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Industrial Circular Power Connectors



INDUSTRIAL CIRCULAR POWER CONNECTORS – ENVIRONMENTALLY SEALED, RUGGED



Industrial [Circular Connectors](#) are a range of rugged, high reliability, power connectors which meet the high performance of the MIL-DTL-5015 specification. This range is RoHS compliant and is designed to be cost-effective in harsh and demanding environments.

The part numbers for this range from Harwin all start [C90](#), and use numbering related to the MIL-DTL-5015 specification (e.g. C90-3102R10SL-3P or C90-3106F14S-6S).

FREE CONNECTORS



Cable Connector



Straight Plug

There are 3 body styles in the C90 range from Harwin. Two of these styles are free connectors – [Straight Plug](#) and [Cable Connector](#). The names refer to the style of the body shell, not the internal contacts (which can be either male or female). The Straight Plug shell has a rotating coupling nut, which will screw onto the external thread of the mating Cable Connector or the Panel Mount Receptacle (see next page). Both designs contain internal gaskets, and the Straight Plug comes with the Rubber Bushing as standard.

PANEL MOUNT RECEPTACLE



The [Panel Mount Receptacle](#) has a synthetic rubber gasket which can be mounted either side of the rear plate, to ensure an environmental seal between the connector flange and the panel. The flange and gasket have four mounting holes.

By mating this style to the Straight Plug, the option for cable-to-panel connection is added to the range.

CONTACT STYLE FLEXIBILITY



Pin (Male) contacts



Socket (Female) contacts

All 3 body styles are available with pin (male) contacts or socket (female) contacts. This allows the shrouded female contacts to always be specified on the power source side of the connection. Also, by having pin contacts on one plug and socket contacts on another plug, cross-connection with connectors in close proximity is prevented.

POPULAR CONTACT COUNTS



The C90 range from Harwin is available with 2, 3, 4 or 6 contacts, which allows the designer to select the size suitable for their specific application. In all 3 body styles, wire is connected to the contacts by use of a solder bucket (avoiding the use of crimp tools), which will accept 16-22 AWG wire. The recommended wire strip length is 7.5 mm.

FEATURES – SEALING EXCEEDS IP67



As required by the MIL-DTL-5015 specification, the mated connectors are fully environmentally sealed to exceed IP67 rating, giving a dust-tight connection able to withstand submersion in 1.8 meters of water for 48 hours. Synthetic rubber gaskets are used to achieve the environmental sealing. The copper alloy contacts are silver plated ensuring high conductivity at low cost. The aluminium shells are robust, allowing multiple engagements. The [C90 specification](#) is available to download.

FEATURES – 13A CURRENT RATING



With a Current rating of 13A and a Voltage rating up to 500V AC (700V DC), this connector series can be used in power supply applications, with a durability of 500 mating engagements, without degradation of performance. Using the Contact Size 16 from the MIL-DTL-5015 specification, it is suitable for use with wire sizes from 16 to 22 AWG.

FEATURES – BEND PROTECTION



To provide additional support for the cable where it leaves the Cable Connector, [Rubber Bushings](#) are available as accessories. The bushing slides over the cable, and the flange is held inside the rear of the Cable Connector shell. The Straight Plug has a bushing included as standard. These bushings give both bend protection to the cable and complete the sealing at the rear of the connector for full ingress protection.

ACCESSORIES – PROTECTIVE DUST CAPS



External thread



Internal thread

Dust Caps protect the connector interface from the ingress of water or dust when not in use. These contain a rubber seal to maintain the IP67 rating. External threaded caps are used with the Straight Plug, Internal Threaded caps with both the Cable Connectors and Panel Mount Receptacles. The Dust Caps are fitted with retaining chains with an eyelet at the end, to enable fixing to a nearby panel.

MARKETS



Any market where a robust power supply is needed in a harsh environment would be suitable for these connectors. Their rugged construction and high performance has seen it adopted by many industrial users. The performance match to MIL-DTL-5015 also makes these connectors a candidate for COTS use in defence applications.

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