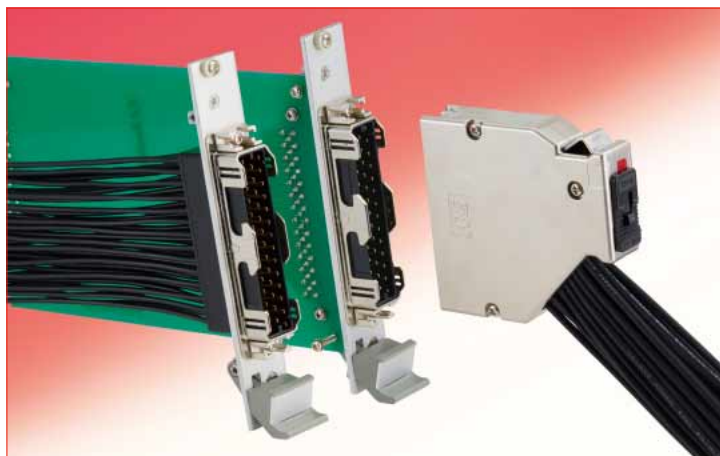


# Interface Connector for Railway Applications

## TJ\*A Series



One touch locking design provides a clear tactile click and simplified operations.

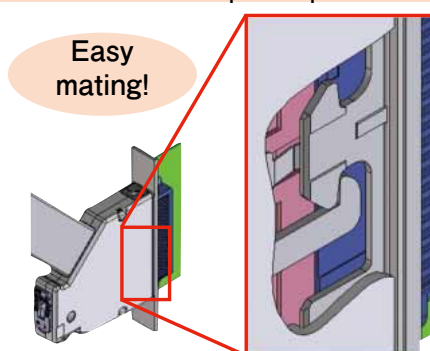


Fig.1

### ■ General

TJ\*A series interface connectors for railway car stock applications.

It can be attached to 3U4HP size panels for VME rack or Compact PCI rack. PCB mount type and in-line type are available. Suitable for use with 16 to 22AWG wire.

### ■ Features

#### 1. One-Touch Locking system

A one-touch locking structure that delivers a simple, user friendly operation and emits a clear tactile upon completion. (Fig.1)

#### 2. Lock Hold Slide Button

Our proprietary slide lock design prevents inadvertent unlocking. The slide lock can be visually inspected to ensure lock engagement. (Fig.2)

#### 3. Pressed Contacts

The TJ\*A series use a pressed style contact. Two points of contact are achieved by a spring contact portion and non-spring contact portion. This realizes space saving and high reliability. The contact has been designed with tapers to prevent buckling. Suitable for (16 to 22AWG) wire. (Fig.3)

#### 4. Two different cable outlet options

There are two directions available for the cable outlets, 45 degree upward or downward.

#### 5. Aluminum Die Cast Cover

Aluminum was selected for the plug side cover due to its lightweight and EMI performance.

#### 6. Rugged Structure

The PCB type receptacle is designed with screw locations that allow it to be secured to the PCB or panel. This feature prevents insertion and extraction stress delivered to the soldered area. (PCB-mount type only.)

#### 7. Contact Protection

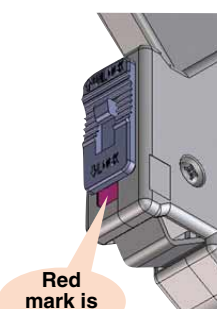
Surrounding structure protects the contacts from possible dust attachment fallen from the top of the plug during insertion and extraction for system maintenance.

#### 8. Flexibility and options of our coding key system

Our die cast coding key system offers up to 100 combinations and allows you to use multiple connectors without the danger of miss-mating.

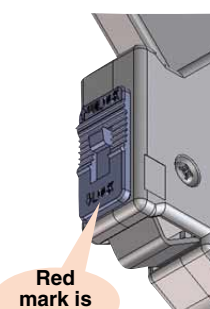
The slide lock is designed to prevent inadvertent unlocking.

#### ■ Slide Lock Unlocked



Lever operation is available

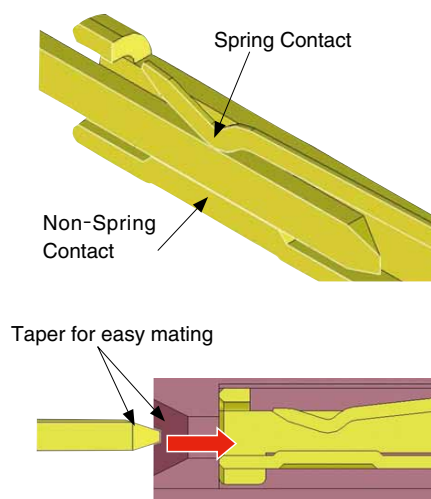
#### ■ Slide Lock Locked



Lever operation is inaccessible

Fig.2

Press contact-pin with sufficient mating guide  
The 2 point contact structure



Sufficient mating guide

Fig.3

## Product Specifications

|         |         |                 |                             |                   |                        |
|---------|---------|-----------------|-----------------------------|-------------------|------------------------|
| Ratings | Voltage | AC/DC 30V, 130V |                             | Op. Temp. Range   | -40 to +105°C (Note 2) |
|         | Current | 4A/pin (Note 1) | With HF-WV0 1.25 sq (16AWG) | Stor. Temp. Range | -55 to +85°C (Note 3)  |

| Items                    | Specifications                                                                                                                                      | Conditions                                                                                                                                    |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Contact resistance    | 10mΩ max (Note 4)                                                                                                                                   | Measured at 100mA                                                                                                                             |
| 2. Insulation resistance | Minimum of 5,000MΩ                                                                                                                                  | Measured at DC 500V                                                                                                                           |
| 3. Withstand voltage     | No flashover or breakdown                                                                                                                           | Apply AC 1,260 V for 1 minute                                                                                                                 |
| 4. Durability            | Contact resistance : Increase by 20mΩ or less from the initial value                                                                                | 500 mating cycles                                                                                                                             |
| 5. Vibration resistance  | 1) No electric outage of 10μs or more<br>2) No breakage, cracks or loosened parts                                                                   | JIS E 4031, Section 1, Grade B<br>Freq. range : 5-150Hz, Vib. cond. rms : 7.9m/s <sup>2</sup><br>Test for 5 hours each for 3 axial directions |
| 6. Shock resistance      |                                                                                                                                                     | JIS E 4031, Section 1, Grade B<br>Acceleration 50m/s <sup>2</sup> , duration 30 ms, half-sine wave, test 3 times each for 3 axial directions  |
| 7. Temperature cycles    | 1) Change of contact resistance : 20mΩ max<br>2) No breakage, cracks or loose parts.                                                                | Temperature : -40 → +15 to +35 → +105 → +15 to +35°C<br>Time : 30 → 2 to 3 → 30 → 2 to 3 min<br>Repeat 5 cycles of the above.                 |
| 8. Moisture-resistance   | 1) Change of contact resistance : 20mΩ max<br>2) Insulation resistance : minimum of 1,000MΩ (after drying)<br>3) No breakage, cracks or loose parts | Leave in temperature 60 ±2°C, humidity 95% for 96 hours.<br>(in mated condition)                                                              |

Note 1 : Depending on PCB design and cables used.

Note 2 : Includes temperature rise caused by current flow.

Note 3 : Packing materials not included. Operating temperature range is applied to storage conditions after mounting the product.

Note 4 : Excluding conductor resistance of the cable.

## Materials / Finish

### ●Receptacle (PCB type)

| Parts      | Materials    | Color/Finish          | Remarks |
|------------|--------------|-----------------------|---------|
| Insulator  | PBT resin    | Black                 | UL94V-0 |
| Contact    | Copper alloy | Partially gold plated | —       |
| Insert nut | Copper alloy | Nickel plating        | —       |
| Shell      | Zinc alloy   | Nickel plating        | —       |

### ●Receptacle (in-line type)

| Parts      | Materials    | Color/Finish   | Remarks |
|------------|--------------|----------------|---------|
| Insulator  | PBT resin    | Black          | UL94V-0 |
| Insert nut | Copper alloy | Nickel plating | —       |
| Shell      | Zinc alloy   | Nickel plating | —       |

### ●Plug

| Parts           | Materials          | Color/Finish                             | Remarks |
|-----------------|--------------------|------------------------------------------|---------|
| Insulator       | PBT resin          | Black                                    | UL94V-0 |
| Cover case      | Aluminum alloy     | Chrome plating over Nickel under plating | —       |
| Ground contact  | Phosphorous Bronze | Nickel plating                           | —       |
| Lever           | Stainless steel    | —                                        | —       |
| Spring          | Stainless steel    | —                                        | —       |
| Retention plate | Stainless steel    | —                                        | —       |
| Clamp metal     | Steel              | Nickel plating                           | —       |
| Screw           | Steel              | Nickel plating                           | —       |

### ●Crimp Contact

| Parts         | Materials    | Color/Finish                                           | Remarks |
|---------------|--------------|--------------------------------------------------------|---------|
| Crimp contact | Copper alloy | Contact area: Gold plating<br>Barrel area: Tin plating | —       |

### ●Coding Key System

| Parts             | Materials  | Color/Finish   | Remarks |
|-------------------|------------|----------------|---------|
| Coding key system | Zinc alloy | Nickel plating | —       |
| Screw             | Steel      | Nickel plating | —       |

### ●Cap

| Parts | Materials | Color/Finish | Remarks |
|-------|-----------|--------------|---------|
| Cap   | PC resin  | Black        | UL94V-0 |

■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.

●Receptacle (PCB type)

**TJ 10 A - 41 P (\*\*)**

1 2 1 3 4 11

●Crimp Contact

**TJ 50 A - 1618 SC F A - A (\*\*)**

1 2 1 7 8 9 10 11 12

●Receptacle (in-line type)

**TJ 50 A - 41 P**

1 2 1 3 4

●Coding Key System

**TJ - KY - PA**

1 4 13

●Plug

**TJ 50 A - 41 S - U - CV**

1 2 1 3 4 5 6

●Cap

**TJA - P - DC**

1 4 14

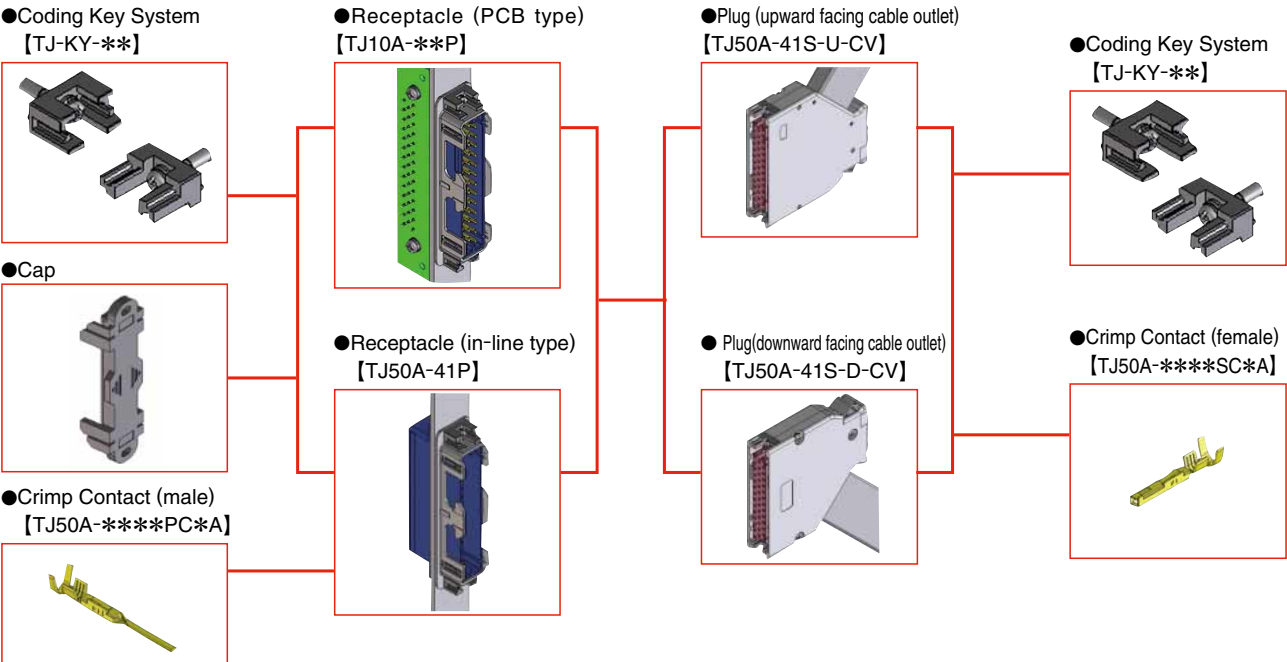
|                           |      |                                                    |
|---------------------------|------|----------------------------------------------------|
| 1 Series name             |      | TJ*A                                               |
| 2 Wiring style            | 10   | Right angle DIP                                    |
|                           | 50   | Crimp type                                         |
| 3 No. of contacts         | 28   | 28 contacts                                        |
|                           | 41   | 41 contacts                                        |
| 4 Connector type          | P    | Receptacle connector (male contacts)               |
|                           | S    | Plug connector (female contacts)                   |
|                           | KY   | Coding key system                                  |
| 5 Cable outlet direction  | U    | 45 degrees upward                                  |
|                           | D    | 45 degrees downward                                |
| 6 Clamp metal type        | CV   | Standard                                           |
|                           | CV1  | For cable tie fixing                               |
| 7 Applicable cable type   | 1618 | 0.75~1.25SQ (16 to 18AWG)                          |
|                           | 2022 | 0.3~0.5SQ (20 to 22AWG)                            |
| 8 Contact type            | PC   | Crimp contact for receptacle (male contact)        |
|                           | SC   | Crimp contact for plug (female contact)            |
| 9 Delivery form (Note 1)  | None | Loose piece contacts (100 pcs/pack)                |
|                           | F    | Reel contacts (4,000 pcs/reel)                     |
| 10 Contact plating type   | A    | Contact area : Gold plating                        |
| 11 Serial number          | None | Standard                                           |
|                           | A    | For thin cable insulation                          |
| 12 Special specifications | None | Contact area : Gold plating thickness 0.76μm       |
| 13 Key type (Note 2)      | P*   | Male side key (5 types of PA, PB, PC, PD and PE)   |
|                           | S*   | Female side key (5 types of SA, SB, SC, SD and SE) |
| 14 Cap                    | DC   | Cap                                                |

Note 1 : If the manual crimp tool is used, make sure you select the loose piece contacts.

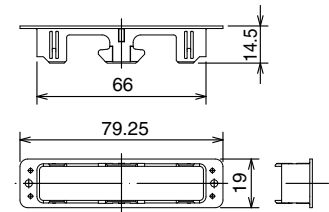
Note 2 : All types are compatible regardless of the receptacle or plug.

Make sure that the P (male) and S (female) are paired together, such as the TJ-KY-PA for the receptacle and the TJ-KY-SA for the plug.

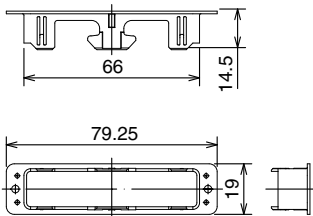
■Functional Diagram



A black 15-pin D-sub connector with a metal mounting bracket. The connector has a black plastic housing with a series of gold-plated pins. The mounting bracket is made of silver-colored metal and has a D-shaped cutout for mounting.

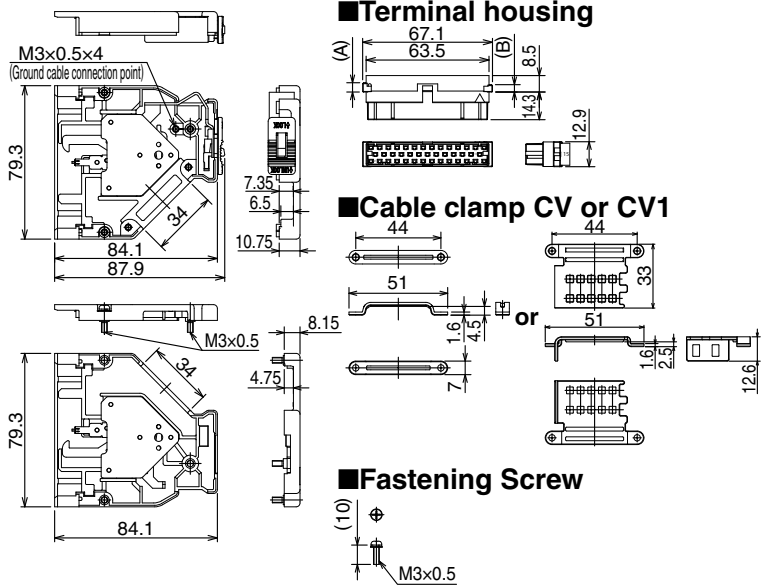


Note : PCB securing screws are not included with this product.



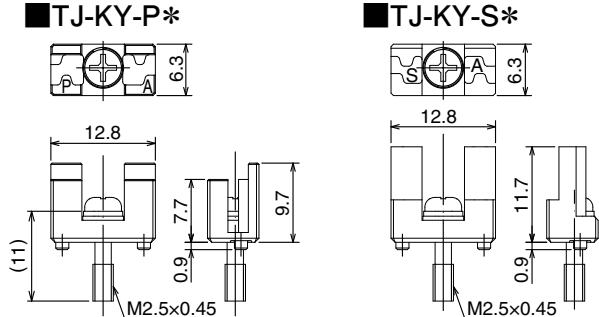
4 HRS

■Plug



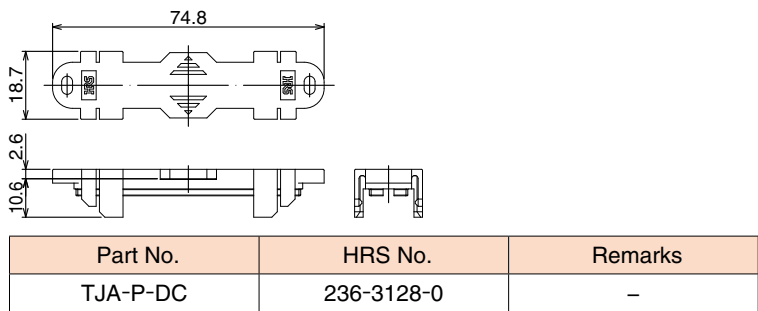
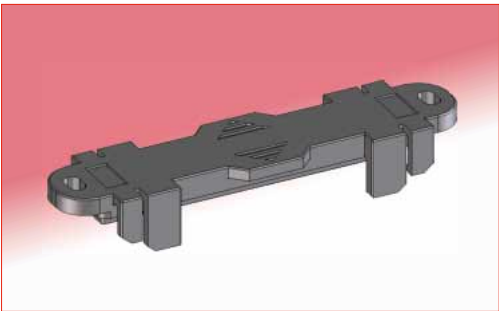
| Part No.            | HRS No.       | A   | B   | No. of Contacts | Remarks                                                    |
|---------------------|---------------|-----|-----|-----------------|------------------------------------------------------------|
| TJ50A-41S-U-CV      | 236-3101-0 00 | 4.8 | 3.8 | 41              | Cable outlet direction : 45 deg. upward, clamp metal CV    |
| TJ50A-41S-U-CV(01)  | 236-3101-0 01 | 4.8 | 3.8 | 41              | Only insulator U                                           |
| TJ50A-41S-U-CV(02)  | 236-3101-0 02 | -   | -   | -               | Only clamp metal CV                                        |
| TJ50A-41S-D-CV      | 236-3102-3 00 | 3.8 | 4.8 | 41              | Cable outlet direction : 45 deg. downward, clamp metal CV  |
| TJ50A-41S-D-CV(01)  | 236-3102-3 01 | 3.8 | 4.8 | 41              | Only insulator D                                           |
| TJ50A-41S-U-CV1     | 236-3119-6 00 | 4.8 | 3.8 | 41              | Cable outlet direction : 45 deg. upward, clamp metal CV1   |
| TJ50A-41S-U-CV1(02) | 236-3119-6 02 | -   | -   | -               | Only clamp metal CV1                                       |
| TJ50A-41S-D-CV1     | 236-3120-5 00 | 3.8 | 4.8 | 41              | Cable outlet direction : 45 deg. downward, clamp metal CV1 |

■Coding Key System

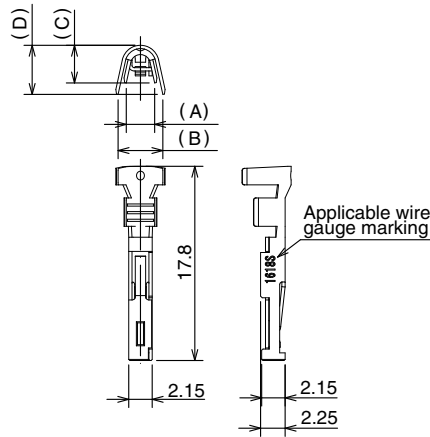


| Part No. | HRS No.    | Remarks     |
|----------|------------|-------------|
| TJ-KY-PA | 236-3107-7 | 50 pcs/pack |
| TJ-KY-PB | 236-3108-0 |             |
| TJ-KY-PC | 236-3109-2 |             |
| TJ-KY-PD | 236-3110-1 |             |
| TJ-KY-PE | 236-3111-4 |             |
| TJ-KY-SA | 236-3112-7 |             |
| TJ-KY-SB | 236-3113-0 |             |
| TJ-KY-SC | 236-3114-2 |             |
| TJ-KY-SD | 236-3115-5 |             |
| TJ-KY-SE | 236-3116-8 |             |

■Cap

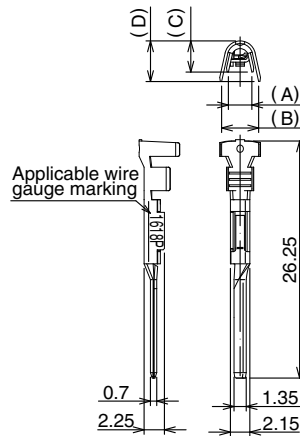


## ■Crimp Contact (female)



| Part No.        | HRS No.                               | A   | B   | C    | D    | Remarks                                                                  |
|-----------------|---------------------------------------|-----|-----|------|------|--------------------------------------------------------------------------|
| TJ50A-1618SCA   | 236-3103-6                            | 2.6 | 4.1 | 3.45 | 4.5  | Contact area : Gold 0.76 $\mu$ m<br>discrete contacts (100 pcs/pack)     |
| TJ50A-2022SCA   | 236-3104-9                            | 1.9 | 3.3 | 2.7  | 3.35 |                                                                          |
| TJ50A-1618SCFA  | Not developed yet.<br>Please call us. | 2.6 | 4.1 | 3.45 | 4.5  | Contact area : Gold 0.76 $\mu$ m<br>end-to-end contacts (4,000 pcs/reel) |
| TJ50A-2022SCFA  |                                       | 1.9 | 3.3 | 2.7  | 3.35 |                                                                          |
| TJ50A-1618SCA-A | 236-3122-0                            | 2.6 | 2.9 | 3.45 | 2.9  | Contact area : Gold 0.76 $\mu$ m<br>discrete contacts (100 pcs/pack)     |
| TJ50A-2022SCA-A | 236-3123-0                            | 1.9 | 2.4 | 2.7  | 1.94 |                                                                          |

## ■Crimp Contact (male)



| Part No.       | HRS No.                               | A   | B   | C    | D    | Remarks                                                                  |
|----------------|---------------------------------------|-----|-----|------|------|--------------------------------------------------------------------------|
| TJ50A-1618PCA  | 236-3105-1                            | 2.6 | 4.1 | 3.45 | 4.5  | Contact area : Gold 0.76 $\mu$ m<br>discrete contacts (100 pcs/pack)     |
| TJ50A-2022PCA  | 236-3106-4                            | 1.9 | 3.3 | 2.7  | 3.35 |                                                                          |
| TJ50A-1618PCFA | Not developed yet.<br>Please call us. | 2.6 | 4.1 | 3.45 | 4.5  | Contact area : Gold 0.76 $\mu$ m<br>end-to-end contacts (4,000 pcs/reel) |
| TJ50A-2022PCFA |                                       | 1.9 | 3.3 | 2.7  | 3.35 |                                                                          |

## ◆Manual Crimp Tools

| Tool Frame            | * Die set<br>Upper row : Part No.<br>Lower row : HRS No. | Applicable Contacts            | Applicable Cables    |                    |                                       |
|-----------------------|----------------------------------------------------------|--------------------------------|----------------------|--------------------|---------------------------------------|
|                       |                                                          |                                | Maker                | Part No.           | Nominal Cross Section mm <sup>2</sup> |
| HT702<br>[250-1001-1] | TJ50A-1618-A<br>[250-1023-4]                             | TJ50A-1618PCA<br>TJ50A-1618SCA | Hitachi Metals, Ltd. | HF-WV0             | 1.25                                  |
|                       | TJ50A-2022-A<br>[250-1024-7]                             | TJ50A-2022PCA<br>TJ50A-2022SCA |                      | NH-WEX0            | 0.75                                  |
|                       |                                                          |                                |                      | NH-WEX0            | 0.5                                   |
|                       | TJ50A-17-A<br>[250-1033-0]                               | TJ50A-1618SCA-A                | HUBER+SUHNER         | RADOX<br>TENUIS-TW | 1                                     |
|                       | TJ50A-18-A<br>[250-1034-0]                               |                                |                      |                    | 0.75                                  |
|                       | TJ50A-20-A<br>[250-1035-0]                               | TJ50A-2022SCA-A                |                      |                    | 0.5                                   |

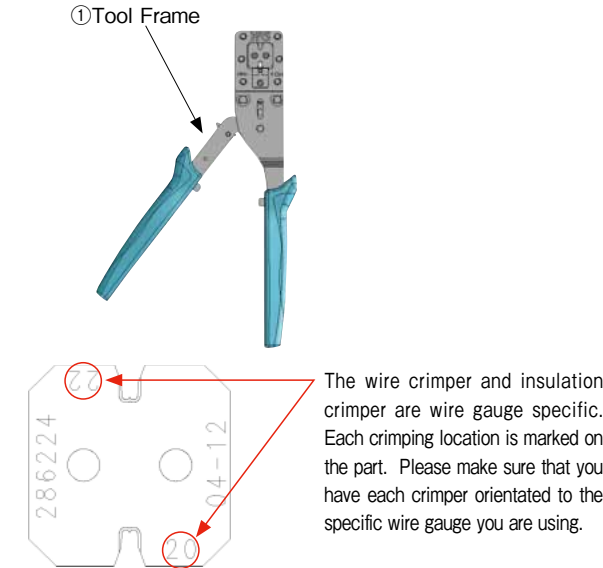
\* Note : Part numbers listed above are for complete die sets. Spare or replacement parts are on page 7.

Manual Crimp Tools

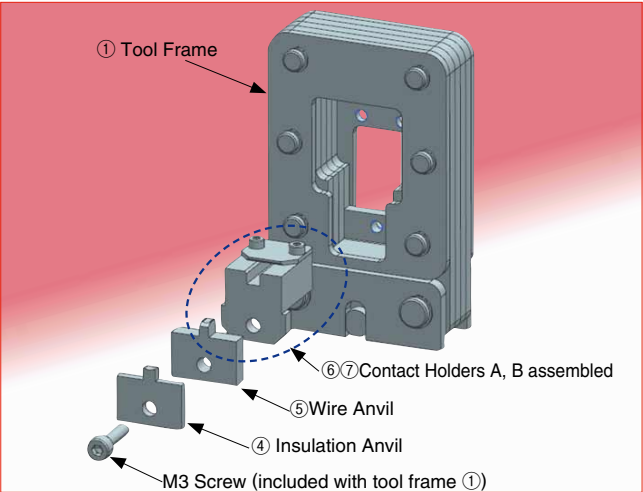
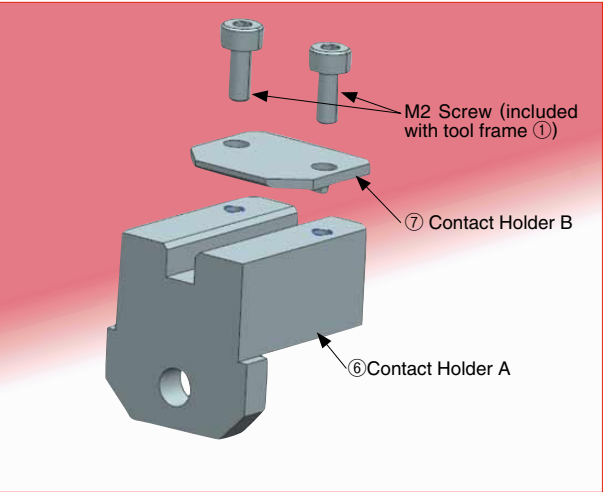
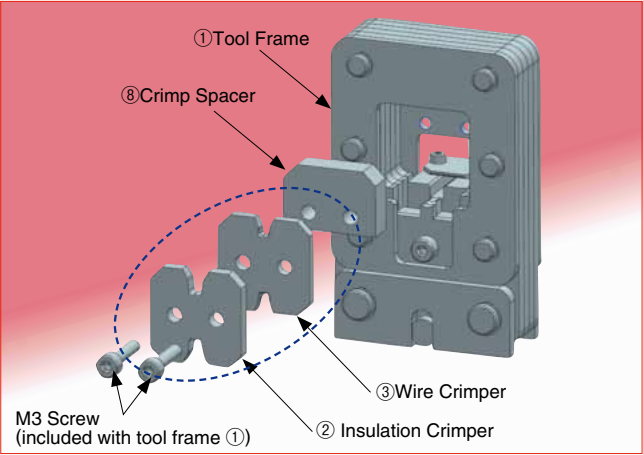
The Hirose hand tool for the TJ\*A series features replaceable die sets and parts. This allows you the ability to use one Hirose tool body and switch between the two Hirose die sets to crimp either of the TJ\*A terminals.

Due to wear, neglect or loss, replacement parts are also available for the Hirose die sets. Please see the chart at the bottom of page seven for these part numbers. Please be careful to select the correct replacement part based on the terminal and wire size you are trying to crimp. If you have any concern on the correct part to purchase, a Hirose sales representative will be glad to assist in selecting the correct part.

\*Please refer to the bottom of page 6 and 7 for product numbers and descriptions.



| Part No. | HRS No.       |
|----------|---------------|
| HT702    | 250-1001-1 00 |



Automatic Crimper

Please call us.

Extraction tools

| Part No.    | HRS No.       | Remarks   |
|-------------|---------------|-----------|
| PQ50S/RE-MD | 902-2202-2 00 | 1 pcs/box |

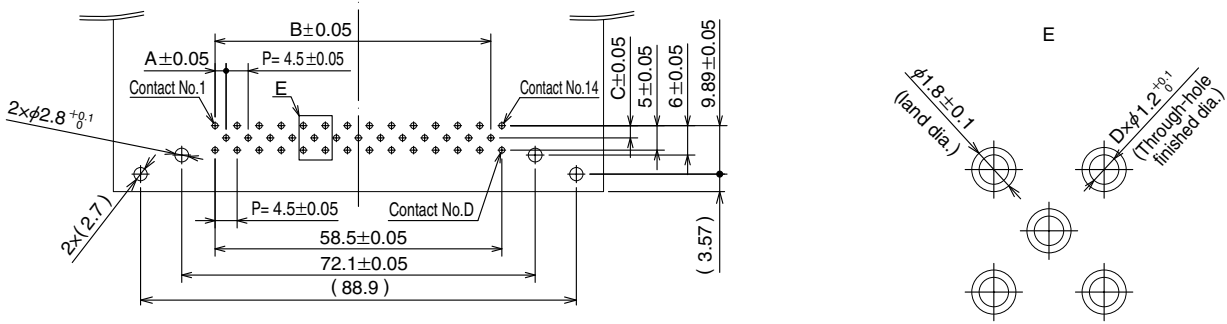
| Upper row : Product No. / Lower row : HRS No. |                            |                            |                            |                            |                            |                            |
|-----------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| ② IC<br>Insulation<br>Crimper                 | ③ WC<br>(Wire Crimper)     | ④ IA<br>(Insulation Anvil) | ⑤ WA<br>(Wire Anvil)       | ⑥ Contact<br>Holder A      | ⑦ Contact<br>Holder B      | ⑧ Crimper<br>Spacer        |
| 286648<br>[250-1023-4(61)]                    | 286649<br>[250-1023-4(62)] | 286650<br>[250-1023-4(63)] | 286651<br>[250-1023-4(64)] | 286652<br>[250-1023-4(65)] | 286653<br>[250-1023-4(66)] | 285996<br>[250-1023-4(67)] |
| 286654<br>[250-1024-7(61)]                    | 286655<br>[250-1024-7(62)] | 286656<br>[250-1024-7(63)] | 286657<br>[250-1024-7(64)] | 286652<br>[250-1024-7(65)] | 286653<br>[250-1024-7(66)] | 285996<br>[250-1024-7(67)] |
| 287347<br>[250-1033-0(61)]                    | 286960<br>[250-1033-0(62)] | 287343<br>[250-1033-0(63)] | 286651<br>[250-1033-0(64)] | 286652<br>[250-1033-0(65)] | 286653<br>[250-1033-0(66)] | 285996<br>[250-1033-0(67)] |
| 287342<br>[250-1034-0(61)]                    | 286649<br>[250-1034-0(62)] | 287343<br>[250-1034-0(63)] | 286651<br>[250-1034-0(64)] | 286652<br>[250-1034-0(65)] | 286653<br>[250-1034-0(66)] | 285996<br>[250-1034-0(67)] |
| 287344<br>[250-1035-0(61)]                    | 286655<br>[250-1035-0(62)] | 287345<br>[250-1035-0(63)] | 286657<br>[250-1035-0(64)] | 286652<br>[250-1035-0(65)] | 286653<br>[250-1035-0(66)] | 285996<br>[250-1035-0(67)] |

\* Note : Part numbers listed above are for component parts needed for repair or service. Part numbers for complete die sets can be found on page 6.

◆Recommended PCB layout Dimensions

(PCB thickness : t= 1.6mm)

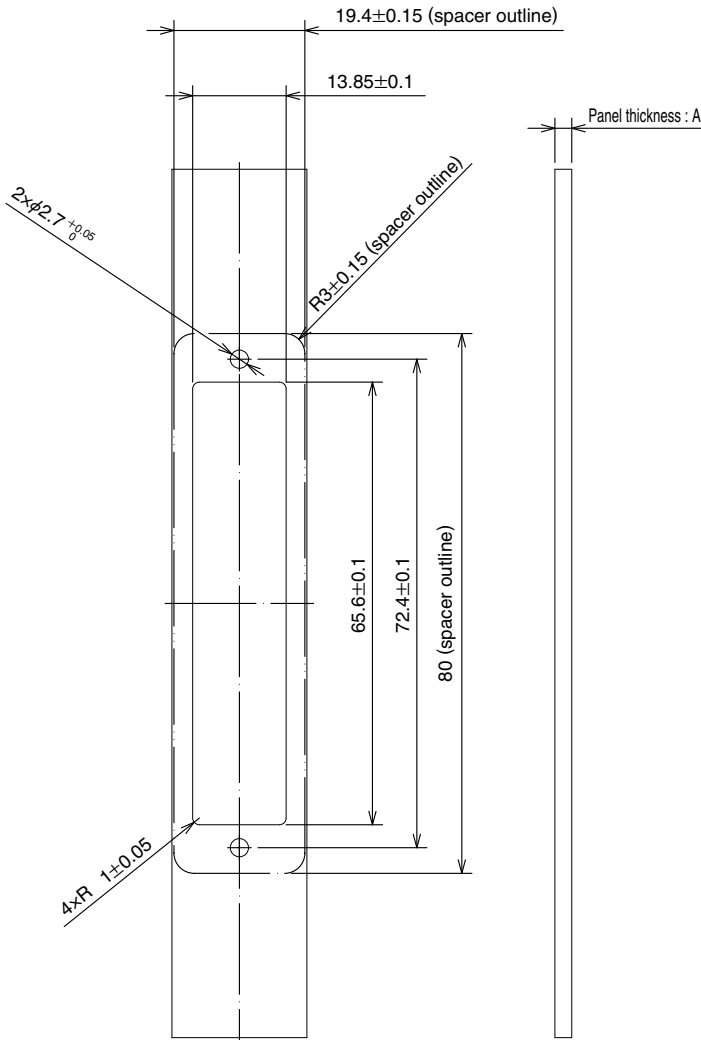
●TJ10A-\*\*P



| Part No.  | A    | B     | C   | D  |
|-----------|------|-------|-----|----|
| TJ10A-28P | —    | —     | —   | 28 |
| TJ10A-41P | 2.25 | 56.25 | 2.5 | 41 |

For dimensions in "( )", apply dimensions of Euroboard standards.

◆Recommended Panel Dimensions



| Part No.  | Panel thickness : A |
|-----------|---------------------|
| TJ10A-28P | 2.5±0.1             |
| TJ10A-41P | 2.5±0.1             |
| TJ50A-41P | 2.5 +0.7/-0.2       |

Note 1 : If the panel thickness is less than what was described above, then spacers can be used to adjust the panel thickness.

Note 2 : If conditions exist where EMC/EMI is required, apply a conductive surface treatment such as a non-chromate treatment to the panel surface.



**HIROSE ELECTRIC CO.,LTD.**

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