

Hardware



HARWIN

Hardware – Spacers

RoHS Compliant, Metric



[Spacers](#), also known as stand-offs or pillars, offer a robust method of holding a PCB away from a chassis or another PCB. Harwin carry a broad range of spacers, to give customers the design flexibility needed for the many different equipment styles and environments. These spacers are available in a variety of materials & styles and are stocked in depth across our distribution network.



Hardware – **Threaded Spacers**

Female/Female or Through-Threaded

**Brass
Hexagonal**



**Brass
Circular**



**Plastic
Hexagonal**



Threaded spacers come in a variety of styles and sizes. The [female/female threaded spacers](#) are often through-threaded on the smaller body lengths. These body lengths can vary from 4 to 25mm as standard.

- Brass Hexagonal – M2.5, M3, M4 and 4-40 UNC threads. Nickel plated to avoid corrosion.
- Brass Circular – M3 thread with Ø4.76mm external diameter, useful in confined spaces. Also Nickel plated.
- Plastic Hexagonal – available with an M3 thread, 5.5mm A/F hexagonal body. Useful when weight is a factor.



Hardware – **Threaded** Spacers

Male threaded, Hexagonal bodies

Male/Female



Male/Male



Spacers with male threads are supplied in Brass for thread strength, with Nickel plating to avoid corrosion issues. The hexagonal profile body allows these spacers to be held firm with a wrench or spanner when tightening the nut or bolt fixing.

- [Male/Female](#) – M3 and M4 threads, typical body sizes from 4 to 40mm (depending on range).
- [Male/Male](#) – M3 threaded, with 5mm A/F hexagonal body.



Hardware – Clearance Spacers

Variety of Materials

Brass



Aluminium



Plastic

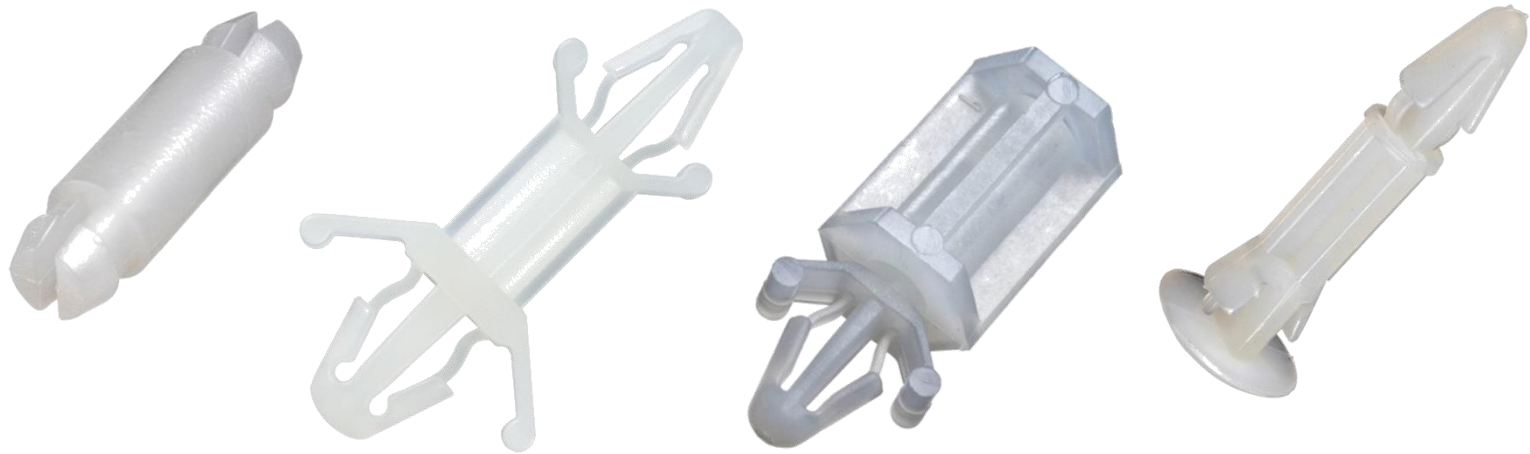


Clearance Spacers are a circular tube, which allows a bolt to pass through the centre. The bolt head traps the chassis or PCB at one end of the spacer; a nut at the opposite end of the bolt traps the other PCB; the spacer holds them apart. Clearance spacers are available for M3 & M4 threaded bolts. They are available in Brass (with Nickel plate), Aluminium (with Chromate protective finish) and Nylon.



Hardware – Locking Spacers

Plastic pillars for PCB Mounting



Self-locking spacers are a secure, lightweight fixing option suitable for most industrial and commercial applications.

- [Low-Profile Self-Lock spacers](#) – narrow pillars with securing ends that barely protrude to the other side of the PCB.
- [Rigid Self-Locking](#) – wide ribs give a secure rigid fit with extra stability.
- [Self-Lock Spacers](#) – designed to accommodate a No. 6 (1/8") self-tapping screw into the bottom of the spacer.
- [Reverse Lock spacers](#) – these are fitted from the underside of the board or chassis.



Hardware – **Terminals**

Mechanical security with swage fixing



A variety of designs are grouped into the Harwin [Terminals](#) range. All these terminals are manufactured from free-machining Brass, with either a Tin or Gold plating finish for solderability.

The swage feature is present on many of these terminals, allowing additional mechanical retention before soldering to maintain the vertical orientation. Swaging is a similar operation to riveting, deforming a designated area of the terminal to retain in the PCB. Punch and Die sets (for use with a standard bench press) are available to order. Underside knurls on turreted pins prevent rotation.



Hardware – Terminal Pins

Single PCB connection



These straight-sided terminal pins are suitable for use as electrical contacts to mate with sockets, because of their contact-style shape. They can also be used as termination points for component leads or wire, or as test points. The swage area comes in a choice of sizes to be used with panel thicknesses from 1mm to 2.4mm, although the most common and available option is for 1.6mm panel thickness. Pin diameters range from 0.5mm to 1.21mm. Designs are available for above-board, below-board or throughboard (double ended).



Hardware – Terminal Pins

For SYCAMORE Contacts and SMT Twin Beam connection



To mate with the larger SMT PCB Sockets in the SYCAMORE Contact range ([S9111-45R](#) and [S9121-45R](#)) and the Twin-Beam socket [S9101-46R](#), these terminal pins have a pin diameter of $\varnothing 1.75\text{mm}$.

- [H2181-05](#) (Gold), [H2181-01](#) (Tin) – 5.00mm mating height
- [H2182-05](#) (Gold), [H2182-01](#) (Tin) – 8.10mm mating height
- [H2183-05](#) (Gold), [H2183-01](#) (Tin) – 9.50mm mating height
- [H2184-05](#) (Gold), [H2184-01](#) (Tin) – 15.30mm mating height
- [H2185-05](#) (Gold), [H2185-01](#) (Tin) – 21.65mm mating height



Hardware – Turret Terminals

Wire-wrap connection

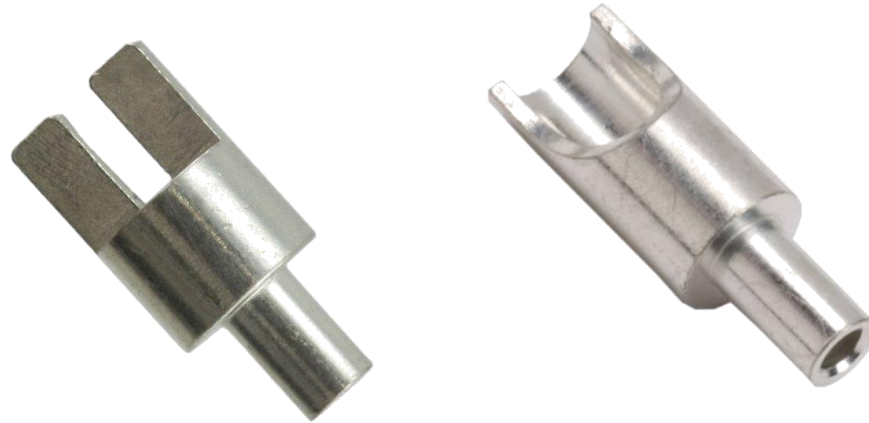


Turret terminals are used for wire termination, either by wire-wrap or soldering. The standard terminal has one, two or three turrets, and there are also 3-turret options with an added slot and central hole for additional wire termination. Turret terminals for PCB thicknesses of 1.6mm, 2.4mm and 3.2mm are available.



Hardware – Terminal Variants

Wire to board attachment



- [Slotted terminals](#) allows a component lead or wire to be fitted horizontally – the component lead is placed into the slot and soldered.
- The [solder bucket](#) design offers a low-cost method of terminating a wire direct to a PCB, suitable for wire diameters smaller than $\text{Ø}2.34\text{mm}$.

Again, the swaging cavity is present at the bottom of these designs for mechanical fixing.



Hardware – Shorting Links

Ø1mm, un-insulated and solderable



[Shorting links](#) can be temporary or permanent circuit bridges, to assist with track layout on a PC board. Rather than add a secondary layer to “subway” under another track, the track can be bridged over instead. These links are manufactured using Ø1mm wire and come in a choice of tin or gold finish – making them capable of carrying a 10A current. The pitch of the tails is available in 5.08mm, 6.35mm, 10.16mm and 12.70mm.



Hardware – Shorting Links

Ø1mm, **insulated** pluggable



To assist with the fitting and removal of [temporary shorting links](#), a range with insulated handles is also available in the gold finish. The plastic colours available are red, blue and black, to assist with identification during on-board programming. The Ø1mm tails are compatible with the PCB sockets offered by Harwin, making these simple connections easy to fit, easy to change, low cost and versatile.



Hardware Markets



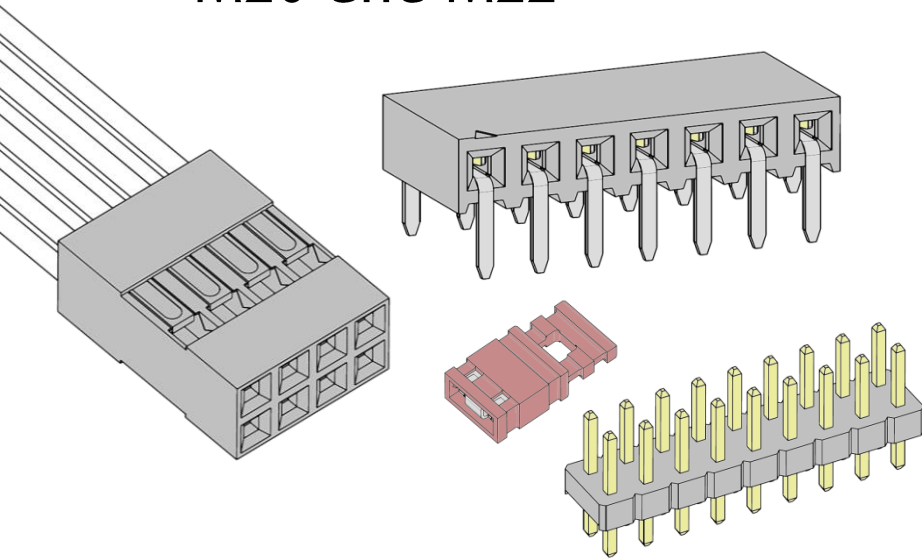
Almost all markets have a requirement for fixing hardware. Harwin is well-known and respected for these products, and has been a quality supplier of PCB hardware since the company launch.

- Aerospace
- Industrial Control
- Medical
- Robotics
- Oil & Gas

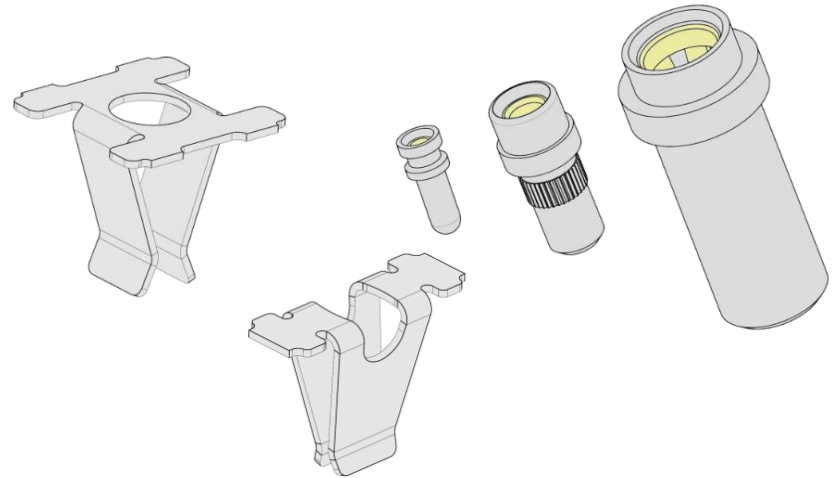


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M20 and M22



PCB Sockets



- 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

- Two-piece turned shell PCB sockets and other SMT sockets
- Accepts mating pin sizes $\varnothing 0.5$ to 1.8mm
- Low-profile and open-ended options
- Single connection designs for odd-form components
- Stocked in depth across the Harwin distribution network



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

