FRALOCK®
Leading the Way in Advanced Materials Solutions

ADHESIVELESS LAMINATION TECHNOLOGY (ALT)™

In critical applications where material failure can result in extreme loss of resources or even life, material integrity is essential. Traditional lamination technologies can produce materials that delaminate under harsh conditions or with extended use. For mission critical or life-sustaining applications, the highest performance solutions are required.

Fralock manufactures highly durable and rugged all-polyimide laminated materials constructed with our proprietary **Adhesiveless Lamination Technology (ALT)™**.

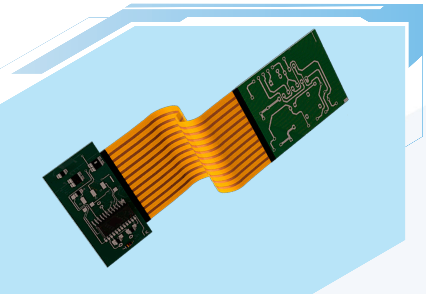
We use this technology to laminate layers of polyimide film and other materials - such as metal foils - to produce a monolithic material that is able to operate in extreme environmental conditions for extended time without cracking or delaminating. This laminate is ideal for critical applications in industries such as aerospace, military, defense, medical, industrial, and energy.

ALT DURA™ PRODUCTS

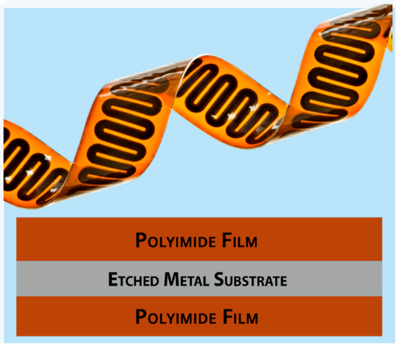
Fralock ALT Dura™ products are made using Adhesiveless Lamination Technology (ALT)**™,** which include **flexible circuits** and **heaters, metal encapsulated heaters**, and other electronic parts.

Fralock manufactures custom ALT Dura™ components to satisfy the requirements of your most demanding applications.

Flexible Interconnect Products



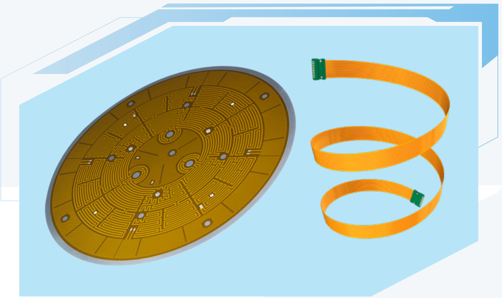
ALT Dura™ flex circuits are fully encapsulated with polyimide to protect the metal foil traces from environmental damage and degradation. Laminated **without adhesives**, these flex circuits, harnesses and heaters can withstand delamination in demanding use cases such as hard creasing, repetitive flex cycles and cryogenic environments.



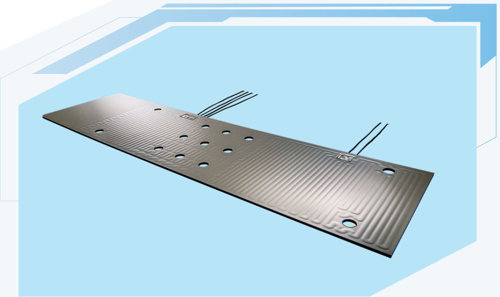
ALT Dura™ flex products offer superior resistance to trace swimming under high temperatures and 30% reduction in mass compared with traditional flex products laminated with temperature-limiting adhesives. ALT Dura™ circuits also exhibit a wide temperature operational tolerance, from -269°C to 250°C (-452°F to 482°F).

Applications using Adhesiveless Lamination Technology (ALT)™

A wide variety of electronic components can be made with Adhesiveless Lamination Technology (ALT)™ including:



- Flexible board-to-board connectors - rigid-flex design allows multiple layers of polyimide and metallization
- Flex-to-board connectors, BGA and LGA sockets - provides high-reliability and performance in molding operations
- Metal encapsulated heaters (Al, Cu, stainless steel)
- All-polyimide circuit boards
- All-polyimide extended flex circuits - up to 50 ft
- Wafer heaters for semiconductor manufacturing
- Medical diagnostic instruments
- Low profile flexible grounding straps for aerospace applications



Get in touch with us to discuss your project.

- Sales@fralock.com
- 800-372-5625