



gecko **MT**

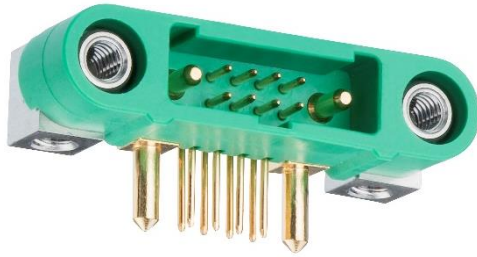
**Connect** with Confidence

**HARWIN**

# Gecko-MT High-Reliability Connectors



## What is Gecko-MT?



The **SMALLEST, LIGHTEST, MIXED-LAYOUT** Connector

Patent Published

Gecko-MT is an evolution of the Gecko-SL product. The Screw-Lok connector system (with robust stainless steel screw-loks for simpler access, stronger fixings, and panel mount options) has been enhanced with additional power contacts, rated at 10A. Two configuration styles are available (check the website for the latest contact count options):

- Symmetrical (power on each end, signal in the middle)
- Non-Symmetrical (power on the first end, signal on the second end)



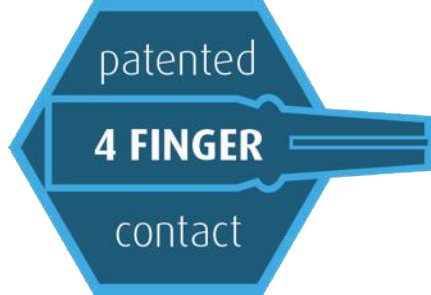
CP052/05102022

# Gecko-MT High-Reliability Connectors



## The Heart of the connector

- 26 AWG & 28-32 AWG – Signal
- 18 AWG – Power



Patent Published

The patented single piece 4-fingered Beryllium Copper female contact gives high electrical performance and sustained mechanical durability. The crimp barrel meets IPC-A-620 specifications. It tolerates extremes of temperature, and withstands high vibration and shock. These contacts are precision-turned on state-of-the-art equipment at the UK headquarters, and plated with a gold finish to resist multiple insertions.



# Gecko-MT High-Reliability Connectors



What is **SWaP-C**?

**SIZE, WEIGHT**  
**and POWER**  
**and COST**

Patent Published

Gecko-MT is designed to help address the market trend to improving SWaP-C – increase miniaturization, decrease weight, add or improve power options, and either lower cost or get the best possible value for cost.

These factors are big drivers in every industry using electronics – but are most prevalent in avionics and space, defense and motorsport industries. Addressing these factors on every component frees up additional size/weight/funds for additional or improved functions.

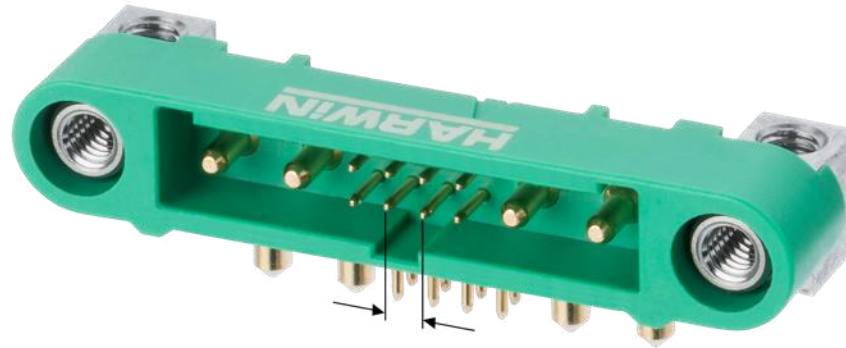


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# Gecko-MT High-Reliability Connectors



## Size – Pin Spacing



Patent Published

The 1.25mm pitch metric pin spacing from the rest of the Gecko range is utilized on the [Gecko-MT range](#) for the signal contacts. The pin spacing is 1.25mm pin both rows and columns, and is also the same on the PCB Throughboard tails.

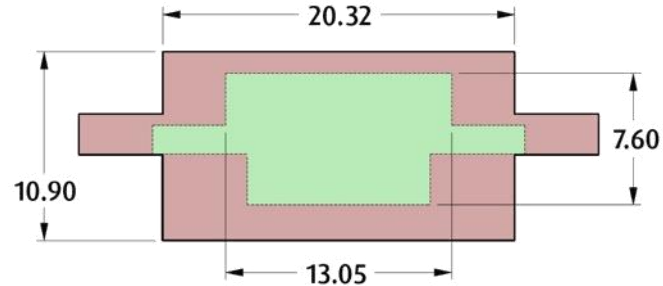
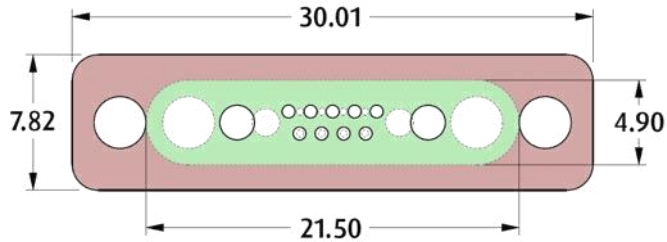


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# Gecko-MT High-Reliability Connectors



Size **savings** over other products



**Green - Gecko-MT**  
**Red - Combi Micro-D**

Patent Published

Gecko-MT provides major space savings over [the next main comparable product, Micro-D](#) with power combinations. The decreased size (demonstrated here with female cable connectors) is applicable across the connector range. The reduced PCB footprint and cable connector volume means this product can be considered in circumstances where Combi Micro-D wouldn't fit.



# Gecko-MT High-Reliability Connectors



## Weight comparison



Patent Published

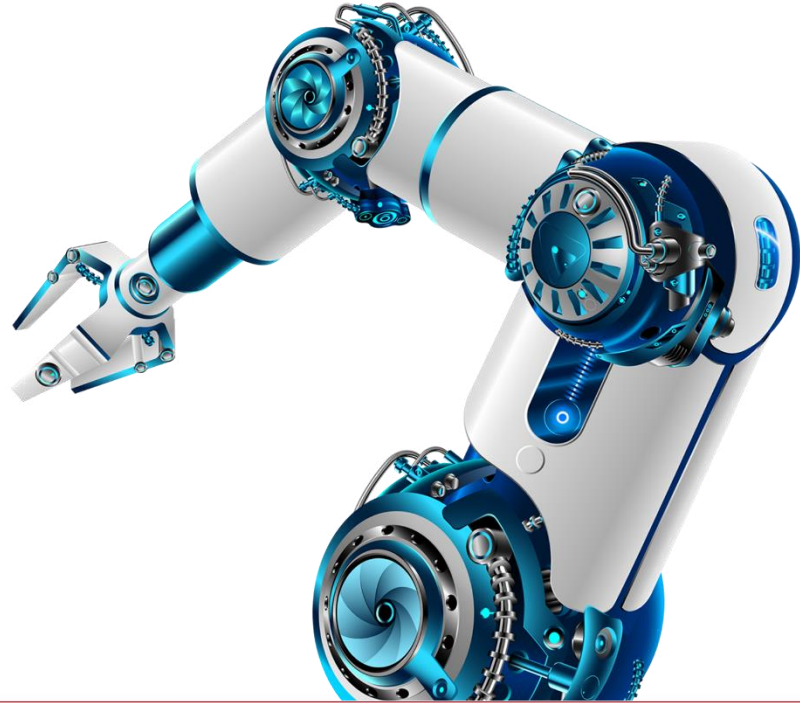
With an all-plastic housing construction, Gecko-MT keeps the weight penalty down to a minimum. Compared to a standard size playing card at 1.8g, a female PCB connector in 2+8+2 configuration weighs in at just 1.53g.



# Gecko-MT High-Reliability Connectors



What are your  
power requirements?



Patent Published

At 2.8A per signal contact individually, 2A simultaneously, and 10A for the power contacts, Gecko-MT is comparable to other combination connectors in the micro-miniature range.

Combining power and signal into one connector delivers power to mechanical movement components and powered PCBs, as well as maintaining the signal current along parallel paths, making circuits and cabling simpler and easier to track.





# Gecko-MT High-Reliability Connectors



## Cost comparison



Patent Published

The cost of products is easily compared to the cost of weight. For each kilogram taken into space, a CubeSat manufacturer may be charged 50,000 euros. A single bottle of water can cost from \$9,000 to \$43,000 to get to the International Space Station. Costs will be less on a UAV, but there is still an associated cost in fuel requirement to get the weight to leave the ground.

**Less weight, less fuel, less cost.**



# Gecko-MT High-Reliability Connectors



## Electrical Performance



Current Rating	<b>10A</b> Power <b>2A</b> Signal
Contact Resistance	20m $\Omega$
Insulation Resistance	1,000M $\Omega$

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10A power contacts provides additional flexibility to the board and cable layouts, and may even replace the requirement for a separate power connector. This gives significant savings for the SWaP-C equation.



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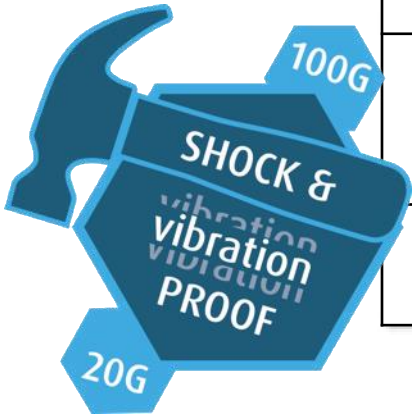
# Gecko-MT High-Reliability Connectors



## Shock & Vibration resistant



Vibration	<b>20G</b> No discontinuity greater than 1 $\mu$ s
Shock	<b>100G</b> for 6ms (Z axis) No discontinuity greater than 1 $\mu$ s
Mating Cycles	1,000



Patent Published

Given the top end target applications for these connectors, vibration and shock levels are key to the performance of the Gecko-MT connector:

- Vibration at the take-off stage of a jet plane
- Rocket and payload / satellite launch shock and continued vibration until earth orbit
- Motorsport with high frequency bumps and vibration levels, potentially for multiple hours

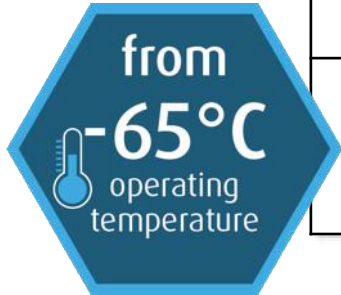


# Gecko-MT High-Reliability Connectors



## Wide Operating Temperature

Operating Temperatures	<b>-65°C to +150°C</b>
Salt Spray	48 Hours
Humidity	65/150/56 days at 95% Relative Humidity



Typical applications that would benefit from these levels of temperature include:

- Down-hole drilling (in the oil & gas industries) – these drills get very hot, and can be difficult to adequately cool
- Satellites – with repeated cycles of extreme darkness and unfiltered sunlight
- UAVs – flight operations at high-altitudes and associated low temperatures

Patent Published



# Gecko-MT High-Reliability Connectors



## Low Outgassing



NASA Accepted Levels	Gecko Material Levels
1.0% or Less TML (Total Mass Lost)	<b>0.68%</b> TML
0.10% or Less CVCM (Collected Volatile Condensable Materials)	<b>0.01%</b> CVCM
1.0% or less of the original mass	<b>0.26%</b> WVR (Water Vapor Recovered)

Patent Published

Outgassing (sometimes called offgassing) is the release of gas that was dissolved, trapped, frozen, or absorbed in material. Outgassing can include sublimation and evaporation (phase transitions of a substance into a gas), desorption, seepage from cracks or internal volumes, and gaseous products of slow chemical reactions. All can potentially introduce contaminants into a previously clean product.

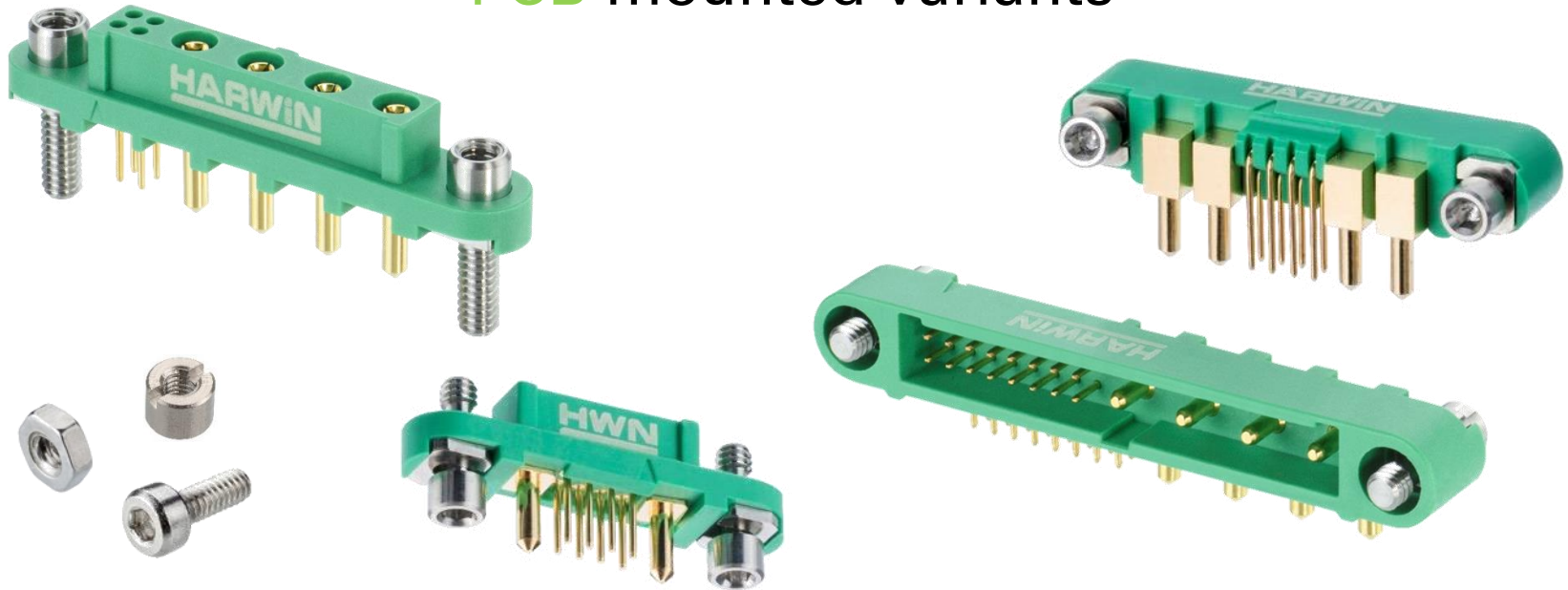
The levels achieved by Gecko meet both NASA and ESA (European Space Agency) required specifications.



# Gecko-MT High-Reliability Connectors



## PCB mounted variants



Patent Published

The [PCB versions](#) of Gecko-MT feature Female vertical connectors and Male horizontal connectors. The connectors are designed for Throughboard mounting, and there are variations for board-mount fixing in both genders.

Board-mount fixing nuts and bolts are available to purchase separately:

- Slotted Nut: [G125-4510000B](#)
- Hexagonal Nut: [G125-4500000B](#)
- Hexagonal Bolt: [G125-4520000B](#)





# Gecko-MT High-Reliability Connectors



## Cable mounted variants



Patent Published

The [cable versions](#) of Gecko-MT are also available in both genders, and feature rear backpotting cavities. Screw fixing options include standard gender and reverse fix, front and rear panel mounting. Tooling for in-house crimping is available with instruction sheets and a [video](#).

Pre-cabled contacts are also available from stock, and [full cable assembly options](#) are available from stock or made-to-order. Contact the Technical Team via our [Contact page](#) for further assistance.



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# Gecko-MT High-Reliability Connectors



## Cable mounted variants



Patent Published

To complete the Gecko-MT range, the symmetrical connectors have been specifically designed to fit the existing 16-contact and 26-contact Gecko-SL metal backshells. This enables fully shielded cable assembly construction, with the addition of metal braiding secured around the backshells. Contact the Technical Team via our [Contact page](#) for made-to-order options.



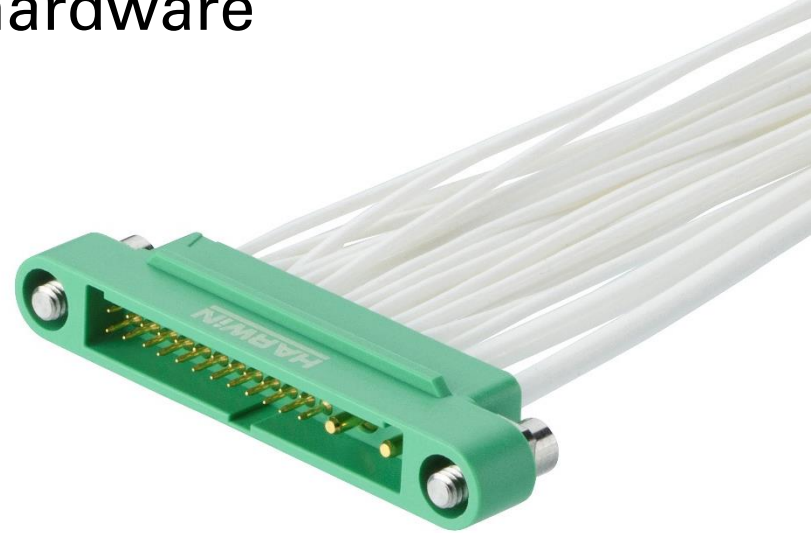
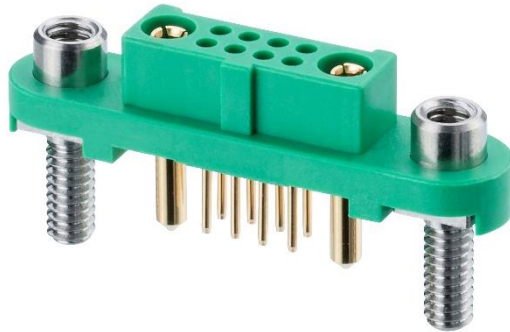
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# Gecko-MT High-Reliability Connectors



## Screw-Lok fixing hardware



Patent Published

The captive screws with hex socket heads prevent slipping during assembly. The design of these captive screws allows for 'Mate before Lock' – connectors can be fully mated before the screws need to be engaged. This provides for faster and easier assembly.

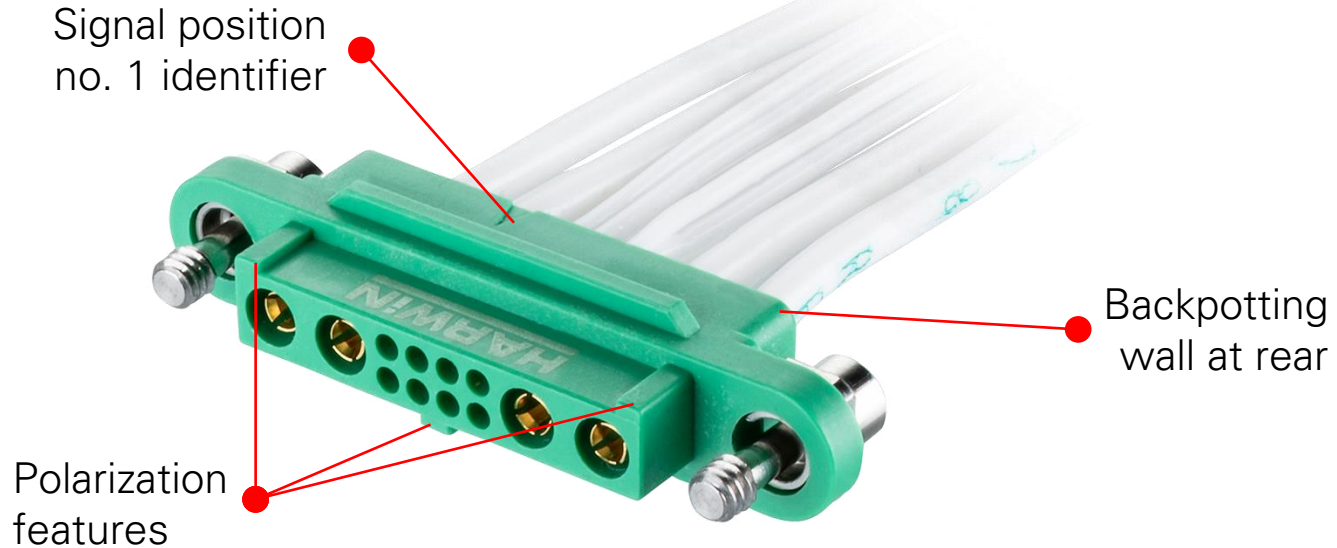
Reverse Fix options are available for all versions of board and cable connectors, providing board-to-cable combinations with a choice of either Male (standard fix) or Female (reverse fix) on the PCB.



# Gecko-MT High-Reliability Connectors



## Other physical features



Patent Published

All the best features from the Gecko-SL series are retained on the Gecko-MT:

- Backpotting walls to contain added epoxy resin, for additional strain relief
- Position number 1 identifier on the signal pins (see the [Component Specification](#) for full pin numbering)
- 3 polarization features to assist easy mating without the possibility of error



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# Gecko-MT High-Reliability Connectors



## Related products & services

- Dummy signal contacts
- Crimp and insertion tooling
- Cable assembly facility



A full complement of tooling and associated instruction sheets are available for the Gecko-MT range. Or Harwin can carry the strain, and supply a complete cable assembly service to your requirements.



# Gecko-MT High-Reliability Connectors



## Applications & Markets



Many markets have a requirement for rugged, high-reliability connectors, with the additional requirements for miniature size, minimal weight restrictions and added power options. Gecko-MT delivers in these industries:

- UAVs
- Motorsport
- CubeSats
- Avionics
- Oil & Gas





# Gecko-MT: Connect with **Confidence**

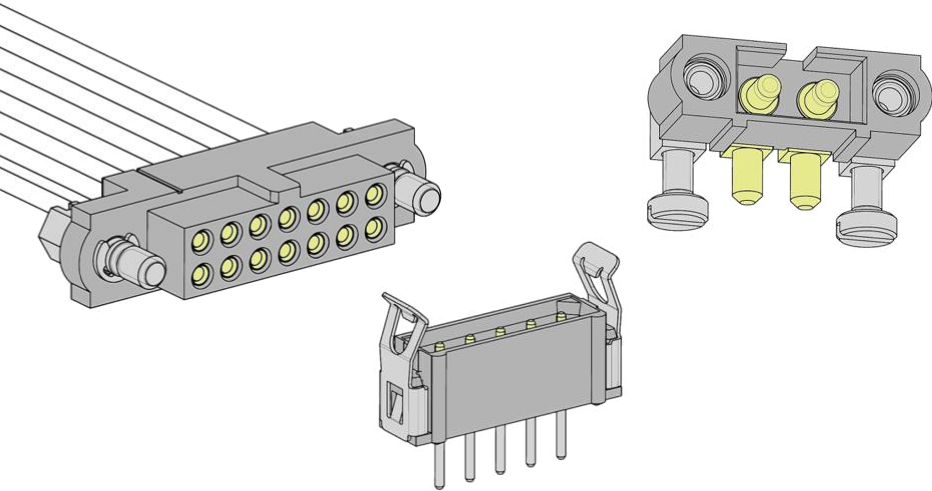
The **SMALLEST, LIGHTEST,  
MIXED-LAYOUT** Connector

Tested to extreme G-force and temperature, Engineers will find it ideal for applications that must not fail.

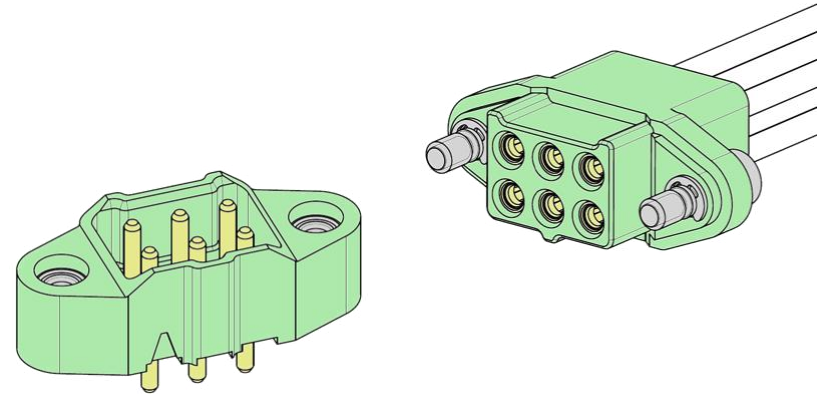


# If you like this product, try...

Datamate - 2.00mm Pitch



 M300 - 3.00mm Pitch



- 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°C to +125°C
- PCB connectors in Throughboard or SMT, Cable options

- Up to 10A per contact
- Jackscrew fixing system for strain relief
- Resists Vibration to 10G and Shock to 100G
- Temperature range -65°C to +175°C
- Vertical and Cable options



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