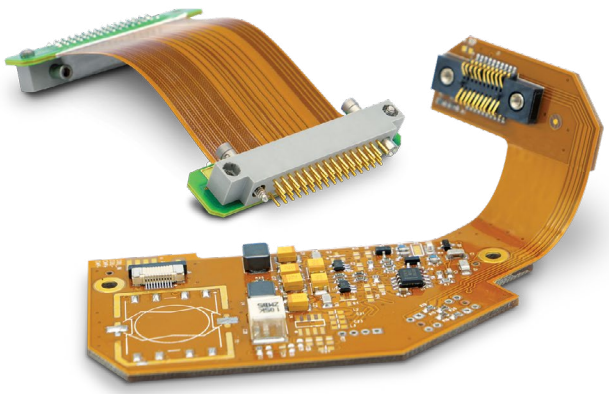
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AirBorn Rugged Flexible Circuit Assemblies

Flexible Printed Circuit Solutions for Aerospace, Defense and Space

High-reliability flex and rigid-flex circuit assemblies from Molex are engineered for mission-critical applications where performance, durability and quality cannot be compromised.



Why Rugged Flex?

Designed for Demanding Environments

Rugged flexible circuit assemblies combine the routing and component integration advantages of PCBs with the flexibility and packaging benefits of cable assemblies. Flex circuits help reduce weight, improve reliability and optimize system performance in harsh operating environments.

- Improved reliability through fewer interconnects
- Reduced weight versus that of wire harnesses
- Enhanced shock and vibration resistance
- Tight-space and 3D packaging capability
- Improved thermal performance
- Controlled impedance and signal integrity support
- Reduced assembly complexity
- Serviceable, repair-friendly designs



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Why Choose AirBorn Rugged Flexible Circuit Assemblies?

Engineering Expertise from Concept Through Production

With a focus on collaborative problem-solving through design-in custom solutions, Molex provides support at every step of the development process.

35+ Years of Flexible-Circuit Experience

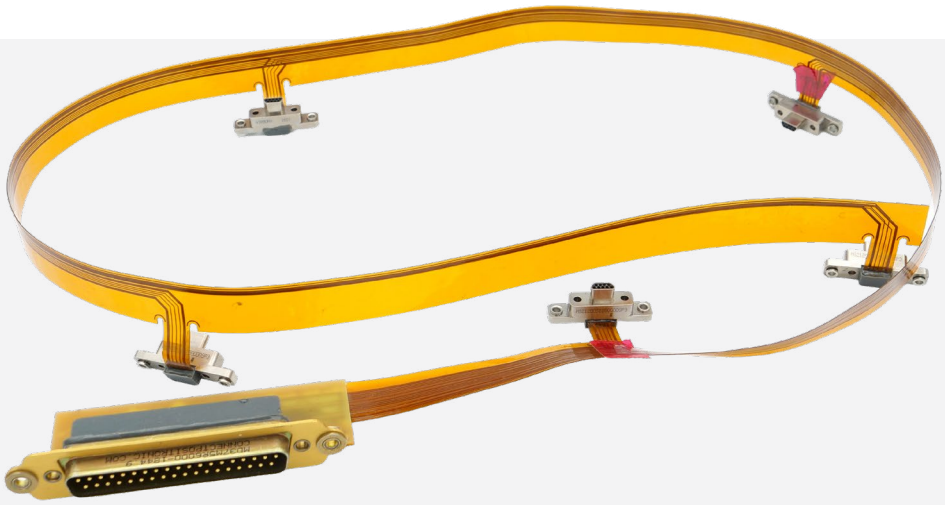
- Proven expertise delivering high-reliability flex and rigid-flex assemblies
- Support for all major flex circuit technologies

In-House Design, Manufacturing and Testing

- Design support
- Assembly services
- Electrical testing
- Inspection and qualification

System-Focused Approach

- From simple flex jumpers to complex rigid-flex assemblies
- Fully integrated complete solutions delivered ready to plug directly into the customer's system



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Flex and Rigid-Flex Capabilities

Comprehensive Design and Manufacturing Capabilities

Product Types

- Single sided
- Double sided
- Multi layer
- Rigid flex
- Sculptured flex
- High-density edge connection (HDEC)

Electrical Performance

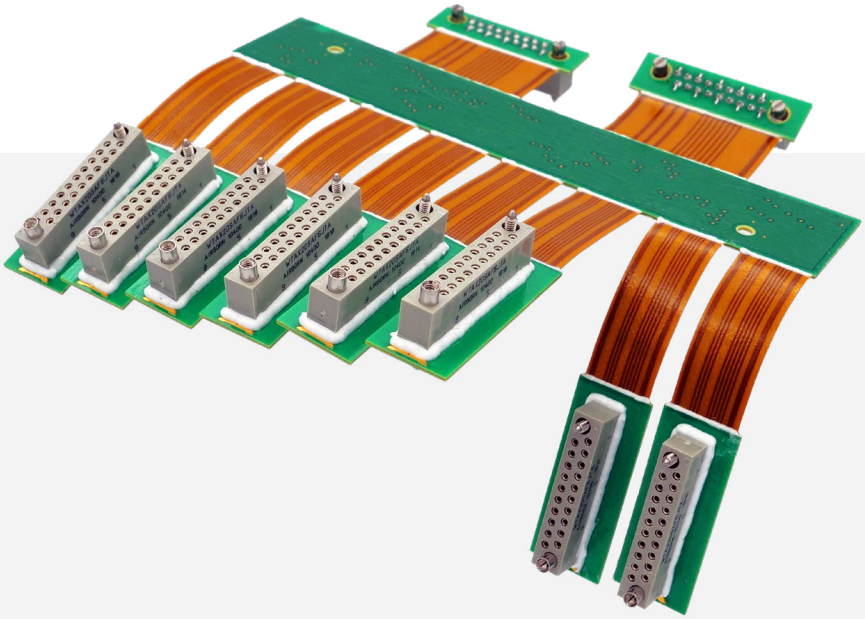
- Controlled-impedance designs
- High-speed signal support
- Shielding options
- Low-insertion-loss designs

Mechanical Performance

- Up to 15 layers
- Tight-bend applications
- Dynamic flex designs
- High-density routing

Materials and Finishes

- Multiple polyimide material systems
- Copper weights from 0.5 to 7 oz.
- Electroless nickel-immersion gold (ENIG), hot air solder leveling (HASL), hard gold, immersion silver and other finishes



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Design, Engineering and Assembly Support

Accelerate Development with Engineering Collaboration

Design for Manufacturability

- Early collaboration ensures designs can be manufactured efficiently and reliably.

Design and Impedance Modeling

- PCB layout support
- Signal integrity validation
- Stack-up optimization
- Controlled-impedance modeling

Turnkey Assembly

- Surface-mount assembly
- Hand soldering
- Ecobonding
- Crimping
- Conformal coating
- RoHS capability



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Qualification, Testing and Quality

Built for Mission-Critical Performance

AirBorn Rugged Flexible Circuit Assemblies are engineered for superior reliability and compliance with stringent regulations and quality requirements. Molex offers application-specific testing and validation that streamlines development processes and ensures consistency.

Testing Capabilities

- Flying probe testing
- Grid testing
- Impedance testing
- Functional testing
- Environmental testing
- Flex cycle testing

Inspection Capabilities

- Automated optical inspection
- First article inspection
- Laser coordinate measurement machine inspection
- IPC/MIL-compliant microsection analysis

Certifications

- AS9100
- ISO 9001
- IPC 6013 Class 3
- IPC-A-600 Class 3
- IPC-A-610 Class 3
- J-STD-001
- MIL-PRF-31032
- MIL-PRF-50884
- UL 94 V0/V1



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Competitive Advantages

Why Leading Aerospace and Defense Programs Choose Molex

High-Reliability Focus:
Industry-leading materials, processes and quality systems

Space Heritage:
Experience delivering products for space-rated applications

ITAR Expertise:
Knowledge of military and defense program requirements

Prototype-to-Production Scalability:
Support from initial development through full-rate production

Vertical Integration:
Integration with AirBorn and Molex interconnect portfolios

North American Manufacturing:
Domestic manufacturing capability and supply chain support



Applications

Supporting Mission-Critical Applications

- Cockpit display systems
- Cube satellite systems
- Electronic warfare systems
- Engine control systems
- Fire control systems
- Flight control computers
- Flight data recorders
- Ground vehicle electronics
- Intelligence, surveillance and reconnaissance platforms
- Landing gear control systems
- Military aircraft avionics
- Missile guidance and control systems
- Radar systems
- Rugged portable computing systems
- Satellite communications terminals
- Satellite payload electronics
- Secure tactical communications
- Solar array interconnects
- Soldier-worn electronics
- Spacecraft power distribution systems
- Tactical radio systems
- Unmanned aerial vehicles
- Weather radar systems

Work with Molex for AirBorn Rugged Flexible Circuit Assembly Solutions

From concept development and design optimization to production-ready assemblies, Molex delivers flexible circuit solutions that are engineered for reliability in demanding environments.

www.molex.com

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