

## HR41 Series

# Waterproof Connectors with Plastic Shell for Outdoor Use



Harsh Environment



Waterproof



Bayonet



## Features

### 1. Waterproof Connector with Excellent Weather Resistance for Outdoor Use

With a highly durable and weather resistant plastic shell, HR41 is a lightweight connector ideal for outdoor use.

### 2. Waterproof Performance

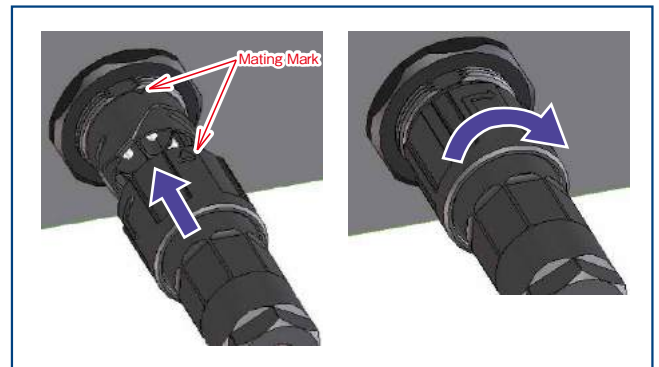
IP67, IP68 when mated.

IP67 : Left for 30 min. at a water depth of 1m.

IP68 : Left for 14 days at a water depth of 2m.

### 3. Easy to Operate Bayonet Lock

Bayonet lock that completes locking in a single action for easy installment even in dimly lit areas.



Bayonet Lock

### 4. Supports Field Assembly

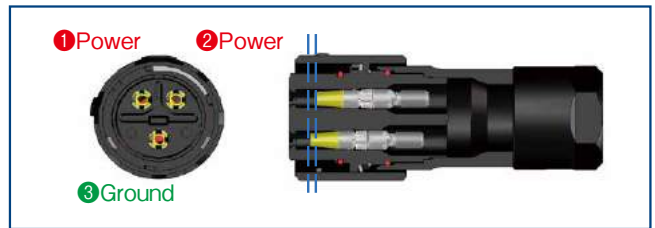
The simple crimp connection and easy assembly design are ideal for on-site assembly.

### 5. Compatible with Commercial Tools

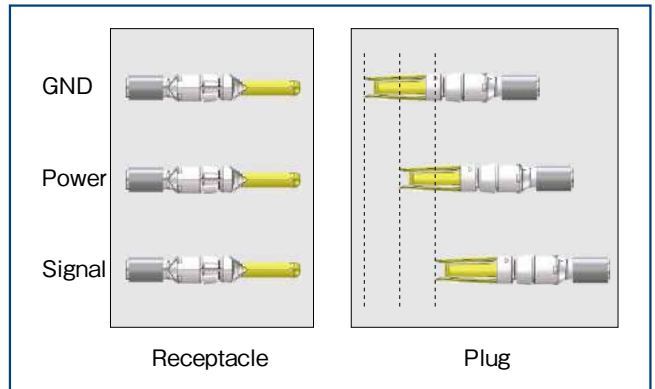
Crimp contacts can be terminated using JIS C 9711 crimp tools.

## 6. Sequence Design

3pos. : 2 Stage Sequential Mating  
 5pos. : 3 Stage Sequential Mating



Ground Comes into Contact First (3pos.)



Sequential Mating Design

## 7. Designed to Accommodate Hot Swapping (5pos. Plug)

Hot Swapping Conditions: 20A AC/300V AC (50 mating cycles)

Test method conforms to UL1977 standards.

## 8. Surge Resistance

Walls between adjacent contacts provide insulation against 15kV surges caused by lightning.

## 9. Gold-plated Contact Portion

The interface of the contact is gold plated for high contact reliability.

## 10. Safety Standard Certified

UL and TÜV certified.

## Product Specifications

|                        |                                                   |                                |               |
|------------------------|---------------------------------------------------|--------------------------------|---------------|
| Rated Current (Note 1) | 3pos.: 38A (Ambient Temperature 25°C )            | Operating Temperature (Note 2) | -40 to +105°C |
|                        | 5pos.: 20A (When using 4pos. with Ground Removed) | Storage Temperature Range      | -10 to +60°C  |
| Rated Voltage          | 1000V AC/DC                                       |                                |               |

|        |                        |            |                                |              |
|--------|------------------------|------------|--------------------------------|--------------|
| UL,TÜV | Rated Current (Note 1) | 3pos.: 20A | Operating Temperature (Note 2) | -40 to +65°C |
|        |                        | 5pos.: 10A | Storage Temperature Range      | -10 to +60°C |
|        | Rated Voltage          | 600V AC/DC |                                |              |

| Items                              | Specifications                                                                 | Conditions                                                                                            |
|------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Contact Resistance                 | 2m $\Omega$ Max.                                                               | Measured at 1A DC                                                                                     |
| Insulation Resistance              | 5000M $\Omega$ Min.                                                            | Measured at 500V DC                                                                                   |
| Withstanding Voltage               | No flashover or breakdown                                                      | 3 pos. : Apply 4260V AC for 1 min.<br>5 pos. : Apply 2200V AC for 1 min.                              |
| Vibration Resistance               | No electrical discontinuity of 10 $\mu$ s or more                              | 10 cycles in 3 axial directions at a frequency of 10-500-10Hz, half amplitude 0.75mm and 11 min/cycle |
| Shock                              | No electrical discontinuity of 10 $\mu$ s or more                              | Acceleration 490m/s <sup>2</sup> , duration 11ms, half-sine wave, 3 times each for 3 axial directions |
| Mating Durability                  | Contact resistance 4m $\Omega$ Max.                                            | 200 mating cycles                                                                                     |
| Temperature Cycle                  | Insulation resistance 5000 $\Omega$ Min.                                       | -55°C : 30min. → Ambient Temp. : 2-3min.<br>→ +85°C : 30min. → Ambient Temp. : 2-3min., 5 cycles      |
| Salt Spray                         | No functional issues                                                           | 5% concentration salt water sprayed for 1,000 hours in mated connector condition.                     |
| Moisture Resistance (Steady State) | Insulation Resistance :<br>50M $\Omega$ (High Humidity)<br>500M $\Omega$ (Dry) | 40°C temperature, 90 to 95% humidity for 96 hours                                                     |
| Water Resistance                   | No water intrusion inside connector                                            | Left submerged at a depth of 2m in the mated condition for 14 days                                    |

Note 1 : Varies depending on the temperature the connector is used at.

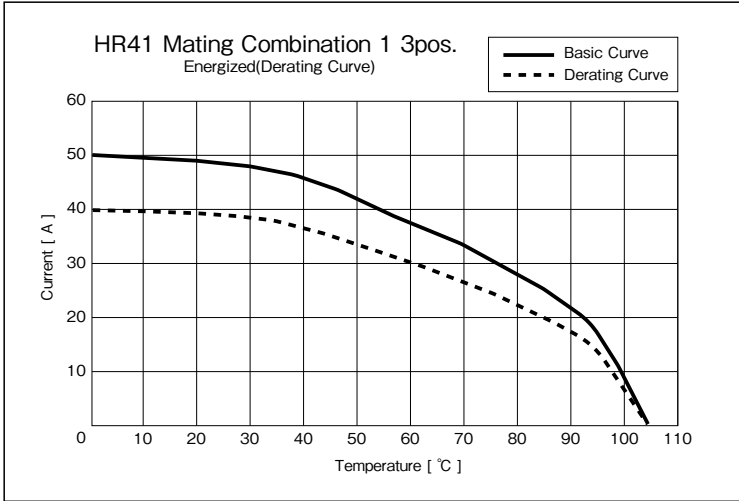
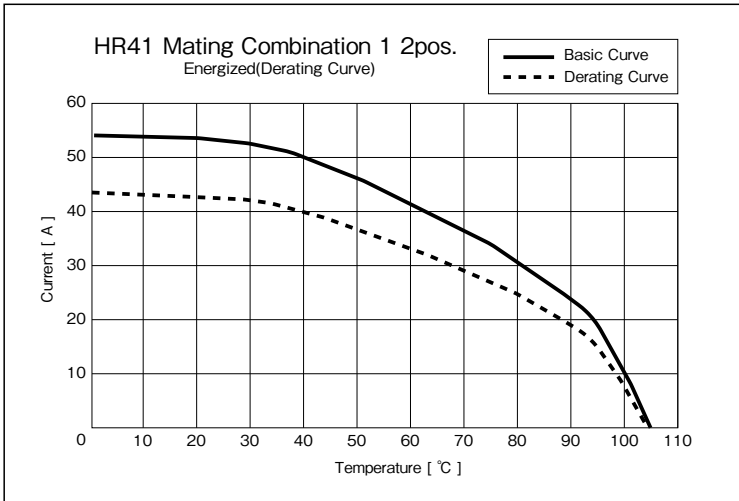
When applying the UL and TÜV standards, use within the derating curve.

Note 2 : Includes temperature rise due to current flow.

Note 3 : Depending on the cable design and specifications, cable clamping force, rotation force, waterproof performance, etc. may differ.

Please confirm before use.

## [Reference] Derating Curve



Note 1 : The derating curve is derived from the basic curve multiplied by the derating factor of 0.8.

Note 2 : The measurement method of the derating curve is as follows:

- HR41, unused prior to testing.
- Conductor cross-sectional area of test cable : 5.5mm<sup>2</sup>
- Test condition : Measured after power supplied while the mated connectors are in a stationary state.

Materials/Finish

| Item           | Material        | Finish                | UL Standard (Noncombustible) |
|----------------|-----------------|-----------------------|------------------------------|
| Insulator      | Polyamide, PBT  | -                     | 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

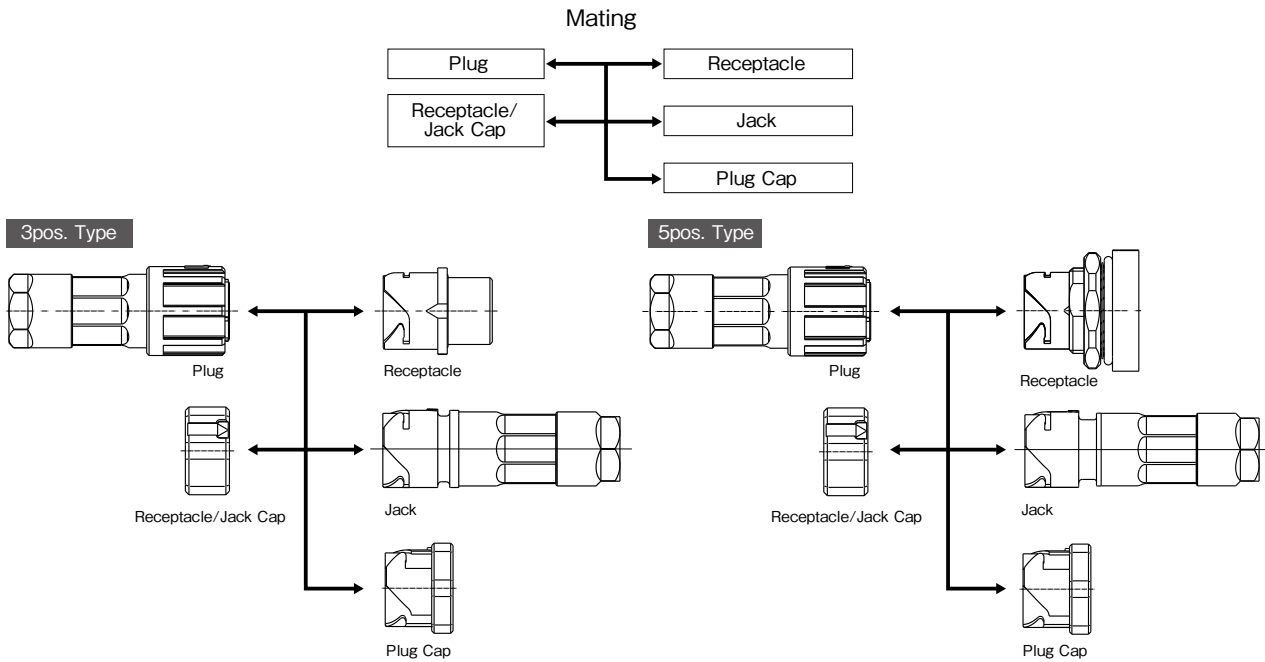
**HR41 - 25 W B P A - 3 S C (##)**  
1 2 3 4 5 6 7 8 9 10

Crimp Contact

**HR41 - S C - 1 2 1 (##)**  
1 8 9 11 12 13 10

|                                                        |                     |                         |                                                                                                    |
|--------------------------------------------------------|---------------------|-------------------------|----------------------------------------------------------------------------------------------------|
| 1 Series Name                                          | HR41                | 7 No. of Pos.           | 3, 5                                                                                               |
| 2 Shell Size                                           | 25                  | 8 Contact Gender        | S : Female Contact<br>P : Male Contact                                                             |
| 3 Specifications                                       | W : Waterproof Type | 9 Contact Assembly      | C : Crimp                                                                                          |
| 4 Lock Mechanism                                       | B : Bayonet Lock    | 10                      | Additional specifications are identified by adding (01), (02), etc.                                |
| 5 Shell Type<br>P : Plug<br>R : Receptacle<br>J : Jack |                     | 11 Contact Form         | 1 : Loose Contacts                                                                                 |
|                                                        |                     | 12 Design               | 2 : If the design of contacts of the same size differs, 1, 2, 3 etc. are added to distinguish them |
| 6 Serial Mark                                          |                     | 13 Contact Area Plating | 1 : Gold Plated                                                                                    |

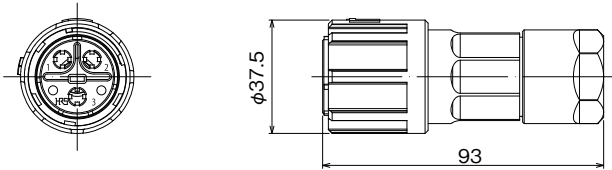
Diagram of Connector Mating Combinations



| Type  | Category   | Connector                                                                | Crimp Contact                             | Cap          |
|-------|------------|--------------------------------------------------------------------------|-------------------------------------------|--------------|
| 3pos. | Plug       | HR41-25WBPD-3SC<br>HR41-25WBPE-3SC<br>HR41-25WBPF-3SC<br>HR41-25WBPG-3SC | HR41-SC-111<br>HR41-SC-121<br>HR41-SC-141 | HR41-25WBP-C |
|       | Receptacle | HR41-25WBR-3PC                                                           | HR41-PC-111<br>HR41-PC-121                | HR41-25WBR-C |
|       | Jack       | HR41-25WBJB-3PC<br>HR41-25WBJE-3PC<br>HR41-25WBJF-3PC                    |                                           |              |
| 5pos. | Plug       | HR41-25WBP-5SC                                                           | HR41-SC-151                               | HR41-25WBP-C |
|       | Receptacle | HR41-25WBRA-5PC                                                          | HR41-PC-151                               | HR41-25WBR-C |
|       | Jack       | HR41-25WBJ-5PC<br>HR41-25WBJG-5PC                                        |                                           |              |

3pos. Type

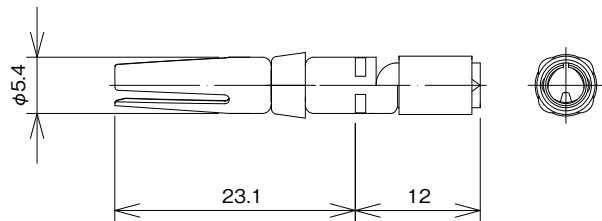
● Plug



| Part No.        | HRS No.          | No. of Pos. | Applicable Cable     | Remarks                   | Purchase Unit          |
|-----------------|------------------|-------------|----------------------|---------------------------|------------------------|
| HR41-25WBPD-3SC | CL0141-0023-0-00 | 3           | $\phi\ 9.0 \pm 0.6$  | 2 Stage Sequential Mating | 10pcs per bag (Note 1) |
| HR41-25WBPE-3SC | CL0141-0024-2-00 |             | $\phi\ 10.1 \pm 0.6$ |                           |                        |
| HR41-25WBPF-3SC | CL0141-0026-8-00 |             | $\phi\ 13.5 \pm 0.7$ |                           |                        |
| HR41-25WBPG-3SC | CL0141-0036-0-00 |             | $\phi\ 12.4 \pm 0.6$ |                           |                        |

Note 1 : Orders are accepted in multiples of 10pcs.  
Note 2 : Female contacts are assembled into the above product.

● Female Contact

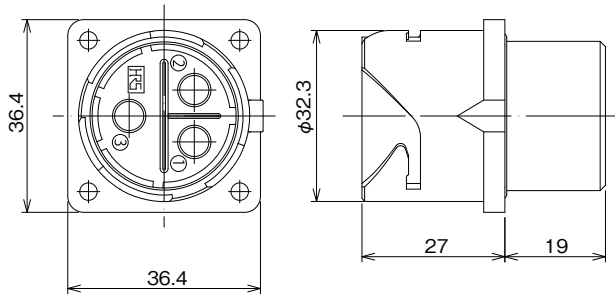


| Type              | Part No.        | HRS No.          | Plating Thickness of Contact Portion | Applicable Cable<br>(Meets all of conditions 1, 2, and 3)                                                                                                     | Purchase Unit            |
|-------------------|-----------------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Loose<br>Contacts | HR41-SC-111     | CL0141-0001-7-00 | 0.2 $\mu$ m                          | 1. Conductor Cross-section : 3.3 to 5.5mm <sup>2</sup><br>2. Conductor Outer Dia. : $\phi$ 3.1 Max.<br>3. Jacket Outer Dia. : $\phi$ 6 Max.<br>(10 to 12 AWG) | 3pcs per bag<br>(Note 1) |
|                   | HR41-SC-111(01) | CL0141-0001-7-01 | 0.76 $\mu$ m                         |                                                                                                                                                               |                          |
|                   | HR41-SC-121     | CL0141-0003-2-00 | 0.2 $\mu$ m                          | 1. Conductor Cross-section : 1.3 to 2.5mm <sup>2</sup><br>2. Conductor Outer Dia. : $\phi$ 2.0 Max.<br>3. Jacket Outer Dia. : $\phi$ 6 Max.<br>(14 to 16 AWG) |                          |
|                   | HR41-SC-121(01) | CL0141-0003-2-01 | 0.76 $\mu$ m                         |                                                                                                                                                               |                          |
|                   | HR41-SC-141     | CL0141-0008-6-00 | 0.2 $\mu$ m                          | 1. Conductor Cross-section : 5.5 to 6.5mm <sup>2</sup><br>2. Conductor Outer Dia. : $\phi$ 3.4 Max.<br>3. Jacket Outer Dia. : $\phi$ 6 Max.<br>(10 AWG)       |                          |
|                   | HR41-SC-141(01) | CL0141-0008-6-01 | 0.76 $\mu$ m                         |                                                                                                                                                               |                          |

Note 1 : Orders are accepted based on bag increments.  
Note 2 : The contact design of HR41-SC-151, HR41-SC-111, HR41-SC-121, and HR41-SC-141 differ, so be careful when assembling for use.



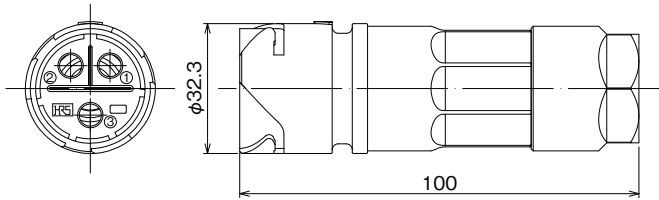
● Receptacle (Flange Type)



| Part No.       | HRS No.          | No. of Pos. | Purchase Unit          |
|----------------|------------------|-------------|------------------------|
| HR41-25WBR-3PC | CL0141-0006-0-00 | 3           | 10pcs per bag (Note 1) |

Note 1 : Orders are accepted in multiples of 10pcs.  
Note 2 : Male contacts are assembled into the above product.

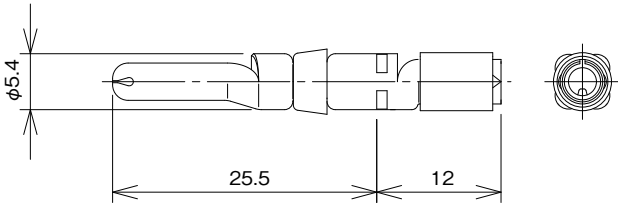
● Jack



| Part No.        | HRS No.          | No. of Pos. | Applicable Cable    | Purchase Unit          |
|-----------------|------------------|-------------|---------------------|------------------------|
| HR41-25WBJB-3PC | CL0141-0017-7-00 | 3           | $\phi 11.8 \pm 0.4$ | 10pcs per bag (Note 1) |
| HR41-25WBJE-3PC | CL0141-0038-0-00 |             | $\phi 10.1 \pm 0.6$ |                        |
| HR41-25WBJF-3PC | CL0141-0019-2-00 |             | $\phi 13.5 \pm 0.7$ |                        |

Note 1 : Orders are accepted in multiples of 10pcs.  
Note 2 : Male contacts are assembled into the above product.

● Male Contact

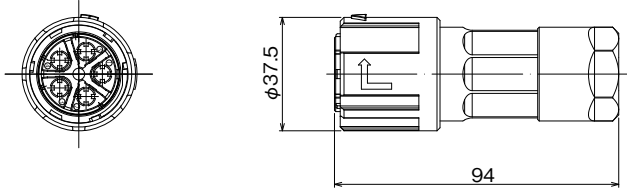


| Type              | Part No.        | HRS No.          | Plating Thickness of Contact Portion | Applicable Cable<br>(Meets all of conditions 1, 2, and 3)                                                                                                     | Purchase Unit          |
|-------------------|-----------------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Loose<br>Contacts | HR41-PC-111     | CL0141-0002-0-00 | 0.2 $\mu$ m                          | 1. Conductor Cross-section : 3.3 to 5.5mm <sup>2</sup><br>2. Conductor Outer Dia. : $\phi$ 3.1 Max.<br>3. Jacket Outer Dia. : $\phi$ 6 Max.<br>(10 to 12 AWG) | 3pcs per bag<br>(Note) |
|                   | HR41-PC-111(01) | CL0141-0002-0-01 | 0.76 $\mu$ m                         |                                                                                                                                                               |                        |
|                   | HR41-PC-121     | CL0141-0004-5-00 | 0.2 $\mu$ m                          | 1. Conductor Cross-section : 1.3 to 2.5mm <sup>2</sup><br>2. Conductor Outer Dia. : $\phi$ 2.0 Max.<br>3. Jacket Outer Dia. : $\phi$ 6 Max.<br>(14 to 16 AWG) |                        |
|                   | HR41-PC-121(01) | CL0141-0004-5-01 | 0.76 $\mu$ m                         |                                                                                                                                                               |                        |

Note : Orders are accepted based on bag increments.

## 5pos. Type

### ● Plug

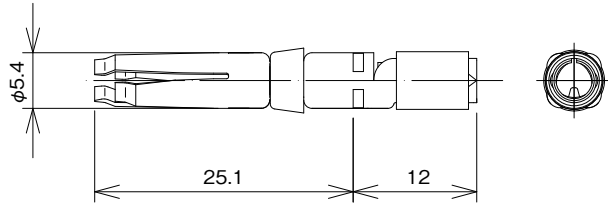


| Part No.       | HRS No.          | No. of Pos. | Applicable Cable    | Remarks                   | Purchase Unit          |
|----------------|------------------|-------------|---------------------|---------------------------|------------------------|
| HR41-25WBP-5SC | CL0141-0009-9-00 | 5           | $\phi 11.0 \pm 0.3$ | 3 Stage Sequential Mating | 10pcs per bag (Note 1) |

Note 1 : Orders are accepted in multiples of 10pcs.

Note 2 : Female contacts are assembled into the above product.

### ● Female Contact

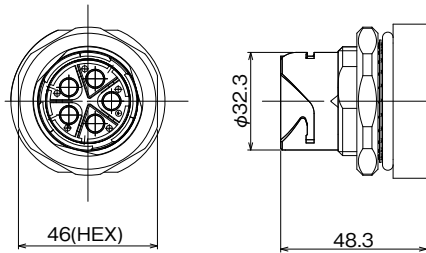


| Type           | Part No.    | HRS No.          | Plating Thickness of Contact Portion | Applicable Cable<br>(Meets all of conditions 1, 2, and 3)                                                                                               | Purchase Unit         |
|----------------|-------------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Loose Contacts | HR41-SC-151 | CL0141-0011-0-00 | $0.2 \mu m$                          | 1. Conductor Cross-section : $0.75$ to $2.5mm^2$<br>2. Conductor Outer Dia. : $\phi 2.4$ Max.<br>3. Jacket Outer Dia. : $\phi 6$ Max.<br>(14 to 18 AWG) | 5pcs per bag (Note 1) |

Note 1 : Orders are accepted based on bag increments.

Note 2 : The contact design of HR41-SC-151, HR41-SC-111, HR41-SC-121, and HR41-SC-141 differ, so be careful when assembling for use.

### ● Receptacle (Bulkhead Type)

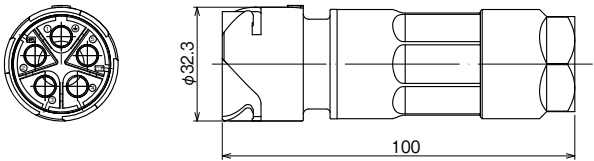


| Part No.        | HRS No.          | No. of Pos. | Purchase Unit          |
|-----------------|------------------|-------------|------------------------|
| HR41-25WBRA-5PC | CL0141-0010-8-00 | 5           | 10pcs per bag (Note 1) |

Note 1 : Orders are accepted in multiples of 10pcs.

Note 2 : Male contacts are assembled into the above product.

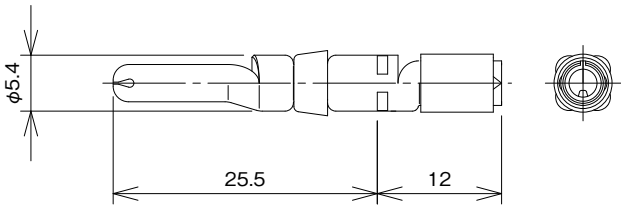
● Jack



| Part No.        | HRS No.          | No. of Pos. | Applicable Cable | Purchase Unit          |
|-----------------|------------------|-------------|------------------|------------------------|
| HR41-25WBJ-5PC  | CL0141-0040-0-00 | 5           | φ 11.0 ± 0.3     | 10pcs per bag (Note 1) |
| HR41-25WBJG-5PC | CL0141-0029-6-00 |             | φ 12.4 ± 0.6     |                        |

Note 1 : Orders are accepted in multiples of 10pcs.  
Note 2 : Male contacts are assembled into the above product.

● Male Contact

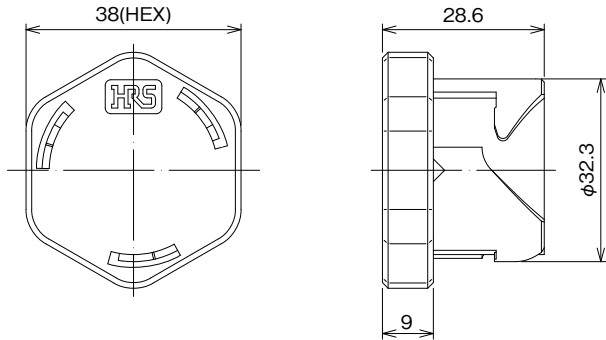


| Type           | Part No.    | HRS No.          | Plating Thickness of Contact Portion | Applicable Cable<br>(Meets all of conditions 1, 2, and 3)                                                                                            | Purchase Unit          |
|----------------|-------------|------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Loose Contacts | HR41-PC-151 | CL0141-0012-3-00 | 0.2 μ m                              | 1. Conductor Cross-section : 0.75 to 2.5mm <sup>2</sup><br>2. Conductor Outer Dia. : φ 2.4 Max.<br>3. Jacket Outer Dia. : φ 6 Max.<br>(14 to 18 AWG) | 5pcs per bag<br>(Note) |

Note : Orders are accepted based on bag increments.

Cap

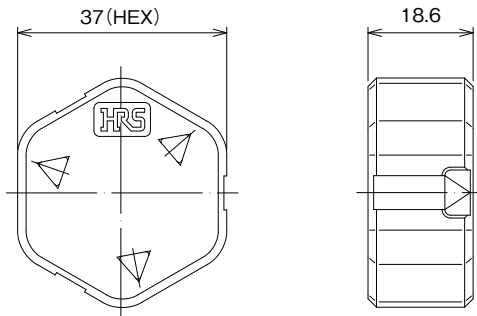
● Plug Cap



| Part No.     | HRS No.          | Applicable Connector                                                                       | Purchase Unit           |
|--------------|------------------|--------------------------------------------------------------------------------------------|-------------------------|
| HR41-25WBP-C | CL0141-0021-4-00 | HR41-25WBPD-3SC<br>HR41-25WBPE-3SC<br>HR41-25WBPF-3SC<br>HR41-25WBPG-3SC<br>HR41-25WBP-5SC | 50pcs per bag<br>(Note) |

Note : Orders are accepted in multiples of 50pcs.

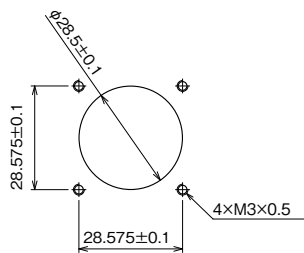
● Receptacle/Jack Cap



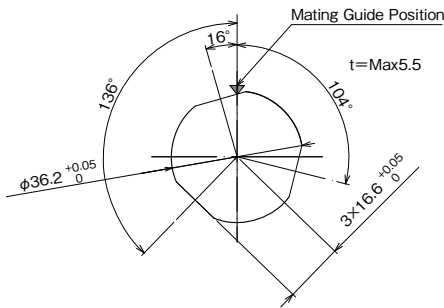
| Part No.     | HRS No.          | Applicable Connector                                                                                                             | Purchase Unit           |
|--------------|------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| HR41-25WBR-C | CL0141-0022-7-00 | HR41-25WBR-3PC<br>HR41-25WBRA-5PC<br>HR41-25WBJB-3PC<br>HR41-25WBJE-3PC<br>HR41-25WBJF-3PC<br>HR41-25WBJS-5PC<br>HR41-25WBJS-5PC | 50pcs per bag<br>(Note) |

Note : Orders are accepted in multiples of 50pcs.

Receptacle Panel Cutout Dimensions



Flange Type  
(Usage Example : HR41-25WBR-3PC)



Bulkhead Type  
(Usage Example : HR41-25WBRA-5PC)

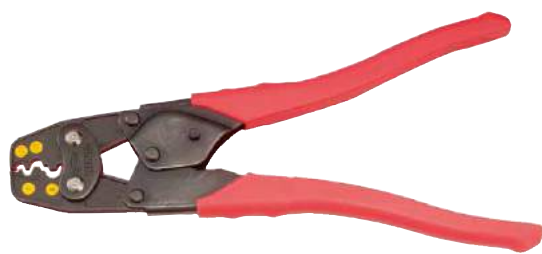
Applicable Tool

● Contact Extraction Tool



| Type                    | Part No. | HRS No.          | Purchase Unit |
|-------------------------|----------|------------------|---------------|
| Contact Extraction Tool | HR41-TP  | CL0150-0256-9-00 | 20pcs per bag |

● Manual Crimp Tools



| Tool Maker              | Part No. |
|-------------------------|----------|
| HOZAN TOOL IND.CO.,LTD. | P-75     |
| Lobtex CO., LTD         | AK15A    |
| NICHIFU Co.,Ltd.        | NH1      |

● Pneumatic Crimp Tool



| Tool Maker             | Part No.                    |
|------------------------|-----------------------------|
| Maxell Izumi Co., Ltd. | AC-5N.D<br>Dice : Head No.1 |

Note : Perform maintenance in accordance with the tool manufacturer's instruction manual.

## Connector Usage Precautions

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.  
If the torque is too low or too strong it may result in loosening or damage. (Please contact your Hirose representative for the correct procedures.)
2. After mating a connector, pull on the cable slightly to confirm mating and that the connector is firmly in place.

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please confirm the Drawing and Product Specifications sheets.

Use an appropriate cable when using the connector in combination with cables.

If considering usage of a non-specified cable, please contact your sales representative.

If assembly process is done by jigs & tools which are not identified by Hirose, assurance will not be given.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

