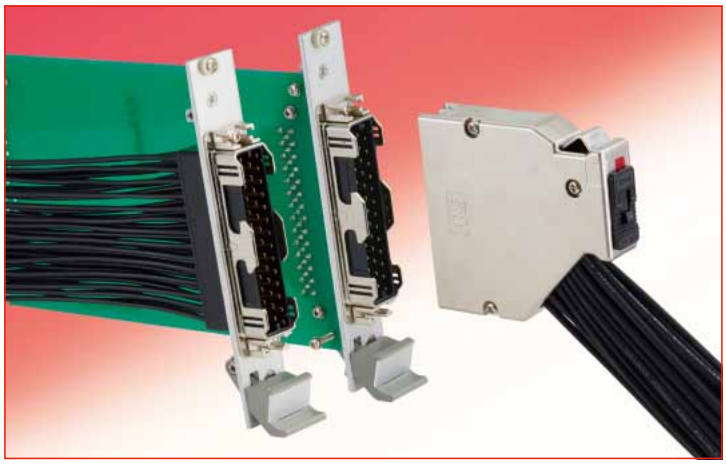
Interface Connector for Railway Applications

TJ*A Series



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

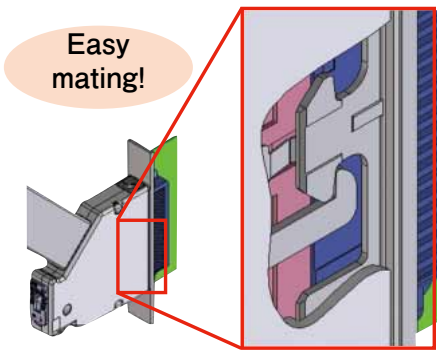


Fig.①

■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 – 22 AWG 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

2. Lock Hold Slide Button

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

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 – 22 AWG) wire.

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.

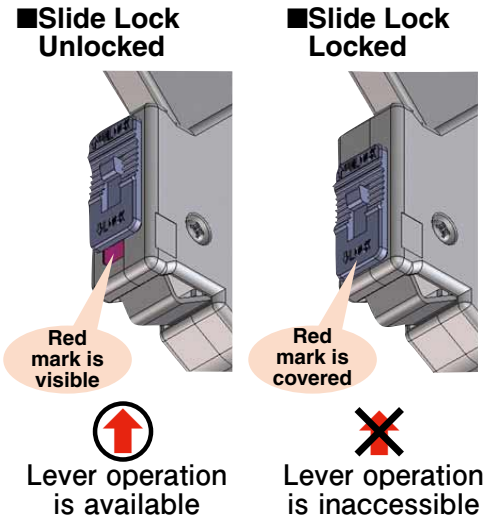


Fig.②

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

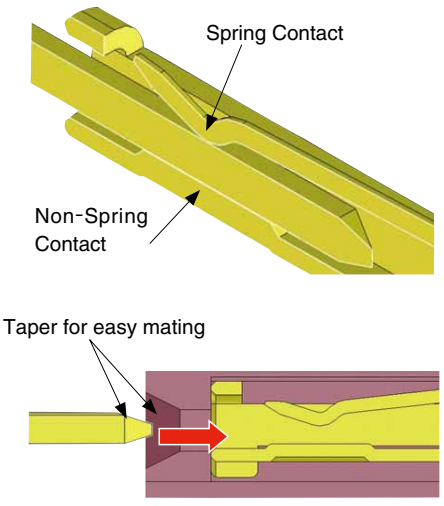


Fig.③

■Product Specifications

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

Items	Specifications	Conditions
1. Contact resistance	10 mΩ max (Note 4)	Measured at 100 mA
2. Insulation resistance	Minimum of 5,000 MΩ	Measured at DC 500 V
3. Withstand voltage	No flashover or breakdown	Apply AC 1,200 V for one minute
4. Durability	Contact resistance:Increase by 20 mΩ or less from the initial value	500 mating cycles
5. Vibration resistance	1) No electric outage of 10 μs or more 2) No breakage, cracks or loosened parts	JIS E 4031, Section 1, Grade B Freq. range: 5-150 Hz, Vib. cond. rms: 7.9 m/s^2 Test for 5 hours each for 3 axial directions
6. Shock resistance		JIS E 4031, Section 1, Grade B Acceleration 50 m/s^2, duration 30 ms, half-sine wave, test 3 times each for 3 axial directions
7. Temperature cycles	1) Change of contact resistance: 20 mΩ max 2) No breakage, cracks or loose parts.	Temperature: -40 → +15 to +35 → +105 → +15 to +35℃ Time: 30 → 2 to 3 → 30 → 2 to 3 min Repeat 5 cycles of the above.
8. Moisture-resistance	1) Change of contact resistance: 20 mΩ max 2) Insulation resistance: minimum of 1,000 MΩ (after drying) 3) No breakage, cracks or loose parts	Leave in temperature 60 ±2℃, humidity 95% for 96 hours. (in mated condition)

Note 1: Depending on PCB design and cables used.
Note 2: Includs 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

●Receptacle (PCB type)

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

●Plug

Parts	Materials	Color/Treatment	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/Treatment	Remarks
Crimp contact	Copper alloy	Contact area: Gold plating Barrel area: Tin plating	–

●Coding Key System

Parts	Materials	Color/Treatment	Remarks
Coding key system	Zinc alloy	Nickel plating	–
Screw	Steel	Nickel plating	–

■Product Number Structure

Refer to this page when determining product specifications by model types. Please place orders with part numbers listed in this catalog. The characteristics and specifications of the product described in this catalog are reference values. Please make sure to check the latest delivery specifications at the time of product use.

●Receptacle (PCB type)

TJ ❶ 10 ❷ A ❶ – 41 ❸ P ❹ (**) ⓫

●Crimp Contact

TJ ❶ 50 ❷ A ❶ – 1618 ❼ SC ❽ F ❾ A ❿ (**) ⓫

●Receptacle (in-line type)

TJ ❶ 50 ❷ A ❶ – 41 ❸ P ❹

●Coding Key System

TJ ❶ – KY ❹ – PA ⓬

●Plug

TJ ❶ 50 ❷ A ❶ – 41 ❸ S ❹ – U ❺ – CV ❻

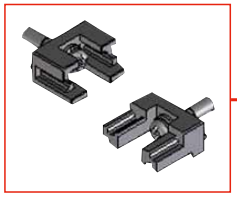
❶Series name		TJ＊A
❷Wiring style	10	Right angle DIP
	50	Crimp type
❸No. of contacts	28	28 contacts
	41	41 contacts
❹Connector type	P	Receptacle connector (male contacts)
	S	Plug connector (female contacts)
	KY	Coding key system
❺Cable outlet direction	U	45 degrees upward
	D	45 degrees downward
❻Plug type	CV	Cover case and clamp metal are included in the package
❼Applicable cable type	1618	0.75～1.25SQ(AWG16～18)
	2022	0.3～0.5SQ(AWG20～22)
❽Contact type	PC	Crimp contact for receptacle (male contact)
	SC	Crimp contact for plug (female contact)
❾Delivery form (Note 1)	None	Loose piece contacts (100 pieces per bag)
	F	Reel contacts (4,000 pieces per reel)
❿Contact plating type	A	Contact area: Gold plating
⓫Special specifications	None	Contact area: Gold plating thickness 0.76 μm
⓬Key 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)

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

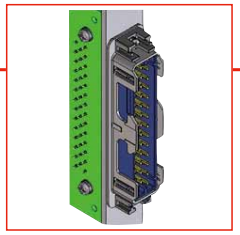
(Note 2) All types are compatible regardless of the receptacle or plug.
Make sure that the P (male) and S (female) are paired together, such as the TJ-KY-PA for the receptacle and the TJ-KY-SA for the plug.

■Functional Diagram

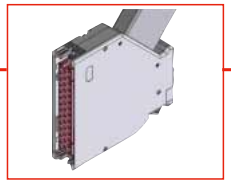
●Coding Key System
【TJ-KY-**】



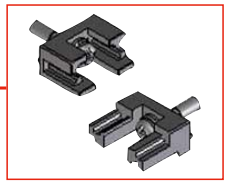
●Receptacle (PCB type)
【TJ10A-**P】



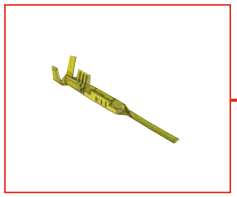
●Plug (upward facing cable outlet)
【TJ50A-41S-U-CV】



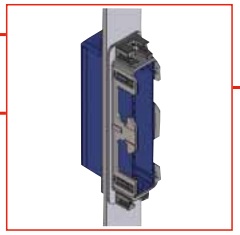
●Coding Key System
【TJ-KY-**】



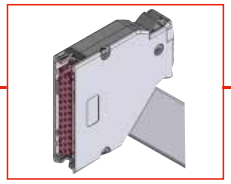
●Crimp Contact (male)
【TJ50A-****PC*A】



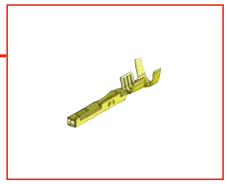
●Receptacle (in-line type)
【TJ50A-41P】



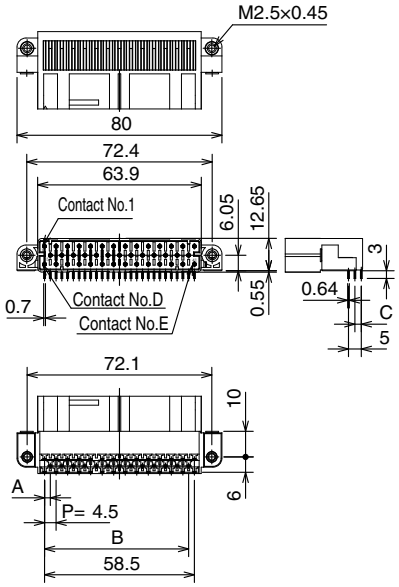
● Plug(downward facing cable outlet)
【TJ50A-41S-D-CV】



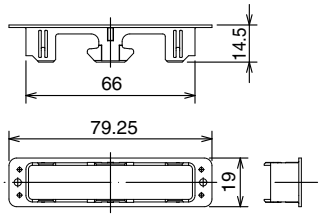
●Crimp Contact (female)
【TJ50A-****SC*A】



■Receptacle (PCB type)



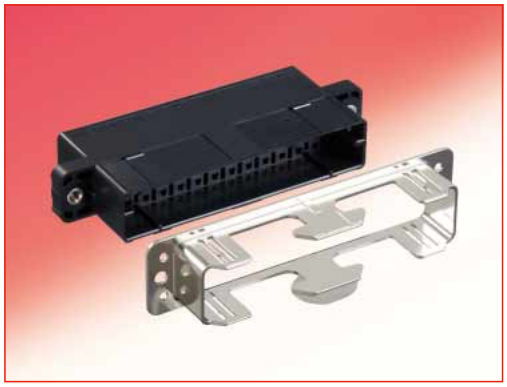
■Attachment

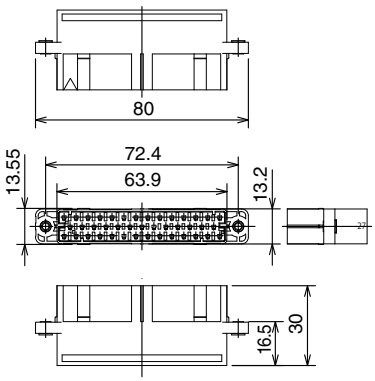


Part No.	HRS No,	A	B	C	D	E (No. of Contacts)	Remarks
TJ10A-28P	CL236-3118-3-00	–	–	–	15	28	Contact area: Gold plating 0.76 μm
TJ10A-41P	CL236-3100-8-00	2.25	56.25	2.5	28	41	

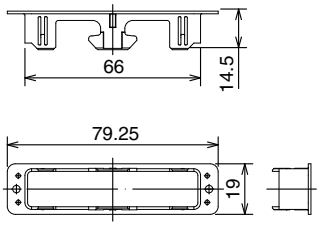
(Note) PCB securing screws are not included with this product.

■Receptacle (in-line type)



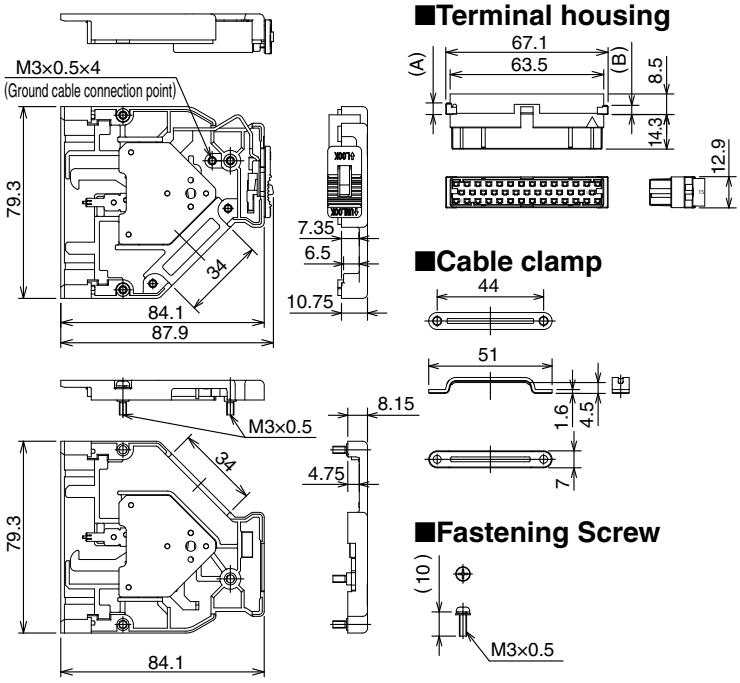


■Attachment



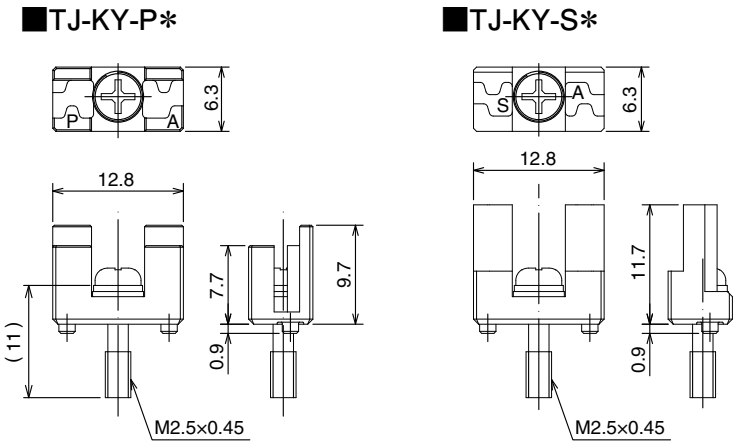
Part No.	HRS No,	No. of Contacts	Remarks
TJ50A-41P	CL236-3117-0-00	41	–

■Plug



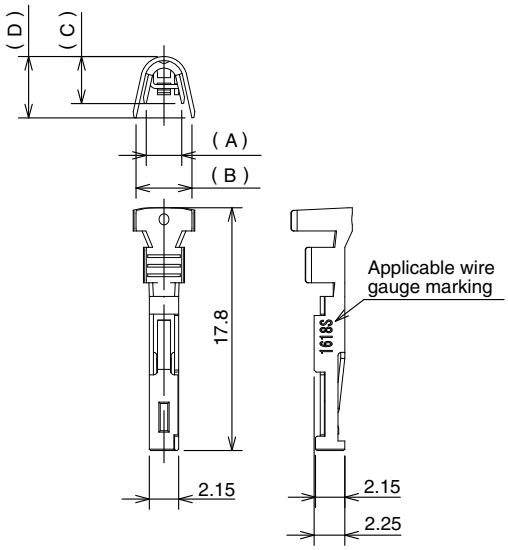
Part No.	HRS No,	A	B	No. of Contacts	Remarks
TJ50A-41S-U-CV	CL236-3101-0-00	4.8	3.8	41	Cable outlet direction: 45 deg. upward
TJ50A-41S-D-CV	CL236-3102-3-00	3.8	4.8	41	Cable outlet direction: 45 deg. downward

■Coding Key System



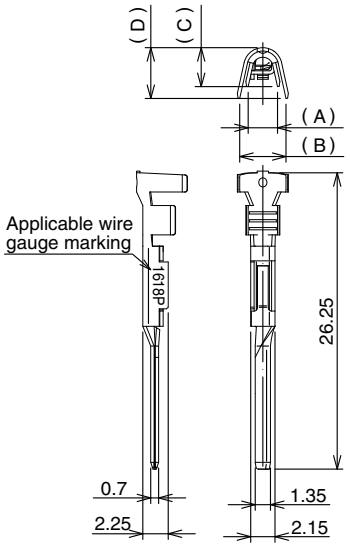
Part No.	HRS No,	Remarks
TJ-KY-PA	CL236-3107-7	50 pieces per pack
TJ-KY-PB	CL236-3108-0	
TJ-KY-PC	CL236-3109-2	
TJ-KY-PD	CL236-3110-1	
TJ-KY-PE	CL236-3111-4	
TJ-KY-SA	CL236-3112-7	
TJ-KY-SB	CL236-3113-0	
TJ-KY-SC	CL236-3114-2	
TJ-KY-SD	CL236-3115-5	
TJ-KY-SE	CL236-3116-8	

■Crimp Contact (female)



Part No.	HRS No,	A	B	C	D	Remarks
TJ50A-1618SCA	CL236-3103-6	2.6	4.1	3.45	4.5	Contact area: Gold 0.76 μm, discrete contacts (100 pcs per pack)
TJ50A-2022SCA	CL236-3104-9	1.9	3.3	2.7	3.35	
TJ50A-1618SCFA	Not developed yet. Please call us.	2.6	4.1	3.45	4.5	Contact area: Gold 0.76 μm, end-to-end contacts (4,000 pcs per reel)
TJ50A-2022SCFA		1.9	3.3	2.7	3.35	

■Crimp Contact (male)



Part No.	HRS No,	A	B	C	D	Remarks
TJ50A-1618PCA	CL236-3105-1	2.6	4.1	3.45	4.5	Contact area: Gold 0.76 μm, discrete contacts (100 pcs per pack)
TJ50A-2022PCA	CL236-3106-4	1.9	3.3	2.7	3.35	
TJ50A-1618PCFA	Not developed yet. Please call us.	2.6	4.1	3.45	4.5	Contact area: Gold 0.76 μm, end-to-end contacts (4,000 pcs per reel)
TJ50A-2022PCFA		1.9	3.3	2.7	3.35	

■Manual Crimp Tools

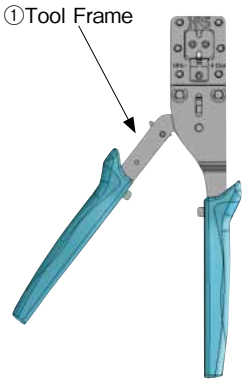
Tool Frame	∗ Die set Upper row: Part No. Lower row: HRS No.	Applicable Contacts	Applicable Cables		
			Maker	Hitachi part number	Nominal Cross Section mm²
HT702 【CL250-1001-1】	TJ50A-1618-A 【CL250-1023-4】	TJ50A-1618PCA TJ50A-1618SCA	Hitachi Metals, Ltd.	HF-WV0 NH-WEX0	1.25
					0.75
	TJ50A-2022-A 【CL250-1024-7】	TJ50A-2022PCA TJ50A-2022SCA			0.5
				NH-WEX0	0.3

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

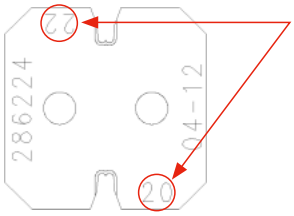
◆Manual Crimp Tools

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.

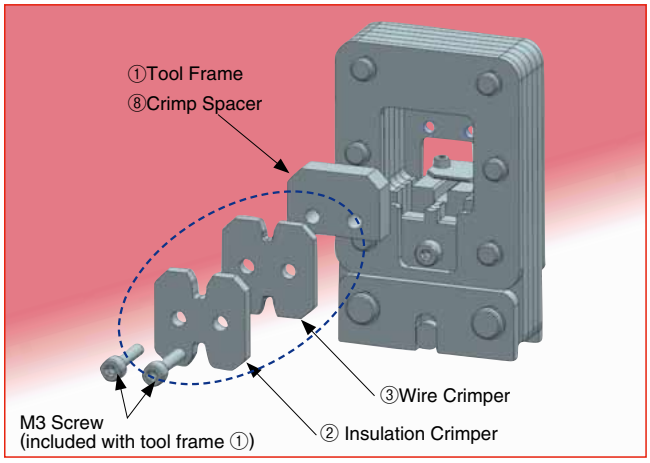
*Please refer to the bottom of page 6 and 7 for product numbers and descriptions.

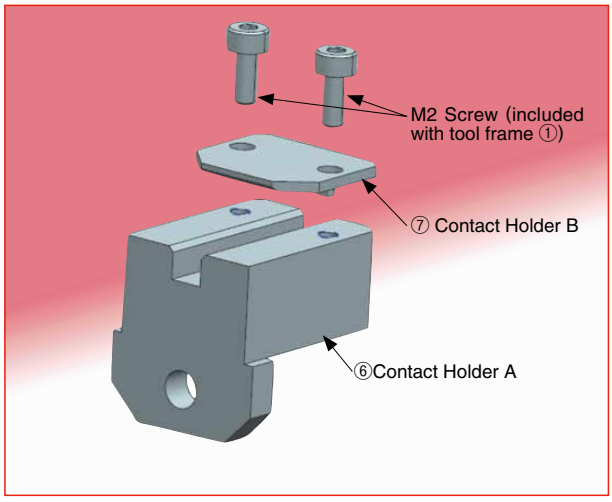


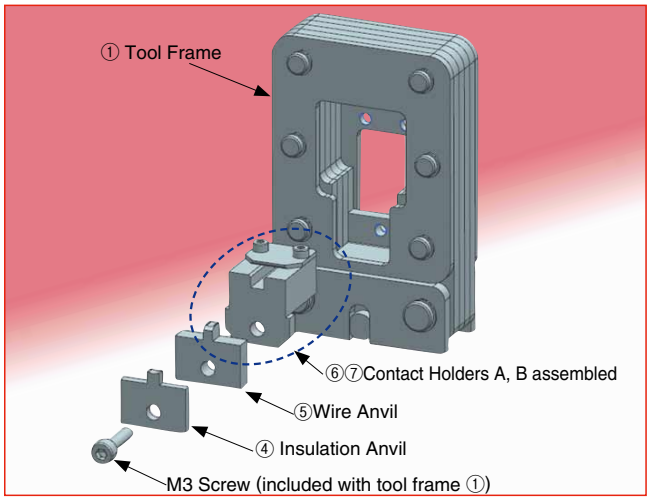
Part No.	HRS No,
HT702	CL250-1001-1-00



The wire crimper and insulation crimper are wire gauge specific. Each crimping location is marked on the part. Please make sure that you have each crimper orientated to the specific wire gauge you are using.







◆Automatic Crimper

Please call us.

◆Extraction tools

Part No.	HRS No,	Remarks
PQ50S/RE-MD	CL902-2202-2-00	1 piece per box

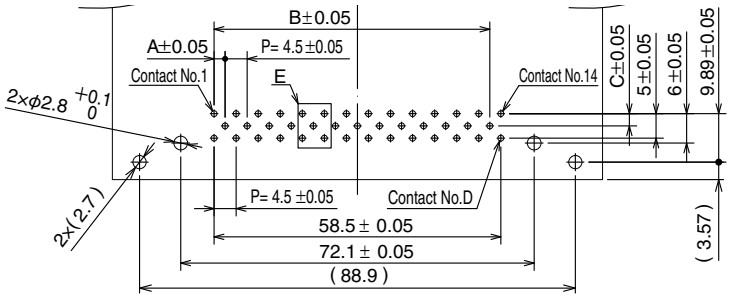
Upper row: Product No. / Lower row: HRS No.						
② IC Insulation Crimper	③ WC (Wire Crimper)	④ IA (Insulation Anvil)	⑤ WA (Wire Anvil)	⑥ Contact Holder A	⑦ Contact Holder B	⑧ Crimper Spacer
286648 【CL250-1023-4(61)】	286649 【CL250-1023-4(62)】	286650 【CL250-1023-4(63)】	286651 【CL250-1023-4(64)】	286652 【CL250-1023-4(65)】	286653 【CL250-1023-4(66)】	285996 【CL250-1023-4(67)】
286654 【CL250-1024-7(61)】	286655 【CL250-1024-7(62)】	286656 【CL250-1024-7(63)】	286657 【CL250-1024-7(64)】	286652 【CL250-1024-7(65)】	286653 【CL250-1024-7(66)】	285996 【CL250-1024-7(67)】

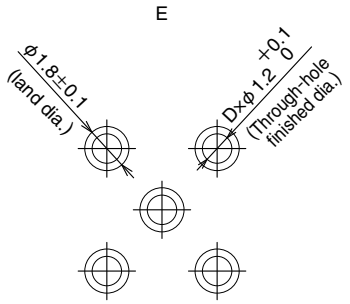
* Note: Part numbers listed above are for component parts needed for repair or service. Part numbers for complete die sets can be found on page 6.

Recommended PCB layout Dimensions

(PCB thickness: t= 1.6 mm)

●TJ10A-**P

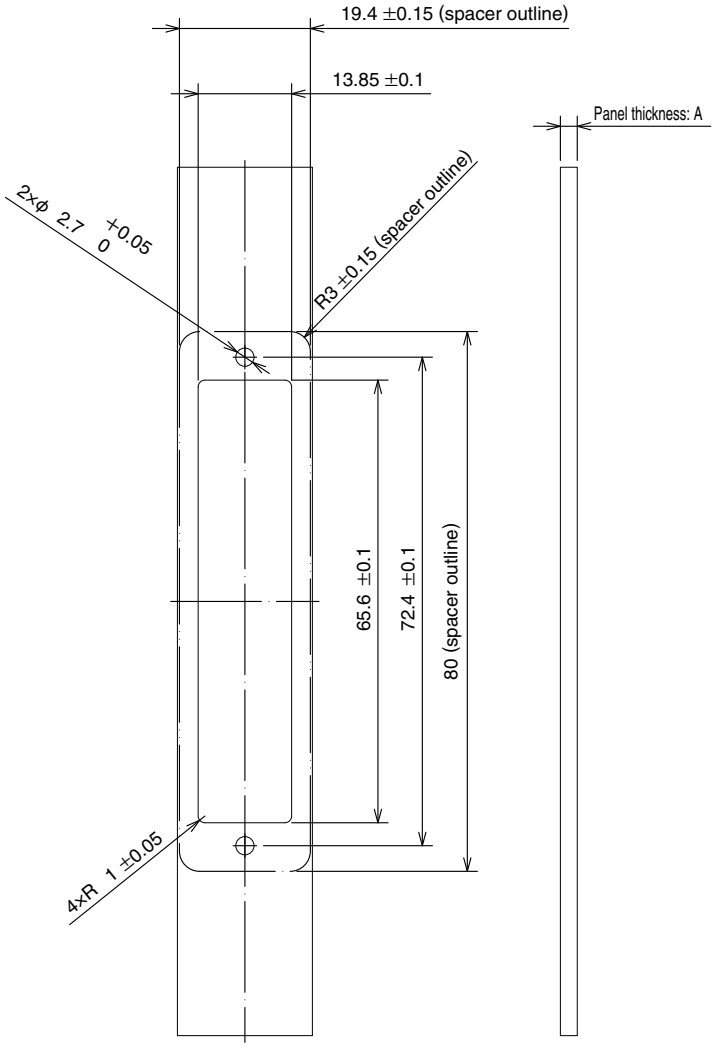




Part No.	A	B	C	D
TJ10A-28P	–	–	–	28
TJ10A-41P	2.25	56.25	2.5	41

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

Recommended Panel Dimensions



Product No.	Panel thickness: A
TJ10A-28P	2.5±0.1
TJ10A-41P	
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.

Creative Links to World Electronics ®

HRS

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