

A ceramic ferrule assembly device



AI Overview

A ceramic ferrule assembly device is used to precisely align and secure optical fibers within connectors, ensuring low signal loss and high durability.

Overview

Ceramic ferrules are precision components made primarily from zirconia or alumina ceramics, designed to hold and align optical fibers in connectors, attenuators, fiber stubs, and other optoelectronic devices with minimal signal loss. They are valued for their high concentricity, durability, and low back reflection, making them essential in high-performance optical communication systems.

Materials and Construction

Zirconia Ceramic: Offers superior performance, high durability, and non-magnetic properties, ideal for sensitive applications.

Alumina Ceramic: Used in custom ferrules for specialized applications requiring specific mechanical or thermal properties.

Ferrules are precision machined to maintain tight inner and outer diameter tolerances, ensuring accurate fiber alignment and low insertion loss.

Assembly Features

Ceramic ferrule assemblies can include:

- Standard or custom flanges:** SMA, SC, ST, LC, or MU types, often made from stainless steel, nickel-plated brass, or copper for robust interfacing.
- Custom geometries:** Multi-step, countersinks, flats, slots, grooves, and chamfers to meet unique application requirements.
- Extended lengths:** Useful in optogenetics or implantable fiber applications to provide clearance alongside other devices.

Applications

- Fiber optic connectors:** Single-mode and multimode connectors for telecommunications and data networks.
- Optical attenuators and fiber stubs:** Ensuring precise fiber alignment for minimal signal loss.
- Specialized scientific or medical devices:** Including optogenetics, military, and laboratory instrumentation.

Advantages

- High precision alignment:** Maintains fiber core concentricity for optimal signal transmission.
- Durability:** Resistant to wear from repeated mating cycles.
- Low magnetic interference:** Zirconia ferrules are non-magnetic, suitable for sensitive applications.
- Customizability:** Can be tailored for specific diameters, lengths, and fla...

Article Content

Custom Ceramic Ferrule – Fronova

Our custom ceramic ferrules are designed to meet unique requirements for a wide range of applications, including medical, military, or scientific integration.

WO2022021627A1

the invention relates to the technical field of optical fiber communication, in particular to a ceramic ferrule and an optical fiber connection assembly. Optical fiber connectors as connection products that

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a device and a method for producing a ceramic ferrule blank mainly a unidirectional positioning wet injection process is adopted. PRC Patent Publication No. CN1376563A entitled "Extrusion Forming

Novel low-cost high-speed optic-electric laser diode pigtail module ...

Hsu et al. used a dual-beam laser welding system to connect the fiber ferrule assembly in a butterfly laser module package. Therefore, a new type of low-cost assembly technology for

CN103128529B

The invention discloses a device for assembling a ceramic ferrule and a sleeve. The device for assembling a ceramic ferrule and a sleeve comprises a frame and a turntable disposed...

CN105345655A

The ceramic ferrule holding device is reasonable and compact in design, is safe and reliable, and can completely meet the machining requirement of the workpiece (namely a ceramic ferrule).

Ceramic Ferrules / Sleeves | Ceramics for Optical

Ceramic ferrules and sleeves are often used in optical connectors, attenuators, fiber stubs, and other optoelectronics requiring low signal loss. Kyocera's extrusion

Ceramic Ferrules / Sleeves | Ceramics for Optical

Our ferrules and sleeves are available in standard size and shape configurations. For standard products, please see the following. Kyocera can machine the end

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The invention discloses a molding device and method of a ceramic ferrule blank. A mold cavity for forming the blank is provided with a setting wire, and a thimble mold is arranged in the lower opening

Ceramic Ferrule – Fronova

Our Standard Ferrules are commonly used as key components in fiber optic connectors, but they can also be utilized in various specialized applications. It is

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A ceramic ferrule assembly is provided, including a head including at least one tab protruding outwardly from an inner peripheral surface thereof, and a stem having an annular flange about an outer

Stainless Steel and Ceramic Fiber Optic Ferrules

Thorlabs offers Ø1.25 mm and Ø2.5 mm stainless steel or ceramic (zirconia) fiber optic ferrules for constructing pigtailed fiber optic patch cables and assemblies.

US8137095B2

the device and the method for forming the ceramic ferrule blankmainly have the following defects. 1. During the process of forming the blank, the blank material enters the mold cavity of the mold from a

Stainless Steel and Ceramic Fiber Optic Ferrules

Stainless Steel Ferrules with Ø127 µm - Ø440 µm Bores Ceramic Ferrules Available with Nickel Plated Brass Flange Contact Tech Support for Custom Ferrule Length or Bore Size Thorlabs offers Ø1.25

Ceramic ferrule and ceramic ferrule refractory wall for shielding tube ...

A ceramic ferrule, an array of ceramic ferrules, and a ceramic ferrule refractory wall, all for shielding a tube sheet/boiler tube assembly of a heat exchanger connected to an industrial heat source. The

US10378756B2

One common ceramic ferrule designis a two-piece design including a ferrule head piece, which protects the front face of the waste heat boiler, and a ferrule stem piece, which protects the...

Ceramic Ferrules Explained: Applications, Materials,

Ceramic ferrules are the most critical precision components in modern fiber optic networks. You cannot see them, but these tiny, engineered channels are the

Reflowable optical connector with glass-ceramic ferrule for advanced ...

We have developed a reflowable simplex optical connector/receptacle with a physical-contact (PC) connection based on a glass-ceramic ferrule for advanced pluggable transceiver

FERRULE FOR IMPLANTABLE MEDICAL DEVICE

There is a need for improved techniques of ferrule components such as 10 to lower the cost or increase production throughput. By way of example, this document describes housing, such as a

Understanding Ferrules: The Critical Component in Arc

Achieving exceptional weld quality in structural applications requires mastery of every component in the welding process. Among these components,

Equipment for assembling ceramic ferrule

The utility model relates to equipment for assembling a ceramic ferrule in the industry of optical fiber communication. According to the conventional method, the ceramic ferrule is assembled with organic

Ferrule Assembly

Our Ferrule Assemblies feature precision machined flanges which are press-fit to the ferrule, providing the ferrule with durable point of contact to use when securing it

Ferrules, Zirconia Ferrules, Ceramic Ferrules / Fiberwe Technologies

Singlemode Zirconia Ferrules are designed for highly precise singlemode fiber connections consisting of a submicron precision process and operation. Multimode Zirconia Ferrules were developed for cost

Integer Holdings Corp Patent for AIMD Feedthrough Assembly

Integer has been granted a patent for a feedthrough assembly designed for active implantable medical devices (AIMDs). The assembly features a hermetically sealed ferrule and

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This enables rapid assembly of large quantities of ceramic ferrules and flanges for optical connectors. In addition, by forming an assembly of the ferrule and the flange assembly, by measuring an assembly

Custom Ceramic Ferrule – Fronova

Custom ceramic ferrules are made of alumina or zirconia ceramics, with inside diameters from 80 microns to 1100 microns, in lengths from 2.5mm to 22.5mm,

Superior Connectivity Using Ceramic Ferrule in Fiber Optic Connectors

Ceramic ferrules are machined to precise tolerances to minimize any variations in radius of curvature, while our connector holder devices are specifically sized to perfectly fit each ferrule

Ceramic Optical Connector Components | Ceramics for

Kyocera's ceramic-based optical connector components offer high dimensional accuracy. Our lineup includes custom designs as well as standard products,

Contact Us

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