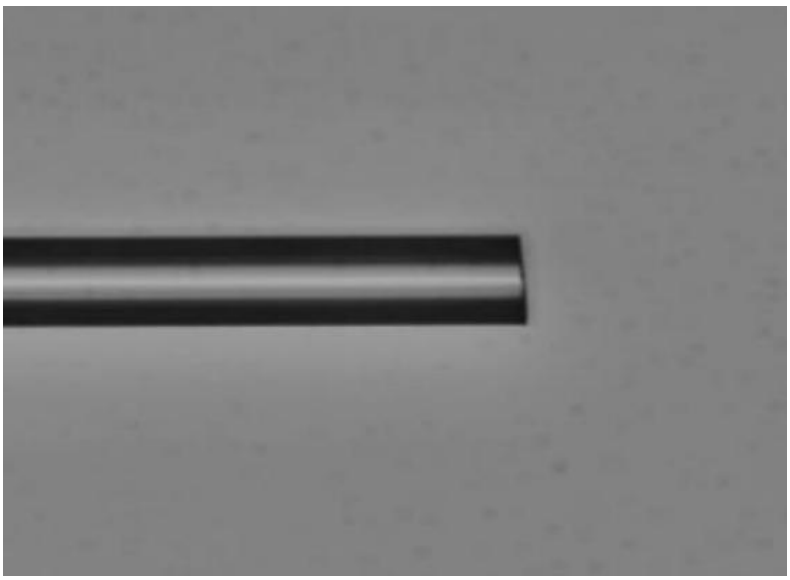
Single-mode planar lens fiber Angle 90



Product Description

Lens fiber, also known as fiber lens or fiber microlens, is a type of product that is processed into a fiber end face with lens function. The main functions of lens fiber are to change the size and shape of the fiber mode field to improve the system coupling efficiency, change the optical transmission path, reduce refracted light, and change the tip shape to adapt to imaging and sensing in different environments. It has a wide range of applications in many fields. We can customize multiple types of optical fibers according to the different requirements of lens fibers in different fields and customize the surface metallization of optical fibers according to customer

requirements. Compared with products on the market, Idealphotonics lens fiber has the advantages of smaller cone angle error and smaller eccentricity. At the same time, all lens fibers can be metallized + tube shell gold tin packaging according to customer requirements, as follows:

Product features

Special optical structure; Optical performance; Precision collimation; High coupling efficiency; Anti environmental interference

Part Number

MP-FL-S-90-10-SM-FA

Application area

High speed optical communication | Silicon photon integration | Laser interferometer | Laser system and sensing | Quantum communication

Core parameters

Fiber Type	Connector
Single mode	FC/APC

General Parameters

Fiber Performance Comparison:			
Parameters	Our Products	Products on the market	Note
Cone angle error	±2.5°	±5°	Cone angle error mainly refers to the cone angle of the microlens fiber.
			Single-mode: The higher the precision, the smaller the curvature tolerance and the higher the consistency.
			Multi-mode fiber: The higher the precision, the better the coupling efficiency consistency.
Angle error	±2.5°	±5°	Angle error mainly refers to the angle of the wedge-shaped or other inclined lens fiber. The higher the accuracy, the higher the yield of the processed curvature.
			For multimode optical fiber, the higher the taper accuracy, the better the coupling efficiency consistency.
Curvature error	±1μm	±1μm	The higher the curvature accuracy, the higher the coupling efficiency.
Eccentricity	±1μm	±1.5μm	The smaller the eccentricity, the smaller the angle between the optical axis of the lens fiber and the axis of the fiber cladding, which is more conducive to coupling debugging and improves production efficiency.

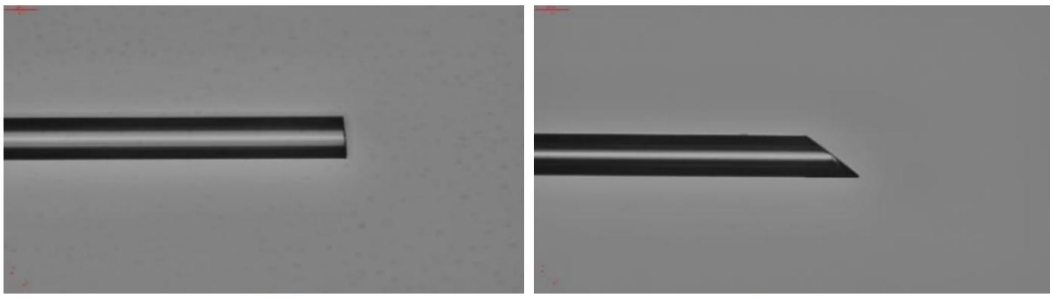
1. Plane/bevel lens fiber (planar/single bevel/double bevel):

Features:

Grind a bevel with a certain angle at the front end of the optical fiber as required; metallize the optical fiber according to customer requirements.

Application areas:

Fiber laser, fiber network, traditional optics, fiber sensing, etc.



8 degree bevel　　Large angle bevel

Plane/bevel lens fiber parameter table:				
Parameter	Unit	Value	Typ	Tolerance
Bevel Angle	°	90 (flat)	90 (flat)	±1
		4~15 (Incline)	8 (Incline)	
Stripping length	mm	10,Customized	10	±0.5
Fiber type	-	SM, MM, PM,Customized Fiber	N/A	N/A
Cladding diameter	μm	80~600	80, 125, 220	N/A
Coating diameter	μm	165~900	165, 250, 320	N/A
Connector (optional)	-	FC/PC, FC/APC,Customized	N/A	N/A
AR coating (optional)	-	R<0.2%@Specify band	R<0.2%	N/A
Protective sleeve (optional)	-	900 μmVarious color tube	900μmWhite tube	N/A
Connector slow axis position (only for polarization-maintaining	-	Same as KEY or customized	0°, 90°	±5

Plane/bevel lens fiber parameter table:				
Parameter	Unit	Value	Typ	Tolerance
fiber)				
Lens slow axis position (only for polarization-maintaining fiber)	-	Mirror ridge direction or perpendicular to the mirror ridge	N/A	±5

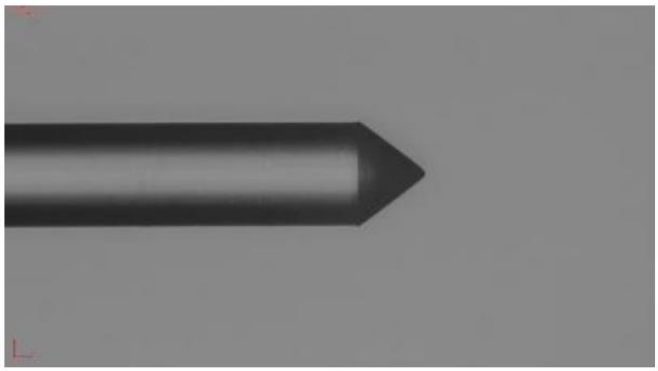
2. Conical lens fiber:

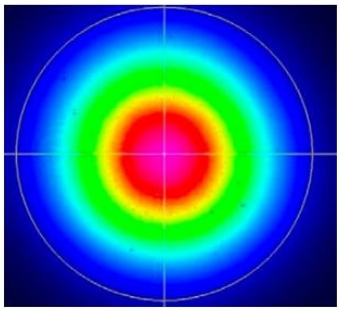
Features:

The front end of the optical fiber is ground into a cone with a certain angle as required, and the spherical surface with a certain radius of curvature is ground into a spherical surface at the front end of the cone as required; the optical fiber is metallized according to customer requirements.

Application areas:

Semiconductor laser coupling; Medical laser microsurgery and micro-illumination.





Conical lens fiber parameter :				
Parameters	Unit	Value	Typ	Tolerance
Lens angle	°	70~165	75,90, 100	±2.5

Conical lens fiber parameter :				
Parameters	Unit	Value	Typ	Tolerance
Lens R angle	μm	3~50	5~12	±1
Stripping length	mm	10,Customized	10	±0.5
Fiber type	-	SM, MM, PM,Customized Fiber	N/A	N/A
Cladding diameter	μm	80~600	80,125,220	N/A
Coating diameter	μm	165~900	165,250,320	N/A
Connector (optional)	-	FC/PC; FC/APC;Customized	N/A	N/A
AR coating (optional)	-	R<0.2%@Specify band	R<0.2%	N/A
Protective sleeve (optional)	-	900 μ mVarious color tube	900μ mWhite tube	N/A
Connector slow axis position (only for polarization-maintaining fiber)	-	Same as KEY or customized	0°,90°	±5°

3. Wedge-shaped lens fiber:

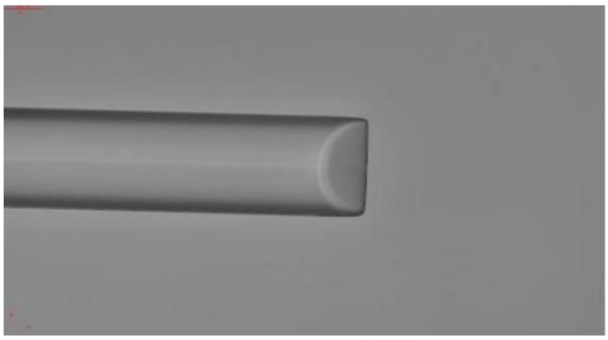
Features:

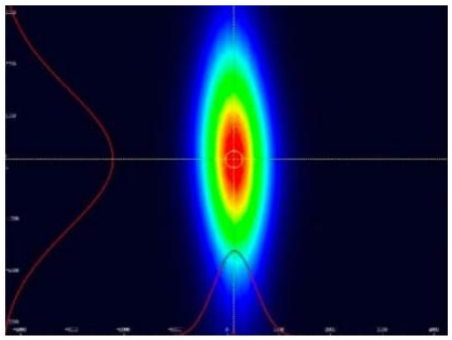
• The front end of the optical fiber is ground into a double bevel with a certain angle as required, and the front end of the double bevel is ground into a cylindrical surface with a certain curvature radius as required;

• The light beam emitted by the optical fiber is shaped into an ellipse, or the receiving spot of the optical fiber is changed from a circle to an ellipse; the optical fiber is metallized according to customer requirements.

Application areas:

• Semiconductor laser coupling, optical chip coupling, scientific research, etc.





Wedge lens fiber parameter table:

Parameters	Unit	Value	Typ	Tolerance
Lens angle	°	70~165	75,90,100	±2.5
Lens R angle	μm	3~50	5~15	±1
Mirror ridge chamfer	μm	25*2	25	±10
Fiber stripping length	mm	10,Customized	10	±0.5
Fiber type	-	SM,MM, PM,Customized Fiber	N/A	N/A
Cladding diameter	μm	80~600	80,125,220	N/A
Coating diameter	μm	165~900	165,250,320	N/A
Connector (optional)	-	FC/PC, FC/APC,Customized	N/A	N/A
AR coating (optional)	-	R<0.2%@Specify band	R<0.2%	N/A
Protective sleeve (optional)	-	900 μmVarious color tube	900μmWhite tube	N/A
Connector slow axis position (only for polarization-maintaining fiber)	-	Same as KEY or customized	0°,90°	±5°
Lens slow axis position (only for polarization-maintaining fiber)	-	Mirror ridge direction or perpendicular to the mirror ridge	N/A	N/A

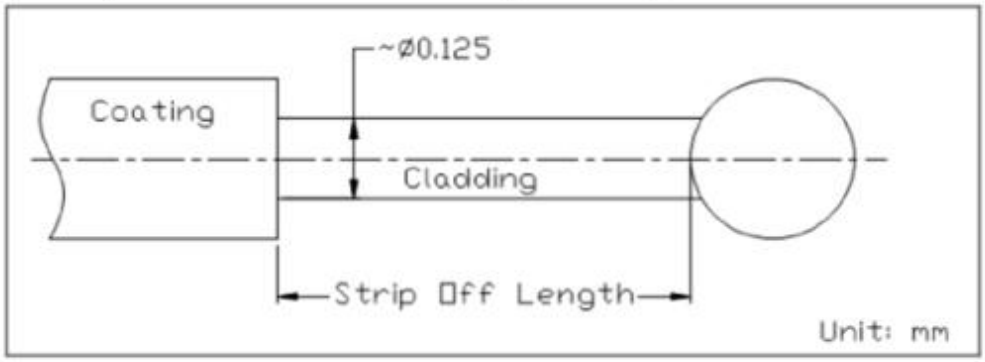
4. Ball lens fiber:

Features:

- **Small size, short optical path, light weight, easy to mass produce and package;**
- **Simple coupling process, good repeatability, and high coupling efficiency.**

Application areas:

- **Medical endoscopes, semiconductor laser coupling, ultra-micro device packaging, photoelectric conversion devices, optical sensors, optical test platforms, CMM probes (widely used in medicine, military, public security, intelligence, integrated optics, optical communications, and optical computers).**



Ball lens fiber parameter table:				
Parameters	Unit	Value	Typ	Tolerance
Nominal beam waist diameter	μm	10~100 (±5um)	10, 50, 100	±5
Working distance	mm	0.2<WD<7 (±20 u m)	0.2, 0.5, 3, 7	±20
Ball lens diameter	μm	120~300 (±10 u m)	120, 165, 250,300	±10
Fiber type	-	SM	NA	NA
Coating diameter	μm	250~400	250,400	NA
Cladding diameter	μm	125~250	124,250	NA
Stripping length	mm	5±1,Customizable	5	±1

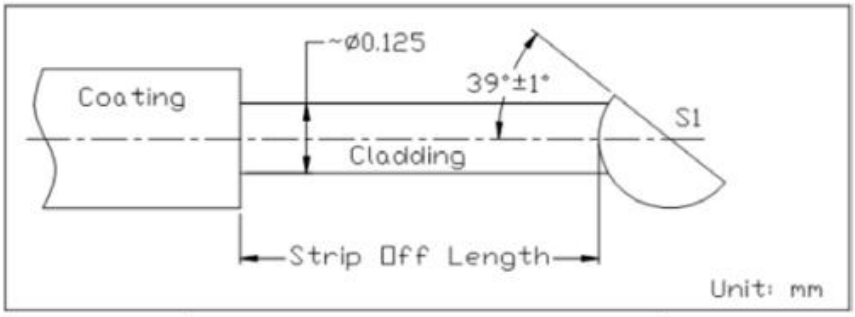
5. Beveled ball lens optical fiber:

Features:

- **Small size, short optical path, light weight, easy to mass produce and package.**

Application areas:

- **Medical endoscopes, optical coupling, photoelectric conversion devices, PLC, OCT, optical sensing, optical lighting.**



Beveled ball lens fiber parameter table:				
Parameters	Unit	Value	Typ	Tolerance
Ball lens diameter	μm	120~300	160,250, 300	±10
Grinding angle	°	39	39	±1
S1 surface finish	-	10~20	10~5	NA
(U.S. military standard: MIL-PRF-13830)	-	⩽h /5 @632. 8nm	NA	NA
S1 surface type	μm	±10	±5	NA
Grinding accuracy (distance from the center line of the ball)	-	SM	NA	NA
Fiber type	mm	5±1,Customizable	5	±1
Stripping length	μm	250~400	250,400	NA
Coating diameter	μm	125-~250	124,250	NA