

# PCB CONNECTIONS

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## Leading Automotive OEM Leverages Molex Custom Engineering to Keep Project on Time and on Budget

### BUSINESS CHALLENGE

A leading automotive manufacturer needed an interconnect solution that would meet requirements for cost and rapid time to market.

In the highly competitive automotive marketplace, an OEM wanted to take advantage of direct-to-PCB connections to maximize profit margins while also getting its new product to market as quickly as possible. With options such as Molex Round Flat Cable (RFC) and Hot Bar Solder Cable Jumpers, designers can maximize limited PCB space, reduce component costs by eliminating the need for connectors or wire stripping, and provide reliable board-to-board connections.

Both RFC and Hot Bar Solder Cable Jumpers provide the durable direct-to-PCB connection required for high-vibration environments, such as automotive. However, since none of the off-the-shelf cable options were available in the necessary length, the OEM approached Molex about a custom solution.

### SOLUTION

**Molex Premo-Flex RFC Jumpers deliver flexibility and performance.**

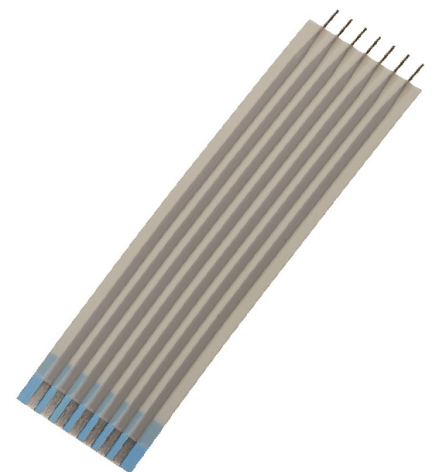
Molex already offered customized RFC jumpers in a variety of pitches, circuit sizes and terminations. In order to meet the customer's specific pricing, physical spacing and size requirements, Molex worked closely with its manufacturing experts to create a unique design.

Typical RFC designs feature round contacts that are flattened in the middle of the jumper to provide additional flexibility. Keeping the contacts round at the ends removes the need for a connector and allows the contacts to be soldered directly to the PCB using a wave soldering process. However, in this new design, the contacts were designed to be round throughout to decrease the overall size of the RFC to fit the customer application's small space constraint, and still not require a mating connector.

The result was an economical custom Premo-Flex RFC Jumper that was the correct length and cost one-third the amount of the solution offered by the only Molex competitor. The RFC's unique design offered several other benefits consistent with the advantages of a typical RFC.

It is highly resistant to vibration and bending, and delivers superior signal integrity. It connects directly to PCBs with a simple assembly process utilizing wave solder. This generates cost savings since connectors or wire stripping are no longer needed.

RFC jumpers can have round contacts throughout or flattened contacts in selected locations to create a round-flat-round or round-to-flat contact style jumper. Termination options include flat contacts with a zero insertion force (ZIF) or a low insertion force (LIF) connector, round contacts with through-hole soldering, or hybrid options that feature flat contacts on one end and round contacts on the other.

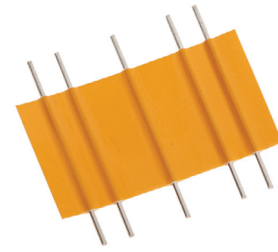


Custom Hybrid RFC  
with Round-to-Flat Contacts

RFC designs are available with polyester, aramid and polyimid insulation options. Hot Bar Solder Cable Jumpers are an additional alternative solution to cable jumpers and do not require a connector. They are permanently affixed to the PCBs through direct soldering. Premo-Flex RFC and Hot Bar Solder Cable Jumper designs meet Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) requirements.



Custom RFC with  
Round-Flat-Round  
Contacts



Custom RFC with  
Round Contacts

## KEY BENEFITS

### Durable, low-cost, direct-to-PCB connections

- Ideal for rugged applications with space limitations, including automotive, consumer/home appliance, data/computing, industrial, medical and aerospace and defense
- Round flat cable design delivers robust signal integrity in high-vibration environments
- Cost-effective direct connection to PCBs eliminates the need for connectors or wire stripping
- Customized cables are available in a variety of pitches, circuit sizes and terminations



Custom Hot Bar Solder Cable Jumpers

[www.molex.com/product/premoflex\\_ffc-fpc.html](http://www.molex.com/product/premoflex_ffc-fpc.html)