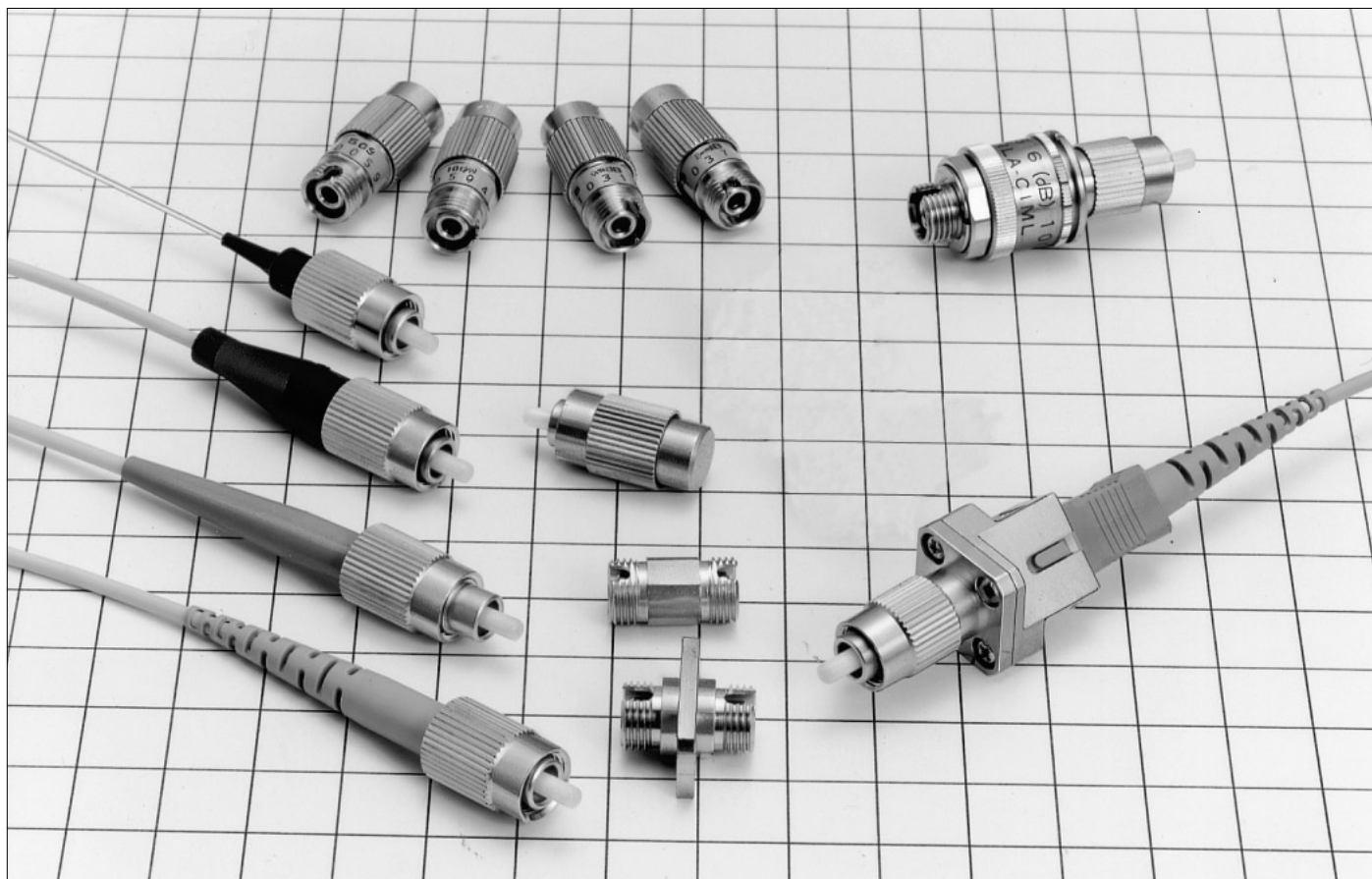


# FC Type Fiber Optic Connectors

## HRFC Series



### ■ Features

#### 1. JIS, IEC standards compliant and fully intermateable with NTT's FC products.

JIC C 5970 (F01 type fiber optic connectors).

IEC 61754-13

#### 2. Two types of plug frames

Conventional cutout key ring types and molded key ring types are available.

### ■ Important Notice

Plug key width : 2.1mm

Adapter key width : 2.2mm

### ■ Applications

Public communications lines, CATV, Test equipment, etc.

MU

SC

FC

Harsh  
Environment

Attenuators

Terminators

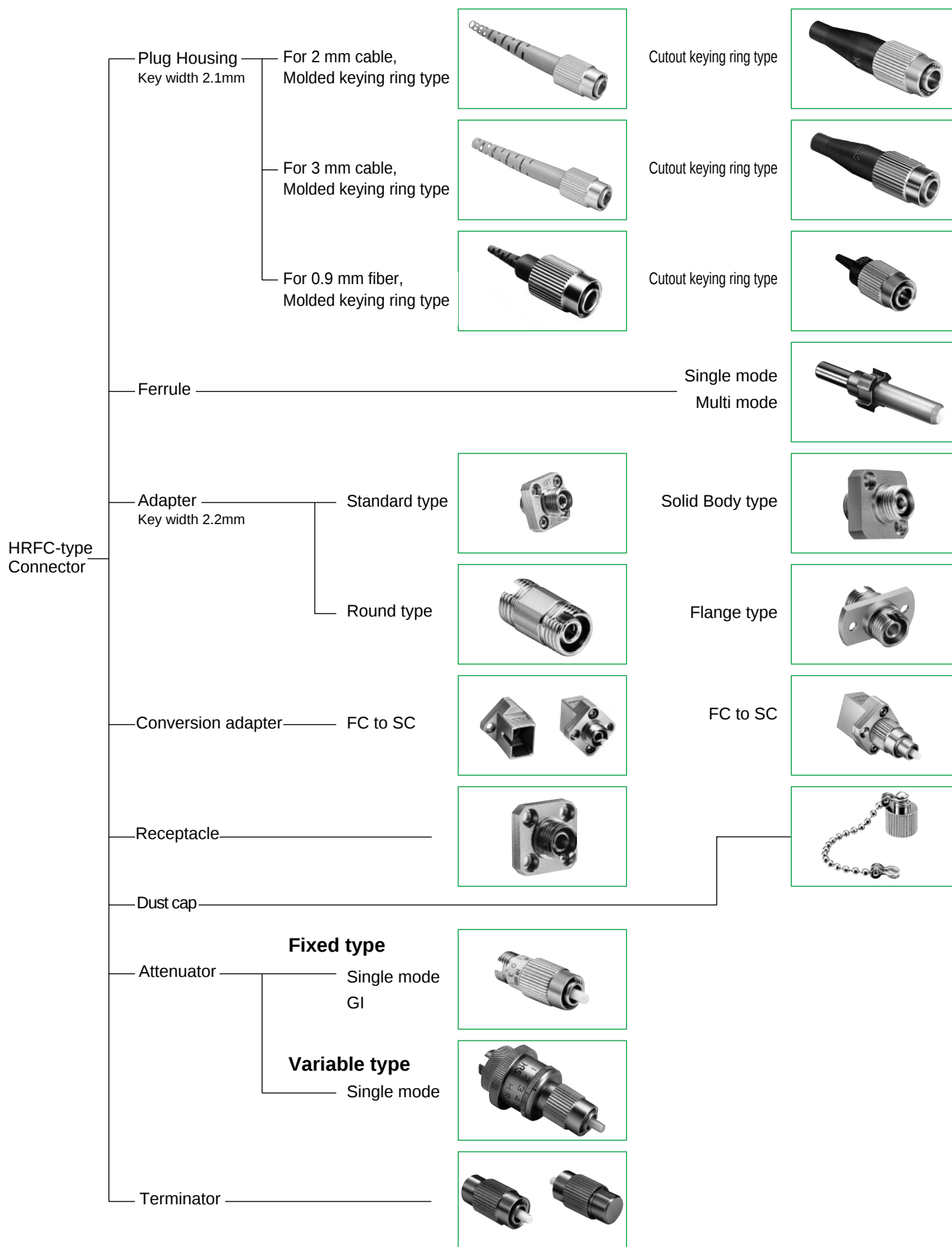
## ■Product Specifications

| Ratings                       |                                          |      | Operating temperature range                                                                                    |  | -25°C to +70°C |  | Storage temperature range                                                                                    |  | -25°C to +70°C |  |
|-------------------------------|------------------------------------------|------|----------------------------------------------------------------------------------------------------------------|--|----------------|--|--------------------------------------------------------------------------------------------------------------|--|----------------|--|
| Item                          |                                          |      | Test Method (IEC 61300)                                                                                        |  |                |  | Specifications                                                                                               |  |                |  |
| Optical Characteristics       | Insertion Loss                           | (SM) | Wavelength 1310nm (LD)                                                                                         |  |                |  | 0.5dB max. (PC, AdPC, APC)                                                                                   |  |                |  |
|                               |                                          | (GI) | Wavelength 1310nm (LED)                                                                                        |  |                |  | 0.3dB max. (PC)                                                                                              |  |                |  |
|                               | Return Loss                              | (SM) | Wavelength 1310nm (LD)                                                                                         |  |                |  | 22dB min.(PC) 40dB min.(AdPC) 60dB min. (APC)                                                                |  |                |  |
|                               |                                          | (GI) |                                                                                                                |  |                |  | 22dB min. (PC)                                                                                               |  |                |  |
| Mechanical Characteristics    | Ferrule withdrawal                       |      | Extract Zirconia gauge 2.499 ±0.0005 mm dia from split sleeve.                                                 |  |                |  | Copper alloy split sleeve                                                                                    |  | 2N to 5.9N     |  |
|                               | Cable retention (Straight pull)          |      | 98N tensile load for minute.                                                                                   |  |                |  | Zirconia split sleeve                                                                                        |  | 2N to 3.9N     |  |
|                               | Durability (cycles, mating/un-mating)    |      | 1000 times                                                                                                     |  |                |  | 1) Insertion loss fluctuation after test: 0.2dB max.<br>2) No visible damage, dislocation of clamp or cable. |  |                |  |
|                               | Vibration                                |      | Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 axis.                            |  |                |  |                                                                                                              |  |                |  |
|                               | Shock                                    |      | Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, sin half-wave waveform, 10 cycles in each of the 3 axis. |  |                |  |                                                                                                              |  |                |  |
| Environmental Characteristics | Humidity (Temperature/ humidity- cycles) |      | -10°C to 65°C, humidity: 90% to 96% 20 cycles                                                                  |  |                |  | 1) Insertion loss fluctuation after test: 0.2dB max.<br>2) No visible damage, cracks or part dislocation.    |  |                |  |
|                               | Change of temperature                    |      | -40°C to +70°C 42 cycles (Complies with Telcordia standard GR-326-CORE)                                        |  |                |  |                                                                                                              |  |                |  |
|                               | Dry heat                                 |      | 960 hours at 85°C                                                                                              |  |                |  |                                                                                                              |  |                |  |
|                               | Cold                                     |      | 960 hours at -25°C                                                                                             |  |                |  |                                                                                                              |  |                |  |
|                               | Salt mist                                |      | 48 hours in a 5% concentration of salt mist                                                                    |  |                |  | No significant corrosion.                                                                                    |  |                |  |

## ■Materials

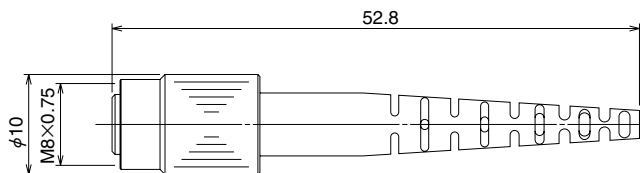
| Part               | Material                             |
|--------------------|--------------------------------------|
| Plug housing       | Brass, Stainless steel or Zinc alloy |
| Spring             | Stainless steel                      |
| Ferrule            | Zirconia                             |
| Adapter            | Brass                                |
| Split sleeve       | Copper alloy                         |
| Receptacle         | Brass                                |
| Attenuator housing | Stainless steel                      |

## ■FC products



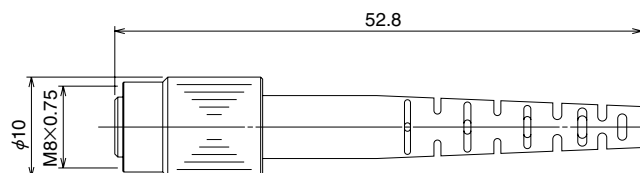
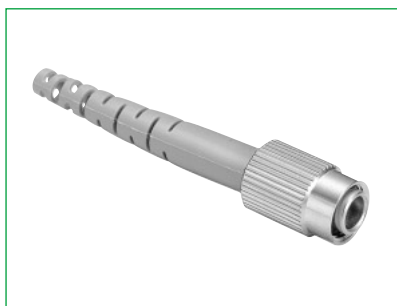
## ■Molded keying ring type (Key width 2.1mm)

### ●For 2mm cable



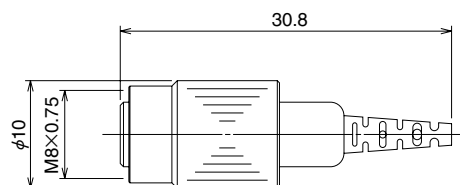
| Part Number    | CL No.        | Boot color   | Polishing type |
|----------------|---------------|--------------|----------------|
| HRFC-P8-H2(21) | 701-0075-3-21 | Blue         | PC             |
| HRFC-P8-L2(21) | 701-0077-9-21 | Light purple | AdPC           |
| HRFC-P8-G2(21) | 701-2001-8-21 | Green        | APC            |

### ●For 3mm cable



| Part Number    | CL No.        | Boot color   | Polishing type |
|----------------|---------------|--------------|----------------|
| HRFC-P8-H3(21) | 701-0074-0-21 | Blue         | PC             |
| HRFC-P8-L3(21) | 701-0078-1-21 | Light purple | AdPC           |
| HRFC-P8-G3(21) | 701-2002-0-21 | Green        | APC            |

### ●For 0.9mm fiber



| Part Number    | CL No.        | Boot color   | Polishing type |
|----------------|---------------|--------------|----------------|
| HRFC-P15-H(21) | 701-0114-3-21 | Blue         | PC             |
| HRFC-P15-L(21) | 701-0115-6-21 | Light purple | AdPC           |
| HRFC-P15-G(21) | 701-2004-6-21 | Green        | APC            |

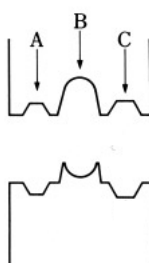
## ■Tool

### ●Crimp tool



| Part Number | CL No.     | Applicable connector                   |
|-------------|------------|----------------------------------------|
| HSC-T3      | 704-0287-0 | HRFC-P8-H2,L2,G2,<br>HRFC-P8-H3,L3,G3, |

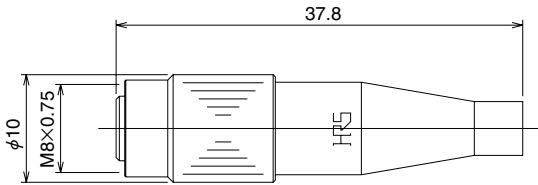
### <Locations>



- (1)2mm Jacket crimping: section A  
 3mm Jacket crimping: section C  
 (2)Kevlar™ crimping: section B

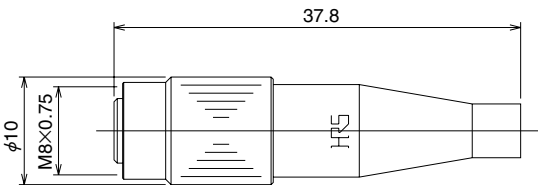
■Cutout keying ring type (Key width 2.1mm)

●For 2mm cable



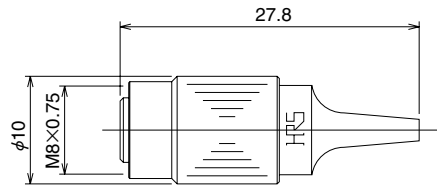
| Part Number   | CL No.        |
|---------------|---------------|
| HRFC-P1-H(04) | 701-0001-7-04 |

●For 3mm cable



| Part Number | CLNo.      |
|-------------|------------|
| HRFC-P1-H   | 701-0001-7 |

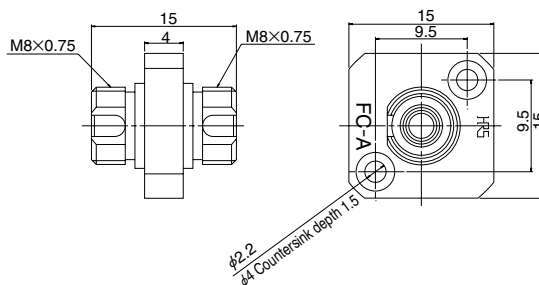
●For 0.9mm fiber



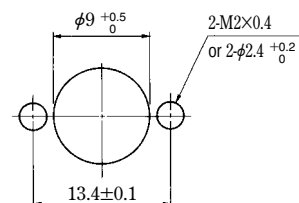
| Part Number | CL No.     |
|-------------|------------|
| HRFC-P6-H   | 701-0041-1 |

## Adapters (Key width 2.2mm)

### Solid Body type



### Panel Cutout

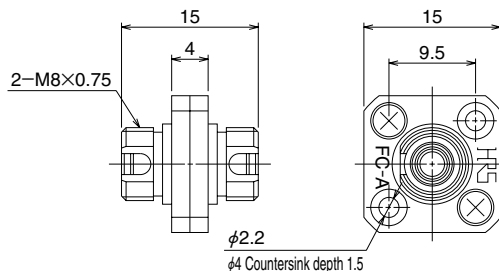


Board thickness : 16mm

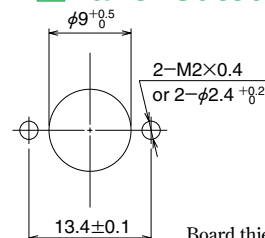
| Part Number  | CL No.     | Split sleeve | Remarks |
|--------------|------------|--------------|---------|
| HRFC-PA11-G1 | 701-0071-2 | Copper alloy |         |
| HRFC-PA11-D1 | 701-0106-5 | Zirconia     | (Note)  |

Note: Please take utmost care when inserting FC plug into a FC adapter. When applying excessive force to the FC plug or inserting in an odd angle, the zirconia sleeve within the adapter might be damaged.

### Standard Body type



### Panel Cutout

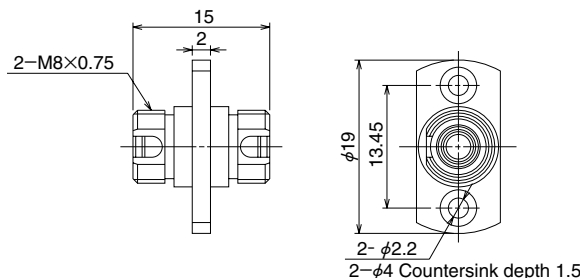


Board thickness : 16mm

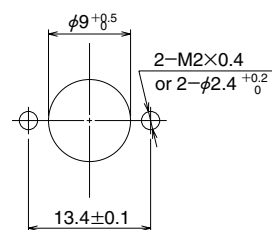
| Part Number     | CL No         | Mark  | Split sleeve | Remarks |
|-----------------|---------------|-------|--------------|---------|
| HRFC-PA1-G1(02) | 701-0014-9-02 | FC-AP | Copper alloy |         |
| HRFC-PA1-D1     | 701-0089-8    | FC-A  | Zirconia     | (Note)  |

Note: Please take utmost care when inserting FC plug into a FC adapter. When applying excessive force to the FC plug or inserting in an odd angle, the zirconia sleeve within the adapter might be damaged.

### Flange type



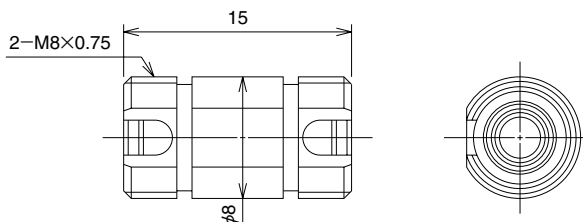
### Panel Cutout



| Part Number | CL No.     | Split sleeve | Remarks |
|-------------|------------|--------------|---------|
| HRFC-PA4-G1 | 701-0068-8 | Copper alloy |         |
| HRFC-PA4-D1 | 701-0112-8 | Zirconia     | (Note)  |

Note: Please take utmost care when inserting FC plug into a FC adapter. When applying excessive force to the FC plug or inserting in an odd angle, the zirconia sleeve within the adapter might be damaged.

### Round type

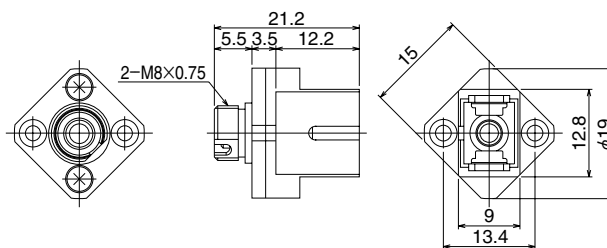


| Part Number    | CL No.        | Split sleeve | Remarks |
|----------------|---------------|--------------|---------|
| HRFC-A2-SF(01) | 701-0039-0-01 | Copper alloy |         |
| HRFC-A2-SF-D1  | —             | Zirconia     | (Note)  |

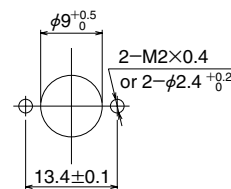
Note: Please take utmost care when inserting FC plug into a FC adapter. When applying excessive force to the FC plug or inserting in an odd angle, the zirconia sleeve within the adapter might be damaged.

## ■ Conversion adapters

### ● FC / SC



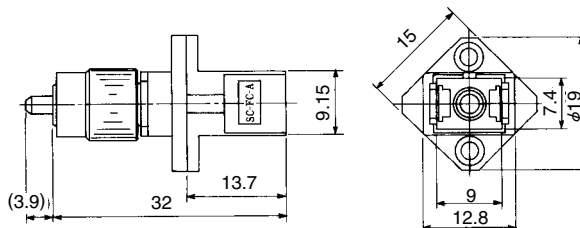
### ◆ Panel Cutout



Board thickness : 16mm

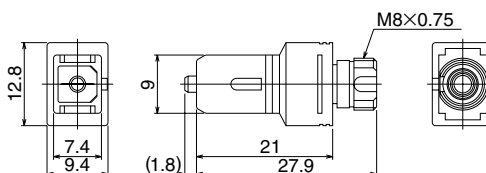
| Part Number      | CL No.        | Split sleeve |
|------------------|---------------|--------------|
| HSCJ-HRFCJ-B(51) | 704-0021-3-51 | Copper alloy |

### ● FC / SC



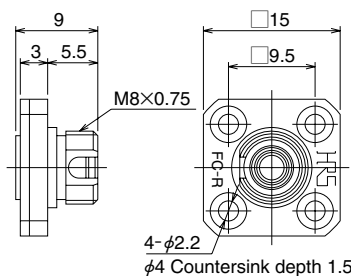
| Part Number        | CL No.        | Split sleeve | Polishing type | Fiber type |
|--------------------|---------------|--------------|----------------|------------|
| HRFCP-HSCJ-1(51)   | 701-0065-0-51 | Copper alloy | PC             | GI-50/125  |
| HRFCP-HSCJ-1AS(51) | 701-0108-0-51 |              | AdPC           |            |
| HRFCP-HSCJ-2(51)   | 701-0085-7-51 |              | PC             | SM-9.5/125 |
| HRFCP-HSCJ-2AS(51) | 701-0109-3-51 |              | AdPC           |            |

### ● FC / SC

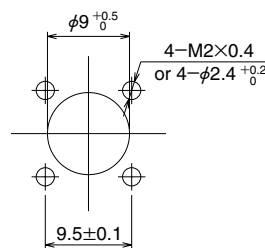


| Part Number        | CL No.        | Split sleeve | Polishing type | Fiber type |
|--------------------|---------------|--------------|----------------|------------|
| HSCP-HRFCJ-1(51)   | 704-0203-0-51 | Copper alloy | PC             | GI-50/125  |
| HSCP-HRFCJ-1AS(51) | 704-0288-3-51 |              | AdPC           |            |
| HSCP-HRFCJ-2(51)   | 704-0204-3-51 |              | PC             | SM-9.5/125 |
| HSCP-HRFCJ-2AS(51) | 704-0289-6-51 |              | AdPC           |            |

## ■ Receptacle



### ◆ Panel Cutout



| Part Number | HRS No.    | Remarks |
|-------------|------------|---------|
| HRFC-R1     | 701-0016-4 | MM      |
| HRFC-R2     | 701-0023-0 | SM      |

MU

SC

FC

Harsh  
Environment

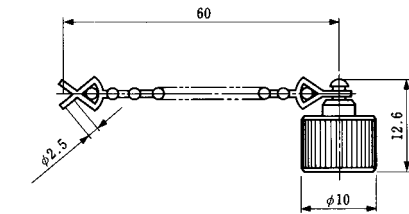
Attenuators

Terminators

## ■Ferrule

Same as SC ferrules  
 Refer to page 33 for details.

## ■Dust Cap



| Part Number | CL No.     |
|-------------|------------|
| HRFC-C1     | 701-0019-2 |