

Cold-fitting straight-through type and pre-embedded type



Overview

Connection Solutions Catalog (8x11) | CPCThe type of media flowing through a connection can affect the strength, surface appearance, color and performance.

Key Takeaways

Cold-fitting (press-fit) straight-through and pre-embedded types are two connector technologies that differ in installation method, internal structure, and application, with press-fit focusing on PCB mechanical and electrical reliability, and pre-embedded connectors emphasizing fiber alignment and quick optical termination.

Cold-

Fitting (Press-Fit) Straight-Through Type
Definition and Mechanism: Cold-fitting, or press-fit technology, involves inserting a pin directly into a plated-through hole on a PCB without soldering. The pin forms a gas-tight, cold-welded connection with the copper plating due to high friction, ensuring low contact resistance and strong mechanical stability. **Types:** Solid pins: Rigid pins that provide high extraction force and mechanical strength.

Compliant pins: Pins with an elastic zone to reduce stress during insertion, improving reliability under vibration. **Advantages:** Eliminates soldering, reducing thermal stress on PCBs. High current capacity with low self-heating.

Long-term reliability with low failure-in-time (FIT) values. Supports automated assembly and two-sided PCB mounting. Cost-effective for high-volume production.

Applications: Common in automotive, power modules, and high-current PCB assemblies where vibration resistance and mechanical robustness are critical.

Pre-

Embedded Type

Definition and Mechanism: Pre-embedded connectors, often used in fiber optics, have a section of the optical fiber embedded inside the connector from the ferrule to the V-groove. During installation, the fiber core is inserted into the V-groove, and supporting liquid or adhesive ensures precise alignment and secure docking. Types: Embedded type: Fiber is pre-positioned inside the connector for quick termination.

Straight-through type: The stripped fiber passes directly through the connector body to the ferrule without internal connection points. Advantages: Simplifies installation and reduces alignment errors. Provides consistent optical performance with minimal insertion loss.

Suitable for S

C, FC, and LC connector formats. Faster deployment compared to traditional fusion splicing. Applications: Used in industrial refrigeration, data centers, and telecommunications where rapid and reliable fiber connections are required.

Key Differences	Feature	Cold-Fitting (Press-Fit)	Pre-Embedded	Medium	Electrical pins on PCB	Optical fibers
Connection Method		Cold-welded, friction-fit	Fiber embedded in ferrule/V-groove			
Installation		Pressed into PCB holes	Fiber inserted into pre-aligned groove			
Mechanical Strength		High, withstands vibration and load	Moderate, focused on alignment precision			
Electrical/Optical Performance		Low contact resistance, high current	Low insertion loss, precise optical alignment			
Applications		Automotive, power electronics	Fiber optic networks, industrial refrigeration			

Summary: Cold-fitting straight-through pins are ideal for mechanically robust, high-current PCB connections, while pre-embedded connectors are optimized for quick, precise optical fiber terminations. Choosing between them depends on whether the priority is electrical/mechanical reliability or optical alignment and installation speed.

Article Content

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The type of media flowing through a connection can affect the strength, surface appearance, color and performance of the connection. Here are some guidelines for the different types of material.

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1- Select in the table below, the kit size corresponding to the insulation voltage (in kV: 12 - 17.5 - 24) and the diameter over insulation. ... 2- Specify insulation voltage in kV : 12 - 17 - 24. 3- Select the screen

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Press fit tolerances define the dimensional limits for components to fit together without additional fastening. They ensure a tight, secure fit in mechanical assemblies.

13 Types of Pipe Fittings

Learn about the types of pipe fittings that are used to connect pipe together in plumbing. This guide details the uses of pipe fittings and their shapes, functions, connections and materials.

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This specification

Installation Handbook

The fitting is properly inserted when the PEX pipe is pushed up against the last rib of the cold-expansion fitting. If full insertion is not possible, remove the cold- expansion fitting immediately and expand the

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