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 TypeDefinition 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.

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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 DifferencesFeatureCold-Fitting (Press-Fit)Pre-EmbeddedMediumElectrical pins on PCBOptical fibersConnection MethodCold-welded, friction-fitFiber embedded in ferrule/V-grooveInstallationPressed into PCB holesFiber inserted into pre-aligned grooveMechanical StrengthHigh, withstands vibration and loadModerate, focused on alignment precisionElectrical/Optical PerformanceLow contact resistance, high currentLow insertion loss, precise optical alignmentApplicationsAutomotive, power electronicsFiber optic networks, industrial refrigerationSummary: 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.

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Article Content

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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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TECHNICAL SPECIFICATION FOR HEAT SHRINKABLE TYPE, TAPE X TYPE, PRE MOULDED TYPE AND COLD SHRINKABLE TYPE JOINTING KITS AND TERMINATIONS 1.0 This specification

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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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