

# HR10 SERIES SHELL SIZE 7mm PUSH-PULL CONNECTORS

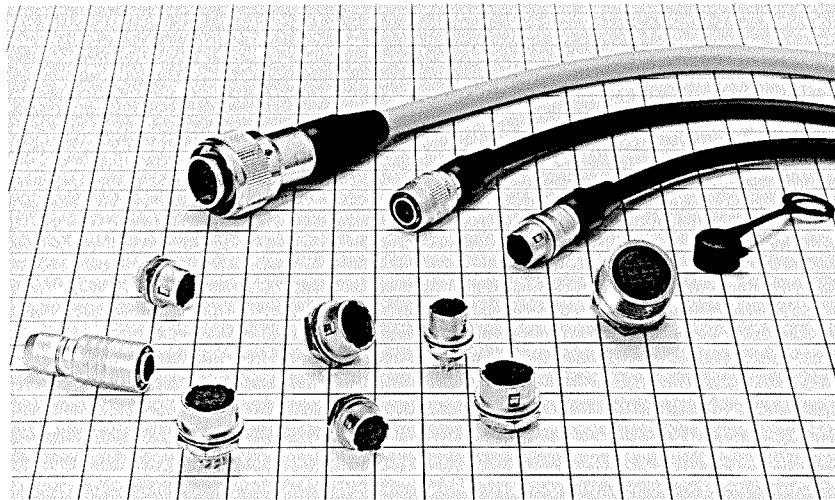
## Introduction

The HR10 series connectors are push-pull coupling type micro-connectors. They have been developed in response to customers' needs for miniaturization, high density, and easy handling.

The HR10 series connectors offer light weight and assure high reliability and durability as well as easy "push-pull" operation.

You may apply the HR10 series connectors to all kinds of

small-sized electronic equipment requiring high reliability. However, these simple but refined connectors are most suitable for portable electronic equipment which requires good appearance. Typical applications are: Computers and peripherals, medical equipment, audio equipment, video equipment, portable radio (wireless) apparatus, measuring equipment, etc.



## Features

- 1. "A LITTLE GIANT"**  
The most compact HR10 series is as slender as a cigarette but it fits every application with well-balanced, simplified layout in limited space.
- 2. EASY "PUSH-PULL" OPERATION**  
One touch "push-pull" coupling mechanism assures easy and quick connecting and disconnecting. You can couple it accurately just by pushing any part of the connector housing.
- 3. POLARIZATION**  
Five-key system permits only one way of coupling so that you can find right position to connect even when blind mating.
- 4. PROTECTION OF CONNECTION PIN**  
A connector pin is located to avoid any damage which may be caused when blind mating.
- 5. HIGH DENSITY**  
The space-saving "push-pull" mechanism facilitates multi-installation of connectors.
- 6. EASY WIRING AND MOUNTING**  
No use of screws makes wiring and mounting easier.
- 7. SIMPLE AND REFINED APPEARANCE**  
Simple and well designed connectors with matte finish enhance the appearance of the equipment.

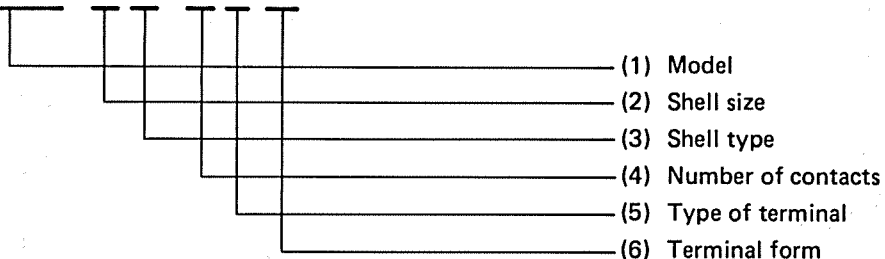
## Material & Finish

### Main materials

| Part            | Material                     | Finish                      |
|-----------------|------------------------------|-----------------------------|
| Shell           | Zinc-alloy and brass         | Satin-finished nickel plate |
| Insulation      | Polyamide resin or PBT resin | (Blue or black)             |
| Male terminal   | Brass or bronze              | Silver- or gold-plated      |
| Female terminal | Beryllium or phosphor bronze | Silver- or gold-plated      |

### Ordering Information

HR10A - 7 P - 4 P A

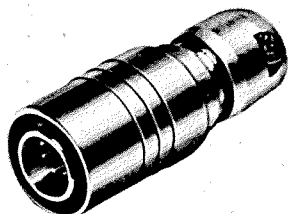


- (1) Model: Denotes HR10 series as follows:  
 HR10A: Low-cost model  
 HR10G: Shielded  
 HR10E: Built-in capacitor  
 HR10B: Coaxial terminal  
 HR10D: Connector sleeve rotation inhibited
- (2) Shell size: Plug mating part outside diameter in mm.
- (3) Shell type: Indicates the type of shell as follows:  
 P: Plug      R: Receptacle      J: Jack
- (4) Number of contacts: Indicates the number of contacts.
- (5) Type of terminal: Indicates the type of terminal as follows:  
 P: Male terminal      S: Female terminal
- (6) Terminal form: Indicates terminal connection system in terminal form in alphabetic characters.  
 C: Crimp connection system

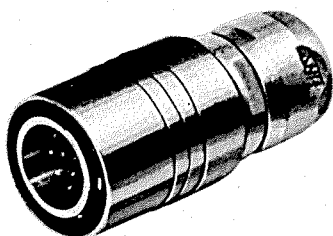
## HR10 type

Gold plating is the standard for the HR10 connector terminals and silver plating is used for the terminals of other types of connectors. When using HR10 connectors combination with other types of connectors, be sure to check the plating specification.

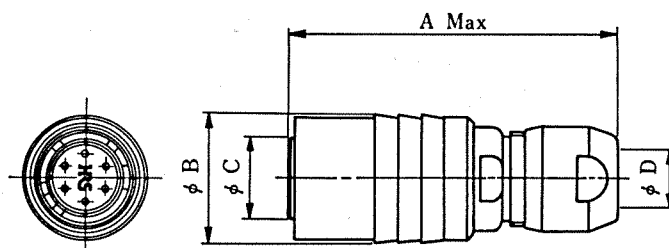
### Plug



HR10-7P-6P



HR10-10P-12P



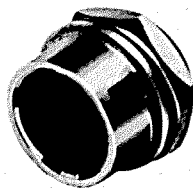
(An example in shape)

| HRS No.    | Part No.     | No. of pins | A    | φB | φC  | φD  | Weight |
|------------|--------------|-------------|------|----|-----|-----|--------|
| 110-0021-6 | HR10- 7P- 4P | 4           | 28.5 | 11 | 7   | 5.2 | 8g     |
| 110-0022-9 | HR10- 7P- 4S | 4           | 28.5 | 11 | 7   | 5.2 | 8g     |
| 110-0023-1 | HR10- 7P- 6P | 6           | 28.5 | 11 | 7   | 5.2 | 8g     |
| 110-0024-4 | HR10- 7P- 6S | 6           | 28.5 | 11 | 7   | 5.2 | 8g     |
| 110-0025-7 | HR10-10P-12P | 12          | 32.5 | 14 | 9.5 | 7.2 | 15g    |
| 110-0026-0 | HR10-10P-12S | 12          | 32.5 | 14 | 9.5 | 7.2 | 15g    |

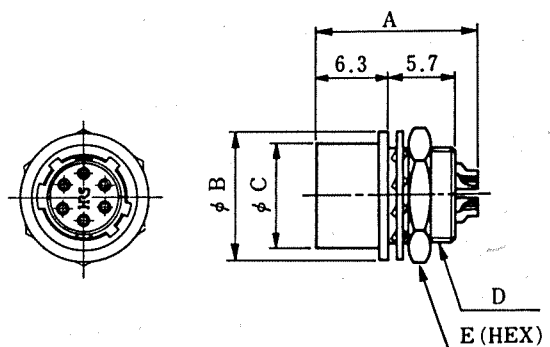
### Receptacle



HR10-7R-6S



HR10-10R-12S

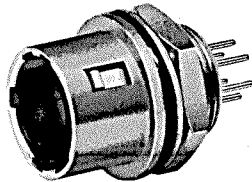


(An example in shape)

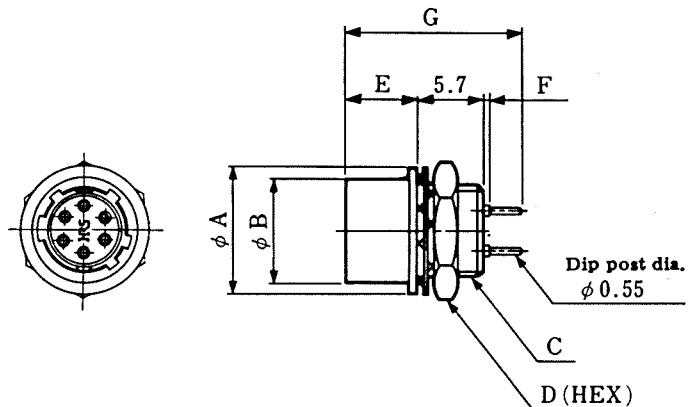
| HRS No.    | Part No.     | No. of pins | A  | φB | φC   | D        | E  | Weight |
|------------|--------------|-------------|----|----|------|----------|----|--------|
| 110-0031-0 | HR10- 7R- 4S | 4           | 14 | 11 | 8.85 | M8x0.5   | 10 | 3.5g   |
| 110-0032-2 | HR10- 7R- 4P | 4           | 14 | 11 | 8.85 | M8x0.5   | 10 | 3.5g   |
| 110-0033-5 | HR10- 7R- 6S | 6           | 14 | 11 | 8.85 | M8x0.5   | 10 | 3.5g   |
| 110-0034-8 | HR10- 7R- 6P | 6           | 14 | 11 | 8.85 | M8x0.5   | 10 | 3.5g   |
| 110-0035-0 | HR10-10R-12S | 12          | 16 | 14 | 11.9 | M11x0.75 | 13 | 6g     |
| 110-0036-3 | HR10-10R-12P | 12          | 16 | 14 | 11.9 | M11x0.75 | 13 | 6g     |

Remark: For mounting holes, see page 85.

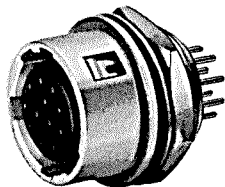
## Receptacle (PCB Dip Type)



HR10-7R-6SA



(An example in shape)



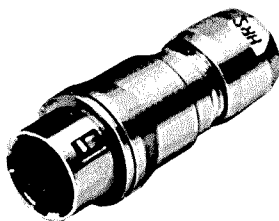
HR10-10R-12SA

| HRS No.    | Part No.      | No. of pins | φA | φB   | C        | D  | E   | F   | G    | Weight |
|------------|---------------|-------------|----|------|----------|----|-----|-----|------|--------|
| 110-0059-9 | HR10- 7R- 4SA | 4           | 11 | 8.85 | M8x0.5   | 10 | 6.3 | 0.5 | 15.5 | 3g     |
| 110-0050-4 | HR10- 7R- 6SA | 6           | 11 | 8.85 | M8x0.5   | 10 | 6.3 | 0.5 | 15.5 | 3g     |
| 110-0061-0 | HR10- 7R- 6PA | 6           | 11 | 8.85 | M8x0.5   | 10 | 6.3 | 0.5 | 15.5 | 3g     |
| 110-0049-5 | HR10-10R-12SA | 12          | 14 | 11.9 | M11x0.75 | 13 | 6.3 | 0.5 | 15.5 | 5g     |
| 110-0055-8 | HR10-10R-12PA | 12          | 14 | 11.9 | M11x0.75 | 13 | 6.3 | 0.5 | 15.5 | 5g     |

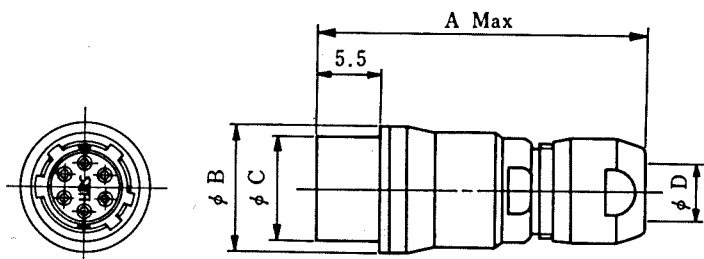
Remarks: 1. For mounting holes, see page 85.

2. For Dip post arrangement, see page 80.

## Jack



HR10-7J-6S



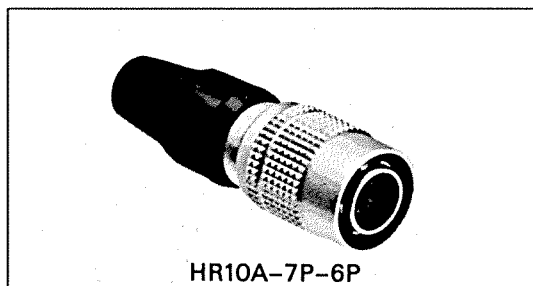
| HRS No.    | Part No.     | No. of pins | A    | φB | φC   | D   | Weight |
|------------|--------------|-------------|------|----|------|-----|--------|
| 110-0027-2 | HR10- 7J- 4S | 4           | 28.5 | 11 | 8.85 | 5.2 | 7g     |
| 110-0028-5 | HR10- 7J- 4P | 4           | 28.5 | 11 | 8.85 | 5.2 | 7g     |
| 110-0029-8 | HR10- 7J- 6S | 6           | 28.5 | 11 | 8.85 | 5.2 | 7g     |
| 110-0030-7 | HR10- 7J- 6P | 6           | 28.5 | 11 | 8.85 | 5.2 | 7g     |
| 110-0037-6 | HR10-10J-12S | 12          | 32.5 | 14 | 11.9 | 7.2 | 14g    |
| 110-0038-9 | HR10-10J-12P | 12          | 32.5 | 14 | 11.9 | 7.2 | 14g    |

## HR10A·10G Type

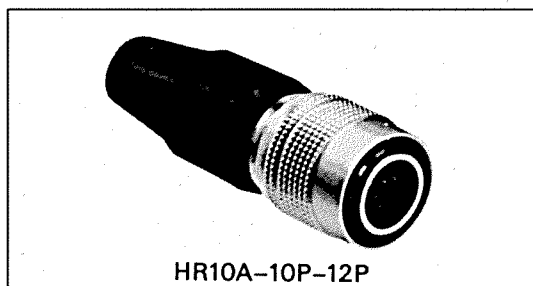
The model HR10A is a lowcost connector maintaining the excellent characteristics of the HR10 connector while meeting VA requirements. To ensure increased cable-clamping force, the cables are crimped with a special crimping tool, and to increase cable resistance to bending, the shell is covered with a rubber bushing.

The model HR10G is a shielding connector having a built-in contact mechanism with the plug shell inside the receptacle. The standard HR10A and HR10G connector contacts are silver-plated.

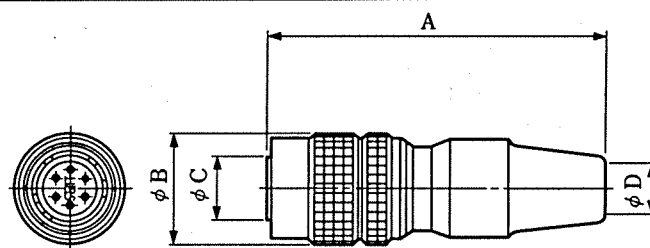
### Plug (Solder Type)



HR10A-7P-6P



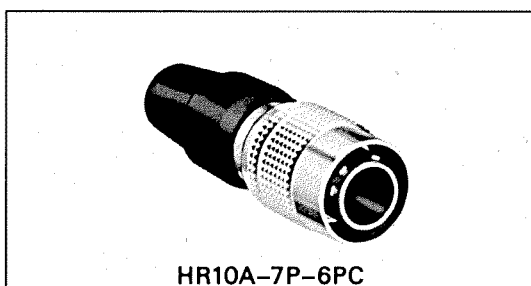
HR10A-10P-12P



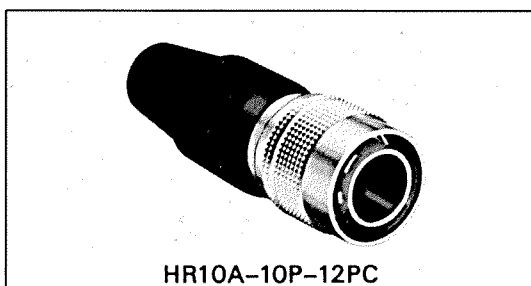
(An example in shape)

| HRS No.    | Part No.      | No. of pins | A    | $\phi B$ | $\phi C$ | $\phi D$ | Weight |
|------------|---------------|-------------|------|----------|----------|----------|--------|
| 110-0301-2 | HR10A- 7P- 4P | 4           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0302-5 | HR10A- 7P- 4S | 4           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0318-5 | HR10A- 7P- 5P | 5           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0319-8 | HR10A- 7P- 5S | 5           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0303-8 | HR10A- 7P- 6P | 6           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0304-0 | HR10A- 7P- 6S | 6           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0407-3 | HR10A-10P-10P | 10          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0408-6 | HR10A-10P-10S | 10          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0401-7 | HR10A-10P-12P | 12          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0402-0 | HR10A-10P-12S | 12          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0713-0 | HR10A-13P-20P | 20          | 58.8 | 19       | 13       | 7        | 37g    |
| 110-0716-8 | HR10A-13P-20S | 20          | 58.8 | 19       | 13       | 7        | 37g    |

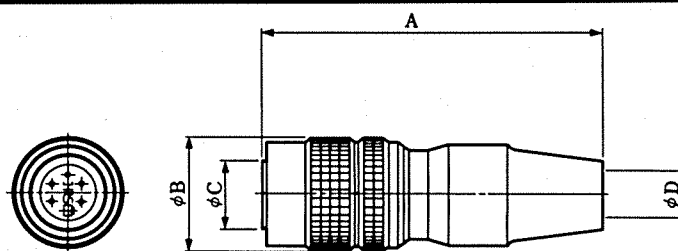
### Plug (Crimp Type)



HR10A-7P-6PC



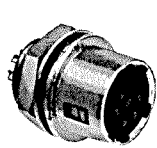
HR10A-10P-12PC



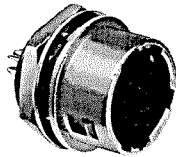
(An example in shape)

| HRS No.    | Part No.       | No. of pins | A    | $\phi B$ | $\phi C$ | $\phi D$ | Weight |
|------------|----------------|-------------|------|----------|----------|----------|--------|
| 110-0501-1 | HR10A- 7P- 4PC | 4           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0502-4 | HR10A- 7P- 4SC | 4           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0503-7 | HR10A- 7P- 6PC | 6           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0504-0 | HR10A- 7P- 6SC | 6           | 35   | 11.5     | 7        | 5        | 9g     |
| 110-0601-6 | HR10A-10P-10PC | 10          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0602-9 | HR10A-10P-10SC | 10          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0603-1 | HR10A-10P-12PC | 12          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0604-4 | HR10A-10P-12SC | 12          | 43   | 14.7     | 9.5      | 7        | 16g    |
| 110-0701-0 | HR10A-13P-20PC | 20          | 58.8 | 19       | 13       | 7        | 37g    |
| 110-0702-3 | HR10A-13P-20SC | 20          | 58.8 | 19       | 13       | 7        | 37g    |

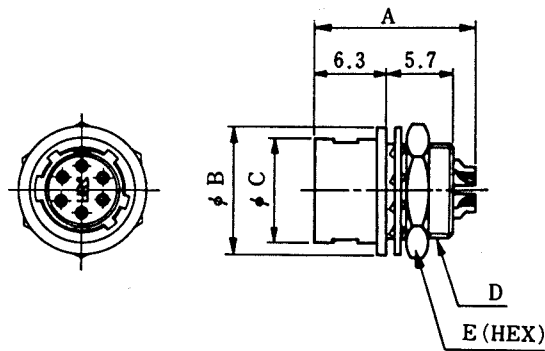
## Receptacle (Solder Type)



HR10A-7R-6S



HR10G-10R-12S



(An example in shape)

| HRS No.    | Part No.      | No. of pins | A    | $\phi B$ | $\phi C$ | D        | E  | Weight |
|------------|---------------|-------------|------|----------|----------|----------|----|--------|
| 110-0305-3 | HR10A-7R-4S   | 4           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0306-6 | HR10A-7R-4P   | 4           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0320-7 | HR10A-7R-5S   | 5           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0321-0 | HR10A-7R-5P   | 5           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0307-9 | HR10A-7R-6S   | 6           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0308-1 | HR10A-7R-6P   | 6           | 14   | 11       | 8.85     | M8x0.5   | 10 | 3g     |
| 110-0409-9 | HR10A-10R-10S | 10          | 16   | 14       | 11.9     | M11x0.75 | 13 | 5g     |
| 110-0410-8 | HR10A-10R-10P | 10          | 16   | 14       | 11.9     | M11x0.75 | 13 | 5g     |
| 110-0403-2 | HR10A-10R-12S | 12          | 16   | 14       | 11.9     | M11x0.75 | 13 | 5g     |
| 110-0404-5 | HR10A-10R-12P | 12          | 16   | 14       | 11.9     | M11x0.75 | 13 | 5g     |
| 110-0714-2 | HR10A-13R-20S | 20          | 19.2 | 18       | 15.4     | M14x0.75 | 17 | 8g     |
| 110-0715-5 | HR10A-13R-20P | 20          | 20.2 | 18       | 15.4     | M14x0.75 | 17 | 8g     |

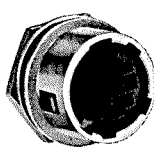
| HRS No.    | Part No.      | No. of pins | A  | $\phi B$ | $\phi C$ | D        | E  | Weight | Remarks     |
|------------|---------------|-------------|----|----------|----------|----------|----|--------|-------------|
| 110-1601-1 | HR10G-7R-4S   | 4           | 14 | 11       | 8.85     | M8x0.5   | 10 | 3g     | Shield type |
| 110-1602-4 | HR10G-7R-4P   | 4           | 14 | 11       | 8.85     | M8x0.5   | 10 | 3g     |             |
| 110-1605-2 | HR10G-7R-6S   | 6           | 14 | 11       | 8.85     | M8x0.5   | 10 | 3g     |             |
| 110-1606-5 | HR10G-7R-6P   | 6           | 14 | 11       | 8.85     | M8x0.5   | 10 | 3g     |             |
| 110-1607-8 | HR10G-10R-10S | 10          | 16 | 14       | 11.9     | M11x0.75 | 13 | 5g     |             |
| 110-1608-0 | HR10G-10R-10P | 10          | 16 | 14       | 11.9     | M11x0.75 | 13 | 5g     |             |
| 110-1609-3 | HR10G-10R-12S | 12          | 16 | 14       | 11.9     | M11x0.75 | 13 | 5g     |             |
| 110-1610-2 | HR10G-10R-12P | 12          | 16 | 14       | 11.9     | M11x0.75 | 13 | 5g     |             |

Remark: For mounting holes, see page 85.

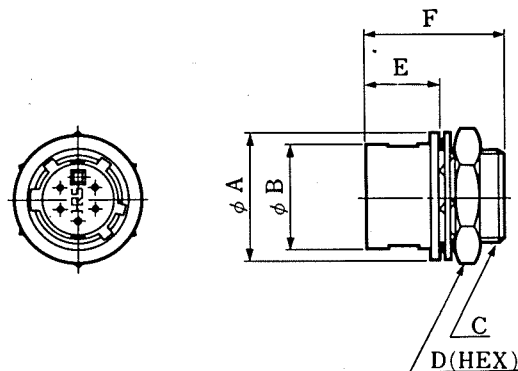
## Receptacle (Crimp Type)



HR10A-7R-6SC



HR10G-10R-12SC



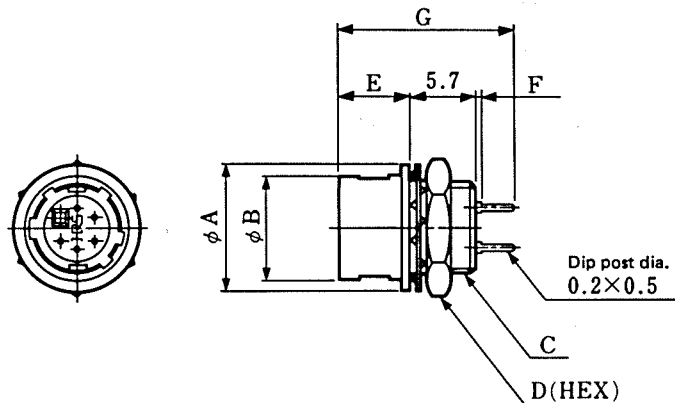
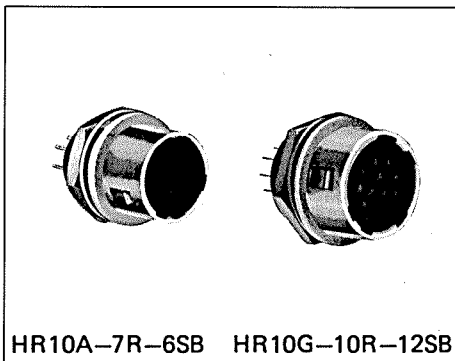
(An example in shape)

| HRS No.    | Part No.       | No. of pins | $\phi A$ | $\phi B$ | C        | D  | E   | F    | Weight |
|------------|----------------|-------------|----------|----------|----------|----|-----|------|--------|
| 110-0506-5 | HR10A-7R-4SC   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12   | 3g     |
| 110-0505-2 | HR10A-7R-4PC   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12.2 | 3g     |
| 110-0508-0 | HR10A-7R-6SC   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12   | 3g     |
| 110-0507-8 | HR10A-7R-6PC   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12.2 | 3g     |
| 110-0606-0 | HR10A-10R-10SC | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12   | 5g     |
| 110-0605-7 | HR10A-10R-10PC | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12.2 | 5g     |
| 110-0608-5 | HR10A-10R-12SC | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12   | 5g     |
| 110-0607-2 | HR10A-10R-12PC | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12.2 | 5g     |
| 110-0703-6 | HR10A-10R-20SC | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 15   | 8g     |
| 110-0704-9 | HR10A-10R-20PC | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 15   | 8g     |

| HRS No.    | Part No.       | No. of pins | $\phi A$ | $\phi B$ | C        | D  | E   | F    | Weight | Remarks     |
|------------|----------------|-------------|----------|----------|----------|----|-----|------|--------|-------------|
| 110-1701-6 | HR10G-7R-4SC   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12   | 3g     | Shield type |
| 110-1702-9 | HR10G-7R-4PC   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12.2 | 3g     |             |
| 110-1705-7 | HR10G-7R-6SC   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12   | 3g     |             |
| 110-1706-0 | HR10G-7R-6PC   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 12.2 | 3g     |             |
| 110-1707-2 | HR10G-10R-10SC | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12   | 5g     |             |
| 110-1708-5 | HR10G-10R-10PC | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12.2 | 5g     |             |
| 110-1709-8 | HR10G-10R-12SC | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12   | 5g     |             |
| 110-1710-7 | HR10G-10R-12PC | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 12.2 | 5g     |             |
| 110-1711-0 | HR10G-13R-20SC | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 15   | 8g     |             |
| 110-1712-2 | HR10G-13R-20PC | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 15   | 8g     |             |

Remark: For mounting holes, see page 85.

## Receptacle (Dip Type)



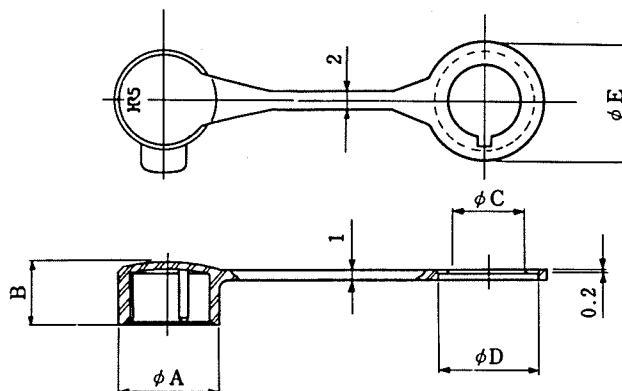
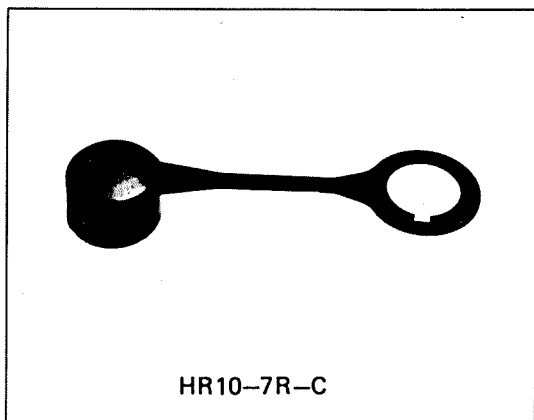
(An example in shape)

| HRS No.    | Part No.       | No. of pins | $\phi A$ | $\phi B$ | C        | D  | E   | F   | G    | Weight | Remarks     |
|------------|----------------|-------------|----------|----------|----------|----|-----|-----|------|--------|-------------|
| 110-0314-4 | HR10A-7R-4SB   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-0315-7 | HR10A-7R-4PB   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-0322-2 | HR10A-7R-5SB   | 5           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-0316-0 | HR10A-7R-6SB   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-0317-2 | HR10A-7R-6PB   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-0413-6 | HR10A-10R-10SB | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-0414-9 | HR10A-10R-10PB | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-0415-1 | HR10A-10R-12SB | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-0416-4 | HR10A-10R-12PB | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-0707-7 | HR10A-13R-20SB | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 0   | 17.8 | 8g     |             |
| 110-0708-0 | HR10A-13R-20PB | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 0   | 17.8 | 8g     |             |
| 110-1801-0 | HR10G-7R-4SB   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     | Shield type |
| 110-1802-3 | HR10G-7R-4PB   | 4           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-1805-1 | HR10G-7R-6SB   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-1806-4 | HR10G-7R-6PB   | 6           | 11       | 8.85     | M8x0.5   | 10 | 6.3 | 0.5 | 15.6 | 3g     |             |
| 110-1807-7 | HR10G-10R-10SB | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-1808-0 | HR10G-10R-10PB | 10          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-1809-2 | HR10G-10R-12SB | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-1810-1 | HR10G-10R-12PB | 12          | 14       | 11.9     | M11x0.75 | 13 | 6.3 | 0.5 | 15.6 | 5g     |             |
| 110-1811-4 | HR10G-13R-20SB | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 0   | 17.8 | 8g     |             |
| 110-1812-7 | HR10G-13R-20PB | 20          | 18       | 15.4     | M14x0.75 | 17 | 9.3 | 0   | 17.8 | 8g     |             |

Remarks: 1. For mounting holes, see page 85.

2. For dip post arrangement, see page 80.

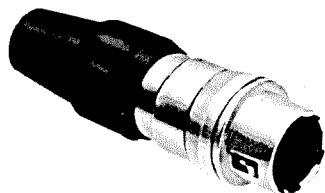
## Dust Cap



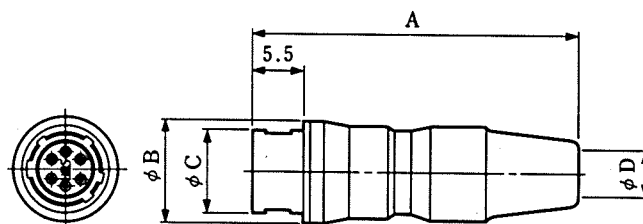
(An example in shape)

| HRS No.    | Part No.    | $\phi A$ | B    | $\phi C$ | $\phi D$ | $\phi E$ |
|------------|-------------|----------|------|----------|----------|----------|
| 110-0058-6 | HR10-7R-C   | 11       | 7    | 8        | 11.2     | 13       |
| 110-0052-0 | HR10-10R-C  | 14       | 8.5  | 10.8     | 14       | 15       |
| 110-0452-8 | HR10A-13R-C | 17.5     | 11.5 | 14       | 18.1     | 19       |

## Jack (Solder Type)

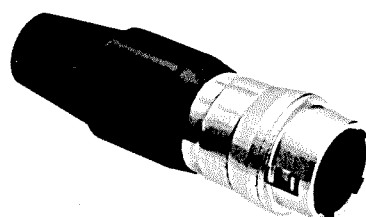


HR10A-7J-6S



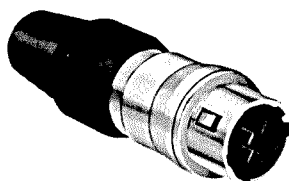
(An example in shape)

| HRS No.    | Part No.      | No. of pins | A    | φB | φC   | φD | Weight |
|------------|---------------|-------------|------|----|------|----|--------|
| 110-0309-4 | HR10A-7J-4S   | 4           | 35.3 | 11 | 8.85 | 5  | 9g     |
| 110-0310-3 | HR10A-7J-4P   | 4           | 35.3 | 11 | 8.85 | 5  | 9g     |
| 110-0311-6 | HR10A-7J-6S   | 6           | 35.3 | 11 | 8.85 | 5  | 9g     |
| 110-0312-9 | HR10A-7J-6P   | 6           | 35.3 | 11 | 8.85 | 5  | 9g     |
| 110-0411-0 | HR10A-10J-10S | 10          | 43   | 14 | 11.9 | 7  | 16g    |
| 110-0412-3 | HR10A-10J-10P | 10          | 43   | 14 | 11.9 | 7  | 16g    |
| 110-0405-8 | HR10A-10J-12S | 12          | 43   | 14 | 11.9 | 7  | 16g    |
| 110-0406-0 | HR10A-10J-12P | 12          | 43   | 14 | 11.9 | 7  | 16g    |

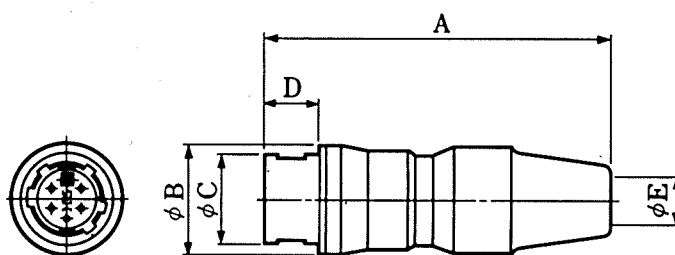


HR10A-10J-12S

## Jack (Crimp Type)



HR10A-7J-6SC



(An example in shape)

| HRS No.    | Part No.       | No. of pins | A    | φB | φC   | D   | φE | Weight |
|------------|----------------|-------------|------|----|------|-----|----|--------|
| 110-0510-2 | HR10A-7J-4SC   | 4           | 35.3 | 11 | 8.85 | 5.5 | 5  | 9g     |
| 110-0512-8 | HR10A-7J-6SC   | 6           | 35.3 | 11 | 8.85 | 5.5 | 5  | 9g     |
| 110-0610-7 | HR10A-10J-10SC | 10          | 43   | 14 | 11.9 | 5.5 | 7  | 16g    |
| 110-0612-2 | HR10A-10J-12SC | 12          | 43   | 14 | 11.9 | 5.5 | 7  | 16g    |
| 110-0705-1 | HR10A-13J-20SC | 20          | 58.5 | 18 | 15.4 | 8.5 | 7  | 37g    |
| 110-0706-4 | HR10A-13J-20PC | 20          | 58.5 | 18 | 15.4 | 8.5 | 7  | 37g    |

# HR10E TYPE (with integral capacitor)

## Scope

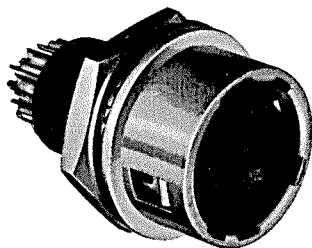
Type HR10E connector is an ultra-miniature multi-pole circular connector with integrated capacitor, equipped with a cylindrical penetrating capacitor to each of the receptacle

terminals for the purpose of conductive noise suppression. The standard connector contacts are gold-plated.

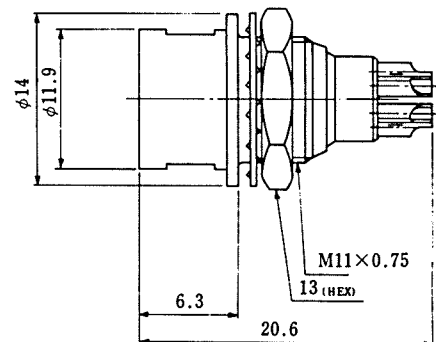
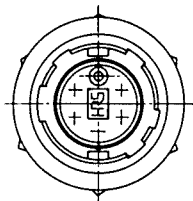
## Performance

| Item                   | Specification                   |
|------------------------|---------------------------------|
| Withstanding Voltage   | 1 min. at 125VDC                |
| Insulation             | 200M $\Omega$ and more at 50VDC |
| Contact Resistance     | 30m $\Omega$ and under at 1ADC  |
| Current                | 2A                              |
| Rated Voltage          | 50VDC                           |
| Electrostatic Capacity | 1000PF                          |

## Receptacle



HR10E-10R-12S



| HRS No.    | Part No.      | No. of pins | Electrostatic capacity | Remarks |
|------------|---------------|-------------|------------------------|---------|
| 111-1502-0 | HR10E-10R-12S | 12          | 1000PF                 |         |

Remark: For the mounting holes, see page 85.

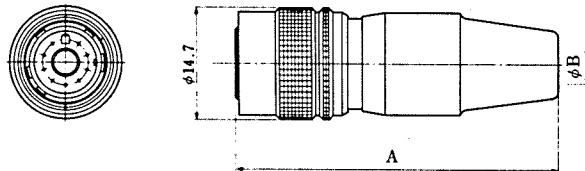
# HR10B TYPE CONNECTOR

## Scope

The HR10B connector combines 10 signal lines and one coaxial contact in the standard number 10 shell. Electrical performance are same as HR10A connector except coaxial

contacts. Performance specifications for the coaxial contacts are on the next page.

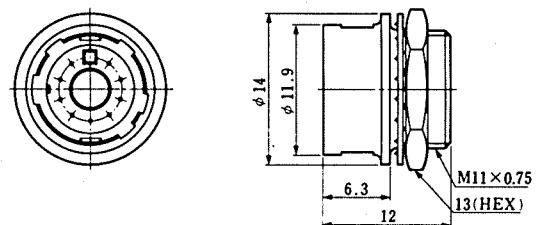
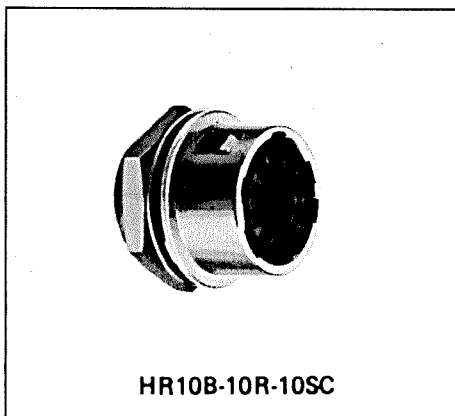
## Plug



(An example in shape)

| HRS No.    | Part No.        | A  | $\phi B$ | Applicable coaxial contact |
|------------|-----------------|----|----------|----------------------------|
| 110-0901-0 | HR10B-10P-10PC  | 50 | 5        | HR10B-2.5CJ                |
| 110-0906-3 | HR10B-10PA-10PC | 43 | 7        | HR10B-2.5CJ                |

## Receptacle



| HRS No.    | Part No.       | Applicable coaxial contact |
|------------|----------------|----------------------------|
| 110-0902-2 | HR10B-10R-10SC | HR10B-2.5CP                |

Remark: For the mounting holes, see page 85.

## Coaxial Contacts

The coaxial contacts shown here are for use with the HR10B connector. These contacts have locking bars and are inserted from the rear of the connector. Please use the following information to select the correct terminals.

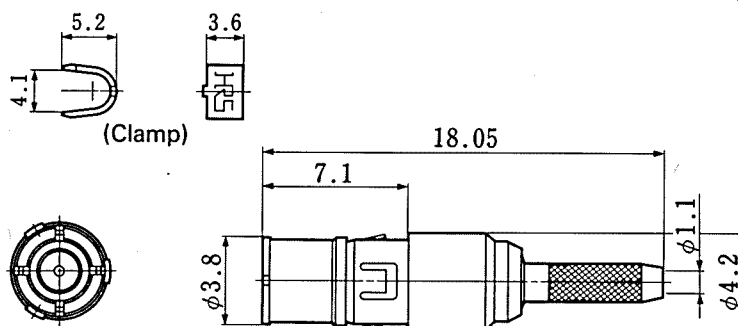
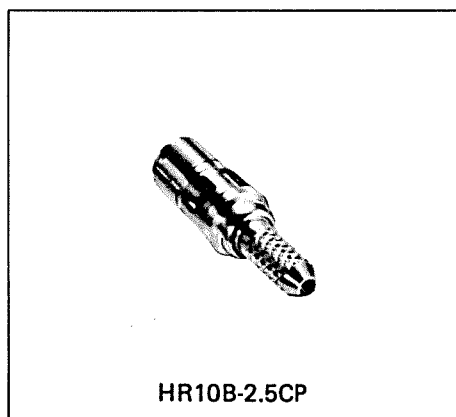
### Material and Finish

| Description | Material            | Finish     |
|-------------|---------------------|------------|
| Plug shell  | Brass               | Gold plate |
| Jack shell  | Brass               | Gold plate |
| Insulator   | Tetrafluoride resin |            |
| Male pin    | Phosphor bronze     | Gold plate |
| Female pin  | Beryllium copper    | Gold plate |

### Performance

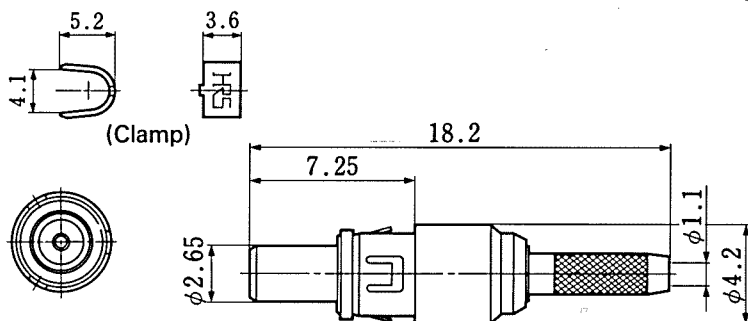
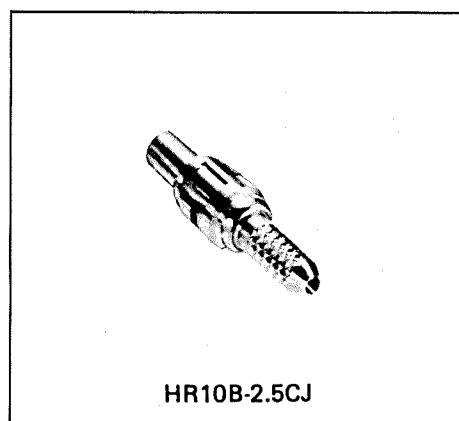
| Description           | Test Data                                          |
|-----------------------|----------------------------------------------------|
| Impedance             | 50Ω                                                |
| Insulation resistance | 1000MΩ or more at DC250V                           |
| Contact resistance    | Center 6.5mΩ or less and outer 4mΩ or less at DC1A |
| Withstanding voltage  | AC250V r.m.s. for 1 minute                         |
| V.S.W.R.              | 1.3 or less for 0 ~ 1000MHz                        |
| Pull force            | 4.9N 500gf or more                                 |

### Plug



| HRS No.    | Part No.    | Applicable cord                   | Applicable connector |
|------------|-------------|-----------------------------------|----------------------|
| 110-0904-8 | HR10B-2.5CP | 0.8D-QEW·CW<br>(By Fujikura wire) | HR10B-10R-10SC       |

### Jack



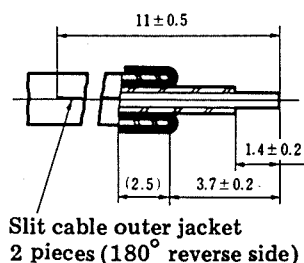
| HRS No.    | Part No.    | Applicable cord                   | Applicable connector |
|------------|-------------|-----------------------------------|----------------------|
| 110-0903-5 | HR10B-2.5CJ | 0.8D-QEW·CW<br>(By Fujikura wire) | HR10B-10P-10PC       |

# Cable Connecting Methods

HR10B-2.5CP  
HR10B-2.5CJ Connecting Methods

## PROCESS 1. Cable end treatment

Fig. 1



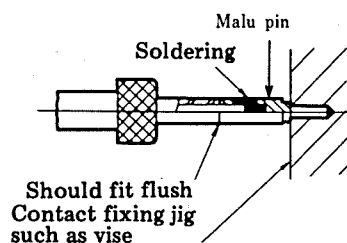
(1) DIMENSIONS FOR CABLE END TREATMENT ARE SHOWN IN FIG. 1.

(2) TERMINATION IS DESCRIBED BELOW.

1. Strip cable outer jacket as indicated.
2. Slit outer jacket on both sides per Fig. 1.
3. Fold back outer cover.
4. Remove insulator from cable.

## PROCESS 2. Soldering male pin to cable center conductor

Fig. 2

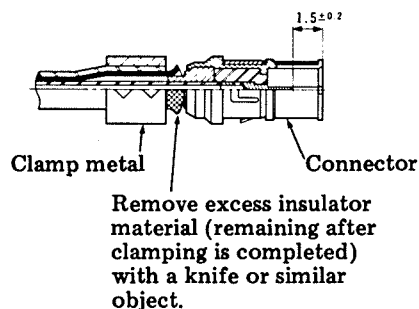


(1) SOLDER MALE PIN TO CABLE CENTER CONDUCTOR AS INDICATED IN FIG. 2.

1. Pre-solder the solder pot of male pin with  $\phi 0.5\text{mm}$  string solder.
2. Male pin should fit flush against the cable insulator as shown.
3. Remove any excess solder from the male pin with a knife. This surface must be smooth.
4. A properly soldered terminal will yield 500gf when stretched.

## PROCESS 3. Crimping cable outer conductor

Fig. 3



- (1) Insert cable prepared per PROCESS 2 into the connector. The cable should be inserted until it comes to a full stop. This may be verified by checking the dimension from the side of the connector to the top of the male contact (as indicated in Fig. 3). This dimension should be  $1.5\text{mm} \pm 0.2$ .
- (2) Crimp this installed metal clamp with tool HR10-TC-01 per Fig. 3 and remove excess insulation with a knife.

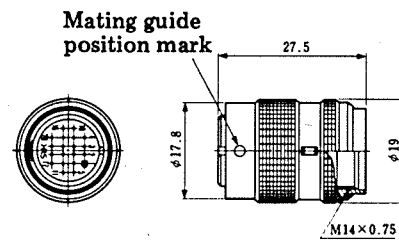
# HR10D TYPE CONNECTOR

## Scope

The HR10D connector incorporates a guide key and slot to prevent rotation of the coupling sleeve. A visual mark is used on the sleeve to aid in coupling operations.

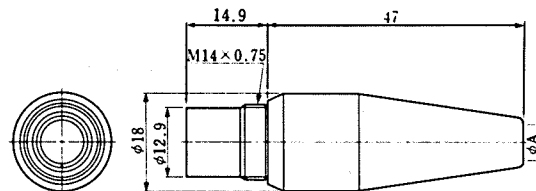
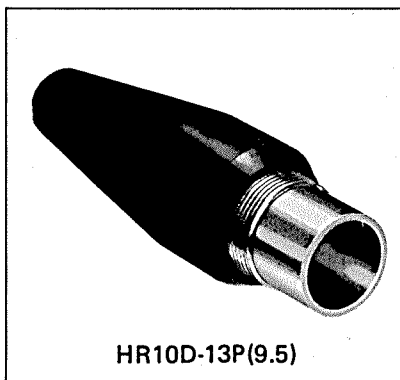
Be careful that HR10D connector is not compatible with HR10, HR10A and HR10G.

## Plug



| HRS No.    | Part No.       |
|------------|----------------|
| 110-0801-5 | HR10D-13P-20PC |

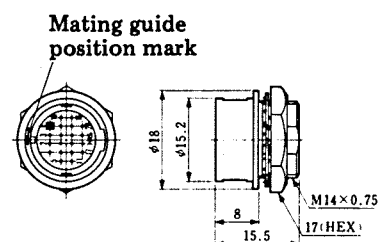
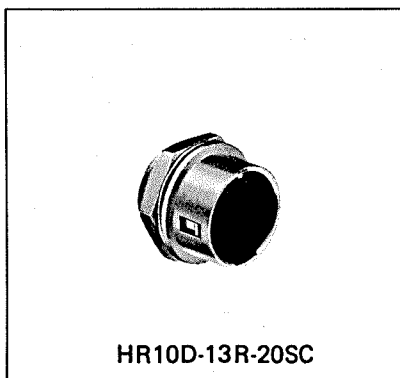
## Hood



(An example in shape)

| HRS No.    | Part No.       | φA  |
|------------|----------------|-----|
| 110-0803-0 | HR10D-13P(7)   | 7   |
| 110-0804-3 | HR10D-13P(9.5) | 9.5 |

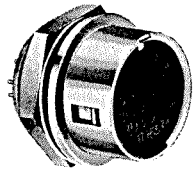
## Receptacle (Crimp Type)



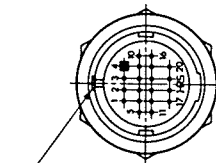
| HRS No.    | Part No.       |
|------------|----------------|
| 110-0802-8 | HR10D-13R-20SC |

Remark: For the mounting holes, see page 85.

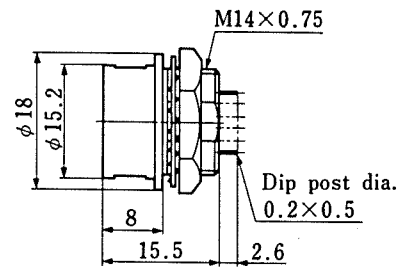
## Receptacle (Dip Type)



HR10D-13R-20SB



Mating guide position mark



| HRS No.    | Part No.       |
|------------|----------------|
| 110-0805-6 | HR10D-13R-20SB |

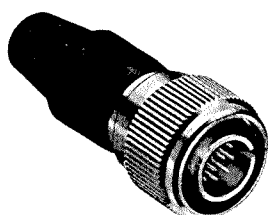
Remarks. 1. For mounting holes. See page 85.  
2. For dip post arrangement see page 80.

# HR10A-[ ] T TYPE (Threaded Coupling Type)

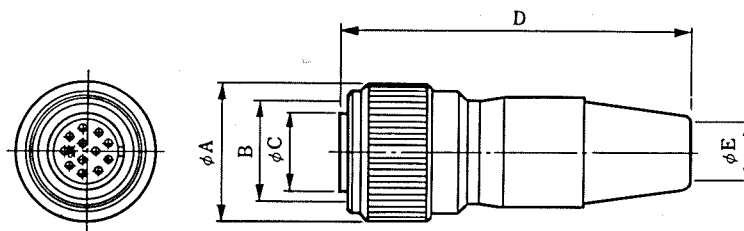
## Scope

HR10A-( )T connector is a new product having a threaded coupling locking mechanism. Electric performance is same as HR10 and HR10A push-pull locking type connector.

## Plug (Solder Type)



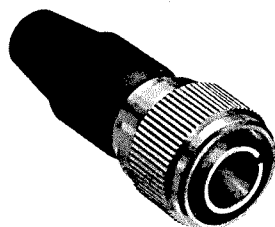
HR10A-10TP-12P



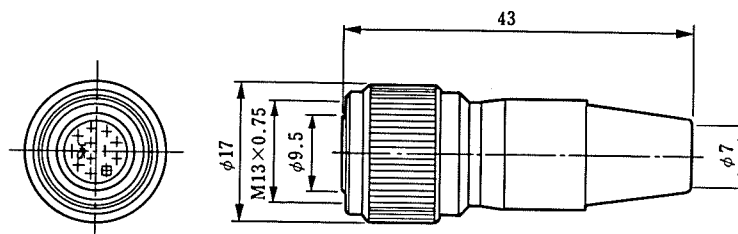
(An example in shape)

| HRS No.       | Part No.         | No. of pins | φA | B        | φC  | D    | φE  | Remarks     |
|---------------|------------------|-------------|----|----------|-----|------|-----|-------------|
| 110-0331-3    | HR10A-7TP-6P     | 6           | 12 | M10x0.75 | 7   | 35   | 5   |             |
| 110-0331-3-01 | HR10A-7TP-6P(01) | 6           | 12 | M10x0.75 | 7   | 35   | 5   | Gold plated |
| 110-0432-0    | HR10A-10TP-12P   | 12          | 17 | M13x0.75 | 9.5 | 43   | 7   |             |
| 110-0446-5    | HR10A-10TPA-12S  | 12          | 17 | M13x0.75 | 9.5 | 43   | 7   |             |
| 110-1101-9    | HR10A-10WTP-12P  | 12          | 15 | M12x0.75 | 9.5 | 45.8 | 6.5 |             |
| 110-1106-2    | HR10A-10WTP-12S  | 12          | 15 | M12x0.75 | 9.5 | 45.8 | 6.5 |             |
| 110-1015-9    | HR10A-13TPD-20P  | 15          | 20 | M17x1    | 13  | 56.5 | 7   |             |

## Plug (Crimp Type)

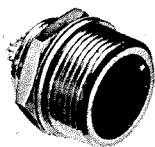


HR10A-10TP-12PC

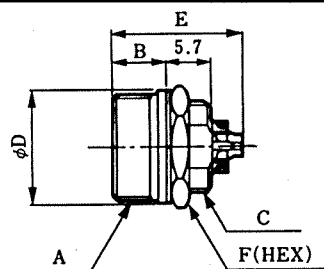


| HRS No.    | Part No.        | No. of pins |
|------------|-----------------|-------------|
| 110-0455-6 | HR10A-10TP-12PC | 12          |

## Receptacle (Solder Type)



HR10A-10TR-12S



(An example in shape)

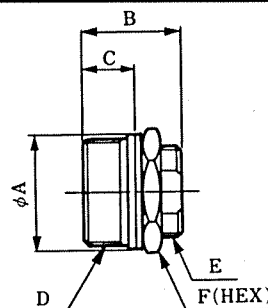
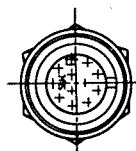
| HRS No.    | Part No.        | No. of pins | A        | B   | C          | φD | E  | F  | Remarks     |
|------------|-----------------|-------------|----------|-----|------------|----|----|----|-------------|
| 110-0089-0 | HR10-7TR-6S     | 6           | M10x0.75 | 6.3 | M8x0.5     | 11 | 14 | 10 | Gold plated |
| 110-0453-0 | HR10A-10TR-12S  | 12          | M13x0.75 | 6.3 | M11x0.75   | 14 | 16 | 13 |             |
| 110-1104-7 | HR10A-10WTR-12S | 12          | M12x0.75 | 6.8 | M10.5x0.75 | 14 | 16 | 13 |             |

Remark: For the mounting holes, see page 79. However, 7TR size shall be referred to page 85 on the shell size 7.

## Receptacle (Crimp Type)



HR10A-10TR-12SC

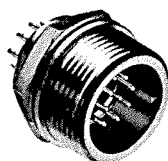


(An example in shape)

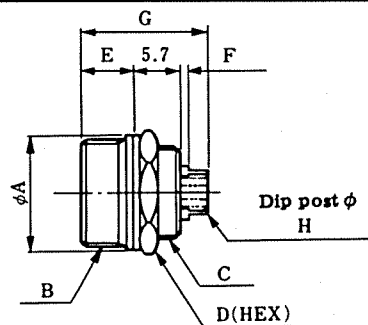
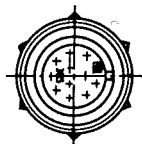
| HRS No.    | Part No.        | No. of pins | φA | B  | C   | D        | E        | F  |
|------------|-----------------|-------------|----|----|-----|----------|----------|----|
| 110-0456-9 | HR10A-10TR-12SC | 12          | 14 | 12 | 6.3 | M13x0.75 | M11x0.75 | 13 |
| 110-1002-7 | HR10A-13TR-20SC | 20          | 18 | 15 | 9.3 | M17x1    | M14x0.75 | 17 |

Remark: For the mounting holes, see page 79.

## Receptacle (Dip Type)



HR10A-10TR-12PB

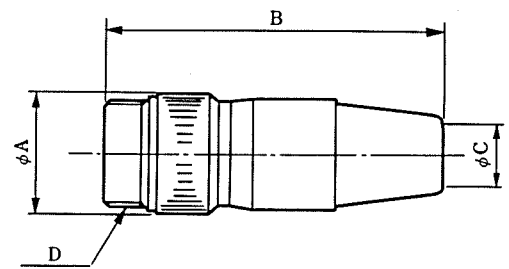
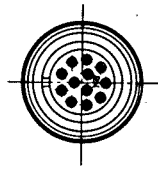
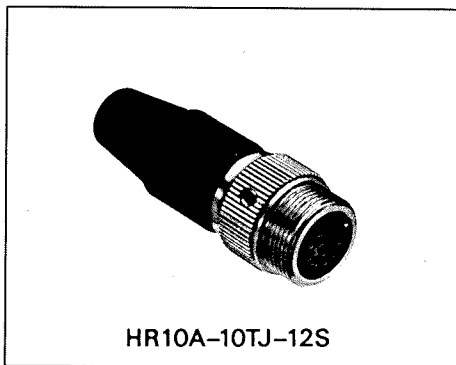


(An example in shape)

| HRS No.    | Part No.         | No. of pins | φA | B        | C          | D  | E   | F   | G    | H       | Remarks |
|------------|------------------|-------------|----|----------|------------|----|-----|-----|------|---------|---------|
| 110-0330-0 | HR10A-7TR-6SA    | 6           | 11 | M10x0.75 | M8x0.5     | 10 | 6.3 | 0.5 | 15.5 | 0.55φ   |         |
| 110-0433-3 | HR10A-10TR-12SB  | 12          | 14 | M13x0.75 | M11x0.75   | 13 | 6.3 | 0.5 | 15.5 | 0.2x0.5 |         |
| 110-0457-1 | HR10A-10TR-12PB  | 12          | 14 | M13x0.75 | M11x0.75   | 13 | 6.3 | 0.5 | 15.5 | 0.2x0.5 |         |
| 110-0445-2 | HR10A-10TR-12PE  | 12          | 14 | M13x0.75 | M11x0.75   | 13 | 6.3 | 0.5 | 14   | 0.2x0.5 |         |
| 110-1102-1 | HR10A-10WTR-12SB | 12          | 14 | M12x0.75 | M10.5x0.75 | 13 | 6.8 | 0   | 15.5 | 0.2x0.5 |         |
| 110-1013-3 | HR10A-13TR-20PB  | 20          | 18 | M17x1    | M14x0.75   | 17 | 9.3 | 0   | 17.8 | 0.2x0.5 |         |
| 110-1014-6 | HR10A-13TR-20SB  | 20          | 18 | M17x1    | M14x0.75   | 17 | 9.3 | 0   | 17.8 | 0.2x0.5 |         |

Remarks: 1. For the mounting holes, see page 79. However, 7TR size shall be referred to page 85 on the shell size 7.  
2. For dip post arrangement, see page 80.

## Jack (Solder Type)

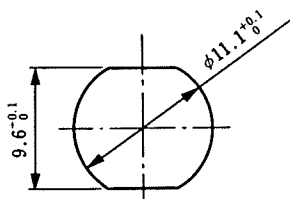


(An example in shape)

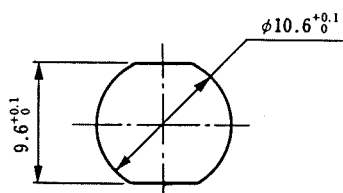
| HRS No.    | part No.        | No. of pins | φA   | B    | φC  | D        | Remarks |
|------------|-----------------|-------------|------|------|-----|----------|---------|
| 110-0436-1 | HR10A-10TJ-12S  | 12          | 14.7 | 41.3 | 7   | M13x0.75 |         |
| 110-0459-7 | HR10A-10TJ-12P  | 12          | 14.7 | 41.3 | 7   | M13x0.75 |         |
| 110-1103-4 | HR10A-10WTJ-12S | 12          | 14   | 46.5 | 6.5 | M12x0.75 |         |

## Panel mounting hole dimensions(screw coupling)

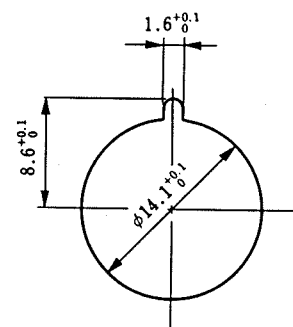
The mounting hole dimensions shown below are for connectors to be tightened by a hexagonal nut from the back of the panel. The dimensions below apply only to the HR10A-[ ]T and not the 7TR. For the dimensions of connectors of other types, see page 85.



Type HR10A-10TR  
(Panel thickness 1 to 2mm)



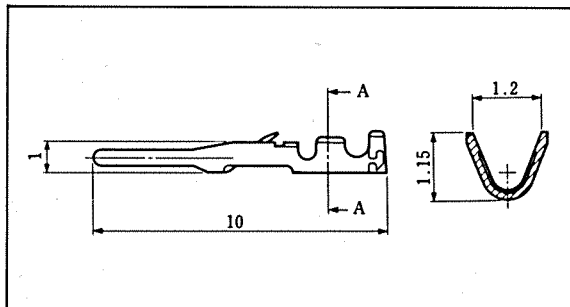
Type HR10A-10WTR  
(Panel 1 thickness 1 to 2mm)



Type HR10A-13TR  
(Panel thickness 1 to 1.5mm)

## Contact

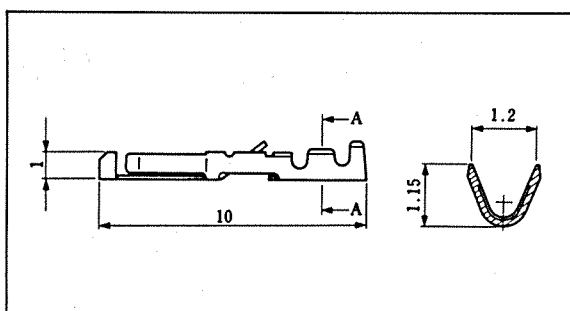
### Male Pin



| Type          | HRS No.    | Part No.    | Type of plating      | Applicable wire |
|---------------|------------|-------------|----------------------|-----------------|
| Loose contact | 110-0515-6 | HR10-PC-111 | Partial gold plating | AWG#26~#30      |
|               | 110-0513-0 | HR10-PC-112 | Silver plating       | AWG#26~#30      |
| Chain contact | 110-0516-9 | HR10-PC-211 | Partial gold plating | AWG#26~#30      |
|               | 110-0514-3 | HR10-PC-212 | Silver plating       | AWG#26~#30      |

Remarks: 1. Use cables with a coating outside diameter of 1mm or less.  
2. Loose-piece terminal are available in packs. Each pack contains 100 terminals. Strip terminals are available in reels. Each reel contains 10,000 terminals.

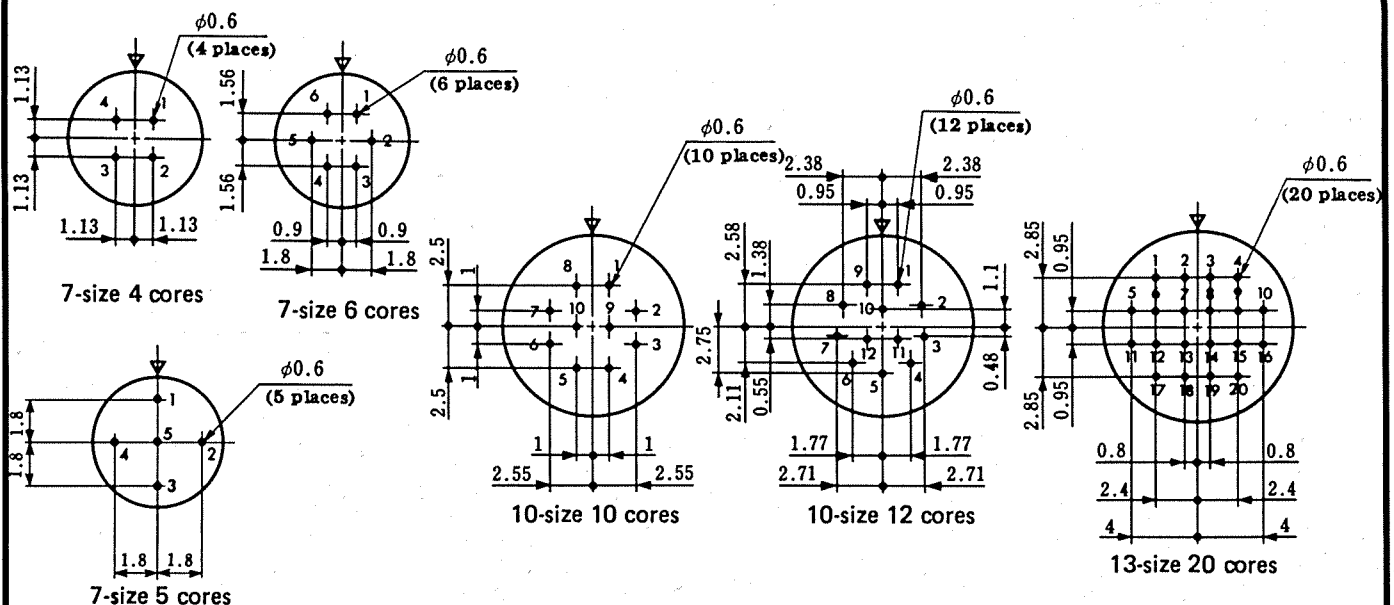
### Female Pin



| Type          | HRS No.    | Part No.    | Type of plating      | Applicable wire |
|---------------|------------|-------------|----------------------|-----------------|
| Loose contact | 112-0410-0 | HR12-SC-111 | Partial gold plating | AWG#26~#30      |
|               | 112-0411-3 | HR12-SC-112 | Silver plating       | AWG#26~#30      |
| Chain contact | 112-0407-6 | HR12-SC-211 | Partial gold plating | AWG#26~#30      |
|               | 112-0408-9 | HR12-SC-212 | Silver plating       | AWG#26~#30      |

Remarks: 1. Use cables with a coating outside diameter of 1mm or less.  
2. Loose-piece terminal are available in packs. Each pack contains 100 terminals. Strip terminals are available in reels. Each reel contains 10,000 terminals.

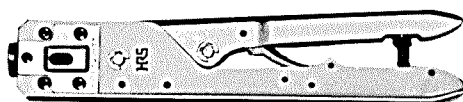
## Receptacle dip post arrangement dimensions



Remarks: 1. The above figures are views of receptacle-socket inserts from the mating side and plug-pin inserts from the wiring-connection side.  
2. Dimensional tolerance of  $\pm 0.05$  is recommended for the board arrangement.

## Tools

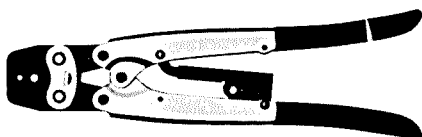
| Type                | Item                            | HRS No.    | Part No.     | Applicable terminal       | Applicable wire and<br>Applicable Cable diameter |
|---------------------|---------------------------------|------------|--------------|---------------------------|--------------------------------------------------|
| Manual              | Manual crimping tool            | 150-0052-9 | HR12-SC-TC   | HR10-PC-112               | AWG # 26～ # 30                                   |
|                     |                                 |            |              | HR12-SC-112               |                                                  |
| Automatic           | Automatic crimping machine body | 901-0005-4 | CM-105       | —                         | —                                                |
|                     | Applicator                      | 901-2015-9 | AP105-HR12-1 | HR10-PC-211<br>212<br>213 | AWG # 26～ # 30                                   |
|                     |                                 |            |              | HR12-SC-211<br>212<br>213 |                                                  |
|                     |                                 |            |              |                           |                                                  |
| Cable crimping tool |                                 | 150-0036-2 | HR10-TC-01   | —                         | (HR10B-2.5CP,<br>HR10B-2.5CJ)                    |
|                     |                                 | 150-0041-2 | HR10A-TC-02  |                           | φ 7, φ 5                                         |
|                     |                                 | 150-0055-7 | HR10D-TC-02  |                           | φ 9.5                                            |
| Extractor           |                                 | 150-0050-3 | HR12-SC-TP   | HR12-SC-112               | —                                                |
|                     |                                 |            |              | HR12-SC-212               |                                                  |
|                     |                                 | 150-0039-0 | RP6-SC-TP    | HR10-PC-112               |                                                  |
|                     |                                 |            |              | HR10-PC-212               |                                                  |
|                     |                                 | 150-0061-0 | HR10B-TP     | HR10B-2.5CP               |                                                  |
|                     |                                 |            |              | HR10B-2.5CJ               |                                                  |



(HR12-SC-TC)  
Hand Crimp Tool



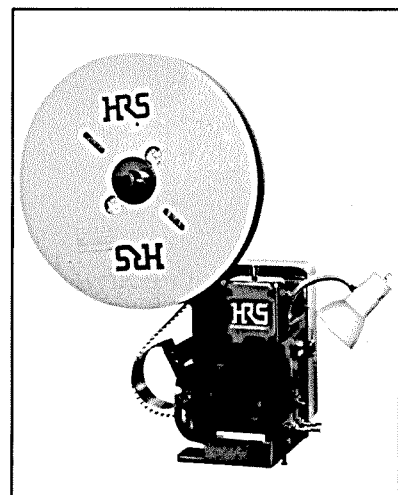
(HR12-SC-TP)



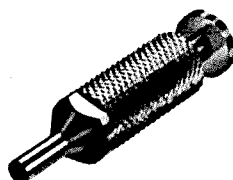
(HR10A-TC-02)  
Hand Cable Crimp Tool



(RP6-SC-TP)  
Extraction Tool

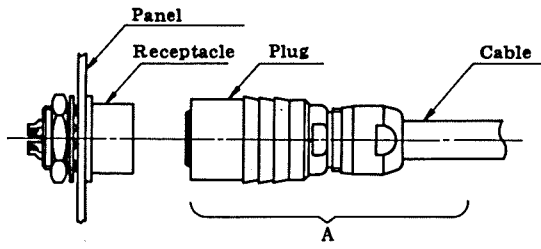
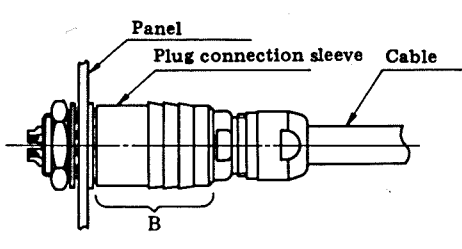
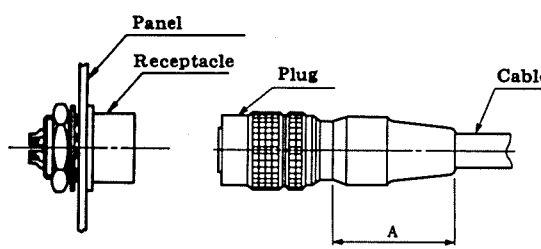
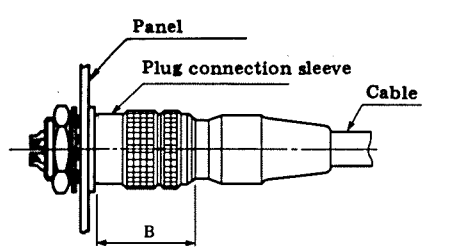


Auto Crimp Tool CM-105

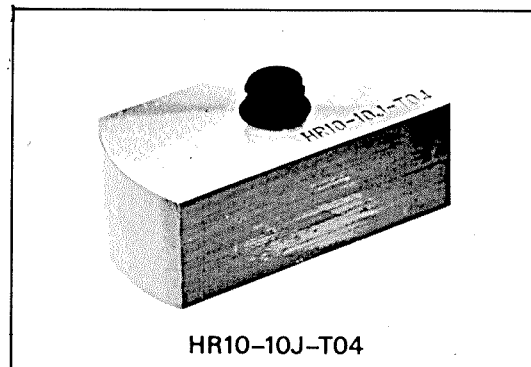
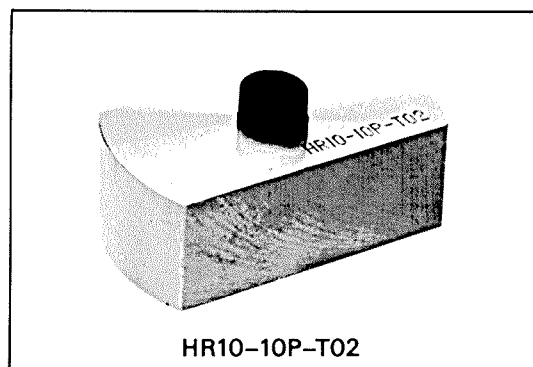


(HR10B-TP)  
Coaxial Contact Removal Tool

## How to use a Connector

|            | 1. Inserting                                                                                                                                                  | 2. Withdrawing                                                                                        |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| HR10 TYPE  |                                                                              |                     |
| HR10A TYPE |                                                                              |                     |
|            | <p>Hold the plug at point A, align the plug guide with the receptacle guide, and push the plug straight. The plug will mate with the receptacle smoothly.</p> | <p>Hold the plug connection sleeve B and pull the sleeve straight. The plug will come off easily.</p> |

## Wiring Tool



| HRS No.    | Part No.     | Applicable connector |
|------------|--------------|----------------------|
| 150-0009-0 | HR10-7P-T01  | HR10-7P              |
| 150-0010-9 | HR10-10P-T02 | HR10-10P             |
| 150-0011-1 | HR10-7J-T03  | HR10-7J              |
| 150-0012-4 | HR10-10J-T04 | HR10-10J             |
| 150-0059-8 | HR10-13P-T05 | HR10-13P             |
| 150-0060-7 | HR10-13J-T06 | HR10-13J             |
| 150-0056-0 | HR10D-13P-T  | HR10D-13P            |

## ◆ Connection work procedure(plug side)

- This applies also to the jack side connection work.
- No special connection work procedure is given here for the receptacle side because no special procedure is necessary.

HR10 Type

Diagram of HR10 Type connector assembly. Components labeled: P shell unit, Plug body, Bifurcated part, Clamp washer, Tightener, Cable. Dimensions: About 2 (gap between P shell unit and Plug body), C (distance from end of cable to start of Plug body), Face A, Face B, Spanner jaw distance.

HR10A Type

Diagram of HR10A Type connector assembly. Components labeled: P shell unit, Clamp, Plug body, Spanner jaw distance, Cord bushing, Cable. Dimensions: A (distance from end of cable to start of Plug body), 2 or more (distance between Clamp and Plug body), D (distance from end of cable to start of Plug body), Boss, Set screw. Note: About 2 for solder type, 2.0.5 for crimp type.

Table 2 Spanner jaw distance

| Size    | HR10 | HR10A |
|---------|------|-------|
| Size 7  | 8    | 7.5   |
| Size 10 | 11   | 9.5   |
| Size 13 | —    | 13    |

Table 3 Cable end processing dimensions

| Size    | Dimension C for HR10 | Dimension D for HR10A |            |
|---------|----------------------|-----------------------|------------|
|         |                      | Solder type           | Crimp type |
| Size 7  | 5.5 or less          | 10                    | 15 – 20    |
| Size 10 | 7 or less            | 16                    | 15 – 20    |
| Size 13 | —                    | 26                    | 26         |

Table 1

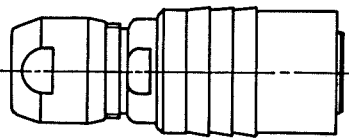
| Size    | Tightening force |
|---------|------------------|
| Size 7  | 1.5N·m (15kg-cm) |
| Size 10 | 2N·m (20kg-cm)   |
| Size 13 | 2N·m (20kg-cm)   |

|   | HR10 Type                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HR10A Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Use cables with a nominal sectional area of 0.129 mm <sup>2</sup> (AWG#26) at the finish outside diameters applicable for each size.                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2 | After processing the cable ends according to the dimensions in the above drawings, fit the parts to the cable as shown in the drawings.<br>Fit the parts to the cable in the following order: tightener, clamp washer, and plug body.                                                                                                                                                                                                                       | Fit the parts to the cable in the following order: Cord bushing, and plug body.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3 | (Solder type)<br>Insert the P shell unit into the assembly jig stand and solder it.<br>(Solder type)<br>After crimping the appropriate crimp terminal to the cable core, insert the crimp terminal into the terminal hole in the P shell unit.                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4 | Assemble the connector in the following steps.<br>① Screw the plug body into the thread in the P shell unit with the tightening force shown in Table 1 using a torque wrench with a fixed torque.<br>Before tightening the plug body, slacken part C so that no load is applied to the soldered wires.<br>② Apply the clamp washer to the bifurcated part of the plug body, and then tighten the tightener until surface B touches the plug body surface A. | ① Fix by caulking the clamp accompanying the cable with the cable crimping tool (HR10A-TC-02).<br>② Screw the plug body into the thread in the P shell until with a tightening force shown in Table 1 using a torque wrench with a fixed torque.<br>Before tightening the plug body, slacken the part D so so that no load is applied to the soldered wires.<br>③ Tighten the set screw so that the tip of the screw presses one of the two bosses on the clamp.<br>Fix the set screw with a tightening torque of 0.3N (3kg-cm).<br>④ Attach the cord bushing to the plug body. |
| 5 | This completes the work.                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

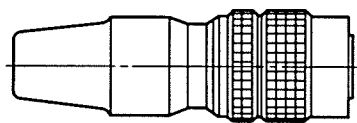
For any question on using the plugs, contact our sales or engineering department.

## Connector

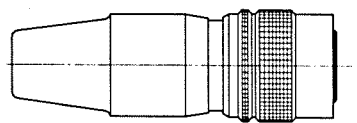
### Male Pin side



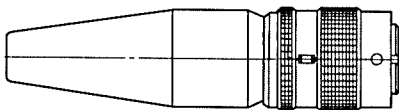
(HR10 type plug)



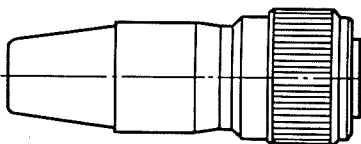
(HR10A Type Plug)



(HR10B Type Plug)

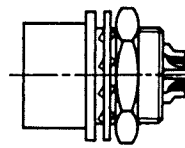


(HR10D Type Plug)

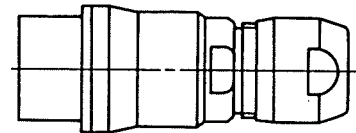


(HR10A-[ ]T Type Plug)

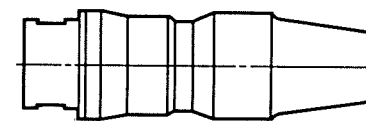
### Female Pin side



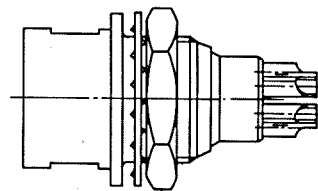
(HR10·HR10A  
HR10G type Receptacle)



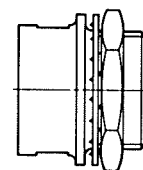
(HR10 Type Jack)



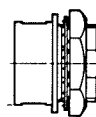
(HR10A Type Jack)



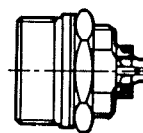
(HR10E Type  
Receptacle)



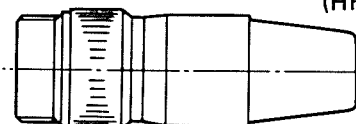
(HR10B Type Receptacle)



(HR10D Type Receptacle)



(HR10A-[ ]T Type Receptacle)



(HR10A-[ ]T Type Jack)

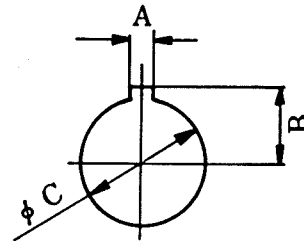
#### Notes

- 1: When using a plug with male terminal, be sure to use a receptacle or jack fitted with female terminal.
- 2: Standard finish of the terminal is gold plating for the HR10, and silver plating for the HR10A and HR10G.  
Be sure to use male and female connectors of the same plating.

## Recommended Mounting Hole

Mounting hole dimension shown here is tight by hexagon nut from back side.

| Map mark \ Shell size | 7 size         | 10 size         | 13 size         |
|-----------------------|----------------|-----------------|-----------------|
| A                     | $1.6^{+0.1}_0$ | $2.6^{+0.1}_0$  | $2.6^{+0.1}_0$  |
| B                     | $5.1^{+0.1}_0$ | $6.6^{+0.1}_0$  | $8.6^{+0.1}_0$  |
| $\phi C$              | $8.1^{+0.1}_0$ | $11.1^{+0.1}_0$ | $14.1^{+0.1}_0$ |
| Panel thickness       | 0.7 ~ 2        | 0.7 ~ 2         | 0.8 ~ 1.5       |



## Contact Arrangement

| Shell size             | 7 size              |   |   | 10 size             |    |
|------------------------|---------------------|---|---|---------------------|----|
| Contact arrangement    |                     |   |   |                     |    |
| No. of pins            | 4                   | 5 | 6 | 10                  | 12 |
| Withstanding voltage   | AC500V for a minute |   |   | AC300V for a minute |    |
| Current rating         | 2A                  |   |   | 2A                  |    |
| Insulation resistance  | MIN 1,000 MΩ        |   |   | MIN 1,000 MΩ        |    |
| Contact resistance     | MAX 10 mΩ           |   |   | MAX 10 mΩ           |    |
| Solder pot inside dia. | φ0.8                |   |   | φ0.8                |    |

| Shell size             | 10 size              | 13 size             |
|------------------------|----------------------|---------------------|
| Contact arrangement    |                      |                     |
| No. of pins            | 10 + Coaxial contact | 20                  |
| Withstanding voltage   | AC300V for a minute  | AC300V for a minute |
| Current rating         | 2A                   | 2A                  |
| Insulation resistance  | MIN 1,000 MΩ         | MIN 1,000 MΩ        |
| Contact resistance     | MAX 10 mΩ            | MAX 10 mΩ           |
| Solder pot inside dia. | —                    | φ0.8                |

- Note
1. The contact arrangement shown here is the mating surface of socket insert assembled in a receptacle.
  2. The withstanding voltage shown here is test voltage value.
  3. The insulation resistance value is measured at DC100V.
  4. The contact resistance value is measured at DC1A.