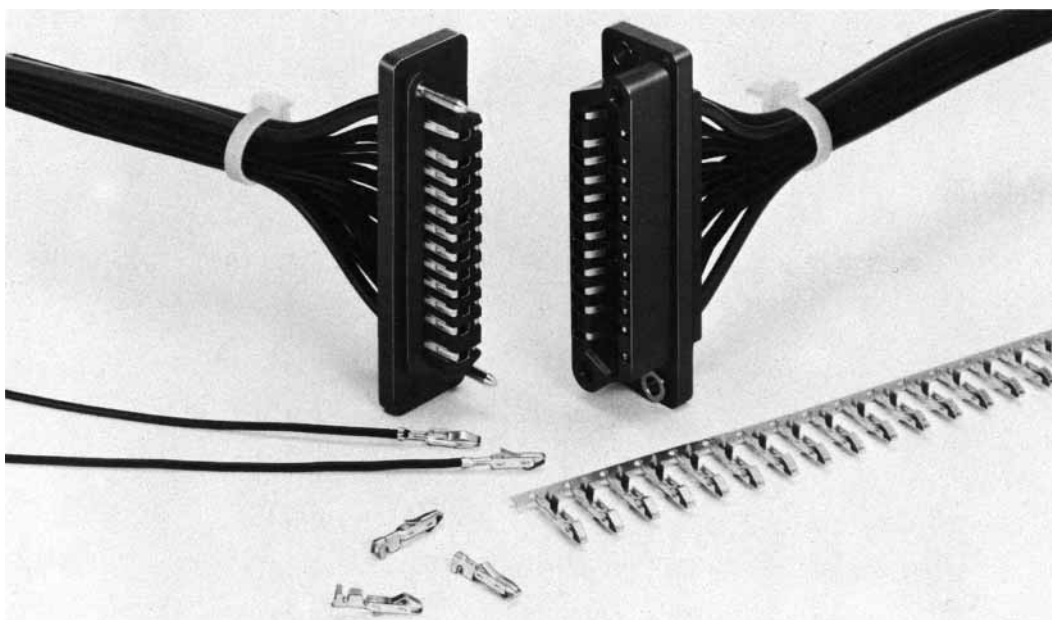


# QR/P SERIES PLUG-IN CRIMP CONNECTORS

## General

QR/P series connectors have been developed for Plug-in Connection Power and Signal Circuits in copier machine or other equipments which impose the connectors repeated insertion and extraction for maintenance work of them Available number of pins are 4, 8,

12, 16, and 24. Wire termination is done by crimping which offers higher reliability, Especially, the unique sexless contact assures soft and smooth coupling operation which is the most appropriate for Plug-in connection by machine itself.



## Features

- (1) The selective plating sexless contact is commonly used for plug and receptacle housings.
- (2) As QR/P series are crimp type connectors their housing and contacts are supplied separately. The sexless feature of the contact offers customers higher utilization and easier inventory control.
- (3) The two pairs of contacts at both ends are sequenced for power circuits. They are longer than the others.

The molding material is UL94V-0 glass-reinforced polyester.

- (4) The Guide Pin is made of steel nickel plated to be strong enough against accidental coupling shock.
- (5) The mount of a receptacle housing is done through Floating Bushes. Thus, they may help to give smoother coupling of connectors by a self-adjusting function.

## Applications

Main applications are PPC, Data Communications, Vending Machines, Instrument, Automatic Equipment, etc.

## Material and Finish

| QR/P Main Rating                |                            |                      |
|---------------------------------|----------------------------|----------------------|
| Contact resistance              | 10 Ω or less at DC1A       |                      |
| Insulation resistance           | 5000M Ω or less at DC 500V |                      |
| Withstand voltage<br>( 1 min. ) | Power                      | AC 3000V             |
|                                 | Signal                     | AC 1000V             |
| Current rating                  | Power                      | 13A Max (AWG#14 use) |
|                                 | Signal                     | 7A Max (AWG#14 use)  |
| Voltage rating                  | Power                      | AC 600V              |
|                                 | Signal                     | AC 250V              |

| Material  |                 |                                    |
|-----------|-----------------|------------------------------------|
| Insulator | PBT*            | Blue                               |
| Contact   | Phosphor bronze | Selective gold over Nickel Plating |

※UL94V-0

| Ratings authorized by QR/P safety standards |        |               |        |                |
|---------------------------------------------|--------|---------------|--------|----------------|
| Standard safety                             |        | UL            | CSA    | TÜV            |
| operating temperature                       |        | - 10 ~ + 60°C |        |                |
| Rated voltage                               | Power  | AC120V        | AC125V | AC250V, DC300V |
|                                             | Signal |               |        | AC125V, DC150V |
| Rated current                               | AWG#14 | 10A           | —      | 10A            |
|                                             | AWG#16 |               | 5A     |                |
|                                             | AWG#18 | 3A            | 3A     | 5A             |
|                                             | AWG#20 |               | 2A     | 2.5A           |
|                                             | AWG#22 |               | 1A     | 1A             |
|                                             | AWG#24 |               |        |                |

## Ordering Information

### ▲ Connector Unit

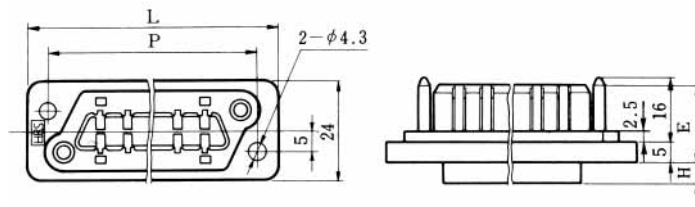
QR / P — 8 P — C (01)  
 (1) (2)(3) (4) (9)

### ▲ Contact

QR / P — X C — 1 1 1  
 (1) (5)(4) (6)(7)(8)

- (1) Series Name
- (2) No.of Pin 4, 8, 12, 16, 24
- (3) Type of Housing
  - P: Plug Housing
  - S: Receptacle Housing
- (4) Type of Termination
  - C: Crimping
- (5) Sexless Contact
- (6) Contact Type
  - 1: Loose Contact
  - 2: Chain Contact
- (7) Applicable Wire
  - 1: AWG # 14 - # 16
  - 2: AWG # 18 - # 24
- (8) Finish
  - 1: Selective Gold over Nickel plating
- (9) UL, CSA, TÜV Approved Spec.

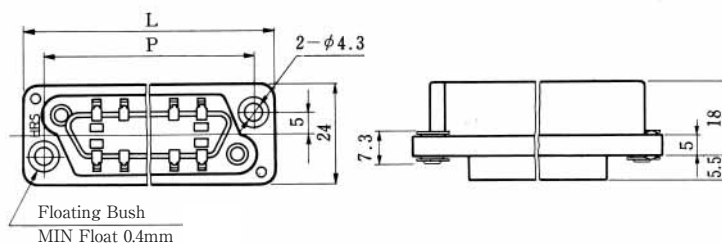
## Plug Housing



Unit: mm

| HRS No.         | No. of Pin | Part No.        | L    | P  | H   | E    | RoHS |
|-----------------|------------|-----------------|------|----|-----|------|------|
| CL221-0013-0-01 | 4          | QR/P- 4P-C (01) | 41   | 31 | 5   | 18.5 | ○    |
| CL221-0001-0-01 | 8          | QR/P- 8P-C (01) | 52   | 42 | 5   | 18.5 |      |
| CL221-0002-3-01 | 12         | QR/P-12P-C (01) | 61   | 51 | 5   | 18.5 |      |
| CL221-0003-6-01 | 16         | QR/P-16P-C (01) | 70   | 60 | 5   | 18.5 |      |
| CL221-0004-9-01 | 24         | QR/P-24P-C (01) | 86.5 | 77 | 5.5 | 18   |      |

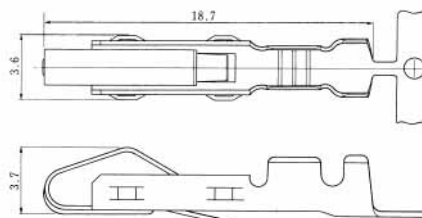
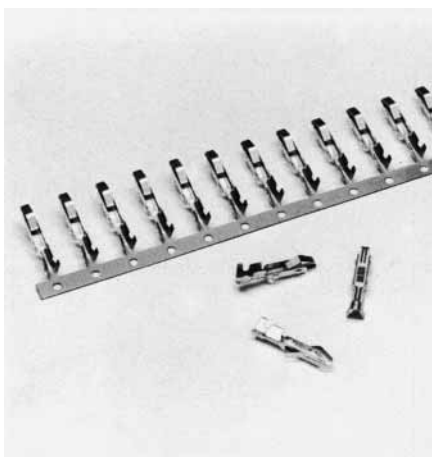
## Receptacle Housing



Unit: mm

| HRS No.         | No. of Pin | Part No.        | L    | P  | RoHS |
|-----------------|------------|-----------------|------|----|------|
| CL221-0014-2-51 | 4          | QR/P- 4S-C (51) | 41   | 31 | ○    |
| CL221-0005-1-51 | 8          | QR/P- 8S-C (51) | 52   | 42 |      |
| CL221-0006-4-51 | 12         | QR/P-12S-C (51) | 61   | 51 |      |
| CL221-0007-7-51 | 16         | QR/P-16S-C (51) | 70   | 60 |      |
| CL221-0008-0-51 | 24         | QR/P-24S-C (51) | 86.5 | 77 |      |

## Sexless Crimp Contact



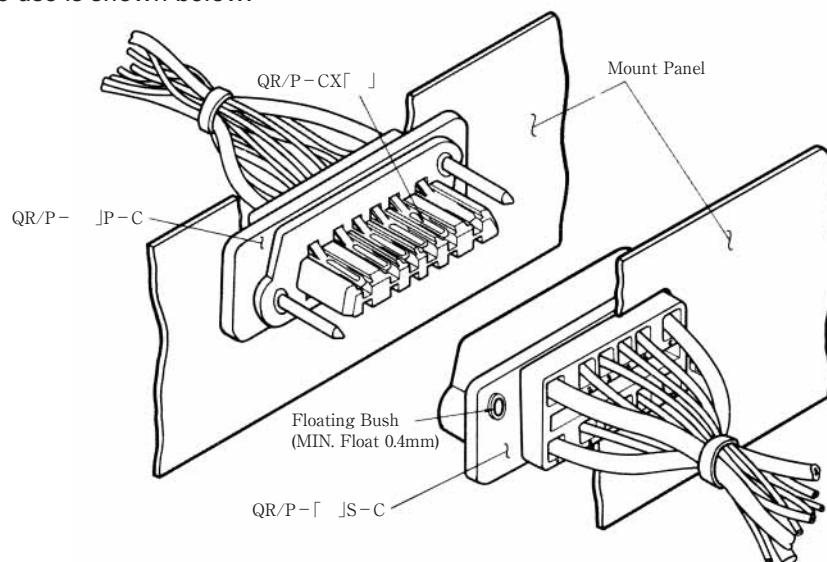
Unit: mm

| Applicable Wire | HRS No.         | Part No.         | Type  | Plating                               | RoHS |
|-----------------|-----------------|------------------|-------|---------------------------------------|------|
| AWG#14 - 16     | CL221-0009-2-12 | QR/P-XC-111 (12) | Loose | Selective gold<br>over Nickel Plating | ○    |
|                 | CL221-0011-4-12 | QR/P-XC-211 (12) | Chain |                                       |      |
| AWG#18 - 24     | CL221-0010-1-12 | QR/P-XC-121 (12) | Loose |                                       |      |
|                 | CL221-0012-7-12 | QR/P-XC-221 (12) | Chain |                                       |      |

Note\* Loose-piece terminals are available in packs. Each pack contains 100 terminals. Strip terminals are available in reels. Each reel contains QR/P-XC-221 Pin 3,500. QR/P-XC-221 Pin 5,000 terminals.

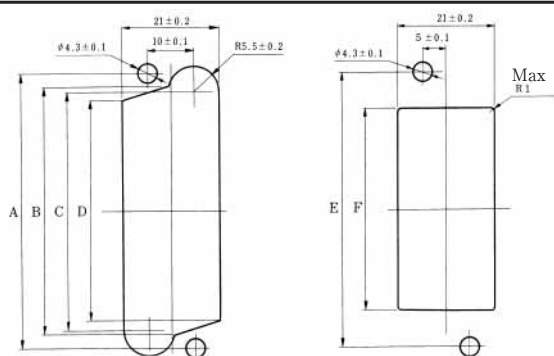
## How To Use Connectors

QR/P series connectors are primarily used in Plug-in Connection and the use is shown below.



**Note:** Determine the combinations with the panel so that the mating clearance between the P side and S side is 2 mm or less.

## Recommended Mounting Hole (for S Insulation Case)

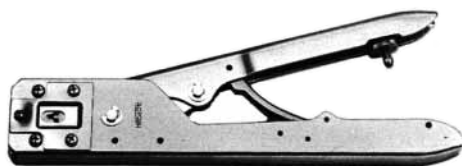


| No. of pin     |   | 4 pin | 8 pin | 12 pin | 16 pin | 24 pin |
|----------------|---|-------|-------|--------|--------|--------|
| Rear Mounting  | A | 31    | 42    | 51     | 60     | 70     |
|                | B | 26.5  | 37.5  | 46.5   | 55.5   | 73.5   |
|                | C | 23    | 34    | 43     | 52     | 70     |
|                | D | 18.5  | 29.5  | 38.5   | 47.5   | 65.5   |
| Front Mounting | E | 31    | 42    | 51     | 60     | 77     |
|                | F | 15.5  | 26.5  | 35.5   | 44.5   | 62.5   |

**Note:** Panel mounting dimensions for the P insulation case are symmetrical with request to the vertical axis, in relation to the S insulation case.

## Tools

| Item                    | HRS No.      | Part No.          | Applicable Contact | Applicable Cable |
|-------------------------|--------------|-------------------|--------------------|------------------|
| Hand Crimp Tool         | CL250-0027-0 | TC-2100-111       | QR/P-XC-111        | AWG#14 - #16     |
|                         | CL250-0028-2 | TC-2100-121       | QR/P-XC-121        | AWG#18 - #24     |
| Applicator              | CL901-2531-8 | AP105-QR/P-XC-221 | QR/P-XC-221        | AWG#18 - #24     |
| Contact Extraction Tool | CL250-0009-8 | TC-2100-21        | —                  | —                |



Hand Crimp Tool

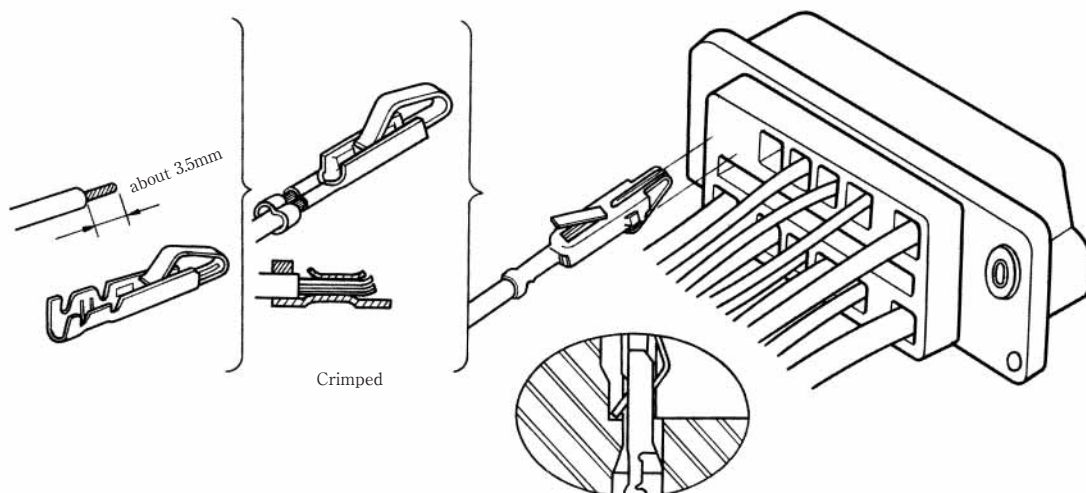


Contact Extraction Tool



Auto Crimp Tool CM-105

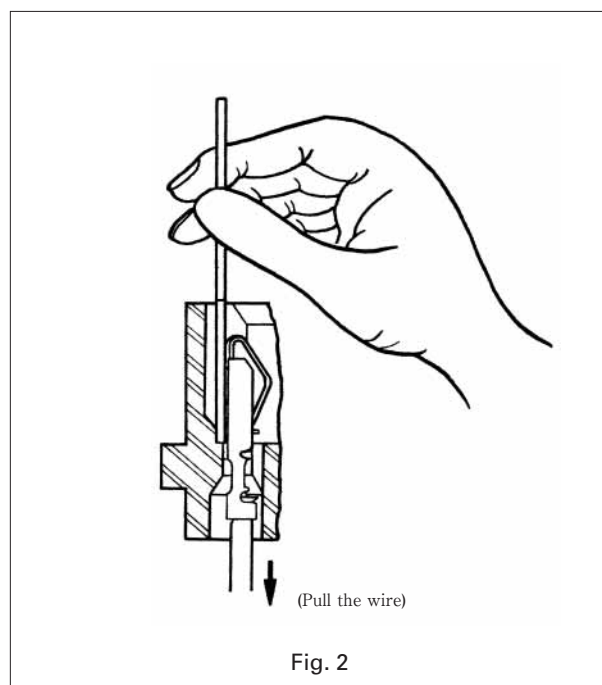
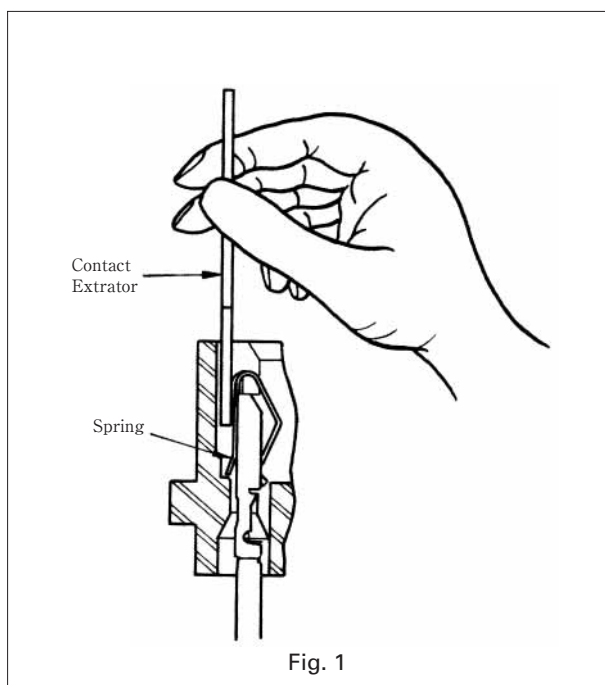
## Assembling Procedure



After assembling, please make sure if the contact is installed as shown in the left by pulling the cable slightly.

## Procedure for Contact Extraction

In case of extracting a contact from the housing in insertion error or in circuit change, follow the steps as shown below.



1. Hold the Contact Extractor, placing the tip of the Extractor on the tip of a contact, then insert it between the contact and the housing, following to the Fig. 1.
2. When the tip of the Extractor comes into contact with a stepped part in the housing, the spring will come off from the stepped part with a snap which is felt. Then, extract the contact by pulling the wire.
3. Above Fig. 1 and Fig. 2 show how to extract a contact from socket housing. The same procedure can be employed to extract a contact from pin housing.
4. When the extracted contact is installed again in the housing, do not forget to raise up the contact spring to the original position.

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