

Waterproof Connectors for Outdoor Use

HR41A Series



■ Features

1. Waterproof connector designed for outdoor use

Light-weight and waterproof, these connectors are well suited for outdoor use applications. The highly weather resistant plastic shell material is compliant with UL Certification : UL746C f1 Class.

2. Waterproof structure

Supports IP67 and IP68 ratings while in the mated condition. (Rating explained below*)

*IP67 : Submerged in 1m for 30 minutes

*IP68 : Submerged in 2m for 14 days

3. Easy-to-operate push-on bayonet lock

The push-on bayonet lock quickly achieves complete locking in a single action. (Fig.2)

4. Easy field assembly

User-friendly operations and assembly allow this connector to be wired in the field.

5. Sequential Contact

Contacts are sequentially arranged to create a "first mate-last break" type of condition.

6. Designed to accommodate hot swapping

Hot swapping condition :
This testing method conforms to UL1977 standards.

7. Surge resistant

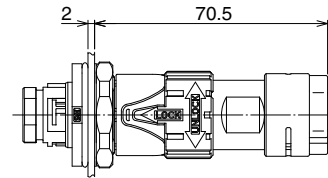
The walled structure isolates each contact and provides enough insulation to protect against 15kV surges caused by lightning.

8. Safety standard certified

The HR41A is certified under the UL1977 specifications.

◆ Mated condition diagram

Nut-tightening rear mount type (panel thickness=2mm)



Screw-fastening type with flange

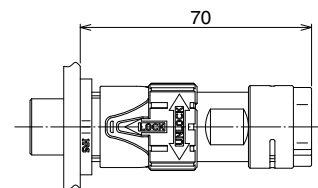
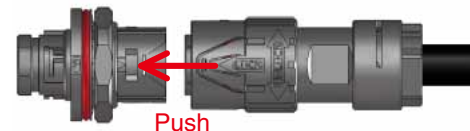


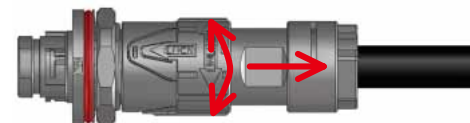
Fig.1

◆ Locking structure (Push-on bayonet)

Mating : Push the plug straight on to the receptacle.



Un-mating : Simply twist and remove the plug



1. Rotate locking collar 2. Remove rear-ward.
in either direction

Fig.2

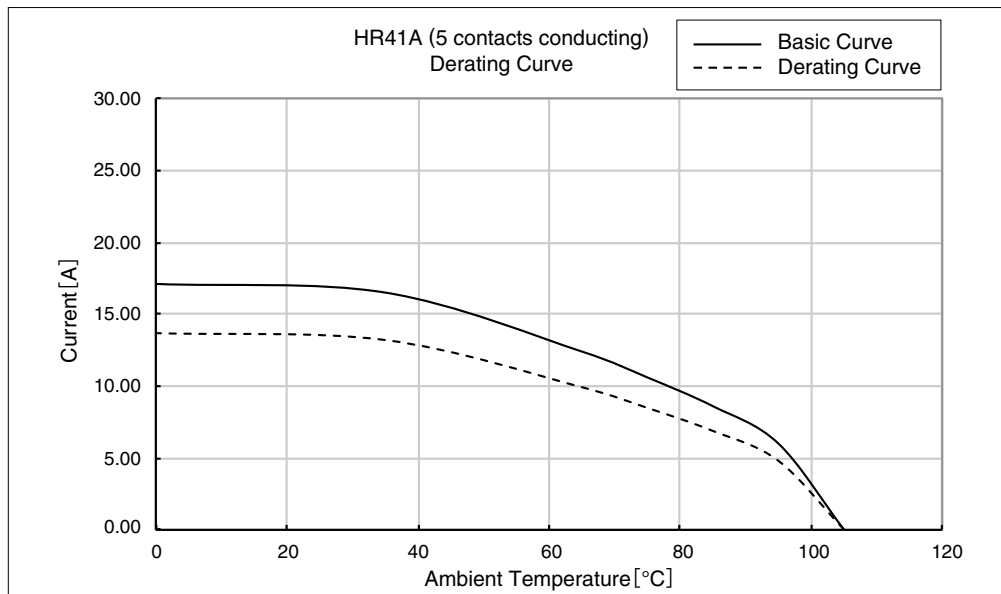
■ Product Specifications

| | | | | |
|---------|-------------------------|--------------------------------|-----------------------------|------------------------|
| Ratings | Current Rating (Note 3) | 13A (Ambient Temperature 25°C) | Operating Temperature Range | -40 to +105°C (Note 1) |
| | Voltage Rating | AC 1000V, DC 1000V | Storage Temperature Range | -10 to +60°C |
| UL, TÜV | Current Rating (Note3) | 10A | Operating Temperature Range | -40 to +105°C (Note1) |
| | Voltage Rating | AC 600V, DC 600V | Storage Temperature Range | -10 to +60°C |

Note 1 : Including temperature rise due to current carrying.

| Items | Specifications | Conditions |
|---------------------------------------|--|---|
| 1. Contact resistance | 5mΩ or less | Measured at 1A, DC |
| 2. Insulation resistance | A minimum of 5,000MΩ | Measured at 500V, DC |
| 3. Withstand voltage | No flashover or breakdown | 2,200V AC for one minute |
| 4. Vibration resistance | No electrical interruption of 10μs or more | Frequency : 10 to 55 to 10Hz/cycle Half amplitude 0.75mm, 5 minutes/cycle 10 cycles each in 3 axis directions |
| 5. Shock resistance | No electrical interruption of 10μs or more | Acceleration : 490m/s ² , duration : 11ms, 3 times each in 3 axis directions |
| 6. Durability | Contact resistance : up to 10mΩ | 500 times |
| 7. Temperature cycle | Insulation resistance : 500MΩ or higher | -40°C for 30 minutes → At normal temperature for 2 to 3 minutes → +105°C for 30 minutes → At normal temperature for 2 to 3 minutes. Repeated for 5 cycles. |
| 8. Moisture resistance (Steady state) | Insulation resistance : 50MΩ or higher (in a high humidity environment) 500MΩ or higher (in a dry environment) | Temperature : 40°C, relative humidity : 90 to 95%, left for 96 hours |
| 9. Water resistance | No water intrusion into the connector | Left submerged in water in mated condition at depth of 2m for 14 days. |

Depending on the structure and use of the cable, cable clamping force and cable stress, the waterproof performance may differ from what is noted above. Please check the performance before using the connector.



Note 2 : The derating curve is derived from the basic curve multiplied by the derating factor of 0.8.

Note 3 : The value of rated current varies with the ambient temperature. It is recommended to use the product within the derating curve zone.

When using a UL or TÜV approved product, please use the product within the specified range as well as the derating curve area.

Note 4 : The measurement method of the derating curve is shown below.

- Test specimen : This product, unused prior to testing.
- Test cable conductor cross sectional area : 16AWG (1.31mm²)
- Test condition : Power supplied while the specimen is in a stationary state and then measured.

■ Materials / Finish

| Component | Materials | Finish | UL standard (noncombustible) |
|----------------|----------------------------|-----------------------|------------------------------|
| Insulator | Polyamide resin, PBT resin | ————— | UL94V-0 |
| Contact | Copper alloy | Partially gold plated | ————— |
| O-ring, gasket | Silicone rubber | ————— | ————— |

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

Connector

HR41A - 17 W B P A - 5 S C ()**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

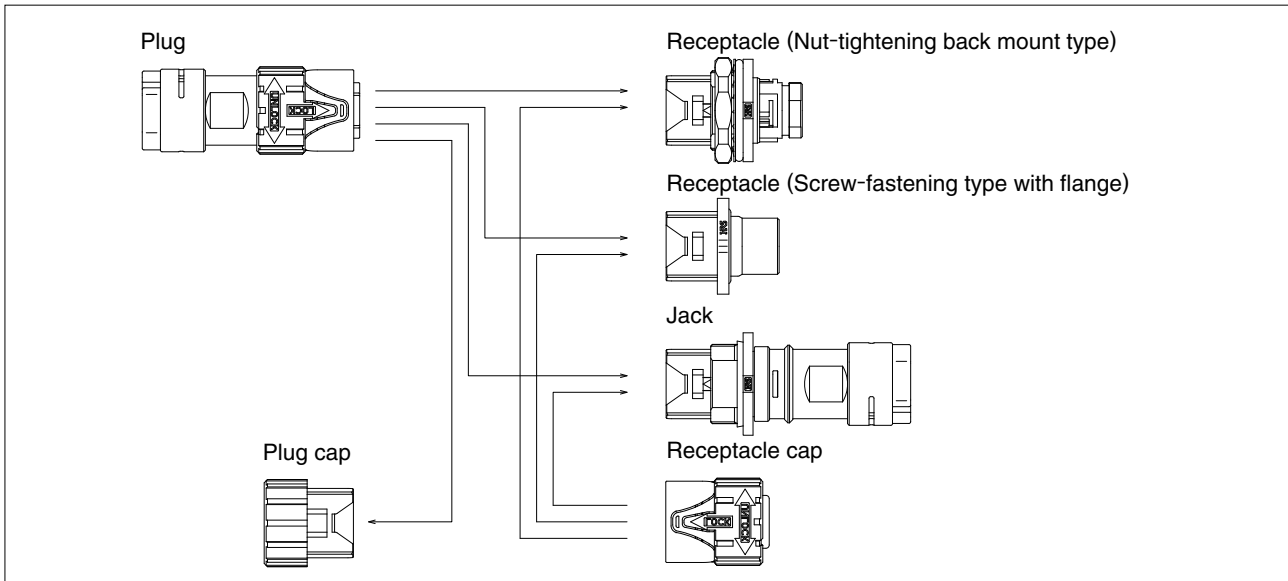
Crimp contact

HR41A - S C - 1 1 1 ()**

① ⑧ ⑨ ⑪ ⑫ ⑬ ⑩

| | | | |
|---------------------|--|--|---|
| ① Series Name | : HR41A | ⑧ Shape of contact | S : Female contact P : Male contact |
| ② Shell size | : 17 | ⑨ Contact wiring type | C : Crimp |
| ③ Specialty | W : Waterproof type | ⑩ Additional product specifications will be identified by the addition of (01), (02)...etc. as needed. | |
| ④ Lock mechanism | B : Bayonet lock | ⑪ Form of the contact | 1 : Loose piece contacts 2 : Contacts on reels |
| ⑤ Shell type | P : Plug R : Receptacle J : Jack | ⑫ Shape 1 | : Denotes the compatible wire gauge and will be identified by the use of 1, 2, 3 etc. |
| ⑥ Serial symbol | | ⑬ Plating of the contact area | 1 : Gold plated |
| ⑦ Number of contact | : 3 or 5 | | |

Diagram of Connector Mating Combinations



Connector

| Plug | Receptacle | Jack |
|-------------------|--------------------------------------|------------------|
| HR41A-17WBPA-5SC | HR41A-17WBRA-5PC HR41A-17WBRB-5PC | HR41A-17WBJ-5PC |
| HR41A-17WPAB-5SC | | HR41A-17WBJB-5PC |
| HR41A-17WPAD-5SC | | HR41A-17WBJD-5PC |
| HR41A-17WBPAE-5SC | | HR41A-17WBJF-5PC |
| HR41A-17WPAPF-5SC | | |
| HR41A-17WBP-3PC | HR41A-17WBRA-3SC | — |

Plug cap

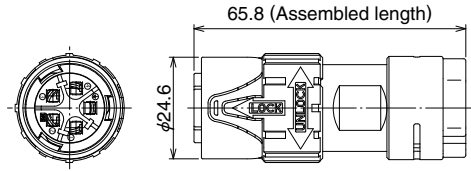
| Plug | Cap |
|-------------------|---------------|
| HR41A-17WBPA-5SC | HR41A-17WBP-C |
| HR41A-17WPAB-5SC | |
| HR41A-17WPAD-5SC | |
| HR41A-17WBPAE-5SC | |
| HR41A-17WPAPF-5SC | |
| HR41A-17WBP-3PC | |

Receptacle/Jack cap

| Receptacle/jack | Cap |
|------------------|---------------|
| HR41A-17WBRA-5PC | HR41A-17WBR-C |
| HR41A-17WBRB-5PC | |
| HR41A-17WBRA-3SC | |
| HR41A-17WBJ-5PC | |
| HR41A-17WBJB-5PC | |
| HR41A-17WBJD-5PC | |
| HR41A-17WBJF-5PC | |

■ Plug

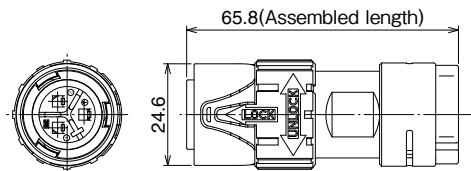
● 5-position type



| Part No. | HRS No. | No. of contacts | Applicable cable diameter | Remarks |
|-------------------|------------|-----------------|---------------------------|-------------------|
| HR41A-17WBPA-5SC | 141-0203-1 | 5 | 10.7 to 11.5 | Sequential mating |
| HR41A-17WPAB-5SC | 141-0210-7 | | 9.0 to 9.8 | |
| HR41A-17WBPAD-5SC | 141-0226-7 | | 8.2 to 9.0 | |
| HR41A-17WBPAE-5SC | 141-0223-9 | | 7.4 to 8.2 | |
| HR41A-17WBPAF-5SC | 141-0228-0 | | 9.9 to 10.7 | |

※Please refer to the specification for the details of sequential mating structure.

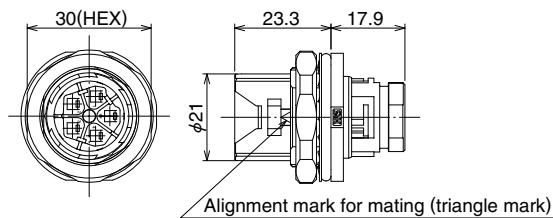
● 3-position type



| Part No. | HRS No. | No. of contacts | Applicable cable diameter | Remarks |
|-----------------|------------|-----------------|---------------------------|---------|
| HR41A-17WBP-3PC | 141-0217-6 | 3 | 10.7 to 11.5 | — |

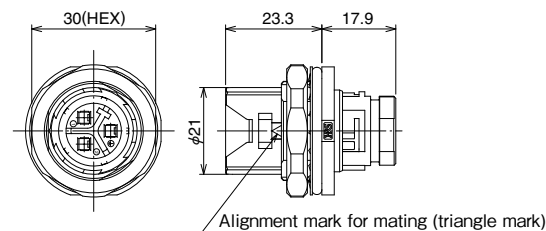
■ Receptacle

● Nut-tightening rear mount type (5-position)



| Part No. | HRS No. | No. of contacts | Remarks |
|------------------|------------|-----------------|---------|
| HR41A-17WBRA-5PC | 141-0201-0 | 5 | — |

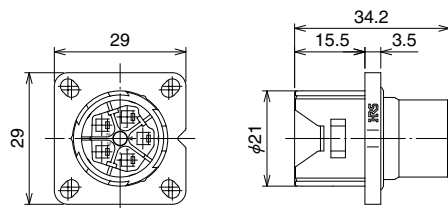
● Nut-tightening back mount type (3-position)



| Part No. | HRS No. | No. of contacts | Remarks |
|------------------|------------|-----------------|--------------------|
| HR41A-17WBRA-3SC | 141-0218-9 | 3 | Sequence structure |

※Please refer to the specification for the details of sequential mating structure.

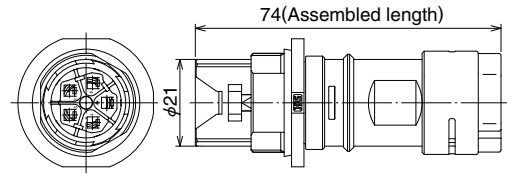
● Screw-fastening type (5-position)



| Part No. | HRS No. | No. of contacts | Remarks |
|------------------|------------|-----------------|---------|
| HR41A-17WBRB-5PC | 141-0222-6 | 5 | — |

■ Jack

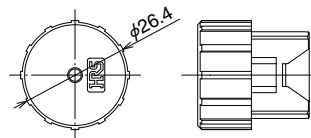
● 5-position type



| Part No. | HRS No. | No. of contacts | Applicable cable diameter |
|------------------|------------|-----------------|---------------------------|
| HR41A-17WBJ-5PC | 141-0202-9 | 5 | 10.7 to 11.5 |
| HR41A-17WBJB-5PC | 141-0212-2 | | 9.0 to 9.8 |
| HR41A-17WBJD-5PC | 141-0216-3 | | 8.2 to 9.0 |
| HR41A-17WBJF-5PC | 141-0229-5 | | 9.9 to 10.7 |

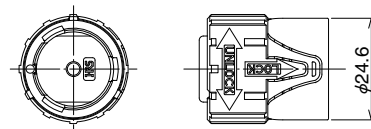
■ Caps

● Plug



| Part No. | HRS No. | Applicable Connectors |
|---------------|------------|---|
| HR41A-17WBP-C | 141-0219-0 | HR41A-17WBPA-5SC HR41A-17WBPA B-5SC HR41A-17WBPA D-5SC HR41A-17WBPA E-5SC HR41A-17WBPA F-5SC HR41A-17WBP-3PC |

● Receptacle/ Jack



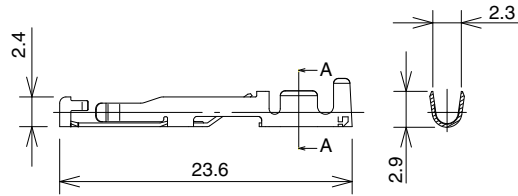
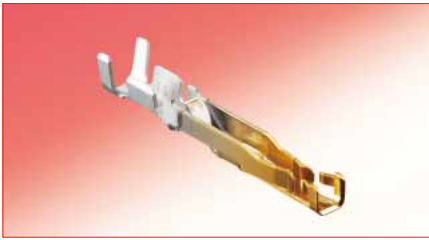
| Part No. | HRS No. | Applicable Connectors |
|---------------|------------|---|
| HR41A-17WBR-C | 141-0220-0 | HR41A-17WBRA-5PC HR41A-17WBRB-5PC HR41A-17WBRA-3SC HR41A-17WBJ-5PC HR41A-17WBJB-5PC HR41A-17WBJD-5PC HR41A-17WBJF-5PC |

Mar.1.2019 Copyright 2019 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

◆ **Crimp contacts**

● **Female contact**

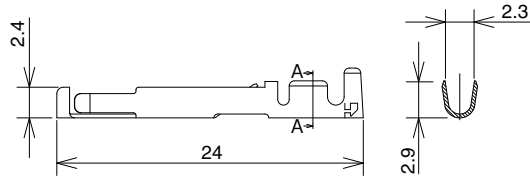
Gold plated specification



| Type | Part No. | HRS No. | Contact plating thickness (terminal is only plated on interface portion) | Applicable wire size | Remarks |
|--------------------|------------------|---------------|--|-----------------------------|----------------|
| Loose pcs contacts | HR41A-SC-111 | 141-0213-5 | Gold : 0.76μm | 16 to 20 AWG | 100 pcs/pack |
| | HR41A-SC-111(01) | 141-0213-5 01 | Gold : 0.2μm | | |
| Reel contacts | HR41A-SC-211 | 141-0206-0 | Gold : 0.76μm | 0.52 to 1.31mm ² | 5,000 pcs/reel |
| | HR41A-SC-211(01) | 141-0206-0 01 | Gold : 0.2μm | | |

※A wire insulation diameter of φ1.9mm to 3.2mm cables needs to be used.

Silver plated specification

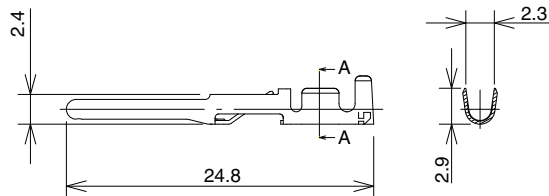


| Type | Part No. | HRS No. | Contact plating thickness (terminal is only plated on interface portion) | Applicable wire size | Remarks |
|---------------|------------|------------|--|-----------------------------|----------------|
| Loose contact | JRC-SC-112 | 114-0241-8 | Silver : 5μm | 16 to 20 AWG | 100 pcs/pack |
| Reel contact | JRC-SC-212 | 114-0242-0 | | 0.52 to 1.31mm ² | 5,000 pcs/reel |

※A wire insulation diameter of φ1.9mm to 3.2mm cables needs to be used.

● **Male contact**

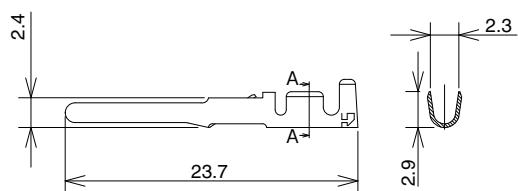
Gold plated specification



| Type | Part No. | HRS No. | Contact plating thickness (terminal is only plated on interface portion) | Applicable wire size | Remarks |
|--------------------|------------------|---------------|--|-----------------------------|----------------|
| Loose pcs contacts | HR41A-PC-111 | 141-0214-8 | Gold : 0.76μm | 16 to 20 AWG | 100 pcs/pack |
| | HR41A-PC-111(01) | 141-0214-8 01 | Gold : 0.2μm | | |
| Reel contacts | HR41A-PC-211 | 141-0207-2 | Gold : 0.76μm | 0.52 to 1.31mm ² | 5,000 pcs/reel |
| | HR41A-PC-211(01) | 141-0207-2 01 | Gold : 0.2μm | | |

※A wire insulation diameter of φ1.9mm to 3.2mm cables needs to be used.

Silver plated specification



| Type | Part No. | HRS No. | Contact plating thickness (terminal is only plated on interface portion) | Applicable wire size | Remarks |
|---------------|------------|------------|--|-----------------------------|----------------|
| Loose contact | JRC-PC-112 | 114-0239-6 | Silver : 5μm | 16 to 20 AWG | 100 pcs/pack |
| Reel contact | JRC-PC-212 | 114-0240-5 | | 0.52 to 1.31mm ² | 5,000 pcs/reel |

※A wire insulation diameter of φ1.9mm to 3.2mm cables needs to be used.

◆ Applicable tools

| Type | Items | Part No. | HRS No. | Applicable contacts | Applicable wire size |
|-----------------|--------------------------|-------------------|------------|--|----------------------|
| Manual | Manual crimping tool | HT802/HR41A-11-16 | 150-0408-5 | HR41A-SC-111 | 16 AWG |
| | | HT802/HR41A-11-18 | 150-0404-4 | HR41A-PC-111 | 18 AWG |
| | | HT802/HR41A-11-20 | 150-0407-2 | | 20 AWG |
| | | JRC-TC-11 | 150-0033-4 | JRC-PC-112 JRC-SC-112 | 16 AWG |
| | | JRC-TC-12 | 150-0034-7 | JRC-PC-112 JRC-SC-112 | 18 to 20 AWG |
| Automatic | Automatic crimping press | CM-105C | 901-0001-0 | | |
| | Applicator for press | AP105-HR41A-1 | 901-2055-3 | HR41A-SC-211 HR41A-PC-211 | 16 to 20 AWG |
| | | AP105-JRC-1 | 901-2039-7 | JRC-PC-212 JRC-SC-212 | |
| Extraction tool | | HR41A-TP | 150-0405-7 | HR41A-SC-111 HR41A-PC-111 HR41A-SC-211 HR41A-PC-211 | |
| | | JRC-TP | 150-0035-0 | JRC-SC-112 JRC-SC-212 JRC-PC-112 JRC-PC-212 | |

● Manual crimping tool
HT802/HR41A-11



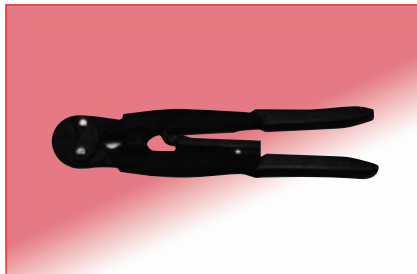
● Automatic crimping press, model
CM-105C (applicator sold separately)



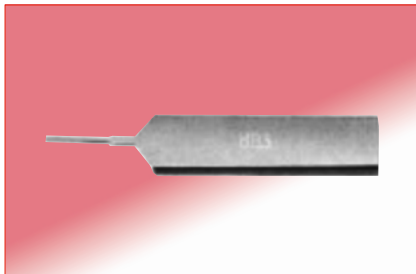
● Extraction tool
HR41A-TP



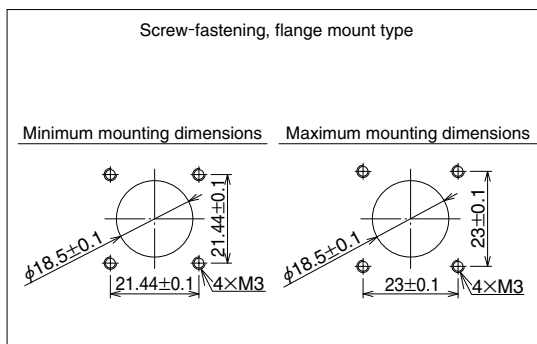
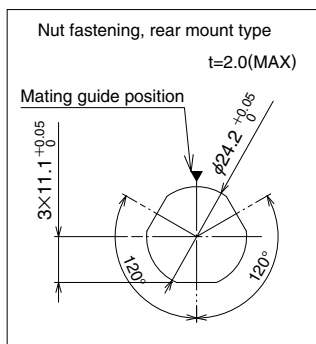
● Hand tool crimp
JRC-TC-11 JRC-TC-12



● Extraction tool
JRC-TP



◆ Panel mounting hole dimensions



◆ Precautions for using connectors

1. Assembly and installation of connectors and components should be done in reference to the specified assembly procedures and with the proper amount of tightening torque. Care should be taken that loosening or damage could result when the torque is improperly applied. (Please contact your Hirose representative for the correct procedures.)
2. After mating a connector, pull on the cable slightly to confirm the connector is firmly in place.



HIROSE ELECTRIC CO.,LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN
 TEL: +81-45-620-3526 Fax: +81-45-591-3726
<http://www.hirose.com>
<http://www.hirose-connectors.com>