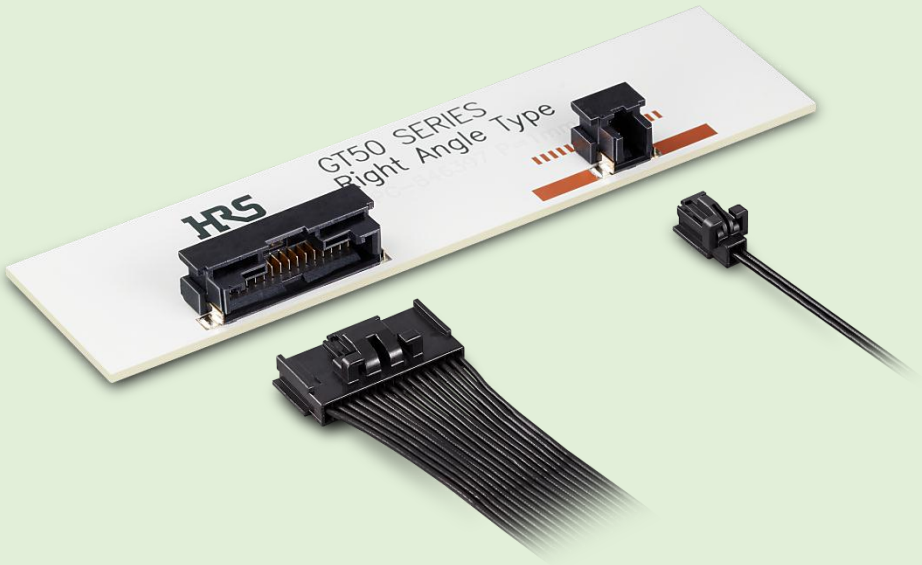
GT50 Series

Handling Manual



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名　称　TITLE

GT50 SERIES HANDLING MANUAL

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1. SCOPE

This harness operation manual describes the procedures for wiring, assembling and disassembling the GT50 connectors.
It also details the crimping information and common practices of general crimps for the GT50 terminals.

All measurements are in millimeters and Forces in Newtons unless otherwise specified.

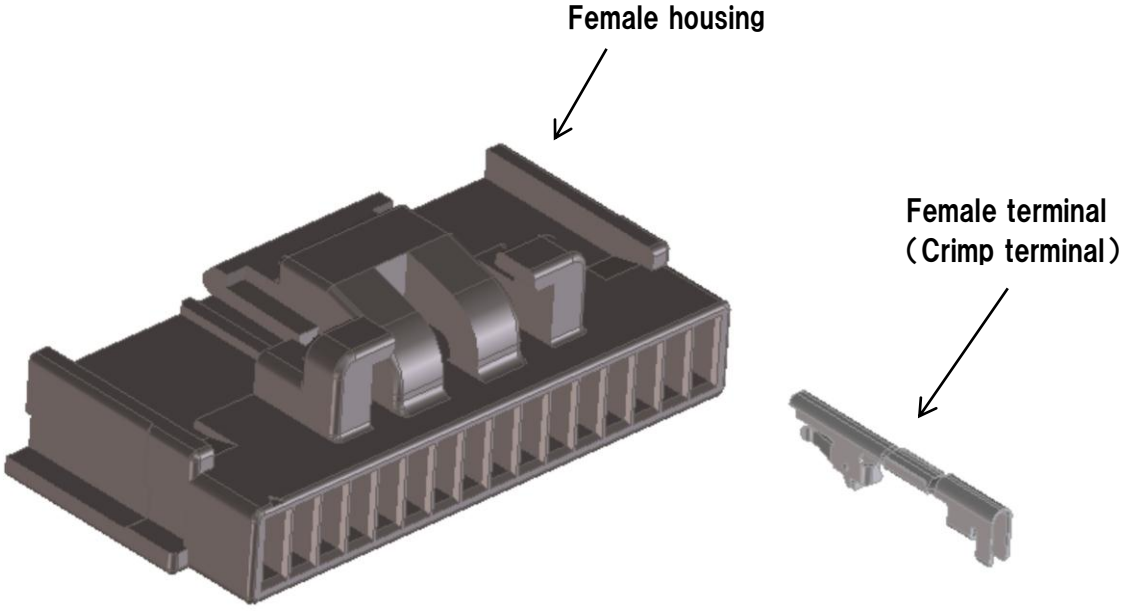
In addition, photographs and illustrations described are representative products of HRS GT50 series, so they differ depending on products.

Information of this manual is subject to change without notices.

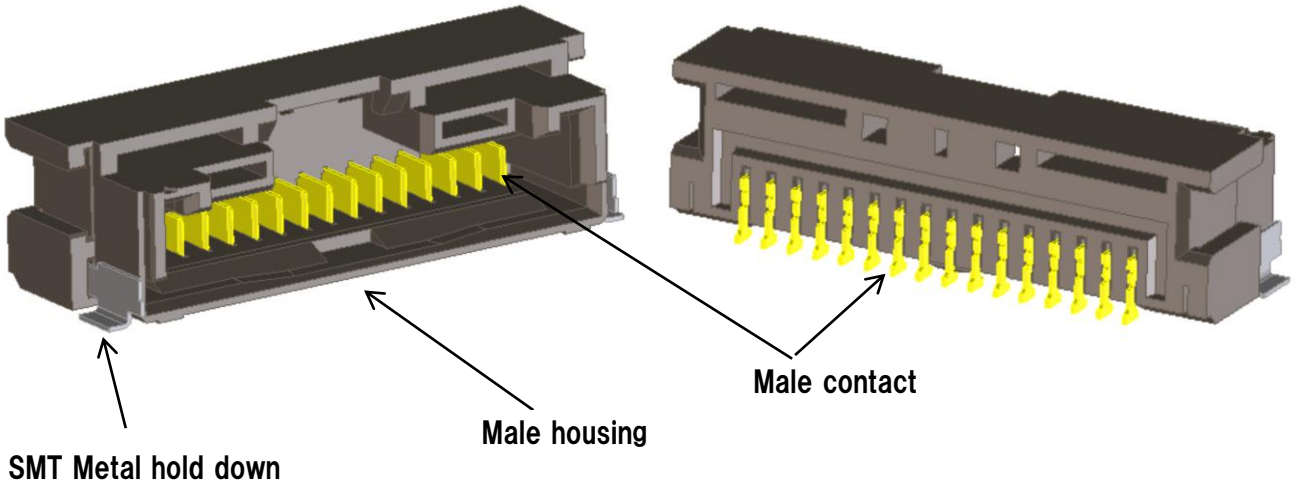
2. PARTS DESCRIPTION

2.1 DESCRIPTION

【Plug】



【Receptacle】



Receptacles exist only in right angle version with SMT metal hold down.

2.2 PART NUMBERS

Description	Part Number
Female terminal	GT50-28SCFA
Plug X positions	GT50-XS-1C
Receptacle X positions	GT50-XP-1H

Note 1: please check with Hirose Sales department for the availability of all part numbers.

2.3 MATERIALS

Part	Sub part	Material
Plug	Female housing	PBT
Receptacle	Male housing	LCP
	Male contact	Brass Surface: Gold plating: 0.1µm min in contact area, 0.05µm min in solder area Under: Nickel plating: 1µm min
	Metal hold down	Brass Surface: Tin plating: 1µm min Under: Copper plating: 0.3µm min
Female terminal		Metal thickness: 0.12±0.01 mm Copper alloy Surface: Gold plating: 0.1µm min in contact area, Tin plating 1µm min in crimp and carrier area Under: Nickel plating: 1µm min

3. PACKAGING

Designation	HRS P/N	Carton box dimensions LxWxH (mm)	Type of packaging	Quantity of parts per unit
Receptacles 2P and 4P	GT50-XP-1H	405 x 405 x 31	Reel	1000 pcs/reel
Receptacle 16P	GT50-16P-1H	405 x 405 x 51	Reel	1000 pcs/reel
Plugs	GT50-XS-1C		Bags	100 pcs/bag
Female terminal	GT50-28SCFA	570 x 570 x 55	Reel	28000 pcs/reel

4. MECHANICAL PERFORMANCES

The main mechanical characteristics are as follow:

Test	Value
Tensile strength of the Wire-Terminal link	11N min
Terminal insertion force	2.5N max
Terminal retention force	12N min
Terminal polarization force	4N min
Connector mating force	6.8 ~ 9.9N (2 terminals)
	9.6 ~ 13.7N (4 terminals)
	13.8 ~ 23.1N (16 terminals)
Connector unmating force	1.0 ~ 1.7N (2 terminals)
	1.6 ~ 2.2N (4 terminals)
	7.9 ~ 12.2N (16 terminals)
Connector retention force	25N min
Connector polarization force	100N min
Mating / unmating cycles number	10 times

5. STORAGE - HANDLING OF COMPONENTS

5.1 STORAGE CONDITIONS

- Store in a well ventilated environment with the following relative temperature and humidity range: -10° to 60°C ; 85% HR maximum.
- Store without contact with the ground, on a pallet or platform, a clean dry surface until the packages are retrieved for production.
- Store packages away from water and direct UV rays.
- Store packages away from heat and areas with high temperature variations.
- Keep away from high temperature or hygrometry variations to avoid condensation inside the packages.
- Store packages away from dust to keep the components clean.
- Keep packages as they are delivered, without undoing the adhesive ribbon until use.
- Do not walk or place heavy objects on packages.
- Where packages are stored in racks, place the heavier cartons below and the lighter ones above not to damage the parts.

5.2 HANDLING OF COMPONENTS

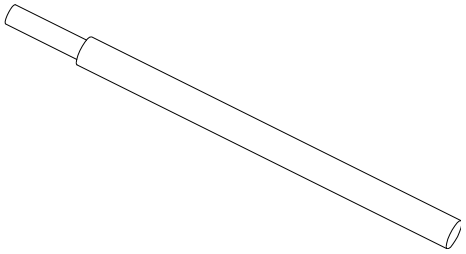
- Do not touch the terminal contact points or the interior of the barrel.
- In the event that the terminal must be handled, please wear gloves in order to prevent corrosion.
- Placing items on top of a terminal or dropping a terminal may result in shape deformities or contamination. Please handle terminals with care.
- In the event of terminals becoming tangled, please do not forcibly pull or bend them apart, but disentangle them carefully.
- Use caution when handling terminals so as to avoid deformation.
- Make sure that the terminals of crimped cables do not become entangled. When bundling or stacking cables, please prevent the terminals from being subjected to any external force.
- Use caution to ensure that the part is not subjected to any large impacts.

- Do not place wire harnesses on the floor.
- Refrain from any handling that may result in terminal damage or deformation.
- Do not use the housing in case it drops.

6. ASSEMBLY PROCESS

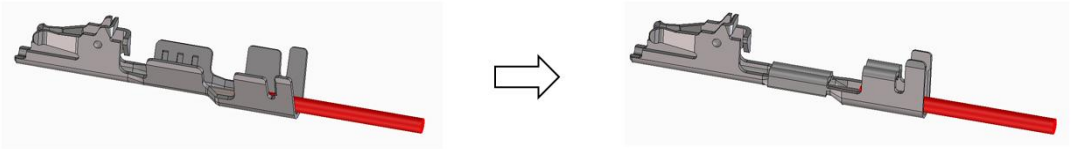
6.1 CRIMPING OF TERMINALS

1 - Strip the cable



Please refer to the Crimp Quality Standard (§10) for details on strip length.

2 – Crimp wire in terminal

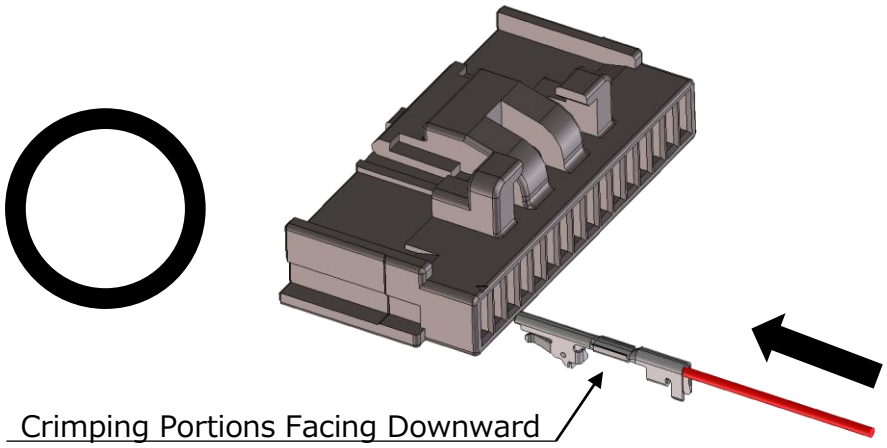


Note 1: Please use the Hirose crimp tool.
Note 2: Please refer to the Crimp Quality Standard (§10) and the crimp parameters (§11) by cable to check crimp condition.

6.2 CONNECTOR ASSEMBLY INSTRUCTIONS

1 – Insert contact and push until a click is heard.
Please take care not to insert the terminal in the opposite orientation.

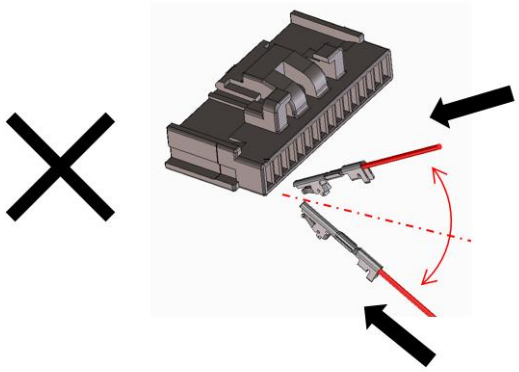
Straight insertion (Correct):



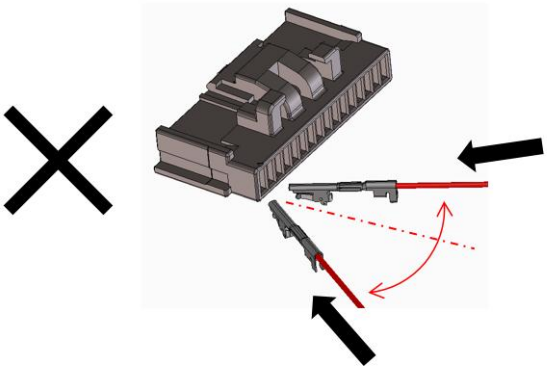
Note 1: Holding the cable, please insert straight into the housing.
Note 2: If the crimped terminal does not enter the housing smoothly, remove and then re-insert it.

Angled insertion (Incorrect):

Up-down Direction (Incorrect)



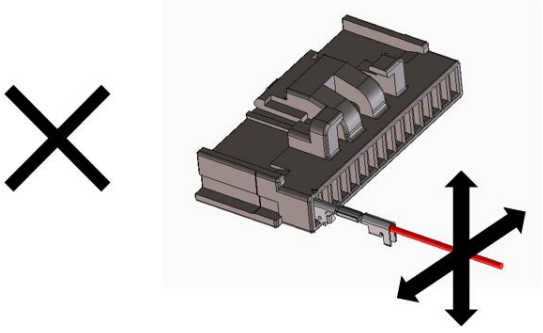
Right-left Direction (Incorrect)



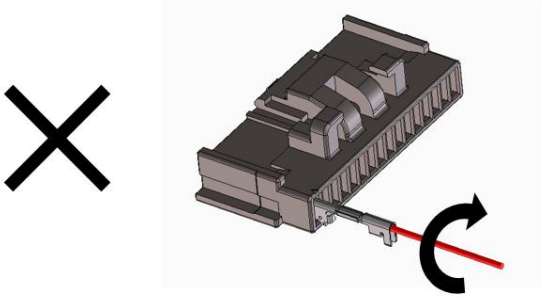
Scoop and twisted insertion (Incorrect)

Note：Do not use excessive scooping or twisting when inserting terminals.

Scoop Insertion (Incorrect)

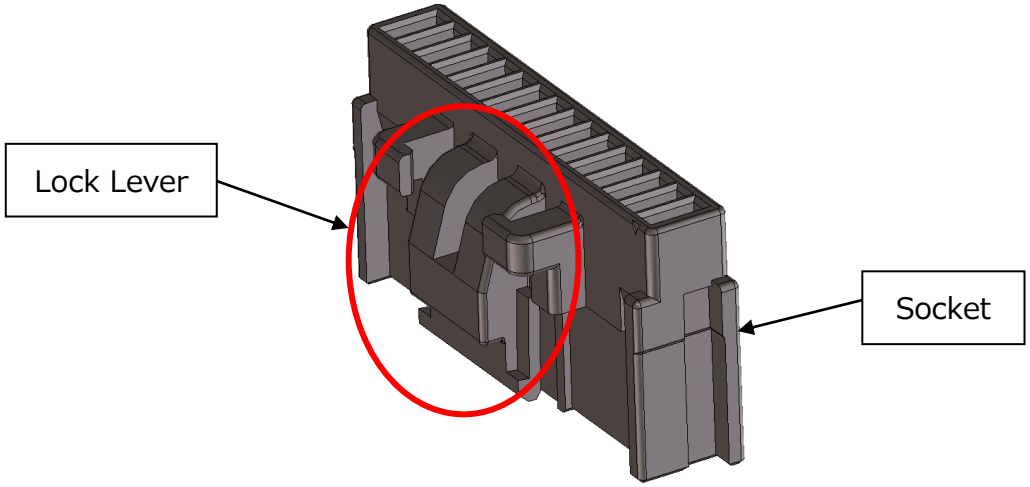


Twisted (Incorrect)

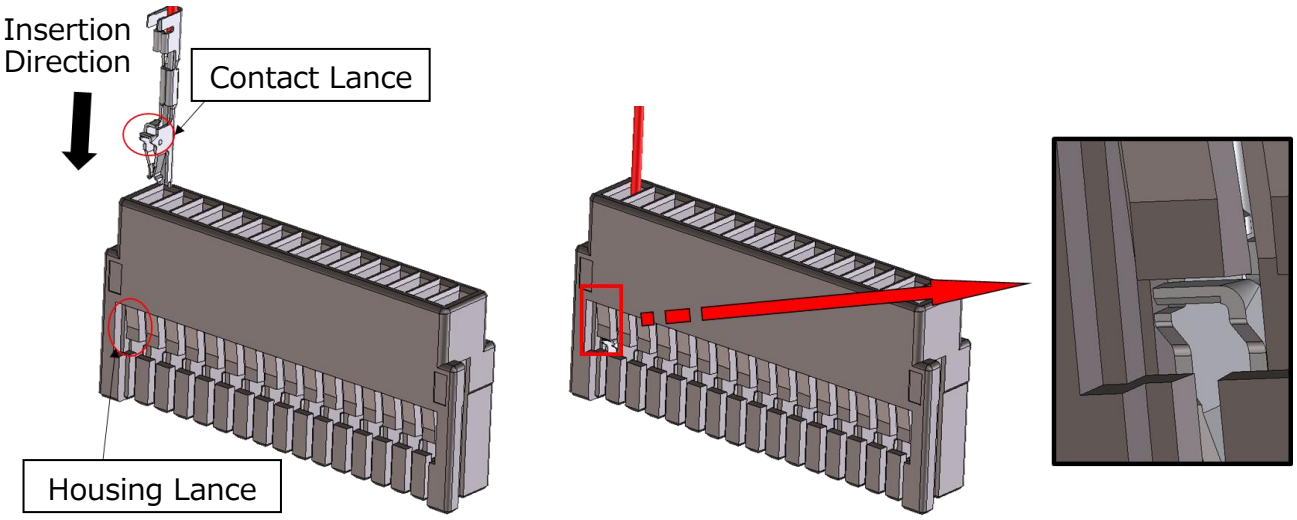


<Precautions When Inserting Terminals>

When inserting terminals, hold the socket and insert the terminal without touching the lock lever (circles in red on the picture below).



2 – Make sure that the contact lance is hooked by the housing lance of the socket.

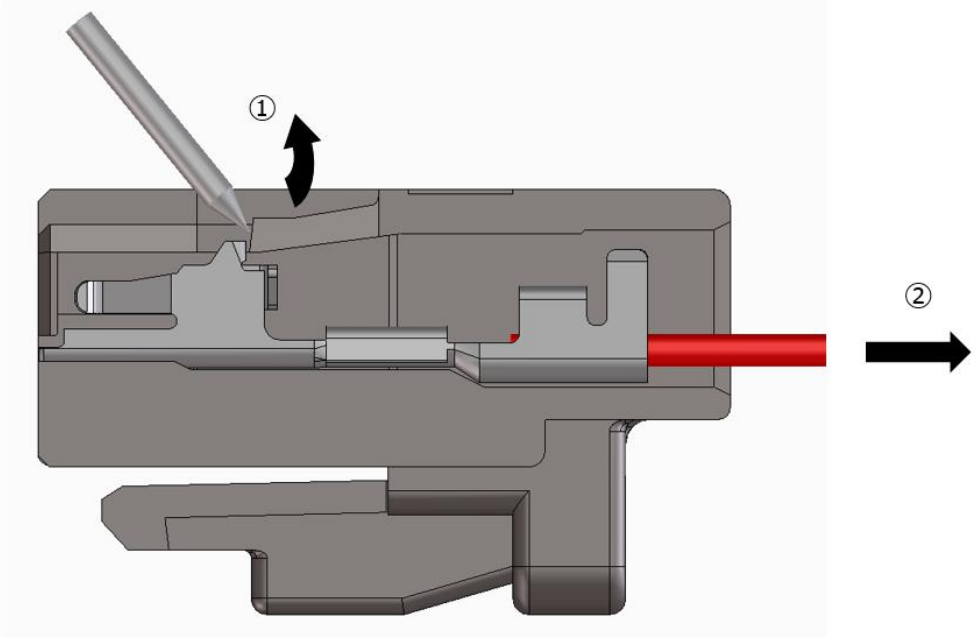


7. WIRING HARNESS ASSEMBLY RECOMMENDATIONS

- Deformed or damaged parts have to be replaced by a new one.
- Apply tape so that every individual wire is subjected to an equal amount of tensile force to avoid any effect on terminals (like disengagement).
- The distance to apply tape from the end of connector is 35mm minimum.
- The bending radius for wires should be at minimum 3 times its outer radius to ensure normal use of our connectors.

8. REPAIR PROCESS

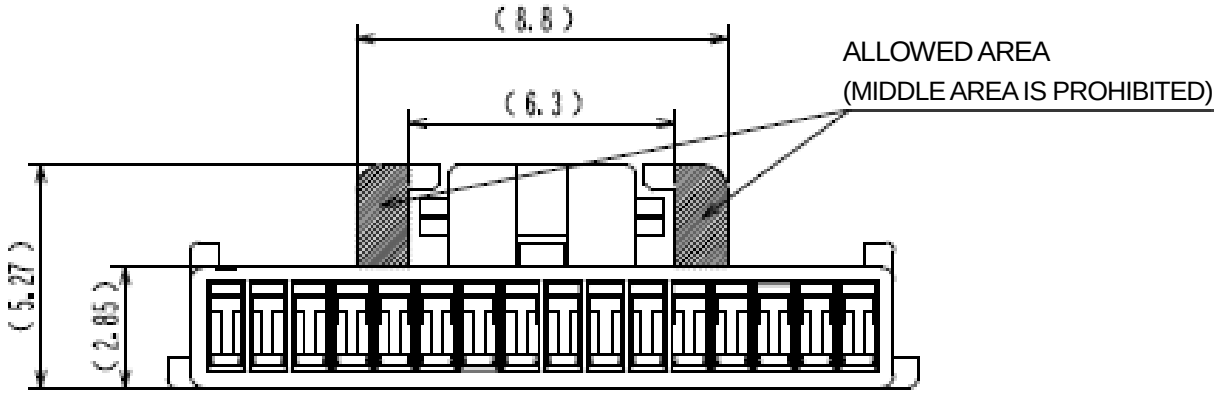
For removing the inserted contact from the socket, lift up the housing lance by using a pointed needle, and pull out the cable.
Once removed, socket cannot be re-used. Please use a new part after repair is completed.



9. ELECTRICAL TEST

9.1 CLAMPING AREAS OF CONNECTORS

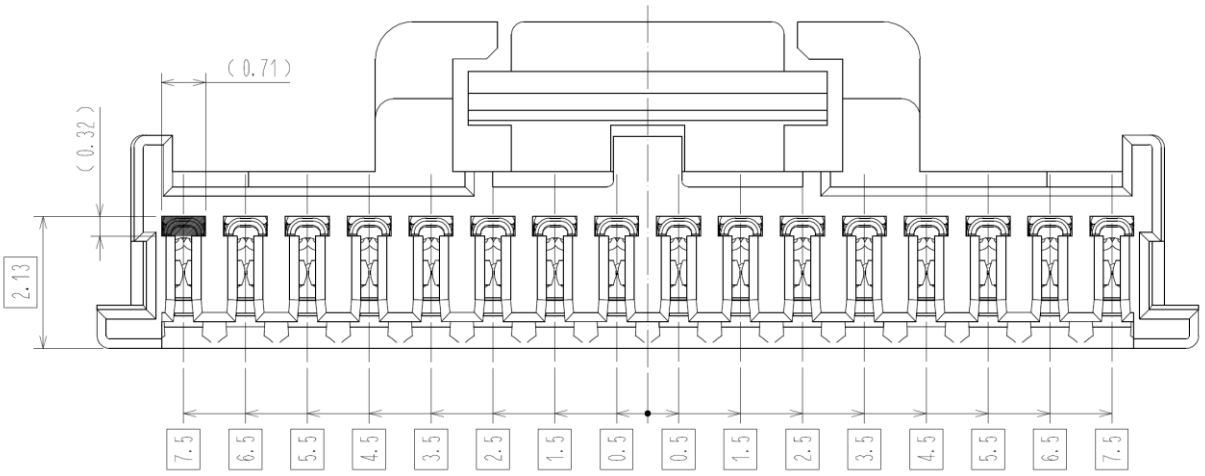
During electrical tests, plugs can be clamped in the following areas: (example with GT50-16S-1C)



9.2 LOCATION OF TEST PROBES

The test probes should be located in front face as described below:

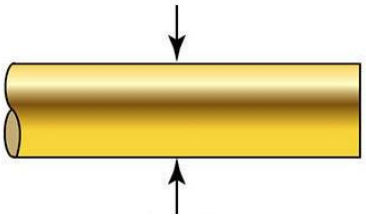
(Example with the 16P)



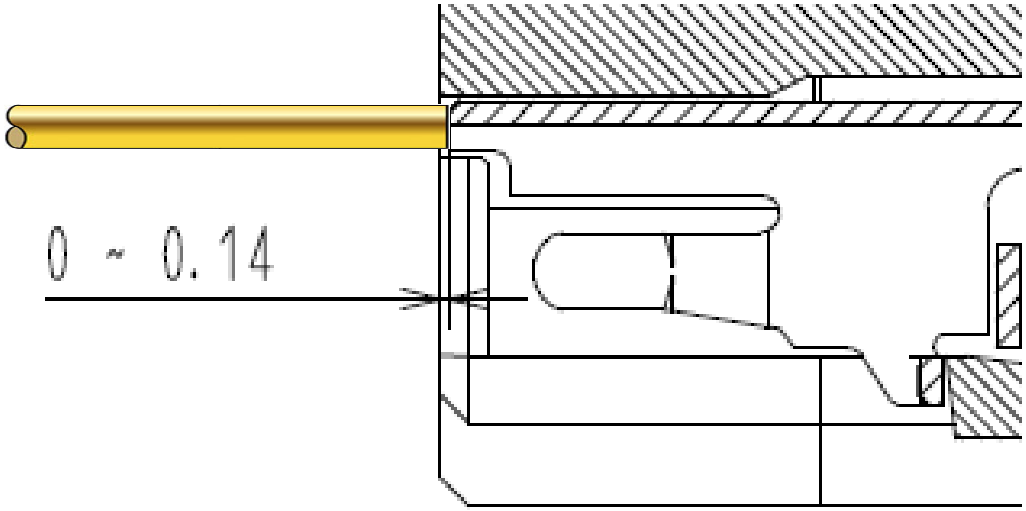
9.3 DEFINITION OF TEST PROBES

The recommended probe should have the following characteristics:

- Diameter: ø0.30mm maximum
- Plating: Gold plated
- Spring force: 1N maximum
- Stroke: see section below



ø0.3mm max
Gold plated



9.4 RECOMMENDATIONS FOR ELECTRICAL TESTS

- Perform test after insertion of terminals.
- Avoid any deformation on housing or terminal during electrical test.
- Replace any damaged housing or terminal with a new one.

10. CRIMP QUALITY STANDARD

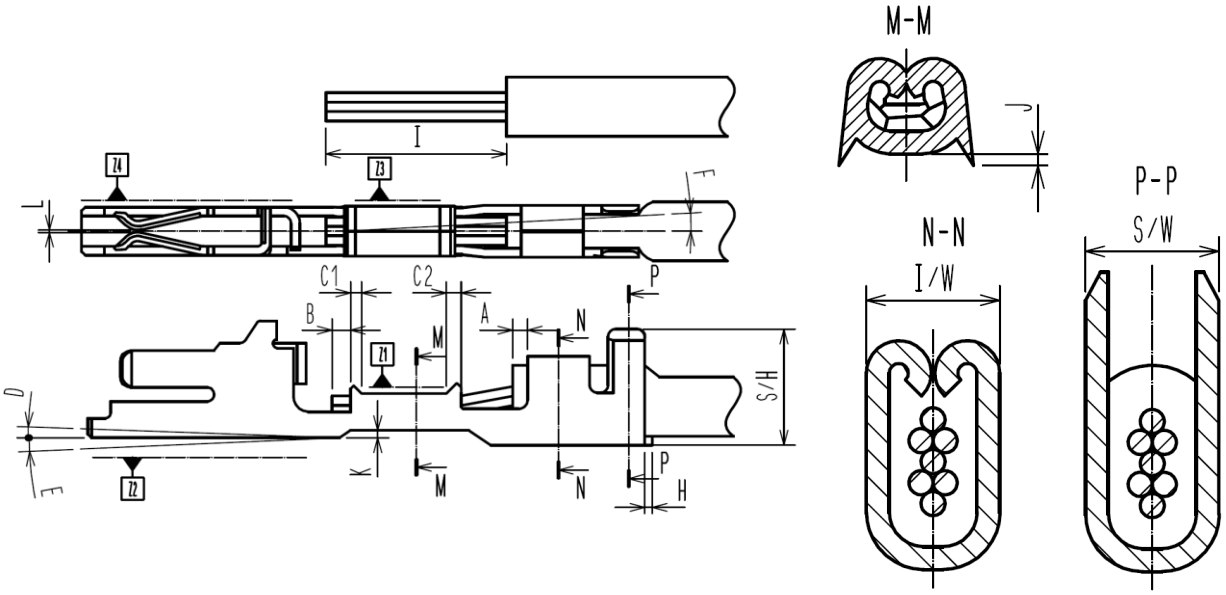
10.1 SCOPE

This technical specification prescribes crimp condition of GT50-28SCFA (CL760-1001-0).

10.2 APPLICABLE WIRE

- Applicable wire size: 0.08mm² ~ 0.09mm²
- Applicable insulation size: 0.66 ~ 0.8mm max.

10.3 QUALITY STANDARD



CHECK POINT			MEASURE (mm)	Remarks
Cover location		A	0.3 + /-0.15	
Location of tip of the core		B	0.35 +/-0.23	
Front bell-mouth		C1	0.15 max	
Rear bell-mouth		C2	0.175 +/-0.075	
Bend-up		D	2° max	Bent-up is measured angle at Z2 from datum plane Z1
Bend-down		E	2.5° max	Bent-up is measured angle at Z2 from datum plane Z1
Twist		F	±2° max	Twist is measured angle at Z4 from datum plane Z3
Rolling		G	±3° max	
Cut-off tab		H	0.15 max	
Strip length		I	2.1 +/-0.15	This dimension is for reference.Please adjust it to meet specified dimensions after the crimping.
Burr height		J	0.12 max	
Width	Wire barrel	C/W	0.70 max	
	Insulation barrel	I/W	0.76 max	
	Stabilizer	S/W	0.76 max	
Stabilizer height		S/H	1.65 +/-0.05	
Crimping step Apply only to bend-up		K	0.12 max	
Gap		L	0.025 +/-0.02	

Note 1: Refer to a Crimping condition list for the crimp height and insulation height.

Note 2: Please confirm that the crimped contact can be inserted to the socket.

Note 3: Bell mouth can't be at the side of wire crimp part and must be within the crimp wide standard.

11. CRIMP PARAMETERS

WIRE TYPE	SEC AREA (mm^2) / AWG	CONDUCTOR		INSULATION		Tensile strength of the wire-terminal link (minimum)
		C/H	C/W	C/H	C/W	
SEA	0.08 / 28	0.50 ~0.56	0.70 max	1.10 ~1.20	0.76 max	11N