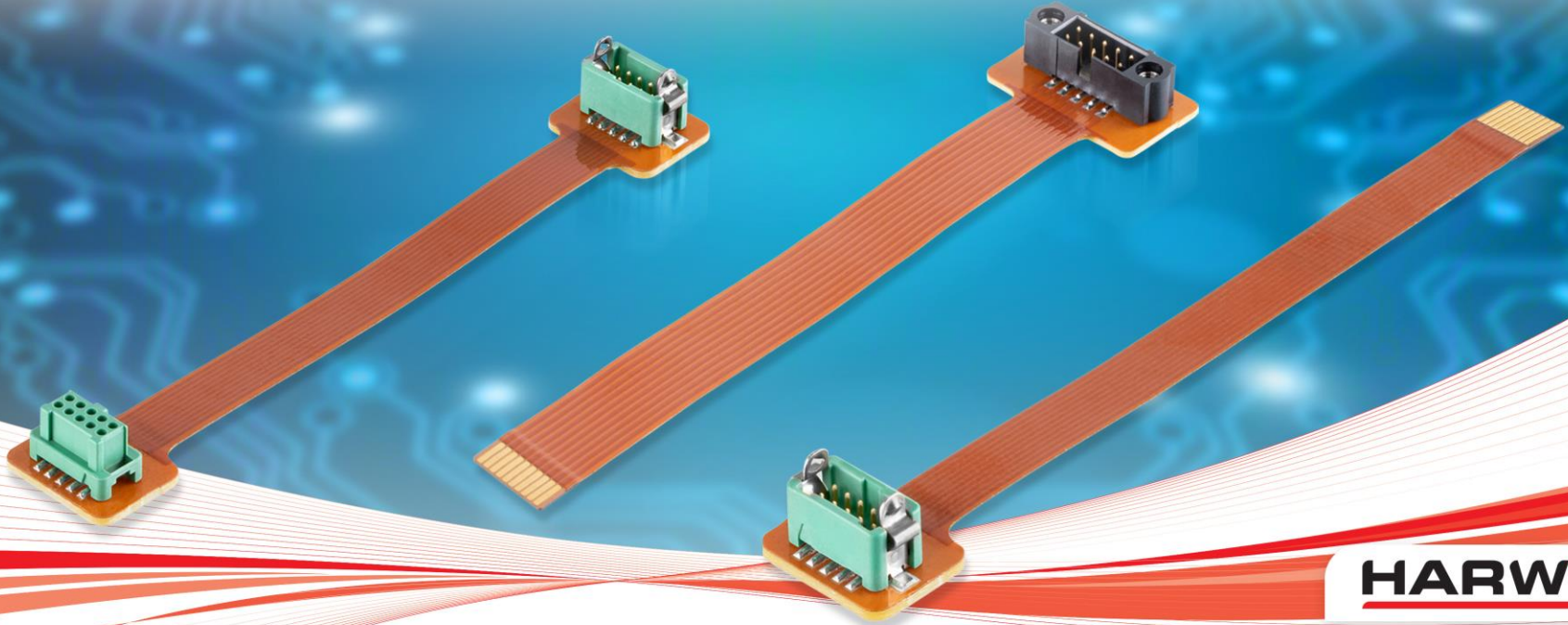


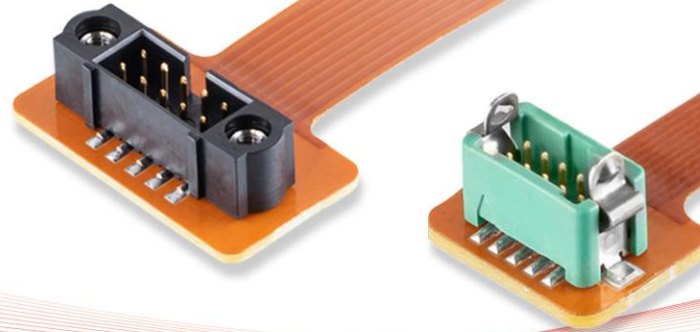
Hi-Rel Flex Circuit Assemblies



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Hi-Rel Flex Circuit Assemblies

What are these assemblies?



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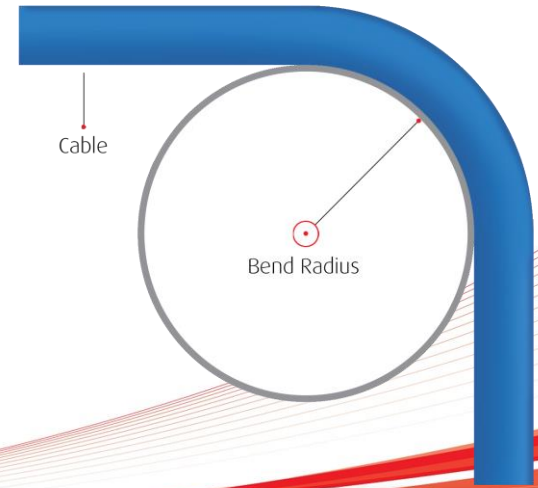
The Hi-Rel Flex Circuit assemblies are an alternative to cable-mounted connectors. The assemblies use surface mount connectors pre-soldered to specially-designed flexible printed circuits (FPC).

- Ready-made flexible connections, no additional tooling or assembly required.;
- Single-ended versions compatible with industry standard FPC/FFC connectors;
- Double-ended versions in preset lengths – Contact Harwin for alternative configurations.

Hi-Rel **Flex Circuit** Assemblies

Why use **flex circuit**?

Material	Thickness	Bend Radius factor	Calculated Bend
Flex Circuit	0.185mm	10 x thickness (static)	1.85mm
		20 x thickness (dynamic)	3.70mm
28AWG Cable	Ø0.56mm to 0.71mm	6 to 10 x diameter	3.36mm to 7.10mm



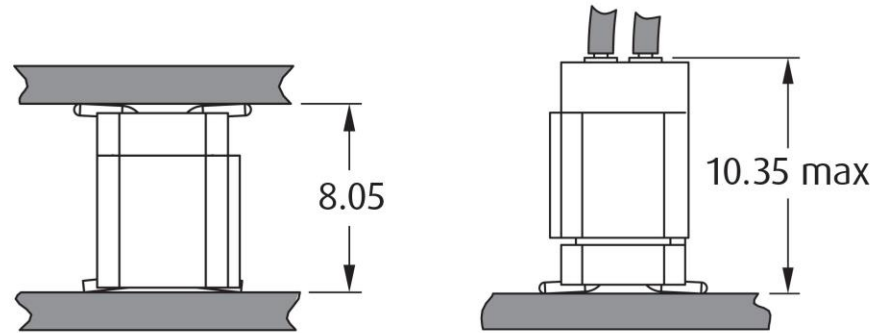
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Flex circuit is able to bend at a much tighter angle than cable. Where a typical static bend radius for these flex circuits is 10 times the thickness of the flex, the thickness of the flex means this is just 1.85mm. For a 28AWG cable, the static bend radius might at best be 3.36mm (Ø0.56mm x 6), but could be 7.10mm (Ø0.71mm x 10).

Dynamic bend radius for cable will be much higher, where the flex is 20 times thickness – just 3.70mm.

Hi-Rel Flex Circuit Assemblies

Why use flex circuit?



There is also an advantage in mated height, and the amount of clearance required above the connection.

- The mated height of a cable connector is higher than that of a SMT connector.
- The cables are exiting vertically, and need additional space to bend sideways to avoid the next item above the connection. The FPC connection is already exiting at right angles to the connection, and no additional height is required.

Hi-Rel Flex Circuit Assemblies

When is flex circuit not the best choice?



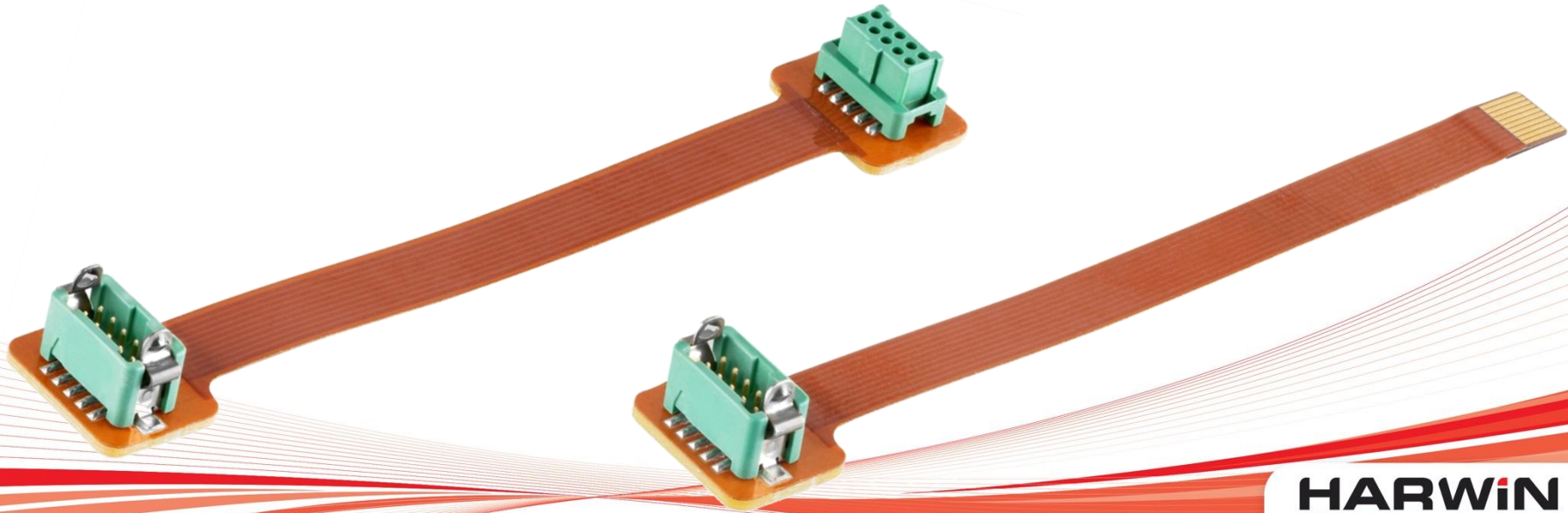
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There are two circumstances where cable is actually the better choice...

- Flex printed circuits are not capable of carrying the same level of current.
- If the flexible connection needs to bend through multiple different angles in different planes – flex only really bends easily in one direction, keeping it flat to the plane of bend.

Hi-Rel Flex Circuit Assemblies

Gecko with Latches Flex Circuit Assemblies



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Two options are available as standard – both use 10-contact connectors in the latch style, 0.8mm rigid PCB under each connector.

- [G125-F1MS110-075-L](#) – Single-ended – Male connector with SMT latches, 0.5mm pitch FPC end, 0.3mm thick, suitable for industry-standard FPC/FFC connectors.
- [G125-F1MS110-075-FS1](#) – Double-ended – Male connector with SMT latches on the first end, Female connector compatible with latches on the second end.

Hi-Rel **Flex Circuit** Assemblies

Datamate J-Tek Flex Circuit Assemblies



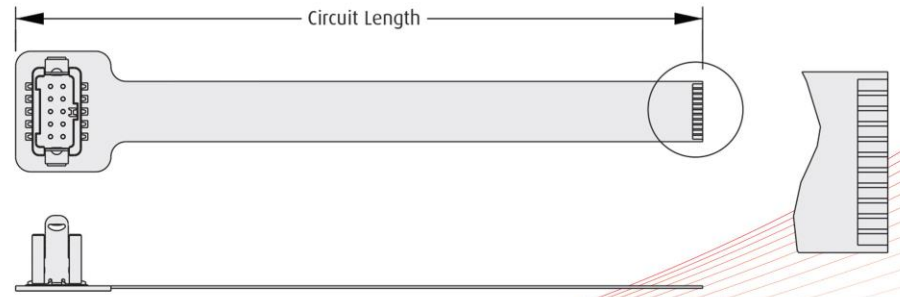
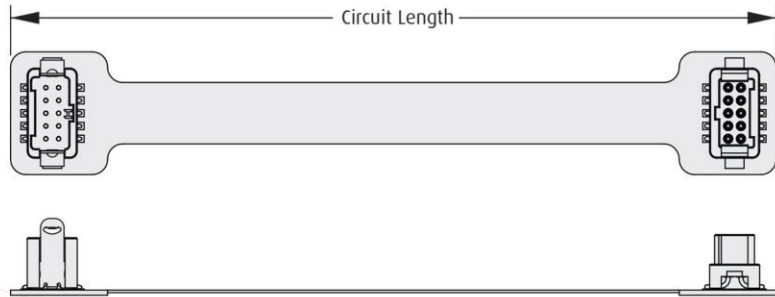
HARWIN

The single-ended design is available as standard – fitted with a 10-contact J-Tek connector, 0.8mm rigid PCB under each connector.

- [M80-F150210-100-L](#) – Single-ended – Male connector with internal jackscrews, 1mm pitch FPC end, 0.3mm thick, suitable for industry-standard FPC/FFC connectors.

Hi-Rel Flex Circuit Assemblies

Circuit lengths



On these Flex Circuit assemblies, cable length is specified as the total length of the FPC.

- Datamate J-Tek – standard length is 100mm.
- Gecko with Latches – standard length is 75mm.

Contact Harwin for the availability of other cable lengths, configurations and number of contacts.

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Hi-Rel **Flex Circuit** Assemblies

Free end specification



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For the single-ended Flex Circuit assemblies, the free end is 0.3mm thick, designed to be suitable for industry-standard FPC/FFC connectors – both ZIF and LIF styles.

- Datamate – compatible with 1.00mm pitch FPC/FFC connectors.
- Gecko – compatible with 0.50mm pitch FPC/FFC connectors.

Hi-Rel Flex Circuit Assemblies

Performance Specification highlights

Current Rating	Gecko with Latches = 0.4A max per track Datamate J-Tek = 1.0A max per track
Temperature Range	Gecko with Latches = -65°C to +150°C Datamate J-Tek = -55°C to +125°C
Vibration	Gecko with Latches = 20g for 6 hours Datamate J-Tek = 10g for 6 hours
Voltage Proof (Maximum Voltage)	Gecko with Latches = 600V DC or AC peak Datamate J-Tek = 1,200V DC or AC peak

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All other specifications are in line with the existing connector ranges:

- Datamate J-Tek – See [Component Specification C005XX](#).
- Gecko with Latches – See [Component Specification C125XX](#).

Hi-Rel Flex Circuit Assemblies

Markets



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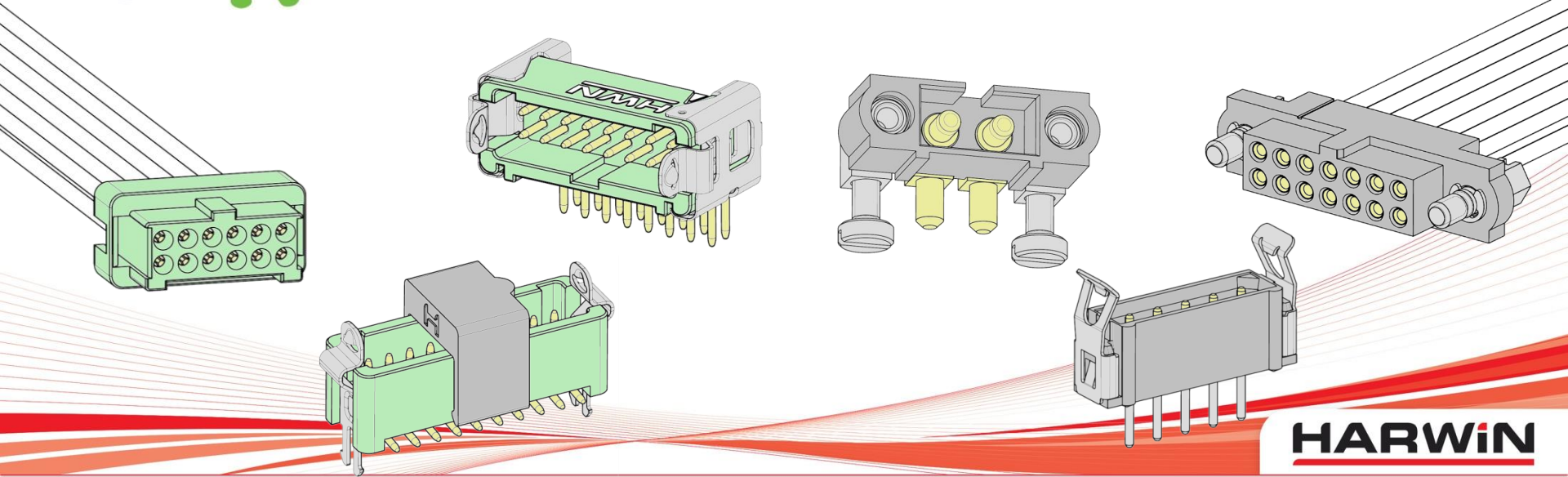
Rugged, high-reliability connectors small enough to be used in handheld and portable applications. Flexible connections needing less space, allowing room for more functions in larger equipment. Datamate and Gecko mounted to FPC connections adds opportunities in challenging environments.

- Aerospace
- Medical
- Military
- Robotics
- Industrial

If you like this product, try...

gecko - 1.25mm Pitch

Datamate - 2.00mm Pitch



- 2A per contact
- Locking latch system for strain relief
- Resists Vibration to 20G and Shock to 50G
- Temperature range -65 deg C to +150 deg C
- Vertical, Horizontal and Cable options

- 3A per signal, up to 40A per power contact
- Jackscrew or latching system for strain relief
- Resists Vibration to 10G and Shock to 100G
- Temperature range -55 deg C to +125 deg C
- PCB connectors in Throughboard or SMT, Cable options

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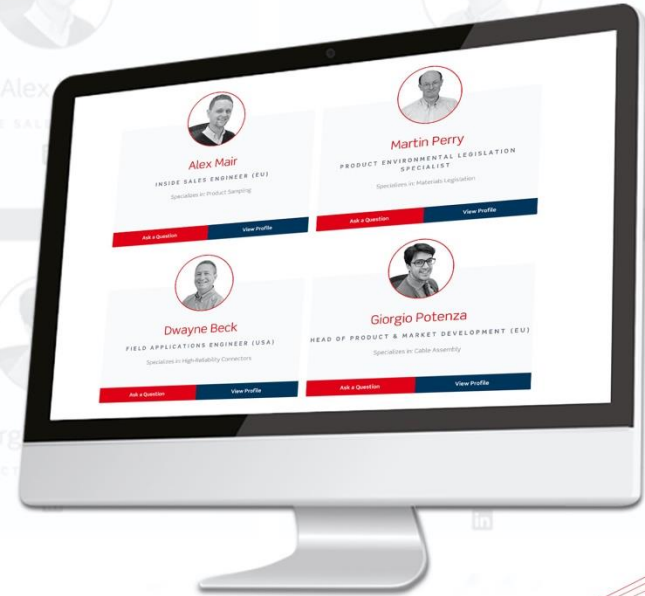
Get Help from a Harwin Expert

Our experts are specialists in their field with many years of experience in their respective roles and industries.

Find an expert that can help you with your enquiry.

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CAD Models and Evaluation Samples also available at www.harwin.com



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