PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

LF Series

# Shielded Small Waterproof Connector

Bayonet

Waterproof

Compact



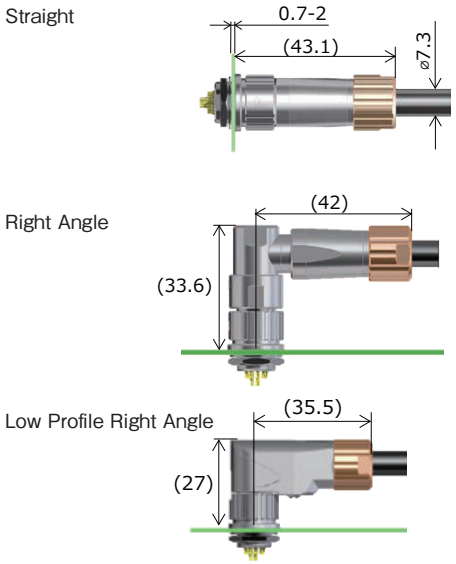
Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

Sep. 2022

# Features

## 1. Small, Robust Design

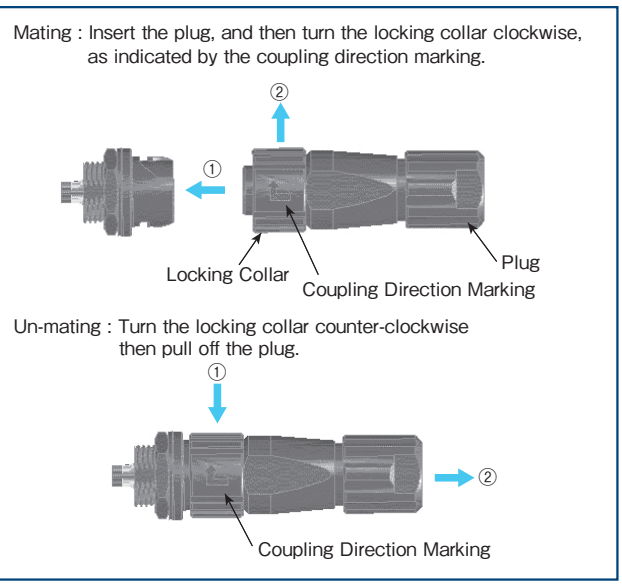
Small, robust design with metal shell




Dimensions Example
(LF10 Plug Mated with Front Mount Receptacle)

## 2. Bayonet Lock

User-friendly lock with superior vibration resistance.




Lock Design

## 3. Waterproof : IP67/IP68* Compliant

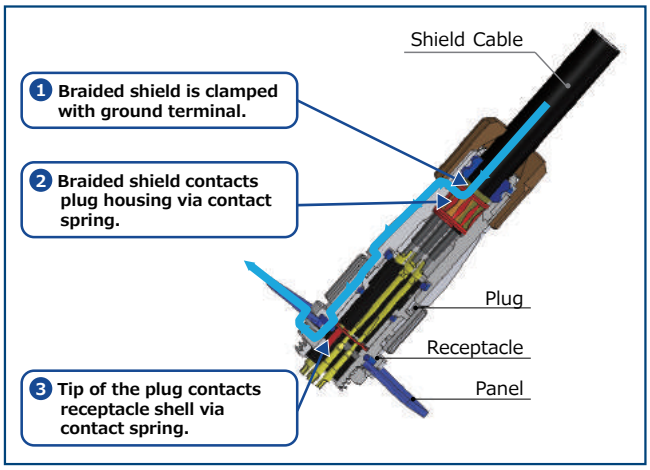
IP67/IP68 waterproof performance when mated.

*IP67 : Left at a water depth of 1 meters for 30 minutes in mated condition.
IP68 : Left at a water depth of 2 meters for 14 days in mated condition.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## 4. Easy Shielding Termination

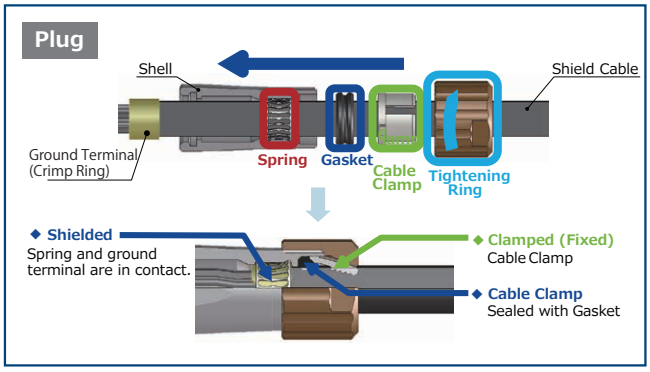
The cable shield is easily connected to the connector shell by attaching the metal clamp to the cable sheath.




Shield Connection Phase Diagram

## 5. Easy Assembly

Waterproof performance and shielding of the plug are attained just by tightening the ring. The plug design reduces component and assembly costs.




## 6. Wide Variety of Configurations

- 2 types of cable assembly: solder and crimp
- Hybrid type with power and signal contacts in a single shell for space-saving
- Plug with easy to grip sleeve that prevents slipping for enhanced operability
- 2 receptacle mounting options: front mount and rear mount

## 7. High Speed Transmission

Supports Cat.5e(1Gbps) high speed Ethernet

*Based on EtoE Standard Class D 3-Conn E3
*Characteristics depend on pin assignment, cable specifications and cable assembly conditions. Please check prior to use.
*Please contact a Hirose representative for questions on the recommended pin assignment.

## 8. Suited for Long-Term Outdoor Use

Sunshine weather meter test performed for 2,000 hours.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## 9. Safety Standard Certified

The 4 position variation meets TÜV safety standards at a current of 10A.
The 3 position and 4 position variations also meet UL safety standards.

## 10. RoHS2 Compliant

## Product Specifications

| | | | |
|---|---|---|---|
| Rated Current | 3pos. : 5A<br>4pos. : 10A<br>6, 12, 20pos. : 2A<br>Hybrid 6pos. : Power 2pos. 4A, Signal 4pos. 1A<br>Hybrid 11pos. : Power 4pos. 10A, Signal 7pos. 2A | Operating Temperature (Note 1) | -25 to +85℃ |
| Rated Voltage | 3pos. : 125V AC / 175V DC<br>4pos. : 125V AC/DC<br>6, 12, 20pos. : 30V AC / 42V DC<br>Hybrid 6pos. : Power 2pos. 60V AC/DC, Signal 4pos. 60V AC/DC<br>Hybrid 11pos. : Power 4pos. 125V AC/DC, Signal 7pos. 30V AC / 42V DC | Storage Temperature Range | -10 to +60℃ |

| Items | Specifications | Conditions |
|---|---|---|
| Contact Resistance | 3, 6, 12, 20, Hybrid 6pos. : 15mΩ Max.<br>4pos. : 5mΩ Max.<br>Hybrid 11pos. : Power 4pos. 5mΩ Max., Signal 7pos. 15mΩ Max. | Measured at 1A DC |
| Insulation Resistance | 1000MΩ Min. | 3, 4pos. : Measured at 500V DC<br>3, 6, 12, 20, Hybrid 6pos. : Measured at 100V DC<br>Hybrid 11pos. : Power 4pos. : Measured at 500V DC, Signal7pos. : Measured at 100V DC |
| Withstand Voltage | No flashover and insulation breakdown | 3, 4pos. : 1250V AC for 1 min.<br>3, 6, 12, 20, Hybrid 6pos. : 300V AC for 1 min.<br>Hybrid 11pos. : Power 4pos. 1250V AC, Signal 7pos. : 300V AC for 1 min. |
| Mating Durability | 3, 6, 12, 20, Hybrid 6pos. : 30mΩ Max.<br>4pos. : 10mΩ Max.<br>Hybrid 11pos. : Power 4pos. 10mΩ Max., Signal 7pos. 30mΩ Max. | 1000 times |
| Vibration Resistance | No electrical interruption of 10μs or more.<br>No damage, cracks or parts dislocation. | Frequency : 10 to 55 to 10Hz/cycle<br>Half amplitude 0.75mm, 5 minutes/cycle<br>10 cycles each in 3 axis directions |
| Shock Resistance | No electrical interruption of 10μs or more.<br>No damage, cracks or parts dislocation. | Acceleration : 490m/s$^2$, duration : 11ms,<br>3 times each in 3 axis directions |
| Humidity Resistance (Normal Condition) | Insulation resistance :<br>10MΩ Min.<br>(at high humidity condition)<br>100MΩ Min. (at dry condition) | Temperature : 40℃ , relative humidity : 90 to 95%,<br>left for 96 hours |
| Temperature Cycle | Insulation resistance : 100MΩ Min.<br>No damage, cracks or parts dislocation. | -55℃ for 30 minutes → Room temperature for 2 to 3 minutes → +85℃ for 30 minutes →<br>Room temperature for 2 to 3 minutes,<br>Repeated for 5 cycles. |
| Water Resistance | No water intrusion inside connector | At a water depth of 1.8 meters for 48 hours in mated condition. |

Note 1 : Includes temperature rise caused by current flow.
Note 2 : Depending on the cable construction and specifications, the cable clamp force, rotational force, waterproof performance, etc. may differ. Please use after confirming in advance.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Materials / Finish

| Component | Material | Finish / Remarks | UL |
|---|---|---|---|
| Outer Shell | Zinc Alloy | Nickel Plating | - |
| | PPS Resin | Brown | UL94V-0 |
| Insulator | PPS Resin | Black | UL94V-0 |
| Contact | Copper Alloy | Partial Gold Plating Over Nickel Underplating | - |
| Gasket, O-ring | Chloroprene Rubber | Black | - |

## 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

**LF 07 W B P# - 6 S# - A (##)**
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

| | | | |
|---|---|---|---|
| ❶ Series Name | LF | ❻ No. of Pos. | |
| ❷ Shell Size | 07, 10, 13 | ❼ Contact Gender | P : Male Contact<br>S : Female Contact<br>(Changed specifications for products of the same category.) |
| ❸ Specialty | W : Waterproof Type | ❽ Difference in Contact Arrangement | Added when contact arrangement differs from the standard type.<br>A : Contact Arrangement Difference |
| ❹ Lock Mechanism | B : Bayonet Lock | ❾ Other Specifications | ❶ to ❽ # two-digit character is added to indicate other specifications as needed. |
| ❺ Shell Type | P : Plug<br>LP : Right Angle Plug<br>R : Receptacle<br>J : Jack<br>(Changed specifications for products of the same category.) | | |

### ●Crimp Contact

**HR10 - P C - 1 1 1**
❶ ❷ ❸ ❹ ❺ ❻

**HR12 - S C - 1 1 1**
❶ ❷ ❸ ❹ ❺ ❻

| | | | |
|---|---|---|---|
| ❶ Series Name | HR10<br>HR12 | ❹ Contact Shape | 1 : Loose Piece Contact<br>2 : Reel Contact |
| ❷ Contact Gender | P : Male Contact<br>S : Female Contact | ❺ Design | 1 : If the design of contacts of the same size differs, 1, 2, 3 etc.<br>are added to distinguish them |
| ❸ Contact Assembly | C : Crimp | ❻ Contact Area Plating | 1 : Gold Plated |

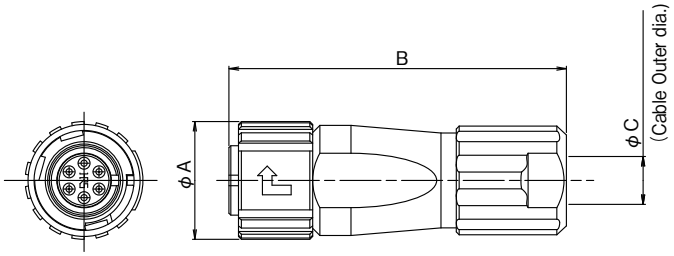
Note : The LF Series uses the contacts from the existing HR10/HR12 Series.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Straight Plug

## Solder Type






(Example of product appearance.)

Unit : mm

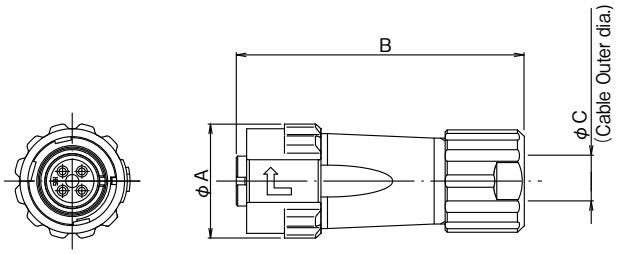
| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | B | φ C | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| LF07WBP-3S(31) | CL0136-0003-7-31 | LF07 | 3 | 12.3 | 35.8 | 5.0 | 11g | 50pcs per tray |
| LF07WBP-3P(31) | CL0136-0004-0-31 | | | | | | | |
| LF07WBP-6S(31) | CL0136-0001-1-31 | | 6 | | | | | |
| LF07WBP-6P(31) | CL0136-0002-4-31 | | | | | | | |
| LF07WBP-6S-A(31) | CL0136-0029-0-31 | LF07-A | Hybrid 6pos. (Note 1) | 12.3 | 35.8 | 5.0 | 11g | |
| LF07WBP-6P-A(31) | CL0136-0016-0-31 | | | | | | | |
| LF10WBP-4S(31) | CL0136-0005-2-31 | LF10 | 4 | 14.8 | 41.8 | 7.3 | 17g | |
| LF10WBP-4P(31) | CL0136-0006-5-31 | | | | | | | |
| LF10WBP-12S(31) | CL0136-0007-8-31 | | 12 | | | | | |
| LF10WBP-12P(31) | CL0136-0008-0-31 | | | | | | 16g | |
| LF13WBP-11S | CL0136-0011-5-00 | LF13 | Hybrid 11pos. (Note 2) | 17.9 | 51.9 | 8.7 | 29g | |
| LF13WBP-11P | CL0136-0012-8-00 | | | | | | | |
| LF13WBP-20S | CL0136-0009-3-00 | | 20 | | | | | |
| LF13WBP-20P | CL0136-0010-2-00 | | | | | | | |

Note 1 : Power 2pos.+ Signal 4pos.
Note 2 : Power 4pos.+ Signal 7pos.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Easy Lock Solder Type





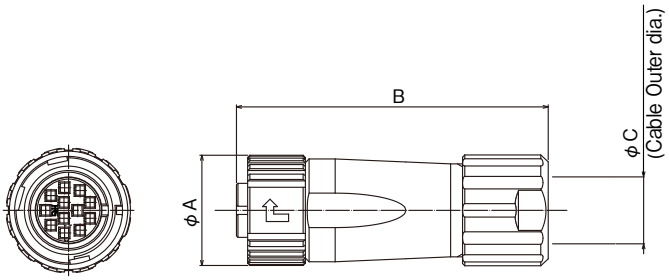

(Example of product appearance.)

Unit : mm

| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | B | φ C | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| LF07WBPD-6S(31) | CL0136-0020-6-31 | LF07 | 6 | 14.3 | 35.8 | 5.0 | 12g | 50pcs per tray |
| LF10WBPD-4S(31) | CL0136-0014-3-31 | LF10 | 4 | 16.8 | 41.8 | 7.3 | 19g | |
| LF10WBPD-4P(31) | CL0136-0017-1-31 | | | | | | | |
| LF10WBPD-12S(31) | CL0136-0015-6-31 | | 12 | | | | | |
| LF10WBPD-12P(31) | CL0136-0018-4-31 | | | | | | | |

## Crimp Type






(Example of product appearance.)

Unit : mm

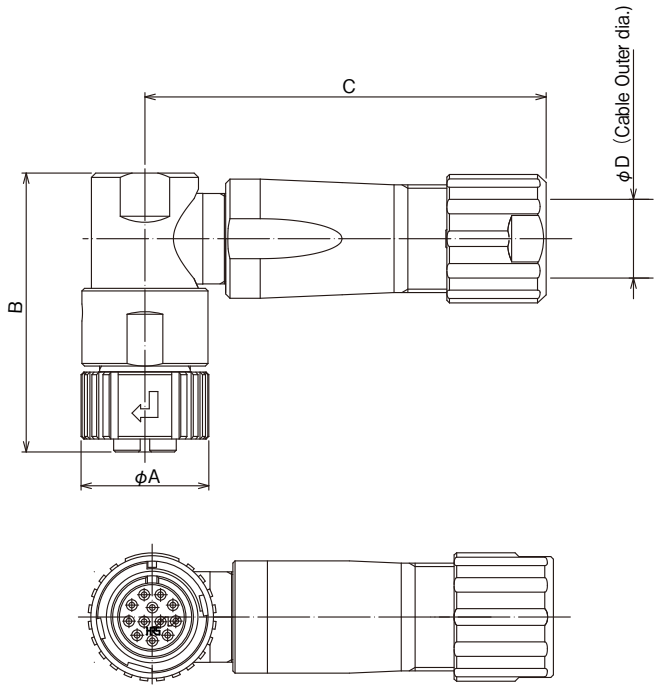
| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | B | φ C | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| LF10WBP-12SC | CL0136-0041-0-00 | LF10 | 12 | 14.8 | 41.8 | 7.3 | 17g | 50pcs per tray |
| LF13WBP-20PC | CL0136-0040-0-00 | LF13 | 20 | 17.9 | 51.9 | 8.7 | 27g | |
| LF13WBP-20SC | CL0136-0044-0-00 | | | | | | | |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Right Angle Plug

## Solder Type






(Example of product appearance.)

Unit : mm

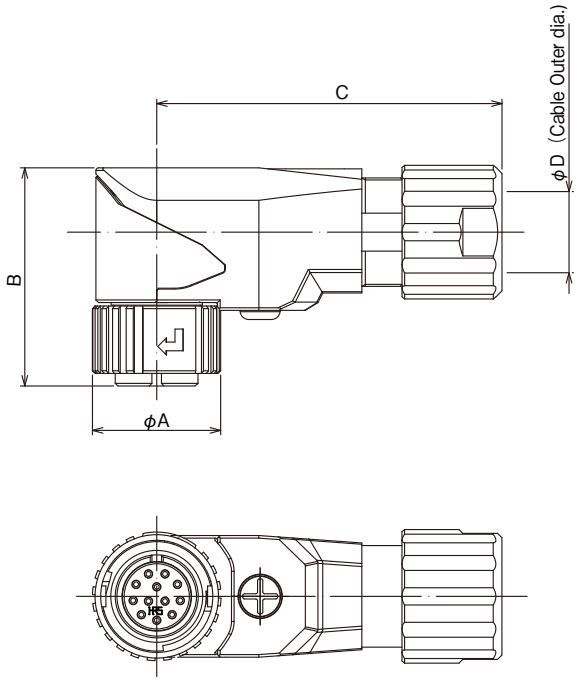
| Part No. | HRS No. | Shell Size | No. of Pos. | ϕA | B | C | ϕD | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|
| LF07WBLP-6PA(31) | CL0136-0022-1-31 | LF07 | 6 | 12.3 | 28.2 | 34.5 | 5.0 | 20g | 20pcs per bag |
| LF10WBLP-12SA(31) | CL0136-0013-0-31 | LF10 | 12 | 14.8 | 32.3 | 42.0 | 7.3 | 31g | |
| LF10WBLP-12PA(31) | CL0136-0025-0-31 | | | | | | | | |
| LF13WBLP-11PA | CL0136-0023-4-00 | LF13 | Hybrid 11pos. (Note) | 17.9 | 33.6 | 53.4 | 8.7 | 49g | 1pc per bag |
| LF13WBLP-20PA | CL0136-0031-0-00 | | 20 | | | | | 50g | 10psc per bag |

Note : Power 4pos. + Signal 7pos.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Low Profile Solder Type






(Example of product appearance.)

Unit : mm

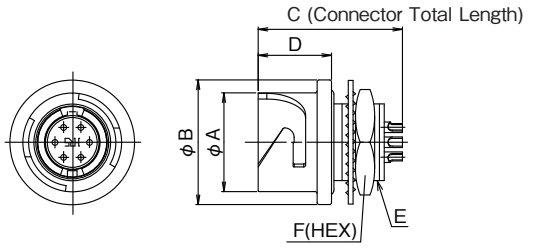
| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | B | C | φ D | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|
| LF10WBLPA-12P | CL0136-0039-0-00 | LF10 | 12 | 14.8 | 25.1 | 35.5 | 7.3 | 34g | 50pcs per tray |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Receptacle (Front Mount)

## Solder Type






(Example of product appearance.)

Unit : mm

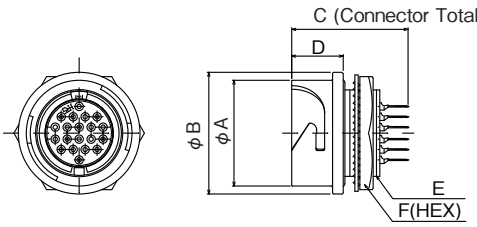
| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | φ B | C | D | E | F | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LF07WBR-3P | CL0136-1003-2-00 | LF07 | 3 | 10.3 | 13.0 | 16.55 | 7.65 | M9 × 0.75 | 11.0 | 4g | 60pcs per tray |
| LF07WBR-3S | CL0136-1004-5-00 | | | | | | | | | | |
| LF07WBR-6P | CL0136-1001-7-00 | | 6 | | | 15.05 | | | | | |
| LF07WBR-6S | CL0136-1002-0-00 | | | | | 15.25 | | | | | |
| LF10WBR-4P | CL0136-1005-8-00 | LF10 | 4 | 12.8 | 15.3 | 19.05 | 7.75 | M11 × 0.75 | 13.0 | 6g | |
| LF10WBR-4S | CL0136-1006-0-00 | | | | | | | | | | |
| LF10WBR-12P | CL0136-1007-3-00 | | 12 | | | 17.25 | | | | 5g | |
| LF10WBR-12S | CL0136-1008-6-00 | | | | | | | | | 6g | |
| LF13WBR-11P | CL0136-1011-0-00 | LF13 | Hybrid 11pos. (Note) | 15.9 | 18.3 | 19.05 | 7.75 | M14 × 0.75 | 17.0 | 9g | 50pcs per tray |
| LF13WBR-11S | CL0136-1012-3-00 | | | | | | | | | 10g | |
| LF13WBR-20P | CL0136-1009-9-00 | | 20 | | | 17.25 | | | | 9g | |
| LF13WBR-20S | CL0136-1010-8-00 | | | | | | | | | 10g | |

Note : Power 4pos. + Signal 7pos.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Through Hole Type





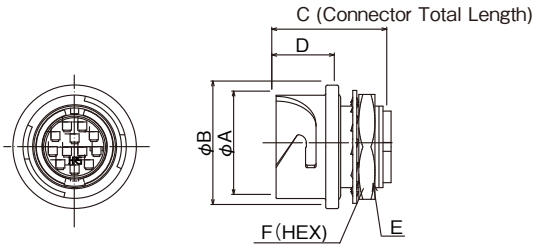

(Example of product appearance.)

Unit : mm

| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | φ B | C | D | E | F | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LF13WBR-20SD | CL0136-1017-7-00 | LF13 | 20 | 15.9 | 18.3 | 17.5 | 7.75 | M14 × 0.75 | 17.0 | 9g | 50pcs per tray |

## Crimp Type






(Example of product appearance.)

Unit : mm

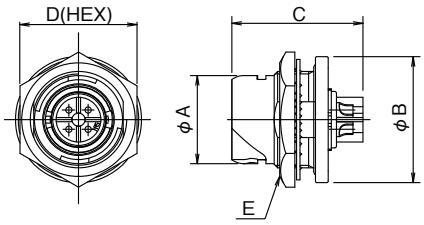
| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | φ B | C | D | E | F | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LF10WBR-12PC | CL0136-0042-0-00 | LF10 | 12 | 12.8 | 15.3 | 14.25 | 7.75 | M11 × 0.75 | 13.0 | 6g | 50pcs per tray |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Receptacle (Rear Mount)

## Solder Type






(Example of product appearance.)

Unit : mm

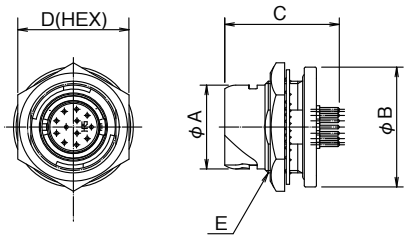
| Part No. | HRS No. | Shell Size | No. of Pos. | φA | φB | C | D | E | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| LF07WBRB-6S | CL0136-0054-0-00 | LF07 | 6 | 10.3 | 15 | 17.25 | 13 | M11×0.75 | 8g | 50pcs per tray |
| LF10WBRB-4P | CL0136-1118-4-00 | LF10 | 4 | 12.8 | 18.3 | 19.05 | 17 | M14×0.75 | 10g | |
| LF10WBRB-4S | CL0136-1123-0-00 | | | | | | | | 11g | |
| LF10WBRB-12P | CL0136-1013-6-00 | | 12 | | | 17.25 | | | 10g | |
| LF10WBRB-12S | CL0136-1014-9-00 | | | | | | | | | |
| LF13WBRB-11P | CL0136-1024-0-00 | LF13 | Hybrid 11pos. (Note) | 15.9 | 21.5 | 19.25 | 20 | M17×0.75 | 15g | 10pcs per bag |
| LF13WBRB-11S | CL0136-1019-2-00 | | | | | | | | 16g | |
| LF13WBRB-20P | CL0136-1023-0-00 | | 20 | | | | | | | 20pcs per tray |
| LF13WBRB-20S | CL0136-1018-0-00 | | | | | | | | | |

Note : Power 4pos. + Signal 7pos.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Through Hole Type






(Example of product appearance.)

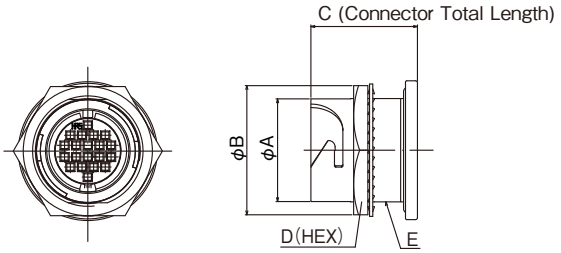
Unit : mm

| Part No. | HRS No. | Shell Size | No. of Pos. | φA | φB | C | D | E | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| LF07WBRB-3SD(31) | CL0136-1025-0-31 | LF07 | 3 | 10.3 | 15.0 | 20.0 | 13.0 | M11×0.5 | 8g | 50pcs per tray |
| LF07WBRB-6SD(31) | CL0136-1026-0-31 | | 6 | | | | | | | |
| LF07WBRB-6PD-A(31) | CL0136-1021-0-31 | LF07-A | Hybrid 6pos. (Note) | | | | - | | | |
| LF07WBRB-6SD-A(31) | CL0136-1022-0-31 | | | | | | | | | |
| LF10WBRB-12PD | CL0136-1015-1-00 | LF10 | 12 | 12.8 | 18.3 | 17.5 | 17.0 | M14×0.75 | 10g | |
| LF10WBRB-12SD | CL0136-1016-4-00 | | | | | | | | | |
| LF13WBRB-20SD | CL0136-1027-0-00 | LF13 | 20 | 15.9 | 21.5 | 20.0 | 20.0 | M17×0.75 | 16g | |

Note : Power 2pos. + Signal 4pos.

## Crimp Type






(Example of product appearance.)

Unit : mm

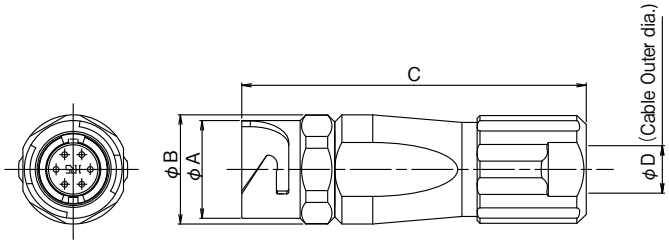
| Part No. | HRS No. | Shell Size | No. of Pos. | φA | φB | C | D | E | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| LF13WBRB-20SC | CL0136-1033-0-00 | LF13 | 20 | 15.9 | 21.5 | 16.5 | 20.0 | M17×0.75 | 15g | 20pcs per bag |
| LF13WBRB-20PC | CL0136-1124-0-00 | | | | | | | | 14g | |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Jack

## Solder Type






(Example of product appearance.)

Unit : mm

| Part No. | HRS No. | Shell Size | No. of Pos. | φ A | φ B | C | φ D | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|
| LF07WBJ-3P | CL0136-2003-8-00 | LF07 | 3 | 10.3 | 11.5 | 36.3 | 5.0 | 11g | 50pcs per tray |
| LF07WBJ-3S | CL0136-2004-0-00 | | | | | | | | |
| LF07WBJ-6P | CL0136-2001-2-00 | | 6 | | | | | | |
| LF07WBJ-6S | CL0136-2002-5-00 | | | | | | | | |
| LF10WBJ-4P | CL0136-2005-3-00 | LF10 | 4 | 12.8 | 13.8 | 42.4 | 7.3 | 16g | |
| LF10WBJ-4S | CL0136-2006-6-00 | | | | | | | | |
| LF10WBJ-12P | CL0136-2007-9-00 | | 12 | | | | | | |
| LF10WBJ-12S | CL0136-2008-1-00 | | | | | | | | |
| LF13WBJ-11P | CL0136-2011-6-00 | LF13 | Hybrid 11pos. (Note) | 15.9 | 16.9 | 52.4 | 8.7 | 29g | |
| LF13WBJ-11S | CL0136-2012-9-00 | | | | | | | 30g | |
| LF13WBJ-20P | CL0136-2009-4-00 | | 20 | | | | | 29g | |
| LF13WBJ-20S | CL0136-2010-3-00 | | | | | | | 30g | |

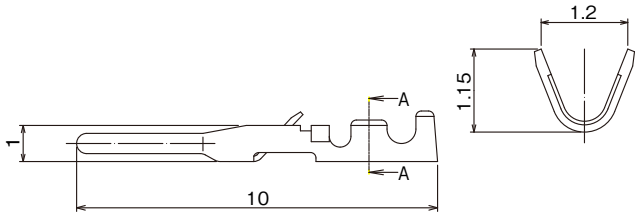
Note : Power 4pos. + Signal 7pos.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Crimp Contact

## Male Contact

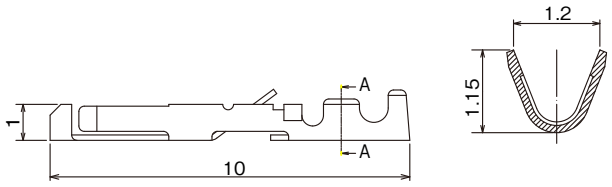





| Type | Part No. | HRS No. | Applicable Connector | Applicable Cable | Purchase Unit |
|---|---|---|---|---|---|
| Loose Contact | HR10-PC-111 | CL0110-0515-6-00 | LF13WBP-20PC<br>LF10WBR-12PC<br>LF13WBRB-20PC | 26-30 AWG<br>Outer Dia. ϕ 1 Max. | 100pcs per bag |
| Reel Contact | HR10-PC-211 | CL0110-0516-9-00 | | | 10,000pcs per reel |

## Female Contact






| Type | Part No. | HRS No. | Applicable Connector | Applicable Cable | Purchase Unit |
|---|---|---|---|---|---|
| Loose Contact | HR12-SC-111 | CL0112-0410-0-00 | LF10WBP-12SC<br>LF13WBP-20SC<br>LF13WBRB-20SC | 26-30 AWG<br>Outer Dia. ϕ 1 Max. | 100pcs per bag |
| Reel Contact | HR12-SC-211 | CL0112-0407-6-00 | | | 10,000pcs per reel |

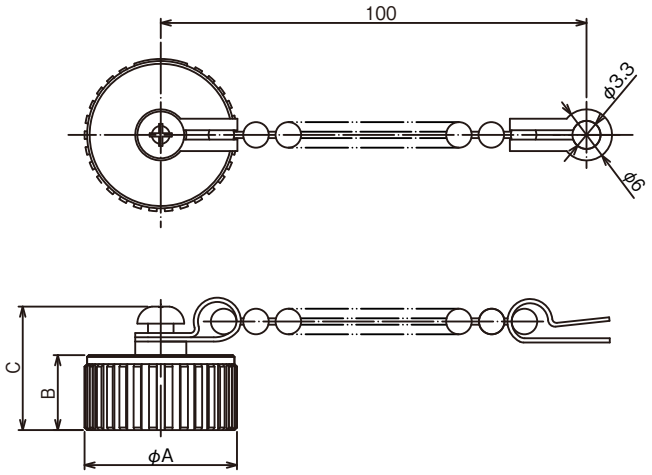
Note : The LF Series uses the contacts from the existing HR10/HR12 Series.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Cap

## Metal Receptacle Cap






(Example of product appearance.)

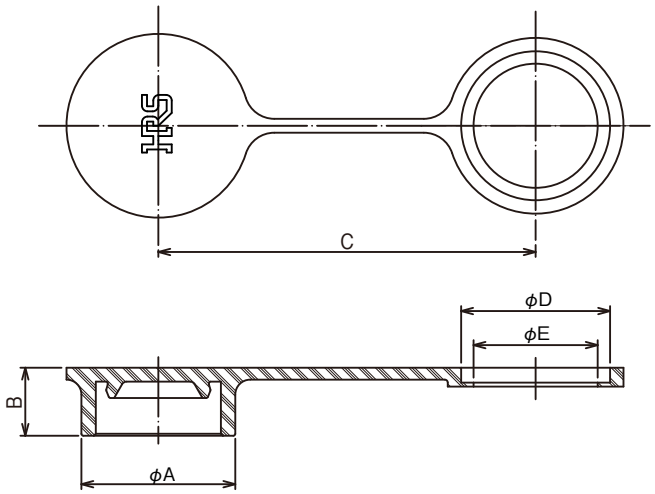
Unit : mm

| Type | Part No. | HRS No. | Applicable Connector | φ A | B | C | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| Without Chain | LF07WBR-C | CL0136-3008-7-00 | LF07WBR-3P<br>LF07WBR-3S<br>LF07WBR-6P<br>LF07WBR-6S<br>LF07WBRB-6S<br>LF07WBRB-3SD(31)<br>LF07WBRB-6SD(31)<br>LF07WBRB-6PD-A(31)<br>LF07WBRB-6SD-A(31) | 12.3 | 8.8 | - | 4g | 20pcs per bag |
| | LF10WBR-C | CL0136-3001-8-00 | LF10WBR-4P<br>LF10WBR-4S<br>LF10WBR-12P<br>LF10WBR-12S<br>LF10WBR-12PC<br>LF10WBRB-4P<br>LF10WBRB-4S<br>LF10WBRB-12P<br>LF10WBRB-12S<br>LF10WBRB-12PD<br>LF10WBRB-12SD | 14.8 | | | 5g | |
| | LF13WBR-C | CL0136-3003-3-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 17.9 | 8.75 | | 7g | |
| With Chain | LF13WBR-C1 | CL0136-3006-1-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 17.9 | - | 14.5 | 12g | |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Rubber Receptacle Cap






(Example of product appearance.)

Unit : mm

| Part No. | HRS No. | Applicable Connector | ϕ A | B | C | ϕ D | ϕ E | Weight | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|
| LF07WBR-C2 | CL0136-3005-9-00 | LF07WBR-3P<br>LF07WBR-3S<br>LF07WBR-6P<br>LF07WBR-6S<br>LF07WBRB-6S<br>LF07WBRB-3SD(31)<br>LF07WBRB-6SD(31)<br>LF07WBRB-6PD-A(31)<br>LF07WBRB-6SD-A(31) | 13.0 | 6.55 | 38.0 | 10.0 | - | 1g | 20pcs per bag |
| LF10WBR-C2 | CL0136-3007-4-00 | LF10WBR-4P<br>LF10WBR-4S<br>LF10WBR-12P<br>LF10WBR-12S<br>LF10WBR-12PC<br>LF10WBRB-4P<br>LF10WBRB-4S<br>LF10WBRB-12P<br>LF10WBRB-12S<br>LF10WBRB-12PD<br>LF10WBRB-12SD | 15.5 | 6.85 | 38.0 | 15.0 | 12.5 | 2g | |
| LF13WBR-C2 | CL0136-3011-0-00 | LF13WBR-11P<br>LF13WBR-11S<br>LF13WBR-20P<br>LF13WBR-20S<br>LF13WBR-20SD<br>LF13WBRB-11P<br>LF13WBRB-11S<br>LF13WBRB-20P<br>LF13WBRB-20S<br>LF13WBRB-20SD<br>LF13WBRB-20PC<br>LF13WBRB-20SC | 18.6 | 6.55 | 40.0 | 15.5 | - | | |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Applicable Tools

## Termination Tools





(Example of product appearance.)

| Part No. | HRS No. | Applicable Connector | Purchase Unit |
|---|---|---|---|
| LF07BP-T01 | CL0150-0232-0-00 | LF07WBP-## | 1pc per bag |
| LF07BJ-T01 | CL0150-0233-3-00 | LF07WBJ-## | |
| LF10BP-T01 | CL0150-0235-9-00 | LF10WBP-## | |
| LF10BJ-T01 | CL0150-0236-1-00 | LF10WBJ-## | |
| LF13BP-T01 | CL0150-0237-4-00 | LF13WBP-## | |
| LF13BJ-T01 | CL0150-0238-7-00 | LF13WBJ-## | |

Note 1 : The applicable alphanumeric is added in place of ## based on the pin count. (Example: 6S)
Note 2 : Use the termination tool as a base for termination or assembly.

## Cable Crimp Tool

| Item | Part No. | HRS No. | LF Series Applicable Cable Dia. |
|---|---|---|---|
| Manual Crimp Tool | HR10A-TC-02 | CL0150-0041-2-00 | ϕ 5mm (Note) |
| | LF-TC-01 | CL0150-0234-6-00 | ϕ 7.3mm・ϕ 8.7mm |

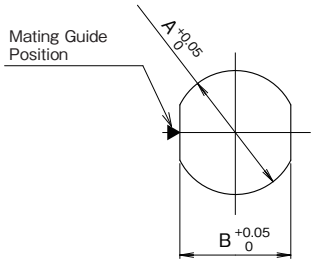
Note : Please note that while the applicable cable diameters for the HR10A-TC-02 crimp tool are ϕ 5mm and ϕ 7mm, the applicable cable diameter of the LF Series is ϕ 5mm only.

## Crimp Contact Tool

| Item | Type | Part No. | HRS No. | Applicable Contact | Applicable Cable |
|---|---|---|---|---|---|
| Automatic | Automatic Crimp Press | CM-105C | CL0901-0001-0-00 | - | - |
| | Applicator | AP105-HR12-1 | CL0901-2015-9-00 | HR10-PC-211<br>HR12-SC-211 | 26-30 AWG<br>Outer Dia. ϕ 1 Max. |
| Manual | Manual Crimp Tool | HT802/HR12-SC-1 | CL0150-0400-3-00 | HR10-PC-111<br>HR12-SC-111 | 26-30 AWG<br>Outer Dia. ϕ 1 Max. |
| Contact Extraction Tool | | RP6-SC-TP | CL0150-0039-0-00 | HR10-PC-211<br>HR10-PC-111 | - |
| | | HR12-SC-TP | CL0150-0050-3-00 | HR12-SC-211<br>HR12-SC-111 | - |

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

# Panel Cut-Out Dimensions



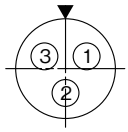
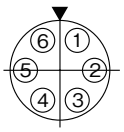
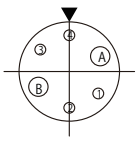

Unit : mm

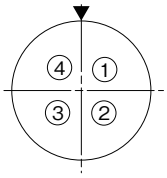
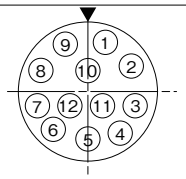
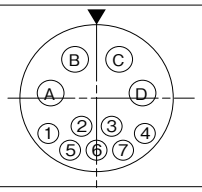
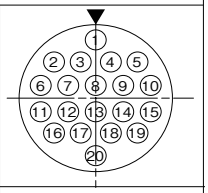
| Type | Shell Size | Applicable Connector | ϕ A | B | Panel Thickness |
|---|---|---|---|---|---|
| Front Mount | LF07 | LF07WBR-## | 9.05 | 8.1 | 0.7 to 2.0 |
| | LF10 | LF10WBR-## | 11.05 | 10.2 | |
| | LF13 | LF13WBR-## | 14.05 | 13.1 | |
| Rear Mount | LF07 | LF07WBRB-## | 11.05 | 10.5 | 0.7 to 4.0 |
| | LF10 | LF10WBRB-## | 14.05 | 13.1 | 0.7 to 2.0 |
| | LF13 | LF13WBRB-## | 17.05 | 16.1 | 0.7 to 4.8 |

Note : The applicable alphanumeric is added in place of ## based on the pin count. (Example: 6S)

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Contact Arrangement and Main Specifications

| Shell Size | LF07 | | LF07-A | |
|---|---|---|---|---|
| Contact Arrangement |  |  |  | |
| No. of Pos. | 3 | 6 | Power/Signal Hybrid 6pos. | |
| Withstanding Voltage | 1250V AC | 300V AC | 300V AC | |
| Current Rating | 5A | 2A | Power 2pos. 4A | Signal 4pos. 1A |
| Insulation Resistance | 1000MΩ | | | |
| Contact Resistance | 15MΩ | | | |
| Solder Pot Inner Diameter | φ1.15 | φ0.8 | Power 2pos. φ1.15 | Signal 4pos. φ0.8 |

| Shell Size | LF10 | | LF13 | | |
|---|---|---|---|---|---|
| Contact Arrangement |  |  |  | |  |
| No. of Pos. | 4 | 12 | Power/Signal Hybrid 11pos. | | 20 |
| Withstanding Voltage | 1250V AC | 300V AC | Power 4pos. 1250V AC | Signal 7pos. 300V AC | 300V AC |
| Current Rating | 10A | 2A | Power 4pos. 10A | Signal 7pos. 2A | 2A |
| Insulation Resistance | 1000MΩ | | | | |
| Contact Resistance | 5mΩ | 15mΩ | Power 4pos. 5mΩ | Signal 7pos. 15mΩ | 15mΩ |
| Solder Pot Inner Diameter | φ1.7 | φ0.8 | Power 4pos. φ1.7 | Signal 7pos. φ0.8 | φ0.8 |

Note 1 : The contact arrangements are from the view of the female contact connector mating face.
Note 2 : The ▼ symbol in the above diagrams indicates the mating guide position.
Note 3 : The withstanding voltage values in the above tables are tested values.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

## Cable Specifications (Reference)

| No. of Pos. | | 3pos. | 4pos. | 6pos. | 12pos. | 20pos. | 11pos. | |
|---|---|---|---|---|---|---|---|---|
| Conductor | Material | Tin Plated Soft Copper Wire | | | | | | |
| | Size (mm) | ϕ 0.18 | ϕ 0.26 | ϕ 0.16 | ϕ 0.16 | ϕ 0.16 | ϕ 0.26 | ϕ 0.16 |
| | Construction | 20 / ϕ 0.18 | 20 / ϕ 0.26 | 7 / ϕ 0.16 | 7 / ϕ 0.16 | 7 / ϕ 0.16 | 26 / ϕ 0.26 | 7 / ϕ 0.16 |
| | Size (AWG) | 20 | 16 | 26 | 26 | 26 | 16 | 26 |
| | Sectional Area ($mm^2$) | 0.5 | 1.25 | 0.14 | 0.14 | 0.14 | 1.25 | 0.14 |
| | Diameter (mm) | ϕ 0.98 | ϕ 1.5 | ϕ 0.48 | ϕ 0.48 | ϕ 0.48 | ϕ 1.5 | ϕ 0.48 |
| Insulator | Diameter (mm) | ϕ 1.5 (Standard) | ϕ 2.1 | ϕ 0.88 (Standard) | ϕ 0.9 | ϕ 0.9 | ϕ 2.1 | ϕ 0.95 |
| | Thickness (mm) | 0.26 | 0.3 | 0.2 | 0.21 | 0.21 | 0.3 | 0.24 |
| Shield | Material | Tin Plated Soft Copper Wire | | | | | | |
| | Density (%) | 85% | 80% Min. | 85% | 80% Min. | 80% Min. | 80% Min. | |
| | Diameter (mm) | ϕ 3.6 | ϕ 5.5 | ϕ 3.4 | ϕ 4.2 | ϕ 5.1 | ϕ 6.7 | |
| Jacket | Diameter (mm) | ϕ 5 ± 0.2 | ϕ 7.3 ± 0.2 | ϕ 5 ± 0.2 | ϕ 7.3 ± 0.2 | ϕ 8.7 ± 0.2 | ϕ 8.7 ± 0.2 | |

Note 1 : The cable specifications in the above table satisfy UL requirements.
Note 2 : Use a cable without empty space inside. If there is empty space in the cable, clamping and waterproof performance may not be maintained.

## Connector Usage Precautions

1. When assembling the connector and installing to equipment, refer to the separate procedure manual and drawings. Please also make sure to use the specified tightening torque. If the torque is too low or high, it may result in loosening or product damage. In addition, apply Loctite 263 which is manufactured by Henkel Japan Ltd. to male screw part in order to prevent looseness.(Contact a Hirose sales representative for the procedure manual.)
2. Once mated, pull lightly on the cable to confirm the mated status and that the connector does not come off.
3. Excessive external force applied to the connector may cause deformation or damage, resulting in poor conduction or waterproofing performance issues. Please avoid forceful insertion/removal, impact and pulling, routing or twisting of the cables. Also, when routing inside equipment, make sure to provide sufficient slack to the cable so that a load is not applied directly to the connector such as through excessive cable bending or tension on the cable.
4. Damage of the waterproof seal or waterproof surface may result in issues with the waterproof performance, so please refrain from using a damaged product.

## 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.

Jul.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.