



# DENKI SEIGYO

## DFH SERIES

### Fiber Optic Sensor Heads

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#### Category

Fiber Optic Sensors / Fiber Optic Heads

#### Manufacturer

Denki Seigyo

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## 1. PRODUCT OVERVIEW

The **Denki Seigyo DFH Series Fiber Optic Sensor Heads** are compact and high-precision sensing heads designed for reliable object detection in industrial automation systems.

The DFH Series provides stable sensing performance in confined spaces, high-speed applications, and harsh industrial environments where standard photoelectric sensors cannot be installed.

Available in **straight diffuse**, **radial diffuse**, **straight through-beam**, and **radial through-beam** configurations, the DFH Series delivers excellent flexibility for electronics, packaging, semiconductor, pharmaceutical, and automation industries.

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## 2. KEY FEATURES

- Compact miniature fiber optic heads
  - Straight and radial sensing types
  - Diffuse and through-beam models
  - High precision small object detection
  - Flexible fiber routing
  - Free-cut fiber cable design
  - Excellent bending durability
  - High-temperature resistance
  - Stable detection performance
  - Compatible with digital fiber amplifiers
  - Easy installation in limited spaces
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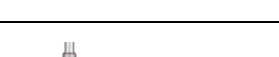



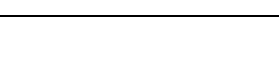



### 3. MODEL STRUCTURE

#### Example:

#### DFH-04TR

Code	Description
D	Denki Seigyo
FH	Fiber Head
04	M4 Size
T	Through-beam
R	Radial Type

### 4. MODEL SPECIFICATIONS

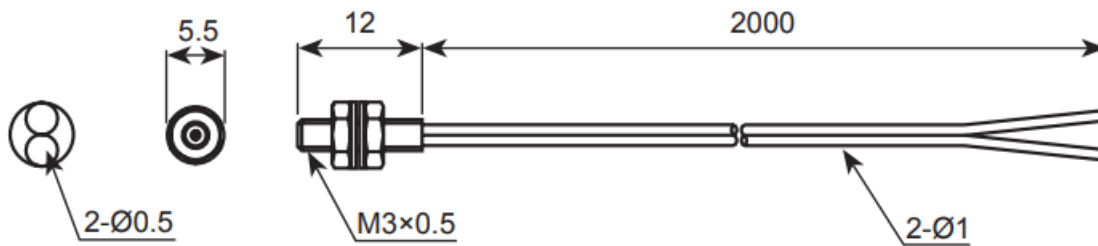
Model	Appearance	Feature	Sensing distance (mm)	Min. Sensing Target <sup>*3</sup>	Allowable Bend Radius	Cable length (L)	Ambient Temperature
DFH-03D		M3 Straight Diffuse	Upto 60mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-04D		M4 Straight Diffuse	Upto 120mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-06D		M6 Straight Diffuse	Upto 300mm	∅0.03	R30	2m (Free Cut)	-55 to 75°C
DFH-03DR		M3 Radial Diffuse	Upto 60mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-04DR		M4 Radial Diffuse	Upto 120mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-06DR		M6 Radial Diffuse	Upto 300mm	∅0.03	R30	2m (Free Cut)	-55 to 75°C
DFH-03T		M3 Straight Through-beam	Upto 200mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-04T		M4 Straight Through-beam	Upto 500mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-06T		M6 Straight Through-beam	Upto 800mm	∅0.03	R30	2m (Free Cut)	-55 to 75°C
DFH-03TR		M3 Radial Through-beam	Upto 200mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-04TR		M4 Radial Through-beam	Upto 500mm	∅0.03	R15	2m (Free Cut)	-55 to 75°C
DFH-06TR		M6 Radial Through-beam	Upto 800mm	∅0.03	R30	2m (Free Cut)	-55 to 75°C

## 5. PRODUCT SERIES

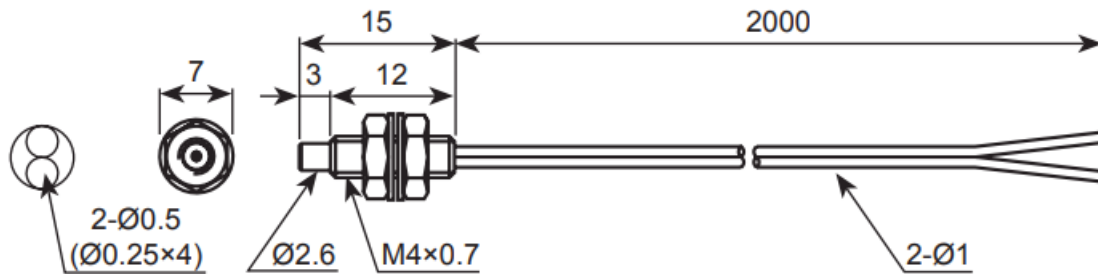
Series	Type	Detection Method
DFH-D Series	Straight Diffuse	Reflective
DFH-DR Series	Radial Diffuse	Reflective
DFH-T Series	Straight Through-beam	Through-beam
DFH-TR Series	Radial Through-beam	Through-beam

## 6. DIMENSIONS

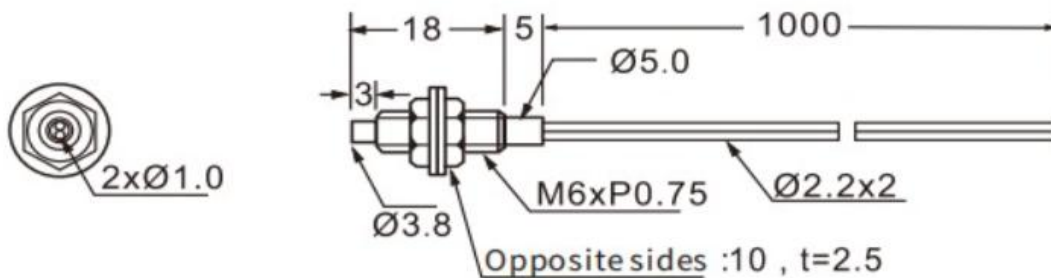
### . DFH-03D



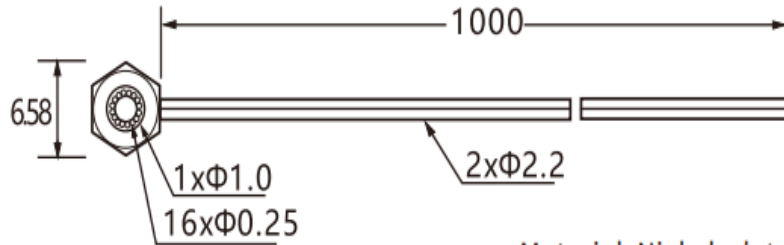
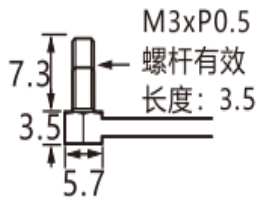
### . DFH-04D



### . DFH-06D

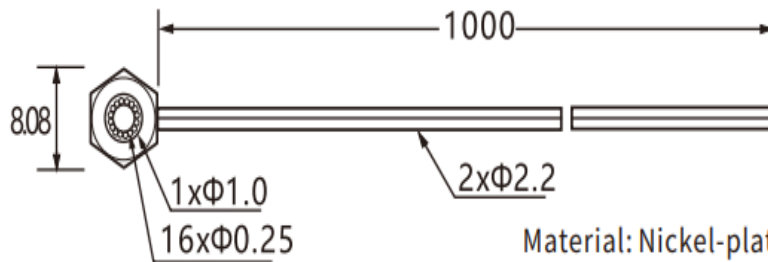
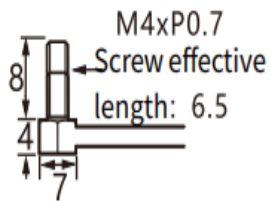


### . DFH-03DR



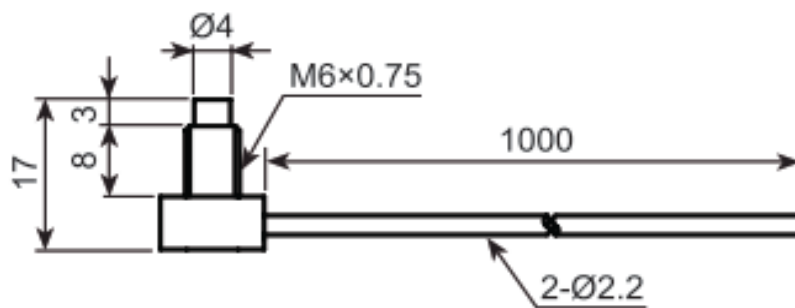
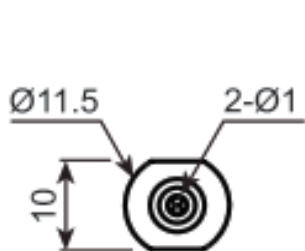
Material: Nickel-plated brass

### . DFH-04DR

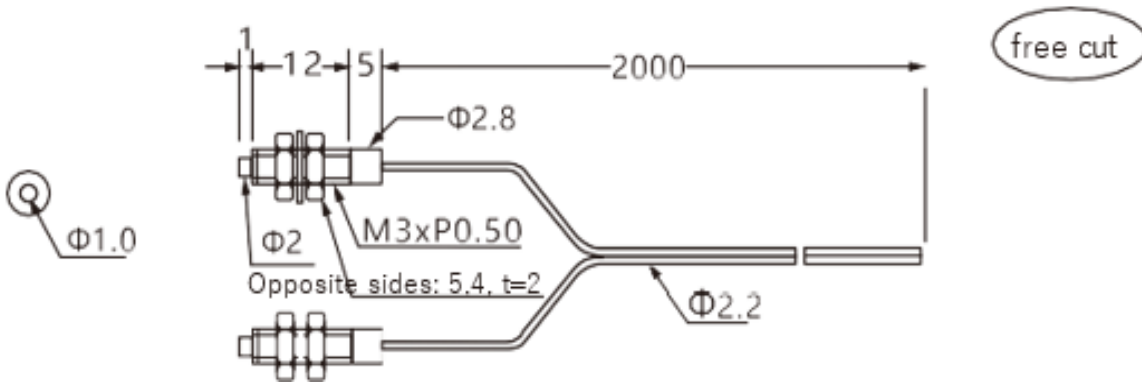


Material: Nickel-plated brass

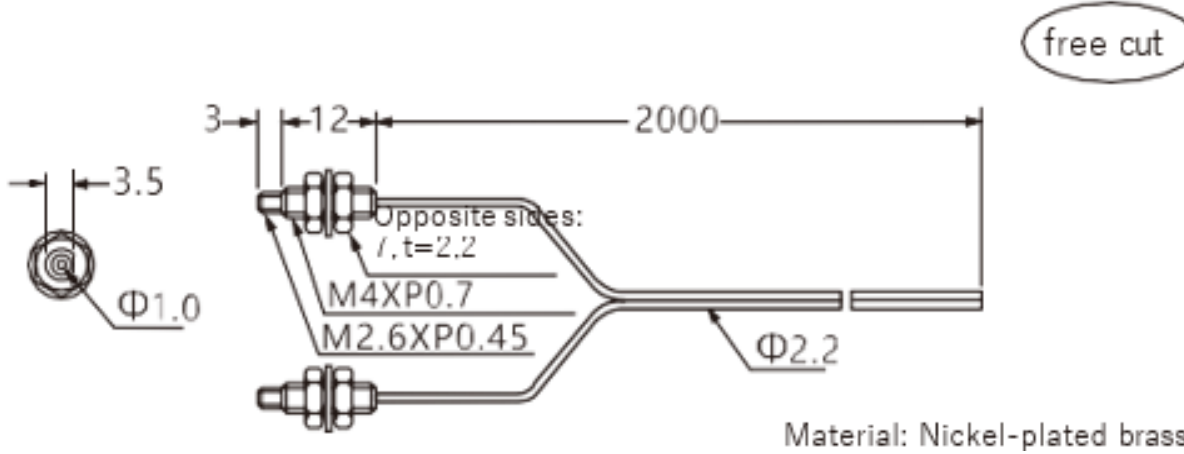
### . DFH-06DR



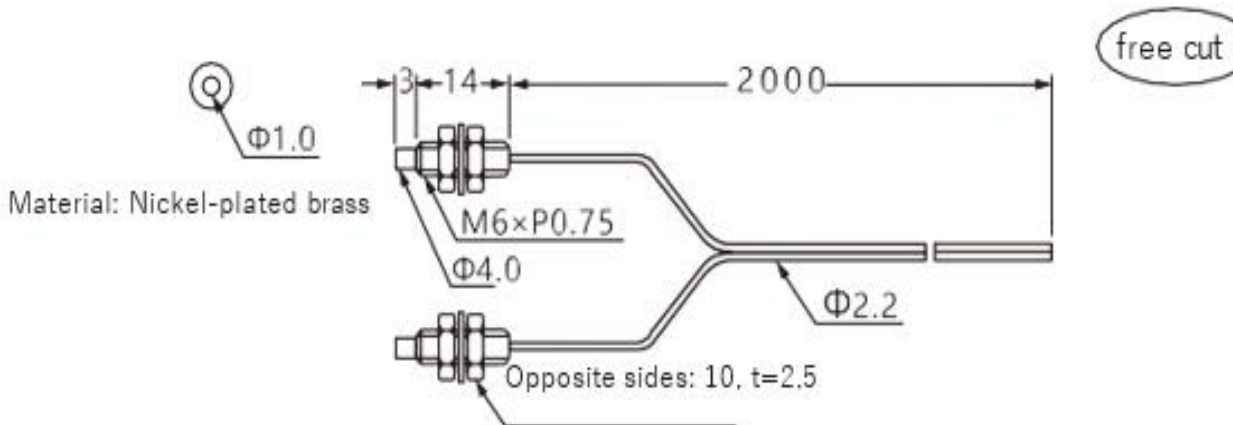
. DFH-03T



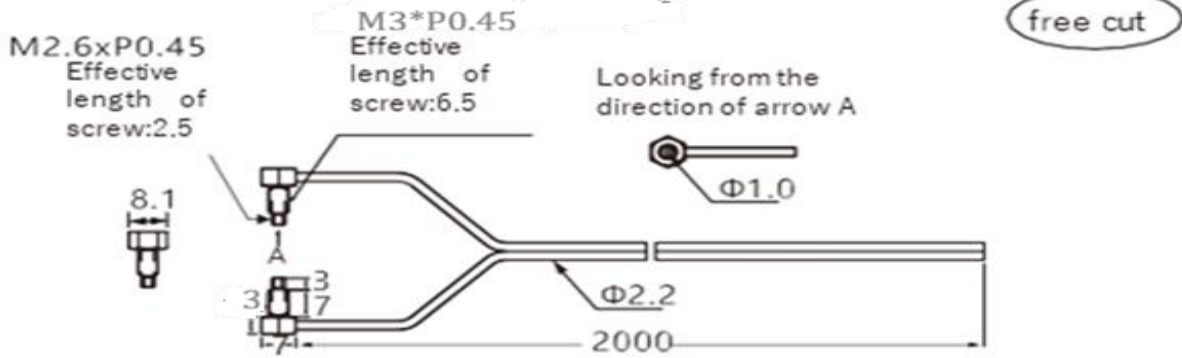
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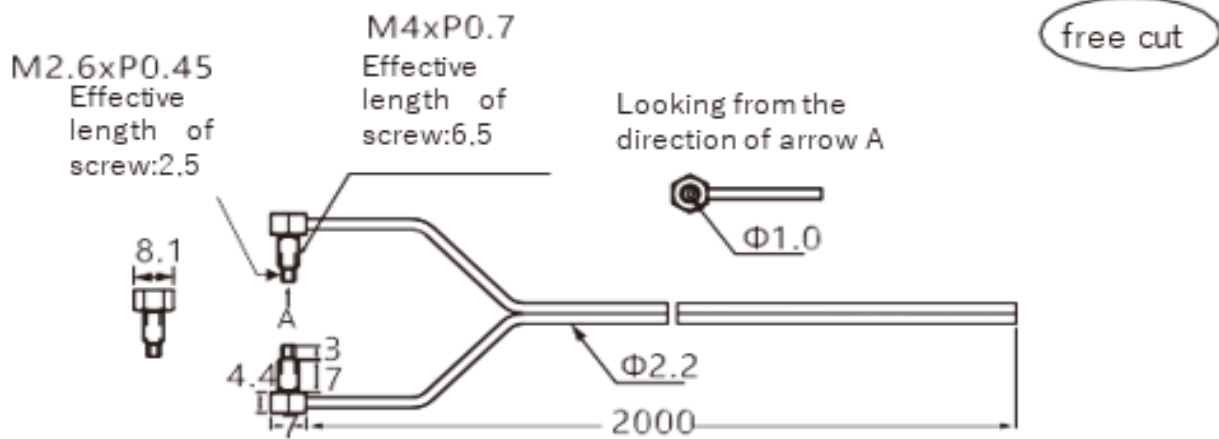
. DFH-06T



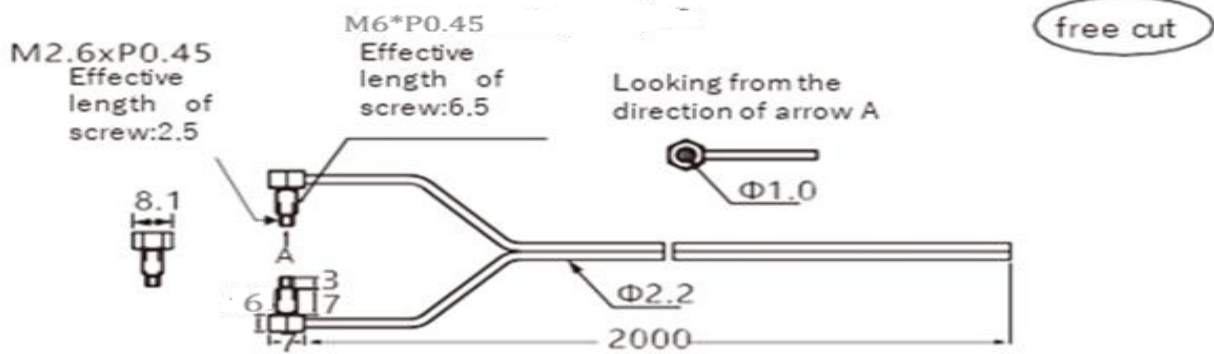
**. DFH-03TR**



**. DFH-04TR**



**. DFH-06TR**





## 7. DETECTION TYPES

### Straight Diffuse Type

- Compact front sensing
- Easy installation
- Suitable for reflective object detection

### Radial Diffuse Type

- Side sensing configuration
- Ideal for confined spaces
- Flexible mounting direction

### Straight Through-beam Type

- Long sensing distance
- Stable high-speed detection
- Excellent reliability

### Radial Through-beam Type

- Side beam transmission
- Space-saving installation
- High precision sensing

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## 8. GENERAL SPECIFICATIONS

Parameter	Specification
Sensor Type	Fiber Optic Head
Detection Method	Diffuse / Through-beam
Fiber Material	Plastic Optical Fiber
Fiber Jacket	PVC
Fiber Length	2 m standard
Cable Type	Free-cut
Compatible Amplifier	Fiber Optic Amplifier

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## 9. MECHANICAL SPECIFICATIONS

Parameter	Specification
Housing Material	Nickel-plated brass
Mounting Type	Threaded cylindrical
Fiber Protection	Flexible protective jacket
Minimum Bend Radius	R15 / R30



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## 10. ENVIRONMENTAL SPECIFICATIONS

Parameter	Specification
Operating Temperature	-55°C to +75°C
Humidity	35–85% RH
Protection Rating	Industrial grade
Vibration Resistance	High durability design

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## 11. COMPATIBLE AMPLIFIERS

The DFH Series is compatible with:

- DSF-A05 Fiber Amplifier
  - DSF-A06 Fiber Amplifier
  - High-speed digital fiber amplifiers
  - Dual-display fiber amplifiers
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## 12. APPLICATIONS

The DFH Series is suitable for:

- Electronics manufacturing
  - Semiconductor machinery
  - Packaging systems
  - Label and mark detection
  - High-speed counting systems
  - Robotic automation
  - Pharmaceutical equipment
  - Small component positioning
  - Precision industrial automation
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## 13. INSTALLATION NOTES

- Avoid excessive bending beyond specified radius
  - Ensure proper alignment for through-beam models
  - Keep fiber tips clean during operation
  - Avoid excessive pulling force on fiber cable
  - Use recommended mounting accessories
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## 14. PRODUCT SUMMARY

The **Denki Seigyo DFH Series Fiber Optic Heads** provide:

- ✓ High precision sensing
- ✓ Compact installation
- ✓ Flexible mounting options
- ✓ Excellent durability
- ✓ Stable industrial performance
- ✓ Compatibility with digital fiber amplifiers

Designed for modern industrial automation systems, the DFH Series delivers reliable and accurate sensing performance in demanding applications.

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# DENKI SEIGYO

**Industrial Automation Components**