

# Harsh Environment Fiber Optic Connectors

## MF 14 and MF 17 Series



### ■ Features

- 1. 2 Fibers (MF14 series), 4 Fibers (MF17 series), or Optical/Electrical Hybrids are available.**  
6 fibers (MF22 series) available.
- 2. Incorrect Insertion Prevention.**  
Guide key (plug) and key slot (receptacle) are designed for prevent incorrect insertion.
- 3. Plug, receptacle fully mated condition satisfy IP67 waterproof Performance.**
- 4. For more than 10 years, MF series has been designed and installed in many harsh environmental applications.**  
Please contact us if you have any requests.  
HIROSE will offer excellent solutions to meet your requirements.

### ■ Applications

Outdoor optical transmission systems, LAN, CATV, ATM, Base station, industrial optical/electric lines.

## Product Specifications

Ratings	Operating temperature range	-25°C to +70°C	Storage temperature range	-25°C to +70°C
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Item		Test Method	Specifications
Optical characteristics	Insertion Loss	Wavelength 1310nm (LD)	1.0dB max. (Note)
Mechanical characteristics	Durability (cycles, mating/un-mating)	100 times	1) Insertion loss fluctuation after (test) : 0.3dB max. 2) No visible damage, dislocation of clamp or cable.
	Vibration	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, acceleration of 98.1m/s <sup>2</sup> , 2 hours in each of the 2 axis.	
	Shock	Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, sine half-wave waveform, 3 cycles in each of the 2 axis.	
Environmental characteristics	Humidity (Temperature/ humidity- cycles)	-10°C to 65°C, humidity: 90% to 96% 10 cycles	1) Insertion loss fluctuation after test: 0.3dB max. 2) No visible damage, dislocation of clamp or cable.
	Change of temperature	-40°C to +75°C 42 cycles	
	Dry heat	960 hours at 85°C	
	Cold	960 hours at -40°C	
	Salt Mist	1000 hours in a 5% concentration of salt mist	No visible corrosion.
	Waterproof	Inside air pressure 4.90kPa for one minute	No air bubble leakage, IP67

Note: Insertion loss herein means only connection loss.

## Materials

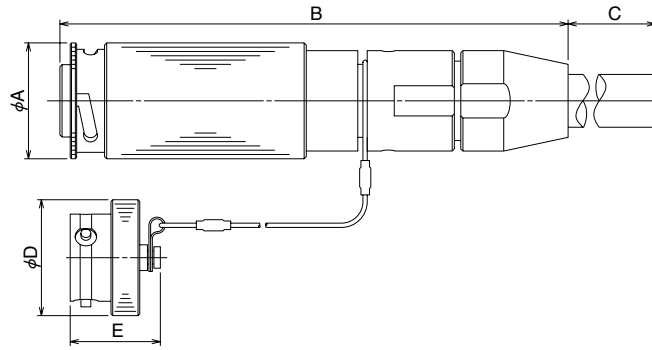
Part	Material
Plug and Receptacle Housing	Aluminum alloy
Ferrule case	Synthetic resin
Strain relief	Zinc alloy
Protective cap and clamp	Brass
Rubber boot and O-rings	Synthetic rubber
Screws, springs, and steel wire	Stainless steel
Washer	Brass
Split sleeve	Zirconia or Copper alloy

## Important Notice

1. Please ask HIROSE when you assemble the MF connectors for special cables. Some cables can not be used for the connectors.
2. MF series use SC/PC zirconia ferrules. Please see page 33.

## Bayonet lock

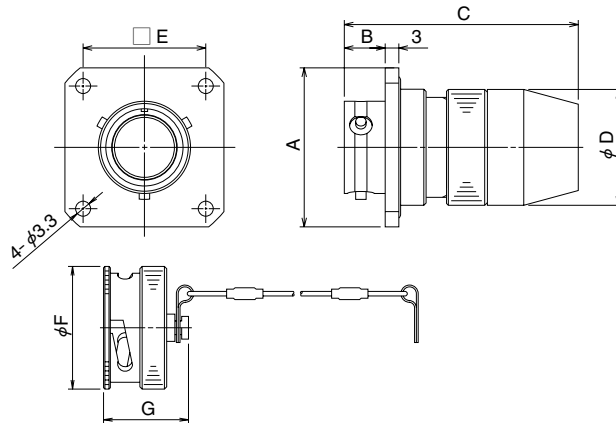
### Plug Housing



Part Number	Number of Fibers	$\phi A$	B	C	$\phi D$	E
MF14B-WP*S01-0200	2	24	84.7	69	24	21
MF17B-WP*S01-0400	4	27	116.5	52	27	21

\* indicates cable diameter. 8, 9 and 10mm, diameter cables are applicable.

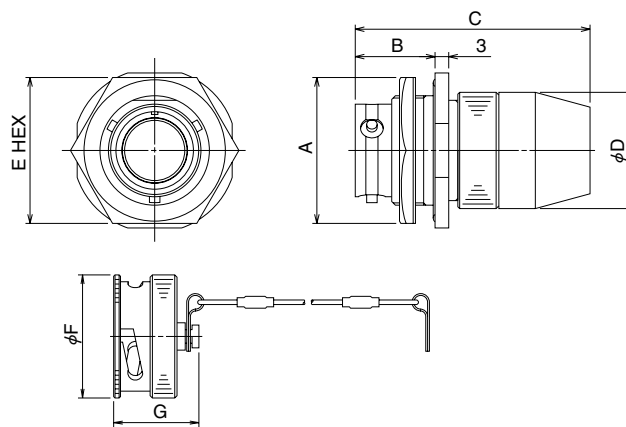
### Square Flange Receptacle Housing



Part Number	Number of Fibers	$\square A$	B	C	$\phi D$	$\square E$	$\phi F$	G
MF14B-WRF01-0200	2	30	10	45.5	20.5	23	24	18.7
MF17B-WRF01-0400	4	35	10	51.5	25.5	27	27	18.7

Note: Up to 3 mm cables are applicable.

### Bulk Head Receptacle Housing

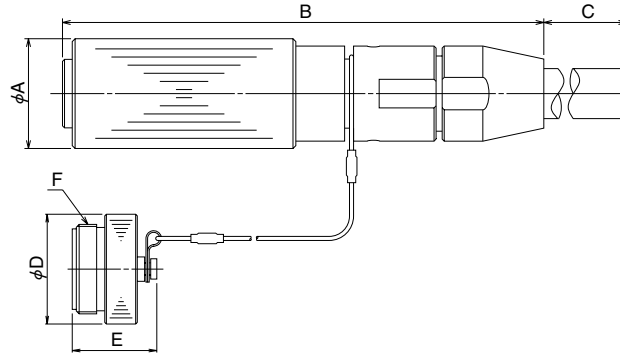


Part Number	Number of Fibers	$\square A$	B	C	$\phi D$	$\square E$	$\phi F$	G
MF14B-WRB01-0200	2	30	17.5	45.5	20.5	28	24	18.7
MF17B-WRB01-0400	4	34	17.5	51.5	25.5	32	27	18.7

Note: Up to 3 mm cables are applicable.

## Threaded lock

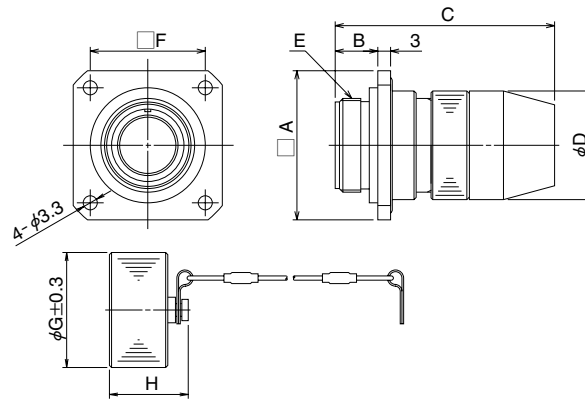
### Plug housing



Part Number	Number of Fibers	$\phi A$	B	C	$\phi D$	E	F
MF14S-WP*S01-0200	2	24	84.7	69	24	20.8	M20×1
MF17S-WP*S01-0400	4	27	116.5	52	27	20.8	M22×1

\*indicates the cable diameter. 8, 9 and 10mm, diameter cables are applicable.

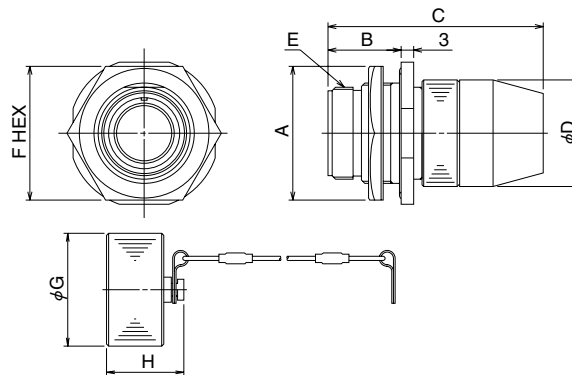
### Square Flange Receptacle Housing



Part Number	Part Number	$\square A$	B	C	$\phi D$	E	$\square F$	$\phi G$	H
MF14S-WRF01-0200	2	30	10	45.5	20.5	M20×1	23	24	18.5
MF17S-WRF01-0400	4	35	10	51.5	25.5	M22×1	27	27	18.5

Note: Up to 3 mm cables are applicable.

### Bulk Head Receptacle Housing

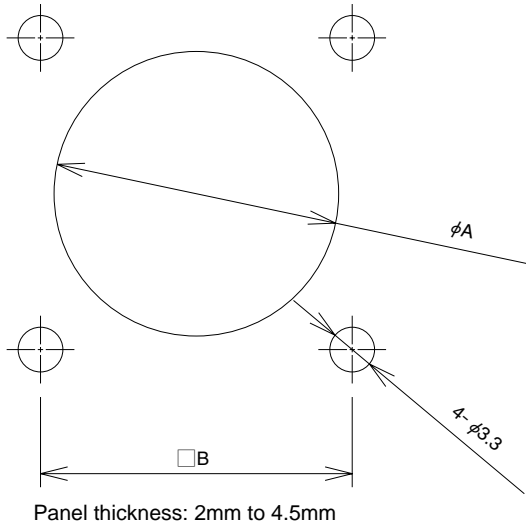


Part Number	Part Number	$\square A$	B	C	$\phi D$	E	$\square F$	$\phi G$	H
MF14S-WRB01-0200	2	31	17.5	45.5	20.5	M20×1	30	24	18.5
MF17S-WRB01-0400	4	34	17.5	51.5	25.5	M22×1	32	27	18.5

Note: Up to 3 mm cables are applicable.

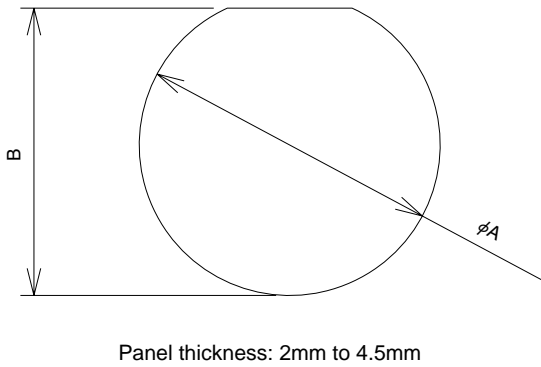
## ◆ Panel cut-out

### ● Square Flange Receptacle



Part Number	A	B
MF14B-WRF01-0200	21	23
MF14S-WRF01-0200	21	23
MF17B-WRF01-0400	26	27
MF17S-WRF01-0400	26	27

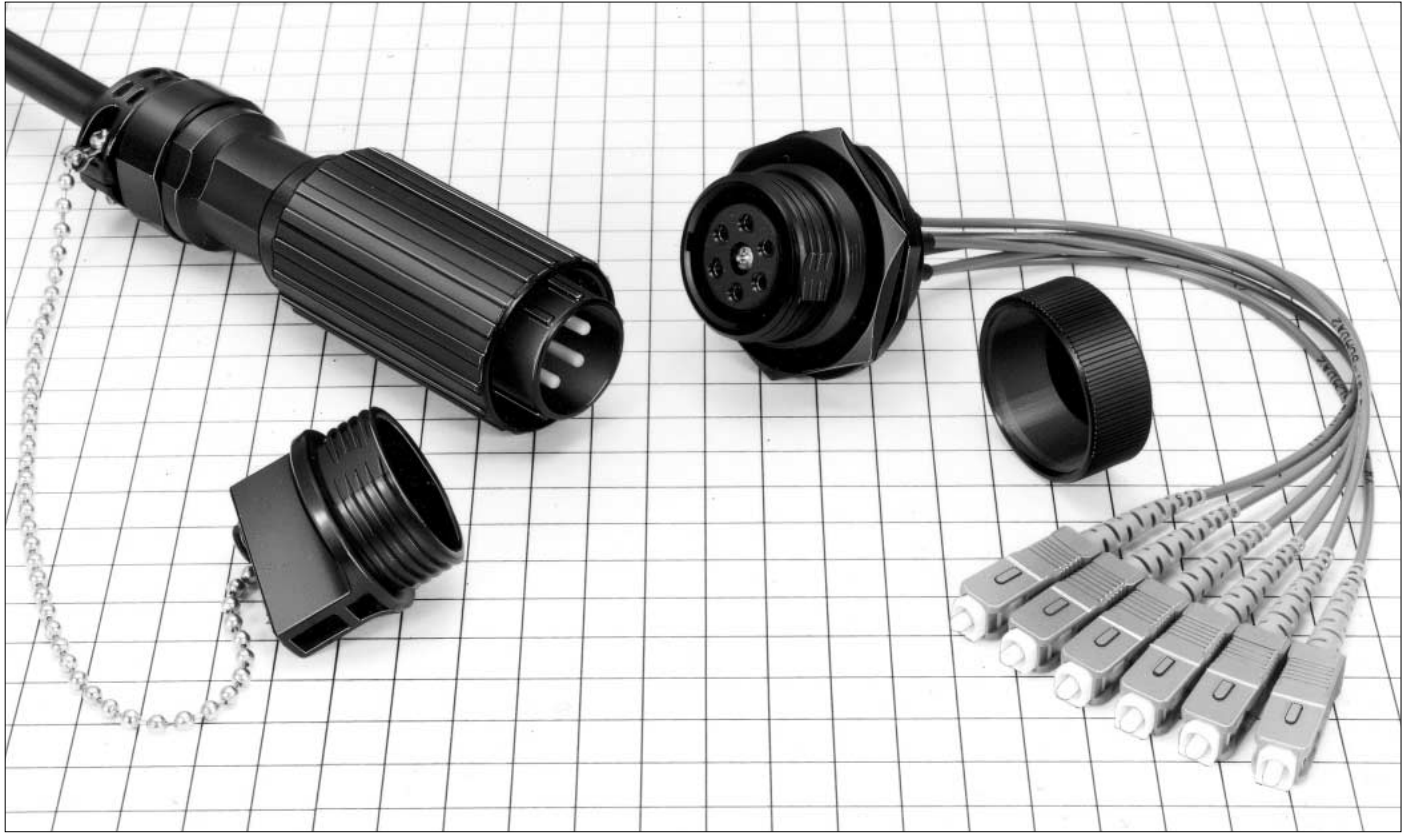
### ● Bulk Head Receptacle



Part Number	A	B
MF14B-WRB01-0200	22.2	21.2
MF14S-WRB01-0200	24.2	23.2
MF17B-WRB01-0400	24.2	23.2
MF17S-WRB01-0400	24.2	23.2

# Harsh Environment Fiber Optic Connector

## MF22 Series



### ■ Features

#### 1. 6 Fibers or Optical /Electric Hybrids are available

2 fibers (MF14), 4fibers (MF17) available.  
Please contact us if you have any requests.  
HIROSE will offer excellent solutions to meet your requirements.

#### 2. Incorrect Insertion Prevention

Five guide keys positioned at specific angles assure that the connector will mate only with the corresponding assembly.

#### 3. Plug, receptacle fully mated condition satisfy IP67 waterproof performance.

#### 4. Harsh environment applications

The connector's outer surfaces are covered with heat baked hard coating and all internal connections are protected by seals.

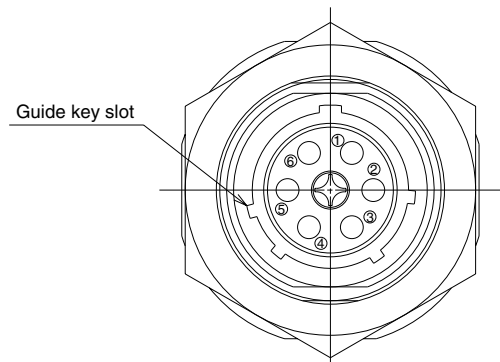
#### 5. Cable Termination

The connector will terminate with a majority of cables having outside diameter from 7mm to 12mm.  
Please contact Hirose for other applicable cable.

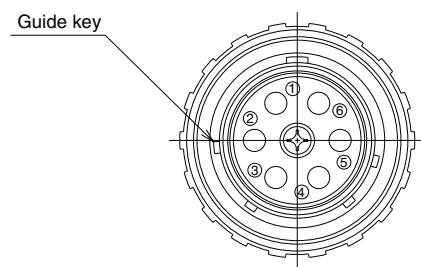
### ■ Applications

Outdoor optical transmission systems, LAN, CATV, ATM, and other applications requiring environmentally protected optical or electrical connections.

#### Receptacles



#### Plugs



## Product Specifications

Ratings	Operating temperature range	-40°C to +75°C	Storage temperature range	-40°C to +85°C
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Item		Test Method	Specifications
Optical characteristics	Insertion Loss	Wavelength 850nm (LD)	0.7dB max. (Note)
Mechanical characteristics	Durability (cycles, mating/un-mating)	500 times	1) Insertion loss fluctuation (after test): 0.3dB max. 2) No visible damage, dislocation of clamp or cable.
	Vibration	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, acceleration of 98.1m/s <sup>2</sup> , 2 hours in each of the 2 axis.	
	Shock	Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, sine half-wave waveform, 3 cycles in each of the 2 axis.	
Environmental characteristics	Humidity (Temperature/ humidity- cycles)	-10°C to 65°C, humidity: 90% to 96% 10 cycles	1) Insertion loss fluctuation after test: 0.3dB max. 2) No visible damage, dislocation of clamp or cable.
	Change of temperature	-40°C → +75°C 42 cycles	
	Dry heat	336 hours at 85°C	
	Cold	240 hours at -40°C	
	Salt mist	1000 hours in a 5% concentration of salt mist	No visible corrosion.
	Waterproof	Inside air pressure 4.90kPa for one minute	No air bubble leakage, IP67

Note: Insertion loss herein means only connection loss.

## Materials

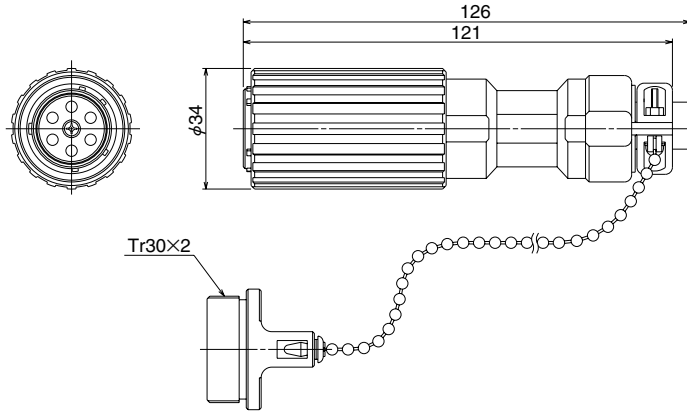
Part	Material
Plug and Receptacle Housing	Aluminum alloy
Ferrule case	Synthetic resin
Strain relief components	Zinc alloy
Protective cap and clamp	Synthetic resin
Rubber boot and O-rings	Synthetic rubber
Screws, springs, and ball chain	Stainless steel
Washer	Brass
Split sleeve	Zirconia or Copper alloy

## Important Notice

1. Please ask HIROSE when you assemble the MF connectors for special cables. Some cables can not be used for the connectors.
2. MF series use SC/PC zirconia ferrules. Please see page 33.

## Threaded lock

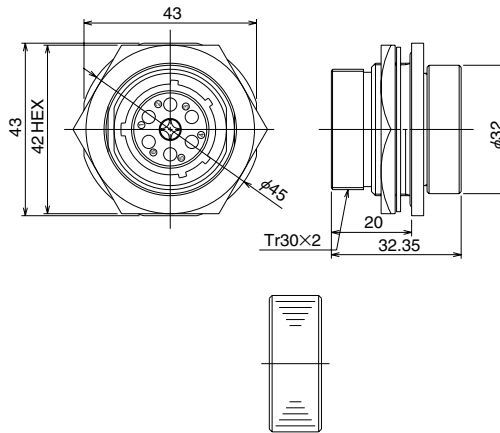
### Plug housing



Part Number	Number of Fibers
MF22S-WDP*S01-0600	6

\*indicates cable diameter.

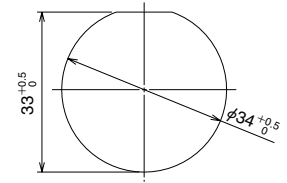
### Bulk head receptacle housing



Part Number	Number of Fibers
MF22S-WDRB01-0600	6

Note: Up to 3 mm cables are applicable.

### Panel cut-out



Panel thickness: 1mm to 4mm



## ■ Tools

### ● Plug assembly tool



Part Number	CL No.
MF22S-T2	709-0065-0

### ● Crimp tool for receptacle assembly



Part Number	CL No.
HSC-T3	704-0287-0