

# Plastic-Shelled Waterproof Connectors for Outdoor Use

## HR41 Series



### ■ Features

#### 1. Weather-resistant and waterproof connectors for outdoor use

Lightweight, outdoor, waterproof connectors that utilize stout plastic shells that are also resistant to corrosive weather.

#### 2. Waterproof ability

With its IP68 rating, it is guaranteed to ensure a waterproof seal while in the mated state.

#### 3. Operator-friendly bayonet-locking system

Single action locking mechanism, its bayonet-lock makes it easier to complete the connection even in the dark.

#### 4. Field wire connection applicable

Wire crimping type is operator-friendly and has an easy-to-assemble structure suited for wire connecting work in the field.

#### 5. Compatible with general-purpose tools

Crimp terminals can be connected to wire using crimping tools in accordance with JIS C 9711.

#### 6. Specialized sequence structure

3-step sequence structure design for 5-pin plugs protects the system in case of hot plugging.

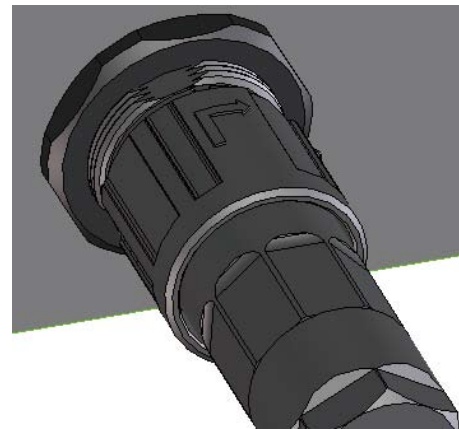
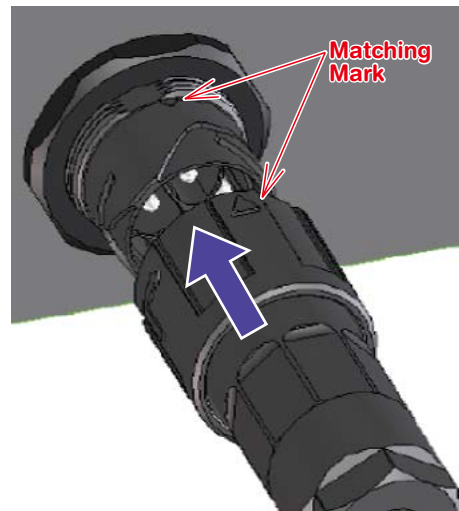
#### 7. Gold plated contacts

Gold plated terminal contacts provide a reliable connection.

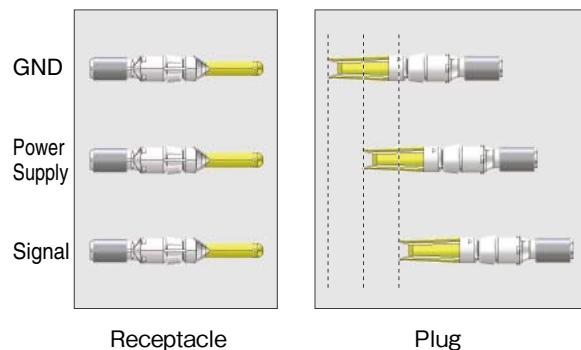
#### 8. Safety standards

Certifications pending on various safety standards.

### Bayonet Lock



### Sequence Structure (5-Pin)



Note\* Waterproof performance

IPx8: Immersion in water 2m deep for 14 days.

IPx7: Immersion in water 1m deep for 30 minutes.

## ■ Product specification

Rating	Rated current	3-pin: 20A 5-pin: 10A	Service temperature range	-40°C to +85°C
	Rated voltage	3-pin: AC 400V, DC 400V 5-pin: AC 600V, DC 400V	Storage temperature range	-10°C to +60°C

Item	Specification	Condition
1. Contact resistance	2mΩ or lower	Measure at DC 1A
2. Insulation resistance	5,000MΩ or higher	Measure at DC 500V
3. Voltage resistance	No flashover or breakdown	3-pin: AC 4,260V × 1 min 5-pin: AC 2,200V × 1 min
4. Vibration resistance	No temporary electric interruption for 10μs or longer	Frequency 10-500-10Hz/cycle Half amplitude 0.75mm, 5 min/cycle 10 cycles each in 3 axis directions
5. Impact resistance	No temporary electric interruption for 10μs or longer	Acceleration 490m/s <sup>2</sup> , duration 11ms, 3 cycles each in 3 axis directions
6. Repeated motions	Contact resistance 4mΩ or lower	50 cycles of repeated motions
7. Temperature cycle	Insulation resistance 5,000MΩ or higher	-55°C × 30 min → room temp. × 2-3 min → 85°C × 30 min → room temp. × 2-3 min × 5 cycles
8. Salt water spray	No functional problem	Exposure to 5% salt water spray × 1,000 hours in a mated condition
9. Humidity resistance (in steady state)	Insulation resistance: 50MΩ or higher (at high temperatures), 500MΩ or higher (in dry conditions)	Temperature 40°C, Humidity 90-95%RH × 96 hours
10. Water pressure resistance	No water seepage into the connector	Immersed in water 2m deep for 14 days in a mated condition

## ■ Materials

Item	Material	Treatment	Remarks
Insulator	Polyamide resin, PBT resin	—	UL94V-0
Terminal	Copper alloy	Partially gold plated	—
O-ring, gasket	Silicon rubber	—	—

## ■ Product Number Structure

Type codes imbedded in a part number will tell you about the product specifications.

### ● Connectors

**HR41 - 25 W B P A - 3 S C (\*\*)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

### ● Crimp terminals

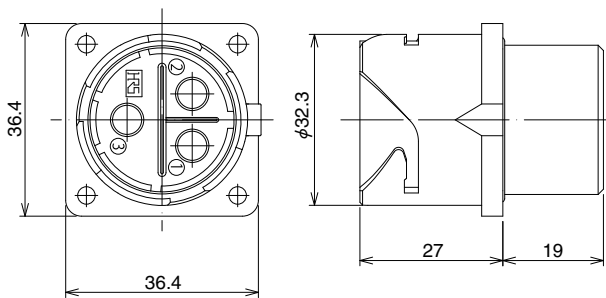
**HR41 - S C - 1 2 1 (\*\*)**

① ⑧ ⑨ ⑪ ⑫ ⑬ ⑩

① Series name: HR41	⑧ Terminal shape S: female terminal, P: male terminal
② Shell size: 25	⑨ Terminal connection type C: crimping
③ Special property W: waterproof type	⑩ List additional specifications following (01), (02)...
④ Lock mechanism B: bayonet lock	⑪ Terminal form 1: pin terminal
⑤ Shell type P: plug, R: receptacle, J: jack	⑫ Shape 2: distinguish between different terminal shapes in the same size by 1, 2, 3...
⑥ Serial code	⑬ Plating on contacts 1: gold plating
⑦ Pole No.: 3, 5	

### ■ 3-Pin Type

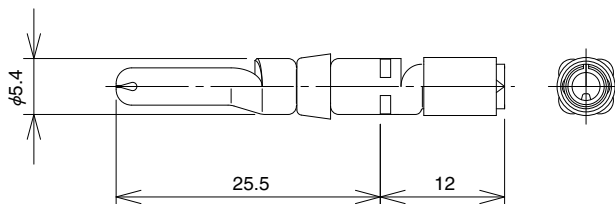
#### ● Receptacle (Screw-fastened Type)



Product No.	HRS No.	Pole No.
HR41-25WBR-3PC	CL141-0006-0	0

\*Note: The above product can be mated with male terminals.

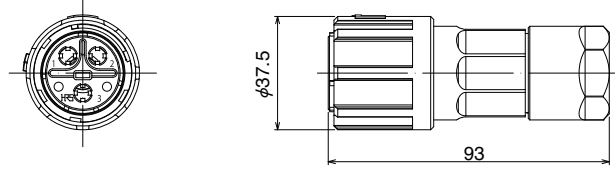
#### ● Male terminals



Type	Product No.	HRS No.	Thickness of gold plating on contacts	Applicable wires (to satisfy the requirements 1, 2, 3)
Pin terminal	HR41-PC-111	CL141-0002-0	0.2μm	1) Conductor cross sectional area: 3.3-5.5mm <sup>2</sup> 2) Conductor diameter: 3.1mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG #10-#12)
	HR41-PC-111(01)	CL141-0002-0-01	0.76μm	
	HR41-PC-121	CL141-0004-5	0.2μm	1) Conductor cross sectional area: 1.3-2.5mm <sup>2</sup> 2) Conductor diameter: 2.0mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG #14-#16)
	HR41-PC-121(01)	CL141-0004-5-01	0.76μm	

\*One pack contains 3 connectors.

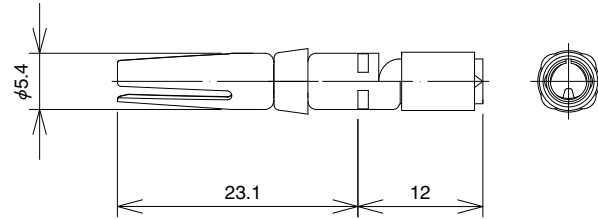
● Plug



Product No.	HRS No.	Pole No.	Applicable cable	Remarks
HR41-25WBPD-3SC	CL141-0023-0	3	φ9.0±0.6	—
HR41-25WBPE-3SC	CL141-0024-2	3	φ10.1±0.6	—
HR41-25WBPF-3SC	CL141-0026-8	3	φ13.5±0.7	—

\*Note: The above products can be mated with female terminals.

● Female terminals



Type	Product No.	HRS No.	Thickness of gold plating on contacts	Applicable wires (to satisfy the requirements 1, 2, 3)
Pin terminal	HR41-SC-111	CL141-0001-7	0.2μm	1) Conductor cross sectional area: 3.3-5.5mm <sup>2</sup> 2) Conductor diameter: 3.1mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG #10-#12)
	HR41-SC-111(01)	CL141-0001-7-01	0.76μm	
	HR41-SC-121	CL141-0003-2	0.2μm	
	HR41-SC-121(01)	CL141-0003-2-01	0.76μm	
	HR41-SC-141	CL141-0008-6	0.2μm	1) Conductor cross sectional area: 5.5-6.5mm <sup>2</sup> 2) Conductor diameter: 3.4mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG #10)
	HR41-SC-141(01)	CL141-0008-6-01	0.76μm	

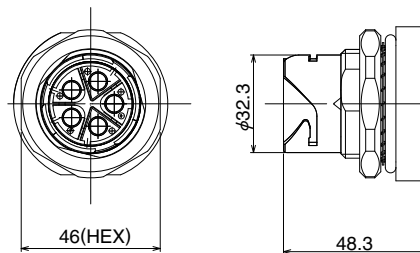
\*One pack contains 3 connectors.

\*\*Note: HR41-SC-151 has a different terminal structure than the following connectors, HR41-SC-111, HR41-SC-121, and HR41-SC-141.

Please pay attention to the combined use of these connectors.

## ■ 5-Pin Type

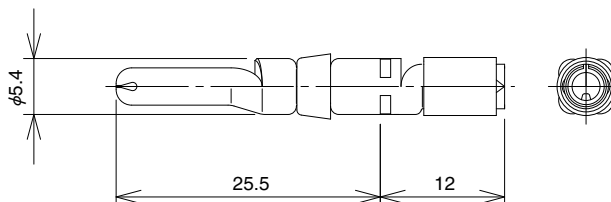
### ● Nut-fastened back mount type



Product No.	HRS No.	Pole No.
HR41-25WBRA-5PC	CL141-0010-8	5

\*Note: The above product can be mated with male terminals.

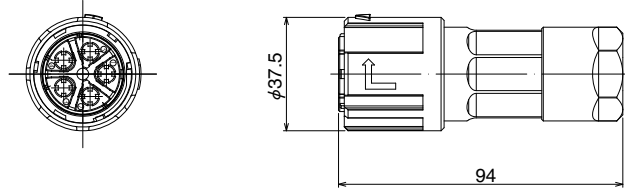
### ● Male terminal



Type	Product No.	HRS No.	Thickness of gold plating on contacts	Applicable wires (to satisfy the requirements 1, 2, 3)
Pin terminal	HR41-PC-151	CL141-0012-3	0.2μm	1) Conductor cross sectional area: 0.75-2.5mm <sup>2</sup> 2) Conductor diameter: 2.4mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG#14-#18)

\*One pack contains 5 connectors.

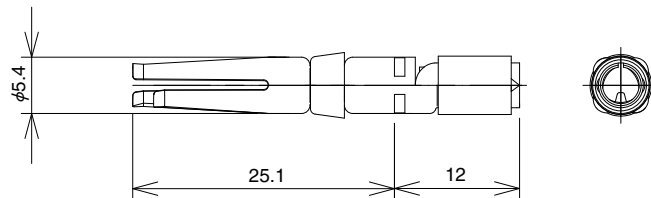
● Plug



Product No.	HRS No.	Pole No.	Applicable cable	Remarks
HR41-25WBP-5SC	CL141-0009-9	5	$\phi 11 \pm 0.3$	3-step sequence

\*Note: The above product can be mated with female terminals.

● Female terminal



Type	Product No.	HRS No.	Thickness of gold plating on contacts	Applicable wires (to satisfy the requirements 1, 2, 3)
Pin terminal	HR41-SC-151	CL141-0011-0	0.2 $\mu$ m	1) Conductor cross sectional area: 0.75-2.5mm <sup>2</sup> 2) Conductor diameter: 2.4mm or smaller 3) Covered wire diameter: 6mm or smaller (AWG #14-#18)

\*One pack contains 5 connectors.

\*\*Note: HR41-SC-151 has a different terminal structure than the following connectors, HR41-SC-111, HR41-SC-121, and HR41-SC-141. Please pay attention to the combined use of these connectors.

## ■ Tool

Type	Product name	HRS No.
Terminal extracting tool	HR41-TP	CL150-0256-9



### ● Recommended crimping tools

#### ◆ Manual-type crimping tools

Tool maker	Product No.
Hozan Tool Industrial Co., Ltd.	P-75
LOBTEX Co., Ltd.	AK15A
NICHIFU Co., Ltd.	NH11



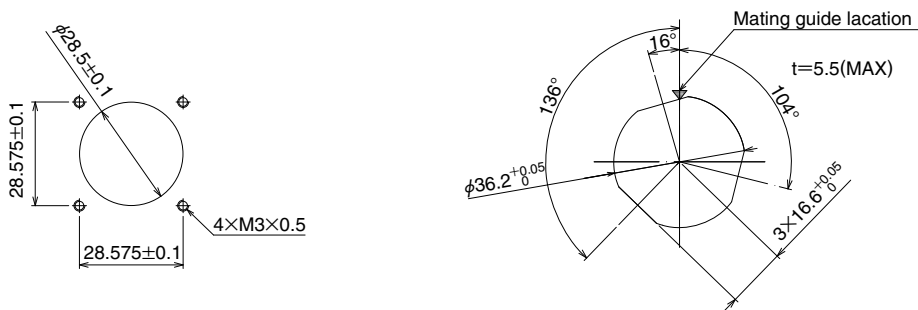
#### ◆ Air-type crimping tool

Tool maker	Product No.
Izumi Products Company	AC-5N.D. Dies: No.1 head



\*Note: Please maintain your crimping tools in accordance with the manufacturer's instruction manuals.

## ■ Dimensional drawing for receptacle panel mounting holes



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