ZITHA TECH SPECIALTY CABLES (Pty) Ltd

Specifications of Cage-Type Flexible Optical Cable Equipment



Overview

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote.

Key Takeaways

Cage-type flexible optical cable equipment must comply with international standards such as ITU-T, IEC, and MSA specifications, ensuring mechanical stability, EMI shielding, thermal management, and optical performance.Key Standards and Guidelines



© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

1. Mechanical and Electrical Cage Standards Cage-type optical connectors, such as SFP and OSFP cages, are governed by MSA (Multi-Source Agreement) standards like SFF-8432, SFF-8433, and IEC 61076-3. These standards define the mechanical dimensions, press-fit pin technology, and retention mechanisms to ensure reliable module insertion, grounding continuity, and structural integrity on PCBs . Press-fit pins, often called "Eye of the Needle" (EON), allow solder-free connections that maintain mechanical reliability without thermal stress . 2. Thermal Management Cages must dissipate heat generated by high-speed optical modules. Standards recommend ventilation holes, heatsinks, and thermal interface materials (TIMs) to maintain module temperatures below 85°C for 25G/50G modules . OSFP cages, for example, support multi-lane pluggable architectures with integrated heat sinks to handle up to 1.6 Tb/s per port . 3. Electromagnetic Compatibility (EMC) Cages act as Faraday shields, requiring high-conductivity alloys (e.g., C7025 Copper-Nickel-Silicon) and BeCu elastomer gaskets to achieve ≥70 dB shielding effectiveness at 1 GHz, suppressing crosstalk and EMI . Proper grounding and cage design are critical for high-speed signal integrity. 4. Optical Fiber Standards The optical fibers used in these cages must comply with ITU-T and IEC standards:

• ITU-T G.652: Single-mode fiber with low attenuation at 1310 nm, suitable for backbone and metro networks .

• ITU-T G.655: Non-zero dispersion-shifted fiber for DWDM systems, minimizing nonlinear effects .

• ITU-T G.657: Bend-insensitive single-mode fiber compatible with G.652, allowing tighter bends without signal loss .

• IEC 60793 and IEC 60794: Define fiber and cable construction, mechanical strength, and environmental performance . 5. Signal Integrity and Light Pipe Integration High-speed cages require careful PCB co-design to manage parasitic capacitance and via stubs, especially for 25Gbps+ speeds . Light pipes for LED status indicators must have high transmittance (≥90%) to avoid signal interference . 6. Compliance and Certification Cages and optical modules should meet RoHS and REACH regulations, ensuring environmental compliance, and follow MSA guidelines for backward compatibility and interoperability .
Practical Considerations
• Module Compatibility: Ensure the cage supports the intended optical module type (SFP, SFP28, OSFP, etc.) and lane speeds.

• Thermal Design: Match cage heat dissipation to module wattage to prevent overheating.

• EMI Shielding: Use proper materials and gaskets to maintain signal integrity.

• Fiber Type Selection: Choose fibers according to ITU-T recommendations for the application (long-haul, metro, or high-density data centers).

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

• Installation and Maintenance: Follow standards for press-fit insertion, grounding, and cable routing to maintain long-term reliability. By adhering to these standards and guidelines, engineers can ensure mechanical stability, thermal efficiency, EMI protection, and optical performance in cage-type flexible optical cable equipment, supporting high-speed, high-density data center and telecommunication applications.

Article Content

Flexible Fiber Optic Cable Assemblies | TE Connectivity

Explore TE Connectivity''s versatile optical flex circuitry and cable assemblies for high-density,

Product Specification Sheets

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

Product Catalog Archives

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

OSFP | High Speed Interconnects | Amphenol

Designed for flexibility, it supports passive and active copper cables and optical modules. Multiple connector and heat

The QSFP+ connector, cage and cable assemblies (copper and

Molex QSFP+ cages feature internal EMI spring fingers that effectively contain EMI between the cage and module. Unlike XFP, the

OSFP | High Speed Interconnects | Amphenol

Amphenol''s ExtremePort™ OSFP connector and cage family delivers a scalable, high

Product Family: Cages Connectors Cable assemblies

DESCRIPTION SFP+ extends the use of the Small Form-Factor Pluggable (SFP) interconnect up to 10 Gb/s. This system meets the

Want More Flexibility? Try Our TECHSPEC® CagE SySTE

Designed for modularity and flexibility, optical cage systems are high precision alternatives to complex optical alignment systems.

Top Content on LinkedIn

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Explore top LinkedIn content from members on a range of professional topics.

Cablofil Cable Management | Legrand

Cablofil is the global gold standard for total cable management. Explore the one-stop shop for innovative, fast, and dependable cable

FIBER OPTIC CABLE ASSEMBLY MANUFACTURABILITY AND

The purpose of this document is to define the standards and guidelines that should be followed in order to fabricate a harsh

OSFP Connectors & Cable Assemblies

OSFP Connectors & Cable Assemblies (English) Our Octal Small Form Factor Pluggable (OSFP)

TE Connectivity

We would like to show you a description here but the site won''t allow us.

TE Connectivity

We would like to show you a description here but the site won''t allow us.

What Is an SFP Module? Complete Guide

Understand Optical Specifications Ensure the optical specifications, including wavelength,

OSFP CONNECTORS, CAGES & CABLE ASSEMBLIES

OSFP CONNECTORS, CAGES & CABLE ASSEMBLIES TE Connectivity''s (TE) Octal Small Form Factor Pluggable (OSFP)

OSFP OCTAL SMALL FORM FACTOR PLUGGABLE MODULE

Abstract: This specification defines the electrical connectors, electrical signals and power supplies, mechanical and thermal

OSFP | High Speed Interconnects | Amphenol

Amphenol''s ExtremePort™ OSFP connector and cage family delivers a scalable, high

Product Family: Cages Connectors Cable assemblies

DESCRIPTION SFP+ extends the use of the Small Form-Factor Pluggable (SFP) interconnect up to 10 Gb/s. This system meets the

Want More Flexibility? Try Our TECHSPEC® CagE SySTE

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Designed for modularity and flexibility, optical cage systems are high precision alternatives to complex optical alignment systems.

Top Content on LinkedIn

Explore top LinkedIn content from members on a range of professional topics.

Cablofil Cable Management | Legrand

Cablofil is the global gold standard for total cable management. Explore the one-stop shop for innovative, fast, and dependable cable

FIBER OPTIC CABLE ASSEMBLY MANUFACTURABILITY AND

The purpose of this document is to define the standards and guidelines that should be followed in order to fabricate a harsh

Fibre Optic Transceiver Cages and Connectors

Acal BFi offer cages and electrical connectors for all popular Multiple Supplier Agreement (MSA) transceiver formats.

Marketplace | BIG W

Marketplace is an online marketplace where you can buy products from Marketplace

Flexible Fiber Optic Cable Assemblies | TE Connectivity

Explore TE Connectivity''s versatile optical flex circuitry and cable assemblies for high-density, customizable fiber optic solutions in

SFP and SFP+ Connector System

In addition to cages, connectors and cable assemblies, Molex offers loopback adapters, lightpipe cover assemblies and sealed

OSFP Connectors & Cable Assemblies

OSFP Connectors & Cable Assemblies (English) Our Octal Small Form Factor Pluggable (OSFP) connectors, cages and cable

TE Connectivity

We would like to show you a description here but the site won''t allow us.

TE Connectivity

We would like to show you a description here but the site won''t allow us.

What Is an SFP Module? Complete Guide

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Understand Optical Specifications Ensure the optical specifications, including wavelength, data rate, and fiber type

Flexible Fiber Optic Cable Assemblies | TE Connectivity

Explore TE Connectivity''s versatile optical flex circuitry and cable assemblies for high-density,

Product Specification Sheets

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

Product Catalog Archives

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

OSFP | High Speed Interconnects | Amphenol

Designed for flexibility, it supports passive and active copper cables and optical modules. Multiple connector and heat

The QSFP+ connector, cage and cable assemblies (copper and

Molex QSFP+ cages feature internal EMI spring fingers that effectively contain EMI between the cage and module. Unlike XFP, the

OpticsCage+ Optical Cage System

Newport OpticsCage+™ offers fast, snap-in assembly for optical systems. This robust, modular cage system accelerates setup,

Complete Coaxial Cable Catalog & Handbook

To assist you in this analysis, this catalog and handbook includes complete reference data enabling you to determine the

Product Family: Cages Connectors Cable assemblies

Cable assembly braid crimp and EMI skirt suppress EMI radiation. Broad line of cable assembly lengths and wire gauges offers

OSFP Connectors & Cable Assemblies

Combined with strong electrical performance and broad system compatibility, TE OSFP connectors and

Optical Fiber Product Information Sheets

An all inclusive list of the various optical fiber specification sheets.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Flexible Fiber Optic Cable Assemblies | TE Connectivity

Explore TE Connectivity''s versatile optical flex circuitry and cable assemblies for high-density,

Product Specification Sheets

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

Product Catalog Archives

Our team will make sure the configuration is tailored to your needs and will provide a detailed quote. Email us using the Request a

OSFP | High Speed Interconnects | Amphenol

Designed for flexibility, it supports passive and active copper cables and optical modules. Multiple connector and heat

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://zithatech.co.za
Technical inquiry: https://zithatech.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved