

## Rigid Flex Made Easy

Let Minco help with your next Rigid Flex project

### Overview

Minco's Rigid Flex assemblies offer the advantages of both flexible cables and conventional PCBs. The rigid portions allow you to have surface mount SMT components down to 0201 on both top and bottom surfaces within the same region. They also can be designed to utilize conventional through-hole connectors and components.

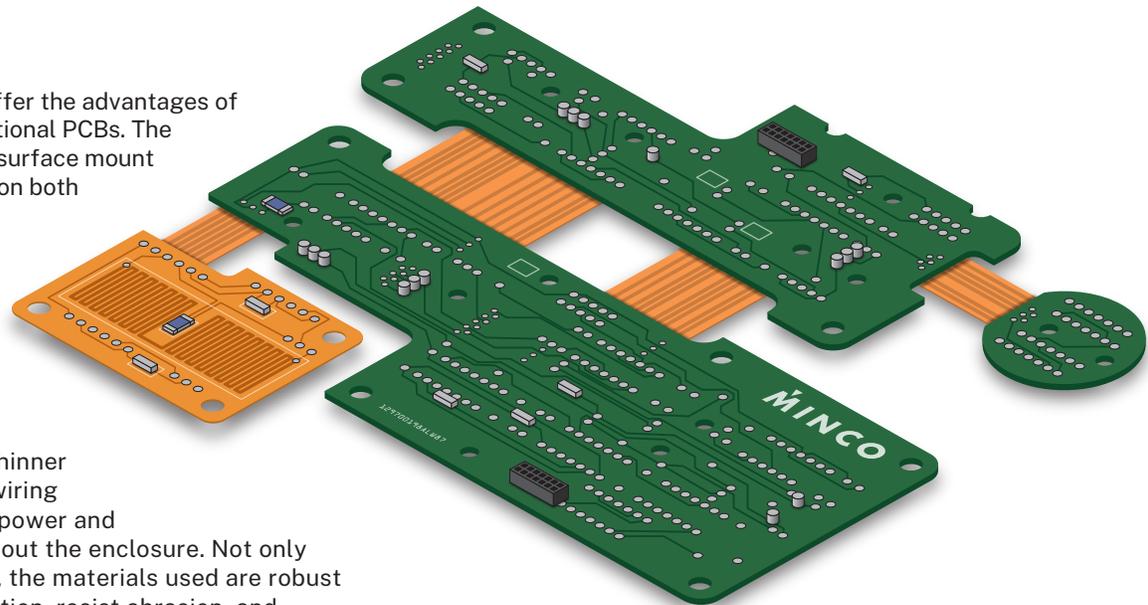
It turns out most projects can benefit from flex technology. Such circuits are thinner and lighter than conventional wiring bundles, allowing you to route power and signals to components throughout the enclosure. Not only are flex circuits more compact, the materials used are robust enough to withstand high vibration, resist abrasion, and endure thousands to millions of flexing cycles. Flex circuits' polyimide construction makes them ideal for rigorous markets such as aerospace, defense, and medical.

### Integrated Solutions

Minco's portfolio of expertise includes more than just flex circuits. Our ability to add heaters and sensors to flex and rigid flex circuits helps create solutions that reduce assembly errors and improve time-to-market.

We have the capability to build in through-hole and surface-mount pads, stiffeners for component assembly, and heaters to maintain temperature in certain parts of the device. We can even install induction coils for communication telemetry. Our unsurpassed capabilities allow us to integrate any combination of our high-quality flex circuits, heaters, sensors, and other components into a single solution.

Critical systems like avionics, satellites, and medical imaging devices—applications too important to be allowed to fail—all benefit from Minco's broad array of specialties. Our application solutions are reliable, innovative, practical, and often include the integration of thermal, flexible printed circuit board, as well as sensor and instrument design, into a single package.



### Minco Flex Resources

Do you want to learn more about Minco's Flex capabilities? Our website has numerous articles and downloadable resources.

Visit us at [www.minco.com](http://www.minco.com) today and find the following:

- [Flex Circuits Design Guide](#)
- [New Flex Project Worksheet](#)
- [White Papers](#)
- [Blog Posts](#)
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# Minco's Rigid Flex Expertise

*Continuous focus on technological improvement*

## Overview

Minco's commitment to Rigid Flex can be seen in the table to the right. We continually research and invest in techniques for improving via diameter and aspect ratios, reducing pad size for through-hole and micro vias, and continuing to expand the number of layers we can accommodate.

The company commits to investing a significant percentage of annual profits into new equipment; new plating lines, drills, and other tools are acquired as needed to keep Minco at the forefront of flex technology.

## Choose Minco for Rigid Flex

In today's competitive markets, manufacturers are always looking for ways to cut costs, slash time to market, and improve product performance. But while component buyers are price sensitive, they also look at measures like total cost of ownership, reliability, performance, and customization. Designers of those products, and others like them, recognize that the cost of a specialized component or an integrated assembly can be more than offset by reduced assembly cost. They know that speed to market can help maximize the profitability of a new or improved product. And they rely on Minco to help eliminate risk in demanding markets.

What sets Minco apart isn't just the products we deliver but how we function as a company and interact with our customers to develop and deliver those products. For quality parts, teamwork you can count on, and responsible manufacturing, make our experienced engineering staff part of your team.

## Contact Minco Today

Learn how Minco's Flex expertise can help with your next project:

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## Flex Capabilities

Description	Double-Sided	Multi-Layer	Rigid Flex
Minimum Drilled Via Diameter	.008"	.008"	.010"
Min. Laser Via Formed Diameter (Flex Portion)	.003"	.003"	.003"
Minimum Line and Spacing (Internal)	N/A	.003"/.003"	.003"/.003"
Minimum Line and Spacing (External)	.003"/.003"	.005"/.005"	.005"/.005"
Minimum Copper Thickness	5 micron	5 micron	5 micron
Maximum Copper Thickness	<7 oz.	<7 oz.	<7 oz.
Min. Pad Size for Through-Hole Vias	Via dia. + 0.010"	Via dia. + 0.014"	Via dia. + 0.014"
Min. Pad Size for Micro Vias	Via dia. + 0.010"	Via dia. + 0.012"	N/A
Panel Size	18" x 24"	18" x 24"	18" x 24"
Through-Hole Plating Aspect Ratio	N/A	10:1	10:1
Blind Micro Via Min. Plating Aspect Ratio	1:1	1:1	N/A
Panel Plating	Yes	Yes	Yes
Selective Plating (Pads Only or Button)	Yes	Yes	Yes
Number of Layers	N/A	12+	12+
Via Fill	Yes (copper plated)	No	No