

HARWIN

 **Datamate®**

Metal Backshells



METAL BACKSHELLS - SHIELDING FOR HIGH-RELIABILITY CONNECTORS



Datamate is the field-proven high-reliability range of choice for many industries; designed with aerospace, military and other “high-end” applications in mind and proven in many years of successful service. It is successfully and internationally utilized in COTS programs. To assist in these fields, Harwin has included a Metal Backshell accessory option, designed to give 360 degree shielding when mated.

SHIELDING PERFORMANCE



These Backshells have been tested in general accordance with MIL-STD-1377.

The results showed a general average of 30dBs of RF attenuation between 100kHz and 400MHz.

Download the [Test Summary Report HT079xx](#) for further details.

FOR WIRE AND CABLE



These Metal Backshell accessories fit a wide range of [Datamate J-Tek](#), [Datamate T-Contact](#), [Datamate Mix-Tek](#), [Datamate Power](#) and [Datamate Coax](#) Connectors. The backshells are sold separate to the connectors.

For female backshells, the required jackscrews and circlips are provided as part of the backshell kit.

SINGLE PIECE ALUMINIUM CONSTRUCTION



The backshells are made in one piece of aluminium, with a nickel coating for corrosion protection.

At the rear of the female backshells, the exit has an extended collar with a raised lip. Braided outer sheath can be assembled, providing a consistent shield both over the connector and along the cables. A Micro Band tie is recommended for use with these connectors, to assemble the braid to the collar. The lip then prevents the tightened Micro Band tie from being pulled away.

FEMALE KIT OF PARTS



Slotted jackscrew for
M80-945 backshells



Hex socket jackscrew for
M80-946 backshells



Micro Band tie:
M80-9470000 or
M80-9480000

Female backshell kits are one of two part number series (see page 12 for explanation of the xx in the part number):

- [M80-945xx02](#) – Backshell, 2 x slotted jackscrews and 4 x circlips (2 as spare).
- [M80-946xx02](#) – Backshell, 2 x Hex socket jackscrews and 4 x circlips (2 as spare).

Micro Band ties are sold separately, under part number [M80-9470000](#) (206.8mm / 8.1") or [M80-9480000](#) (362mm / 14.3").

EASY ASSEMBLY PROCESS WITH BRAID

- **Feed cabling through metal braid**
- **Feed cabling through backshell**
- **Terminate the cables to the contacts**
- **Insert the contacts into the housing**
- **Slide backshell onto housing, insert Jackscrews and secure with circlips**
- **Secure braid to backshell with Micro Band tie**

For detailed instructions, see [Instruction Sheet IS-42](#).

TOOLING REQUIREMENTS



The [E-clip/Circlip tool](#) is required for the female backshell kit, to assemble the jackscrews correctly.

A Micro Band Tool (not available from Harwin) is recommended to help assemble the Micro Band tie over the female backshell collar, when braid is being used. Micro Bands may be available under the brand "Band-It", or other alternatives.

VERTICAL MALE BACKSHELL – PCB AND PANEL MOUNT



Vertical male backshells are single items (see page 12 for explanation of the xx in the part number):

- [M80-906xx02](#) – Vertical Backshell only.

The backshell can be used either with a PCB mounted male vertical connector, with board-mount jackscrews (e.g. [M80-511](#) series), or as a panel mount shell on a male cable connector, again with jackscrews (e.g. M80-5C1xx05M3 series).

HORIZONTAL MALE BACKSHELL – PCB MOUNT

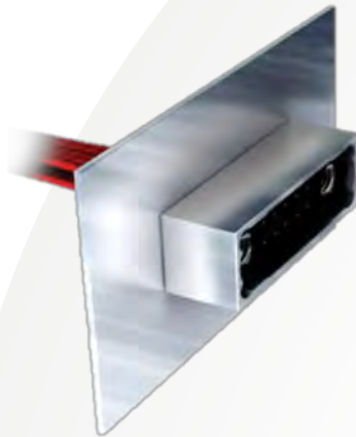


Horizontal male backshells come in two styles (see page 12 for explanation of the xx in the part number):

- [M80-904xx02](#) – Horizontal Backshell only
- [M80-905xx02](#) – Horizontal Backshell with rear panel mount lugs

The backshell is used with horizontal/right-angle PCB mounted male connectors, and fits over either Throughboard or Surface Mount terminations. Use with a ground plane in the PCB to fully shield the connector. The backshell can be assembled at any time after the connector is mounted to the board, so can be added as a retrofit product.

FULLY SHIELDED MATING CONFIGURATION



Backshell fixed to panel using board mount fixings



Cables shielded using conductive metal braid sleeve

When mating the male as a panel mount and the female cable connector is fitted with the backshell and suitable conductive metal braid, complete transmission line shielding is achieved. This configuration is recommended for I/O applications.

COMPATIBLE DATAMATE CONNECTORS

XX: Number of Signal Contacts (J-Tek)	Number of Power/Coax Contacts (Mix-Tek)
04	n/a
06	n/a
08	2
10	n/a
12	3
14	n/a
16	4

XX: Number of Signal Contacts (J-Tek)	Number of Power/Coax Contacts (Mix-Tek)
18	n/a
20	5
22	n/a
24	6
26	n/a
28	7

More sizes available – see next page

The XX in the Backshell part number is equal to the number of signal contacts that can be accommodated. When a Mix-Tek is specified, each Power/Coax contact is equivalent to 4 signal contacts. For instance, a 24 signal contact shell will accommodate 6 Power/Coax contacts. The table shows the total range of sizes available. Power/Coax contacts can be standard Power (up to 20A) or Coax contacts – straight contacts only.

The shells are not recommended for use with the 40A High Power contacts (M80-PF5), and are not compatible with right angle Power/Coax contacts.

COMPATIBLE DATAMATE CONNECTORS (CONTINUED)

XX: Number of Signal Contacts (J-Tek)	Number of Power/Coax Contacts (Mix-Tek)
30	n/a
32	8
34	n/a
36	9
38	n/a
40	10

XX: Number of Signal Contacts (J-Tek)	Number of Power/Coax Contacts (Mix-Tek)
42	n/a
44	11
46	n/a
48	12
50	n/a

The XX in the Backshell part number is equal to the number of signal contacts that can be accommodated. When a Mix-Tek is specified, each Power/Coax contact is equivalent to 4 signal contacts. For instance, a 32 signal contact shell will accommodate 8 Power/Coax contacts. The table shows the total range of sizes available. Power/Coax contacts can be standard Power (up to 20A) or Coax contacts – straight contacts only.

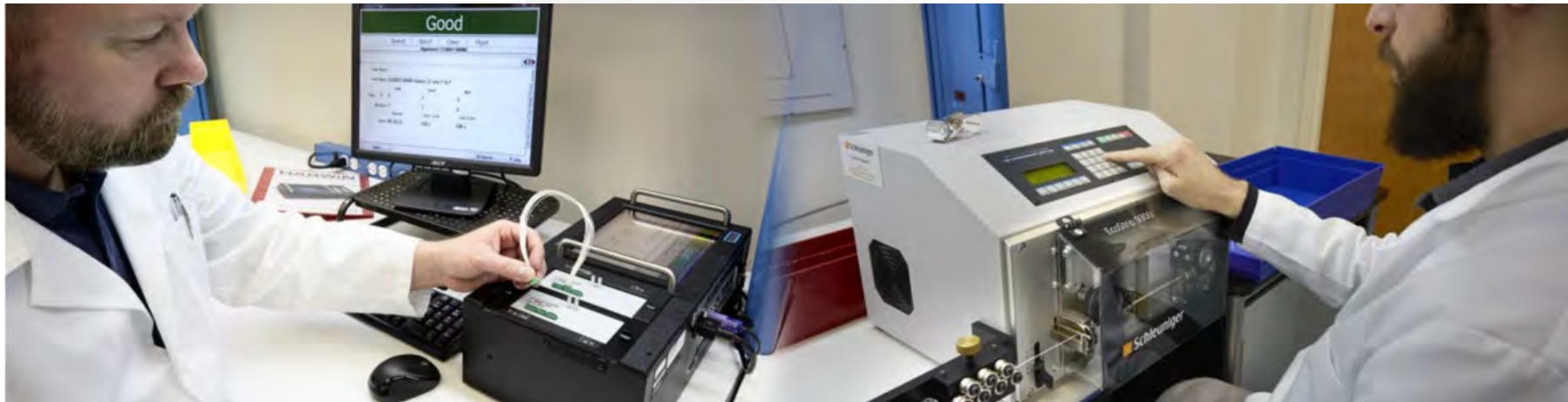
The shells are not recommended for use with the 40A High Power contacts (M80-PF5), and are not compatible with right angle Power/Coax contacts.

CALCULATING BACKSHELL PART NUMBERS FOR MIXED LAYOUTS

Calculation for XX	Example: for M80-945 XX 02 to fit M80-4C1040500-03-328-00-000
Number of Signal Contacts	4
Number of Special Contacts, multiplied by 4	3 x 4 = 12
Add the two numbers together	4 + 12 = 16
Insert into part number	M80-945 16 02

The above calculation will assist in specifying XX in the Backshell part number for configurations that involve both signal contacts and power or coax contacts. The connector used in this example can be found on the website at [M80-4C1040500-03-328-00-000](#).

FULL CABLE ASSEMBLY SERVICE AVAILABLE



If you would like Harwin to take the strain of manufacturing your shielded cable assemblies, our [Cable Assembly Service](#) is available to fulfill your requirements. Based in the USA, the facility offers small orders for low runs and prototyping, as well as full production volumes. All cables are 100% continuity tested, and can be supplied with full braiding, as well as backpotting or heatshrink application.

FULL CABLE ASSEMBLY SERVICE AVAILABLE



Our team can offer advice on your custom cable assembly requirements, and any Harwin cable connection products. [Contact us today](#) for further assistance with your requirements.

MARKETS AND APPLICATIONS



Many applications and markets that already benefit from the Datamate range have a requirement for additional EMI/RFI/EMC Shielded cable assemblies, or mechanically protected cabling solutions.

- Aerospace
- Drives & Controls
- Communications
- Robotics
- Security

Learn more about our other ranges



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WITH SUPREME
PERFORMANCE



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