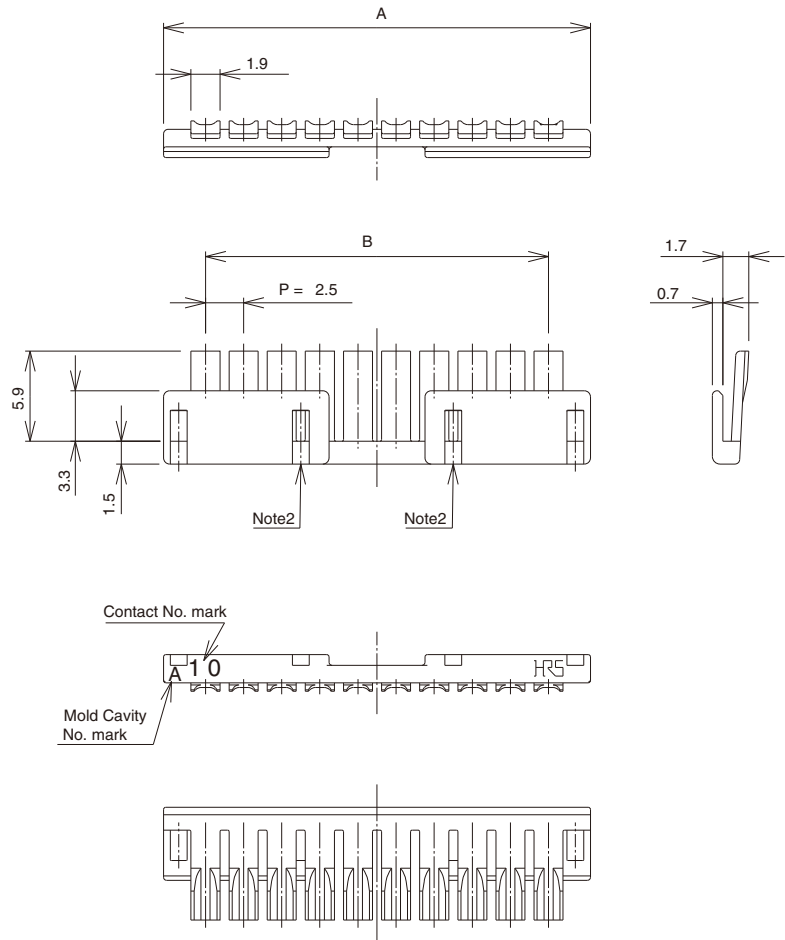
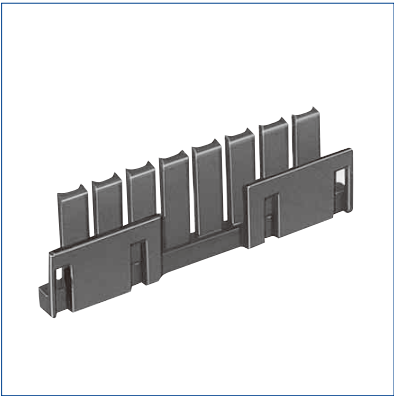
Note 2 : The 2 contact connector is equipped with the convex portion to prevent false-insertion.

Note 3 : The 2 consult Has no wall on the locking side

Note 4 : The 2 to 5 contacts contain the retainer fixed convex portions at both ends.

\* Refer to page 11 for the retainer.

■Retainer



Unit : mm

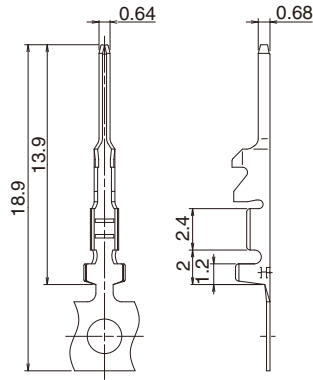
| Part No.        | HRS No.    | No. of Contacts | A    | B    |
|-----------------|------------|-----------------|------|------|
| DF1E- 2RS/P-2.5 | 541-0971-6 | 2               | 8.0  | 2.5  |
| DF1E- 3RS/P-2.5 | 541-0972-9 | 3               | 10.5 | 5.0  |
| DF1E- 4RS/P-2.5 | 541-0973-1 | 4               | 13.0 | 7.5  |
| DF1E- 5RS/P-2.5 | 541-0974-4 | 5               | 15.5 | 10.0 |
| DF1E- 6RS/P-2.5 | 541-0975-7 | 6               | 18.0 | 12.5 |
| DF1E- 8RS/P-2.5 | 541-0977-2 | 8               | 23.0 | 17.5 |
| DF1E-10RS/P-2.5 | 541-0979-8 | 10              | 28.0 | 22.5 |

Note 1 : A packaging quantity is delivered by the bag unit (100 pcs.). If needed, please order the products per bag. However, the quantity for delivery will be changed according to spec number.

Note 2 : The 2 to 4 contacts contain socket and plug fixed holes at both ends.

\* This retainer can be used together with the socket and In-line plug.

## ■ Plug Crimping Contact



### ● Reel Contact Applicable Tool : Applicator

| Part No.      | HRS No.    | Applicable Cable (Tin Plated Annealing Copper Wire) |                 |        |                   | Purchase Unit | Finish      |
|---------------|------------|-----------------------------------------------------|-----------------|--------|-------------------|---------------|-------------|
|               |            | UL Style                                            | Jacket Diameter | AWG    | Wire Construction |               |             |
| DF1E-2022PCF  | 541-0937-8 | UL1007<br>UL1061                                    | 1.2 to 1.9mm    | 20 AWG | 21/0.18           | 10000         | Tin plated  |
| DF1E-2022PCFA | 541-1003-0 |                                                     |                 | 22 AWG | 17/0.16           |               | Gold plated |
|               |            |                                                     |                 | 20 AWG | 21/0.18           |               |             |
|               |            |                                                     |                 | 22 AWG | 17/0.16           |               |             |
| DF1E-2428PCF  | 541-0939-3 |                                                     | 0.9 to 1.5mm    | 24 AWG | 11/0.16           |               |             |
|               |            |                                                     |                 | 26 AWG | 7/0.16            |               |             |
|               |            |                                                     |                 | 28 AWG | 7/0.127           |               |             |
|               |            |                                                     |                 | 24 AWG | 11/0.16           |               |             |
| DF1E-2428PCFA | 541-1005-6 |                                                     |                 | 26 AWG | 7/0.16            |               | Gold plated |
|               |            |                                                     |                 | 28 AWG | 7/0.127           |               |             |

Note : When using cables other than those specified, contact a Hirose sales representative.

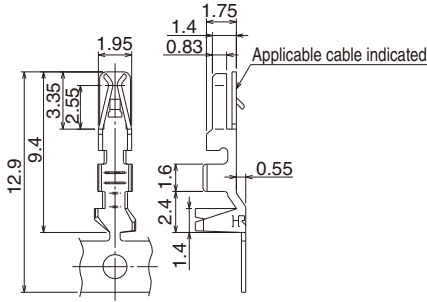
### ● Loose Contact Applicable Tool : Manual Crimping Tool

| Part No.     | HRS No.    | Applicable Cable (Tin Plated Annealing Copper Wire) |                 |        |                   | Purchase Unit | Finish      |
|--------------|------------|-----------------------------------------------------|-----------------|--------|-------------------|---------------|-------------|
|              |            | UL Style                                            | Jacket Diameter | AWG    | Wire Construction |               |             |
| DF1E-2022PCA | 541-1004-3 | UL1007                                              | 1.8mm           | 20 AWG | 21/0.18           | 100           | Gold plated |
| DF1E-2428PC  | 541-0940-2 |                                                     | 1.6mm           | 22 AWG | 17/0.16           |               | Tin plated  |
|              |            |                                                     | 1.5mm           | 24 AWG | 11/0.16           |               |             |
|              |            |                                                     | 1.3mm           | 26 AWG | 7/0.16            |               |             |
|              |            |                                                     | 1.2mm           | 28 AWG | 7/0.127           |               |             |

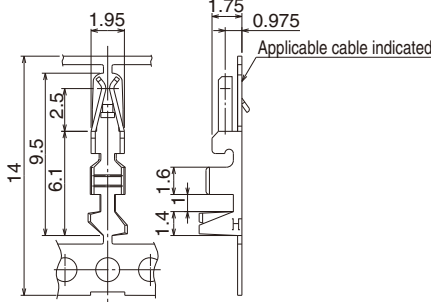
Note : Only the above cables are suitable when using the manual crimping tool.

■Socket Crimping Contact

●DF1E-2022SCF (A)



●DF1B - \* \* \* \* SCF (A)



●Reel Contact Applicable Tool : Applicator

| Part No.      | HRS No.    | Applicable Cable (Tin Plated Annealing Copper Wire) |                 |              |                   | Purchase Unit | Finish       |
|---------------|------------|-----------------------------------------------------|-----------------|--------------|-------------------|---------------|--------------|
|               |            | UL Style                                            | Jacket Diameter | AWG          | Wire Construction |               |              |
| DF1E-2022SCF  | 541-0999-5 | UL1007<br>UL1061                                    | 1.2 to 1.9mm    | 20 AWG       | 21/0.18           | 10000         | Tin plated   |
| DF1E-2022SCFA | 541-1001-5 |                                                     |                 | 1.2 to 1.9mm | 22 AWG            |               | 17/0.16      |
|               |            |                                                     | DF1B-2022SCF    |              | 541-0223-1        |               | 1.2 to 1.9mm |
| DF1B-2022SCFA | 541-0662-1 |                                                     |                 | 1.2 to 1.9mm |                   |               |              |
|               |            |                                                     | DF1B-2428SCF    |              | 541-0678-1        |               | 0.9 to 1.5mm |
| 22 AWG        | 17/0.16    |                                                     |                 |              |                   |               |              |
| 24 AWG        | 11/0.16    |                                                     |                 |              |                   |               |              |
| DF1B-2428SCFA | 541-0680-3 |                                                     | 0.9 to 1.5mm    | 26 AWG       | 7/0.16            |               | Gold plated  |
|               |            |                                                     |                 | 28 AWG       | 7/0.127           |               |              |
|               |            |                                                     |                 | 24 AWG       | 11/0.16           |               |              |
| DF1B-30SCF    | 541-0682-9 |                                                     | 0.6 to 1.2mm    | 30 AWG       | 7/0.1             |               | Tin plated   |
| DF1B-30SCFA   | 541-0684-4 |                                                     |                 | 30 AWG       | 7/0.1             |               | Gold plated  |

Note : When using cables other than those specified, contact a Hirose sales representative.

●Loose Contact Applicable Tool : Manual Crimping Tool

| Part No.     | HRS No.    | Applicable Cable (Tin Plated Annealing Copper Wire) |                 |        |                   | Purchase Unit | Finish      |  |
|--------------|------------|-----------------------------------------------------|-----------------|--------|-------------------|---------------|-------------|--|
|              |            | UL Style                                            | Jacket Diameter | AWG    | Wire Construction |               |             |  |
| DF1E-2022SC  | 541-1000-2 | UL1007                                              | 1.8mm           | 20 AWG | 21/0.18           | 100           | Tin plated  |  |
| DF1E-2022SCA | 541-1002-8 |                                                     | 1.6mm           | 22 AWG | 17/0.16           |               | Gold plated |  |
|              |            |                                                     | 1.8mm           | 20 AWG | 21/0.18           |               |             |  |
| DF1B-2022SC  | 541-0224-4 |                                                     | 1.6mm           | 22 AWG | 17/0.16           |               | Tin plated  |  |
|              |            |                                                     | 1.8mm           | 20 AWG | 21/0.18           |               |             |  |
| DF1B-2022SCA | 541-0663-4 |                                                     | 1.6mm           | 22 AWG | 17/0.16           |               | Gold plated |  |
|              |            |                                                     | 1.8mm           | 20 AWG | 21/0.18           |               |             |  |
| DF1B-2428SC  | 541-0679-4 |                                                     | 1.5mm           | 24 AWG | 11/0.16           |               | Tin plated  |  |
|              |            |                                                     | 1.3mm           | 26 AWG | 7/0.16            |               |             |  |
|              |            |                                                     | 1.2mm           | 28 AWG | 7/0.127           |               |             |  |
|              |            |                                                     | 1.5mm           | 24 AWG | 11/0.16           |               |             |  |
| DF1B-2428SCA | 541-0681-6 |                                                     | 1.3mm           | 26 AWG | 7/0.16            |               | Gold plated |  |
|              |            |                                                     | 1.2mm           | 28 AWG | 7/0.127           |               |             |  |
|              |            |                                                     | 1.1mm           | 30 AWG | 7/0.1             |               |             |  |
| DF1B-30SC    | 541-0683-1 |                                                     | 1.1mm           | 30 AWG | 7/0.1             |               | Tin plated  |  |
| DF1B-30SCA   | 541-0685-7 |                                                     |                 |        | 7/0.1             |               | Gold plated |  |

Note : Only the above cables are suitable when using the manual crimping tool.

## ◆ Crimping Tools

| Item                    | Part No.           | HRS No.    | Applicable Contact                                                          |
|-------------------------|--------------------|------------|-----------------------------------------------------------------------------|
| Applicator              | AP105-DF1E-2022S   | 901-4561-0 | DF1E-2022SCF<br>DF1E-2022SCFA                                               |
|                         | AP105-DF1B-2022S ◎ | 901-4510-9 | DF1B-2022SCF<br>DF1B-2022SCFA                                               |
|                         | AP105-DF1B-2428S ◎ | 901-4518-0 | DF1B-2428SCF<br>DF1B-2428SCFA                                               |
|                         | AP105-DF1B-30S ◎   | 901-4517-8 | DF1B-30SCF<br>DF1B-30SCFA                                                   |
|                         | AP105-DF1B-2022P ◎ | 901-4509-0 | DF1E-2022PCF<br>DF1E-2022PCFA                                               |
|                         | AP105-DF1B-2428P ◎ | 901-4521-5 | DF1E-2428PCF<br>DF1E-2428PCFA                                               |
| Main Press Unit         | CM-105C ◎          | 901-0001-0 | —                                                                           |
| Manual Crimping Tool    | HT102/DF1E-2022S   | 550-0277-1 | DF1E-2022SC<br>DF1E-2022SCA                                                 |
|                         | DF1B-TA2022SHC ◎   | 550-0182-7 | DF1B-2022SC<br>DF1B-2022SCA                                                 |
|                         | DF1B-TA2428SHC ◎   | 550-0209-1 | DF1B-2428SC<br>DF1B-2428SCA                                                 |
|                         | DF1B-TA30SHC ◎     | 550-0211-3 | DF1B-30SC<br>DF1B-30SCA                                                     |
|                         | HT102/DF1BE-2022P  | 550-0278-4 | DF1E-2022PC<br>DF1E-2022PCA                                                 |
|                         | HT102/DF1BE-2428P  | 550-0279-7 | DF1E-2428PC<br>DF1E-2428PCA                                                 |
| Contact Extraction Tool | DF-C-PO (B)        | 550-0179-2 | DF1E-2022SC (F) (A)<br>DF1B- * * * * SC (F) (A)<br>DF1E- * * * * PC (F) (A) |

Note 1 : Add " ◎ " to the last number of the product, in order to use DF1B series tools, which have been conventionally merchandized.

Note 2 : If any trouble has occurred due to other tools, which are not designated by Hirose, Hirose won't guarantee any products.

Note 3 : Please perform crimping work in accordance with the "Crimp Quality Standard" (ETAD-H0947-00, ETAD-H0949-00) and the "Crimp Condition Table".

Note 4 : Please contact a Hirose sales representative to request the tooth profile drawings when using other than tools specified by our company.

## ◆ Crimping Precautions

### ■ Items Required Prior to Crimping

The work-related documents shown below are required before starting the harness assembly.

(The ● mark represents required documents.)

Please contact your Hirose sales representative if you do not have these documents.

| Document Title                                    | Description                                                  | Automatic Crimping Machine | Hand Crimping Tool | Remarks                                           |
|---------------------------------------------------|--------------------------------------------------------------|----------------------------|--------------------|---------------------------------------------------|
| (1) Crimping Machine Main Unit Instruction Manual | Explanation of main press unit                               | ●                          | —                  | Bundled with purchase of main press machine unit. |
| (2) Applicator Instruction Manual                 | Crimp Method                                                 | ●                          | —                  | Bundled with purchase of applicator.              |
| (3) Applicator Spare Parts List                   | Applicator Installation Instruction                          | ●                          | —                  |                                                   |
| (4) Crimp Conditions                              | Crimp height, tensile strength standard value                | ●                          | —                  |                                                   |
| (5) Crimp Quality Standards                       | Various standards for crimping conditions                    | ●                          | —                  | Bundled with purchase of hand tool.               |
| (6) Hand Tool Operating Instructions              | Crimp method, crimp height and tensile height standard value | —                          | ●                  |                                                   |

### ■ Tools

- Use tools designated by Hirose when crimping.
- Crimping performed using tools other than those specified is outside the scope of warranty.
- The operating instructions are available for the crimping machine and the applicator. Be sure to carefully read the operating instructions manual before beginning work.

### ■ Applicable Cables

Check that the cables to be used are within the applicable range.

If you intend to use a cable other than those recommended, contact a sales representative.

#### [Precautions]

- Cables applicable to crimping connectors are tin-plated stranded soft-copper wire.
- Avoid crimping solid wire, wires with polyester threads or tin coated wires.
- Avoid crimping two cables together.
- The crimp height setting values (Note 1) may vary between tin-plated and gold-plated terminals even if the same electric wires are used.
- The crimp height setting values (Note 1) may vary depending on the difference in the core wire configuration even if the computed cross-sectional area is the same.

Note 1 : The crimp height is an important item that determines crimping quality. We execute crimping tests for each electric wire to ensure the optimal value for the crimp height with high precision, thereby ensuring optimal setup values.

◆Precautions

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Cleaning Condition   | Refer to Wire-to-Board Connector Use Hand book.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2. Connection Condition | Refer to Wire-to-Board Connector Use Hand book.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 3. Cautions             | <ul style="list-style-type: none"><li>■ To remove the connector, if the connector is forcedly removed, it will cause connector damage. If the connector is hardly removed, slightly push the connector once, and then remove it using the lock.</li><li>■ In some method for laying the cable within equipment, a tension may be applied to the cable so as to remove the contact. In this case, it is recommended to use the retainer.</li><li>■ Incomplete insertion of the contact can be prevented by mounting a retainer; however, mounting of a retainer might not be possible when the contact protrudes beyond the socket. Insert the contact securely and then mount the retainer.</li><li>■ The color phase of this product may be slightly different from that of the forming product according to the manufacturing lot and future storage conditions, however the difference doesn't affect the performance.</li><li>■ Black spots may appear on the mold resin but this does not affect the product quality.</li></ul> |
| 4. Precautions          | <p>Please refer to the following documents when handling the product.</p> <ul style="list-style-type: none"><li>■ Crimp Quality Standard (ETAD-H0947-00, ETAD-H0949-00)</li><li>■ Wire-to-Board Connector Use Handbook</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



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