Today’s electronics and PCB designers are faced with many connector challenges, including shrinking application space requirements, increased PCB density and/or height restrictions, more functionality – whilst maintaining a quality product designed to a budget.

The popular choice is decreasing pin and pitch size using the same design style – moving from 2.00mm to 1.27mm pitch gives a 36-37% footprint space saving, and from 2.54mm to 1.27mm pitch gives a full 48-50% saving.
The 1.27mm pitch connectors from Harwin are collected together under the Archer brand name. The brand covers a wide range of styles and sizes, orientations and PCB fixing styles, with shrouded and polarized options. The design flexibility covers applications requiring cable-to-board or board-to-board configurations.
The **M50 range** of the Archer connectors are all based on a 1.27mm pitch grid (1.27mm pitch both along the connector, and between the two rows), and male pins are 0.4mm square. Single and Double row are available.

The Female vertical sockets come in a variety of heights in Surface Mount (including a dual/bottom entry option), and have PC Tail versions of both Vertical and Horizontal orientations. All use twin beam contacts for higher durability and better retention.
The Male connectors – or Pin Headers – are supplied in standard sizes, or are available as Variant sizes on request.

**Archer M50 – PCB Mount Headers**

**Single and Double Row, Surface Mount & PC Tail**

**Single Row options:**
- Vertical Throughboard – **M50-353 series**
- Vertical Surface Mount (no pegs) – **M50-363 series**
- Horizontal Throughboard – **M50-393 series**

**Double Row options:**
- Vertical Throughboard – **M50-350 series**
- Vertical Surface Mount – **M50-360 (no pegs)** or **M50-361 (with pegs)**
- Horizontal Throughboard – **M50-390 series**
Both Male and Female Surface Mount connectors are available in Tape and Reel packaging options, ready to facilitate automated assembly processes to the PCB. Vertical SMT connectors in tape and reel will be fitted with disposable pick-and-place caps.

Popular sizes are stocked, with other sizes available upon request.
Jumper sockets (also known as shunts) provide additional programming options, changing data streams with manual placement of the sockets on a double-row pin header, changing the configuration of a design.

The M50 Jumper Sockets are available in black, red and blue, with or without a handle to facilitate placement and removal.
Also in the Archer M50 range, a selection of shrouded and polarized connectors (double row only) is available:

- **Female**: Surface Mount with location pegs.
- **Male**: **Vertical** and **Horizontal** PC Throughboard Tail, Vertical Surface Mount **with** and **without** location pegs.

The shrouding offers additional pin protection, whilst the polarization feature prevents mis-mating.
## Archer M50 Connectors

### Electrical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Rating</td>
<td>1A per contact</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>30mΩ max</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>500MΩ min</td>
</tr>
</tbody>
</table>

Component Specifications are given in more detail on individual connector Technical Drawings, available to download from any individual product page.
## Archer M50 Connectors

### Mechanical & Environmental Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Durability</strong></td>
<td>25 - 600 mating operations (connector dependent, check drawing)</td>
</tr>
<tr>
<td><strong>Temperature Range</strong></td>
<td>-40°C to +105°C</td>
</tr>
<tr>
<td><strong>Vibration Resistance</strong></td>
<td>10-55Hz, 1.5mm, 6 hours duration (connector dependent, check drawing)</td>
</tr>
</tbody>
</table>

All Throughboard Archer connectors are manufactured using the same housing materials used on the Surface Mount connectors, and can therefore withstand the same reflow soldering processes.
The Archer M50 range has additional cable-to-board options, by utilising Insulation Displacement Connectors (IDC) to provide a cable connection to 0.635mm pitch flat ribbon cables. IDC contacts make connection to the wire conductor cores by cutting through the insulation as part of the process of wire assembly to the connector. Therefore, no wire stripping is required, making the connectors a fast, single-operation connector.
Archer M50 IDC

Female Socket, Male DIP Transition

The IDC connectors are available loose, in two gender options:

- **Female** IDC Socket, with polarisation features,
- **Male** DIP transition header – can be plugged into existing M50 connectors, or mounted directly to the PCB.

The products are suited to accommodate 0.635mm pitch, 30AWG ribbon cable. Tools **Z50-020** (for female) and **Z50-030** (for male) are available to assist with the manufacture of your own cable assemblies.
To save time and additional cost, cable assemblies using the M50 IDC connectors are available as standard products:

- **Male-to-Female**,
- **Female-to-Female**.

Both cable assembly types are available in 150mm or 300mm cable lengths. Custom cable assemblies can also be considered – please email [technical@harwin.com](mailto:technical@harwin.com) with your full requirements.
To mate with the Female IDC connector, shrouded and polarized double-row male PCB connectors are available. Both styles have secure, positive latches with a built-in ejector system:

- **PC Throughboard Tail** supplied in tubes;
- **Surface Mount** supplied in Tape and Reel packaging as standard, with retention posts.
**Archer M50 IDC Connectors**

**Electrical Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Rating</td>
<td>0.5A min per contact</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>30mΩ max</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>1,000MΩ min</td>
</tr>
</tbody>
</table>

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Archer M50 IDC Connectors

Mechanical & Environmental Specifications

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<table>
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<tbody>
<tr>
<td>Durability</td>
<td>100 mating operations</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-20°C to +105°C min</td>
</tr>
</tbody>
</table>

All Throughboard Archer connectors are manufactured using the same housing materials used on the Surface Mount connectors, and can therefore withstand the same reflow soldering processes.
The Archer M52 range include both single and double row options, based on a 1.27mm pitch along the connector. Pitch between rows on the double row is 2.54mm, and male pins are 0.46mm square.

The Female vertical sockets are 4.6mm or 8.5mm high, with a Surface Mount option that sits 6mm above the PCB. All use twin beam contacts for higher durability and better retention. SMT connectors are again available Tape and Reeled.
Archer M52 – PCB Mount Headers

Single and Double Row, Surface Mount & PC Tail

Male connectors in the M52 range are available as standard in the following formats:
- Vertical PC Throughboard Tail, single and double row,
- Vertical Surface Mount, single and double row.

Tape and reel options are available for Surface Mount upon request.
## Archer M52 Connectors

### Electrical Specifications

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<td>Contact Resistance</td>
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<tr>
<td>Insulation Resistance</td>
<td>1,000MΩ min</td>
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</tbody>
</table>

Component Specifications are given in more detail on individual connector Technical Drawings, available to download from any individual product page.
# Archer M52 Connectors

## Mechanical & Environmental Specifications

<table>
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<tr>
<th>Specification</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Durability</td>
<td>300 mating operations</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-40°C to +105°C</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>50-2,000Hz, 3.13G, 45min duration (connector dependent, check drawing)</td>
</tr>
</tbody>
</table>

All Throughboard Archer connectors are manufactured using the same housing materials used on the Surface Mount connectors, and can therefore withstand the same reflow soldering processes.
Every application where larger pitch connectors are used can benefit from the space-saving advantages of 1.27mm pitch pin headers and sockets. Smaller and lighter equipment modules can be designed, or equipment can now be designed down to a hand-held form, with the same reliability and quality assurances.

- Consumer Electronics
- Radio and Telecoms
- Drives and Controls
- Medical Diagnostics
- Hand-held devices
If you like this product, try...

M20 and M22

- 2.54mm and 2mm pitch Industry Standard
- Pin header and Socket system, with Jumper Sockets
- Discrete Cable connectors
- Vertical and Horizontal, Throughboard and SMT options
- Variable pin length specification available

Fine Pitch

- 0.8mm, 1mm and 1.25mm pitch Industry Standard
- Pin header and Socket or single-contact connectors
- Discrete Cable connectors for 1.25mm pitch
- Vertical SMT options with low board-to-board heights
- Tape and Reel packaging options
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Find an expert that can help you with your enquiry.

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