Circular Fiber Optic Connector

Overview

Fiber Optic Connectors | Circular ConnectorsAmphenol Fiber Systems International manufactures a complete line of circular fiber optic connectors including.

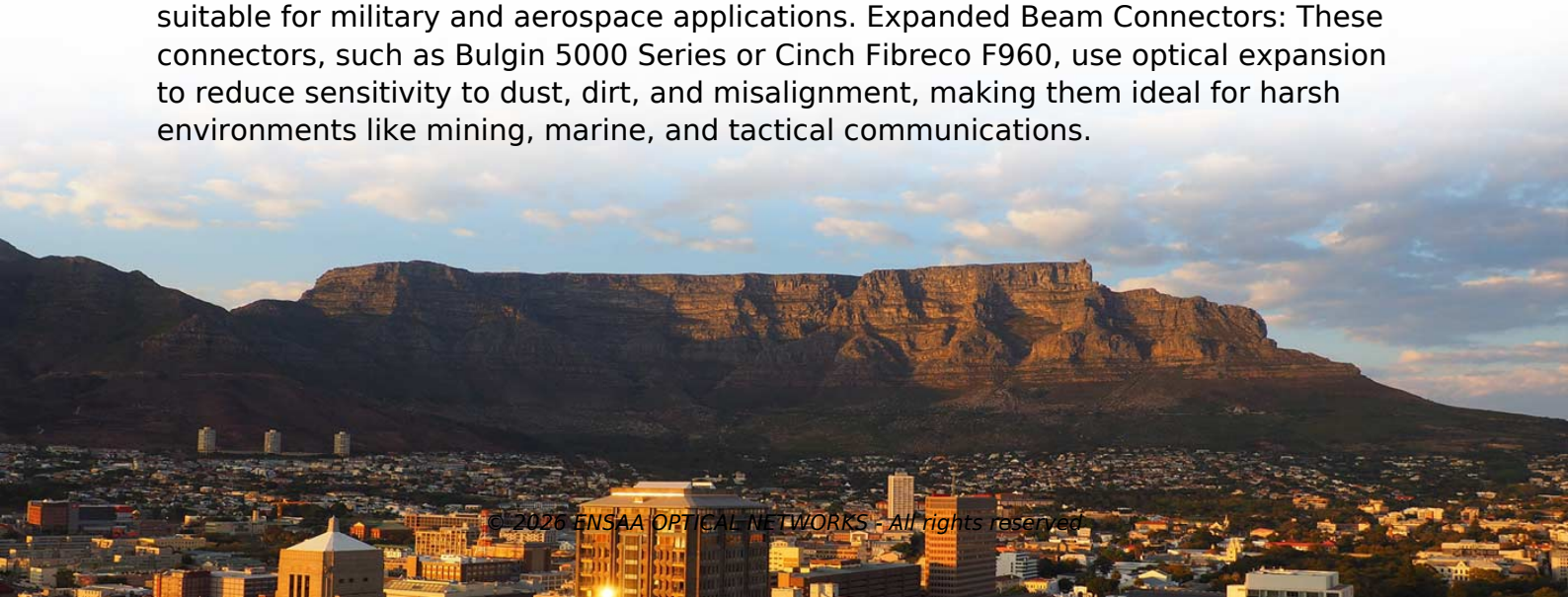
Key Takeaways

Circular fiber optic connectors provide robust, high-density, and environmentally sealed connections for optical fibers in industrial, military, aerospace, and broadcast applications.

Overview

Circular fiber optic connectors are cylindrical connectors designed to terminate and join optical fiber cables, ensuring precise alignment and secure connections for high-speed optical signal transmission. They are widely used in harsh environments due to their rugged design, vibration resistance, and environmental sealing. Key Types and FeaturesMIL-DTL-38999 / MT 38999 Connectors: High-density multi-channel connectors with MT ferrules, available in 12-fiber or 24-fiber configurations, supporting single-mode PC, single-mode APC, and multi-mode PC fibers.

They feature three levels of alignment for precise fiber-to-fiber interface and are suitable for military and aerospace applications. Expanded Beam Connectors: These connectors, such as Bulgin 5000 Series or Cinch Fibreco F960, use optical expansion to reduce sensitivity to dust, dirt, and misalignment, making them ideal for harsh environments like mining, marine, and tactical communications.



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Field-

Terminated Connectors: Examples include LC Field and MTRJ Field connectors, which allow tool-free installation in the field while maintaining dust and fluid resistance.

Hybrid and High-

Density Connectors: Some circular connectors, like Molex MediSpec Hybrid OptoMiX, combine optical and electrical contacts in a compact form factor, supporting mixed signaling and high-performance applications.

Environmental and Mechanical Advantages

Circular fiber optic connectors are engineered to withstand extreme temperatures, vibration, shock, and chemical exposure. Many are rated IP66, IP68, or IP69K, providing protection against dust, water, and harsh industrial conditions. Ruggedized designs often include push-pull, screw, or ratchet locking mechanisms for secure mating and unmating, and some connectors are hermetic or sterilization-proof for medical and laboratory applications.

Applications

Military and Aerospace: High-density MT connectors and MIL-DTL-38999 series for secure, reliable optical links in aircraft, radar, and defense systems. Industrial and Marine: Expanded beam and ruggedized connectors for FTTX, server rooms, civil engineering, and marine environments. Broadcast and Medical: Compact, high-performance connectors for outdoor broadcast, medical devices, and hybrid optical/electrical systems.

Summary

Circular fiber optic connectors are essential for high-performance, reliable optical connections in demanding environments. They offer high fiber density, environmental sealing, rugged mechanical design, and field-termination options, making them suitable for applications ranging from industrial automation to military and aerospace systems. Selecting the right connector depends on fiber type, channel count, environmental requirements, and mechanical robustness.

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Article Content

Fiber Optic Connectors | Circular Connectors

Amphenol Fiber Systems International manufactures a complete line of circular fiber optic connectors including M28876 connector. The MFM Fiber Optic Connector

Circular Fiber Connector 4000 & 6000 Series

The Bulgin Circular Fiber Connector range offer high quality and reliable fiber connectivity solutions. Suitable for use in industries such as outdoor broadcast, FTTX (fiber to the x), server room

Circular Fibre Connectors

Lane Electronics brings together a range of high-performance fibre optic connectors from leading manufacturers EATON Souriau, Cinch Fibreco® and Neutrik.

MT38999 Multi-Channel Connectors with MT Ferrules

Description: Amphenol offers a multi-channel circular connector with high density MT fiber optics. This connector uses MT ferrules.

LC Field Fiber Optic Circular Connectors

Amphenol Fiber Systems International (FSI) LC Field Fiber Optic Circular Connectors transform LC patch cords into harsh environment

Circular Connectors

Molex''s circular connectors are engineered for durability and reliability in harsh environments. Ideal for industrial, medical, and automotive applications.

DEUTSCH Fiber Optic Physical Contact (PC)

Housed in composite 38999 standard compliant shells, they are fully sealed, extremely robust, lightweight and have outstanding corrosion resistance. The

ARINC 801 | Circular Connectors

Learn about the versatile ARINC 801 cylindrical fiber optic connectors, suitable for various military and aerospace needs.

Fischer FiberOptic Series | High-performance Optical

The single fiber optic connector (FO1) is a miniature, rugged connectivity solution especially designed to meet the growing market need for higher data

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LC Fiber Optic Connector for 0.9mm,2mm,3mm Round Cable SFP

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DLA CATS-2006 CONNECTORS, FIBER OPTIC, CIRCULAR,

This standard establishes general specifications for environmental resistant, gendered, circular fiber optic connectors. It outlines the requirements for design, materials, performance, and testing to

DLA MIL-DTL-83526 C-2006 CONNECTORS, FIBER OPTIC, CIRCULAR ...

This specification covers the characteristics, performance and testing criteria for a circular, environmental resistant, hermaphroditic interface, fiber-optic connector. The connectors covered

Micro-Precision 3D Printers

Fiber optics sit at the core of modern photonics, enabling high-speed communications, data centers, and advanced sensing systems. As fiber optic components become smaller and more complex,

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MIL MIL-C-83526A-1989

The document, titled "Connectors, Fiber Optic, Circular, Environment Resistant, Hermaphroditic, General Specification" and identified by the standard number MIL-C-83526A-1989, was published by

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Connector Market Projected to Reach $177.7 Billion, Globally, By

Portland, OR, May 03, 2023 (GLOBE NEWSWIRE) -- Allied Market Research published a report, titled, "Connector MarketByProduct Type (PCB Connectors, I/O Connectors, Circular Connectors, Fiber

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