

Datamate Metal Backshells



HARWIN

Datamate Metal Backshells

Shielding for High-Reliability Connectors

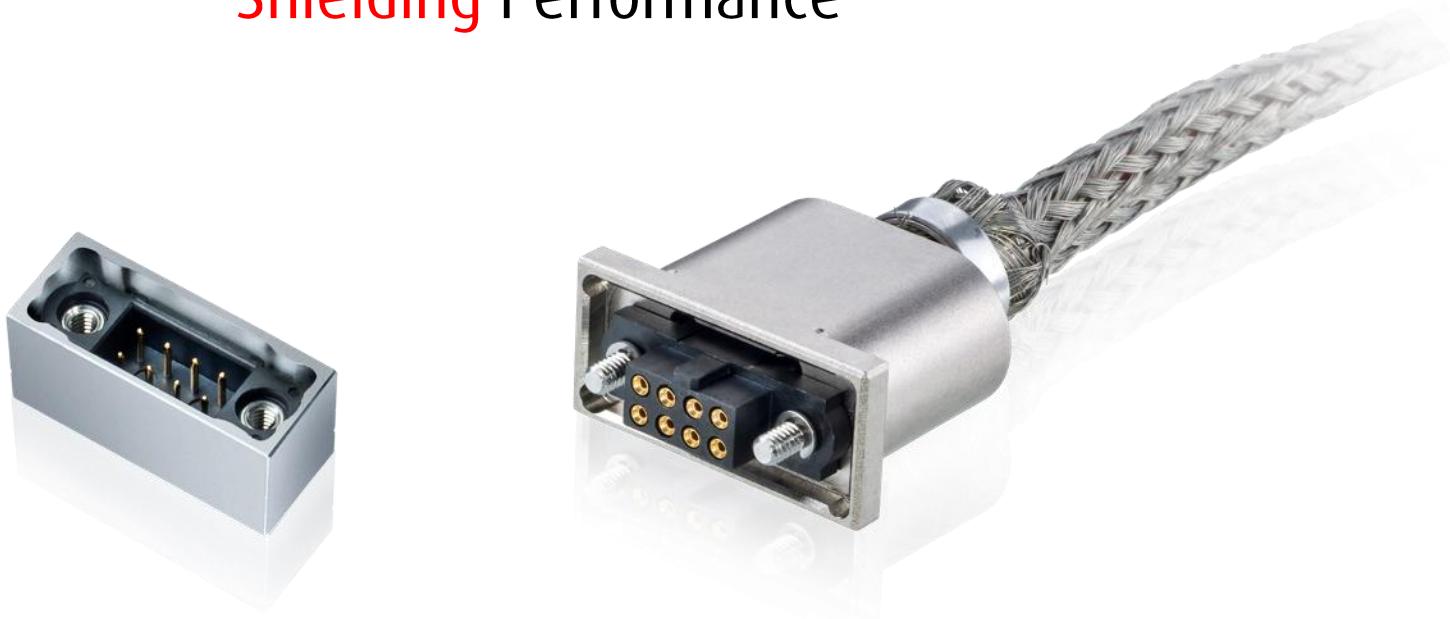


Datamate is the field-proven high-reliability range of choice for many industries, designed with aerospace, military and other “high-end” applications in mind and proven in many years of successful service. It is successfully and internationally utilised in COTS programs. To assist in these fields, Harwin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



Datamate Metal Backshells

Shielding Performance



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

The results showed a 30dBs of RF attenuation between 10kHz and 400MHz.



Datamate Metal Backshells

Backshells for Wire and Cable



These Metal Backshell accessories fit a wide range of Datamate J-Tek and Mix-Tek 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.



Datamate Metal Backshells

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 Band-It tie is recommended for use with these connectors, to assemble the braid to the collar. The lip then prevents the tightened Band-It tie from being pulled away.



Datamate Metal Backshells

Female Backshell Kit of Parts

**Slotted jackscrew for
M80-945 backshells**



**Band-It tie:
M80-9470000 or M80-9480000**



**Hex socket jackscrew for
M80-946 backshells**



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).

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

Datamate Metal Backshells

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 Band-It tie

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



Datamate Metal Backshells

Tooling Requirements



E-clip/Circlip tool
Z80-300



Tie Dex II A30199
Micro Band tool
(not supplied by Harwin)

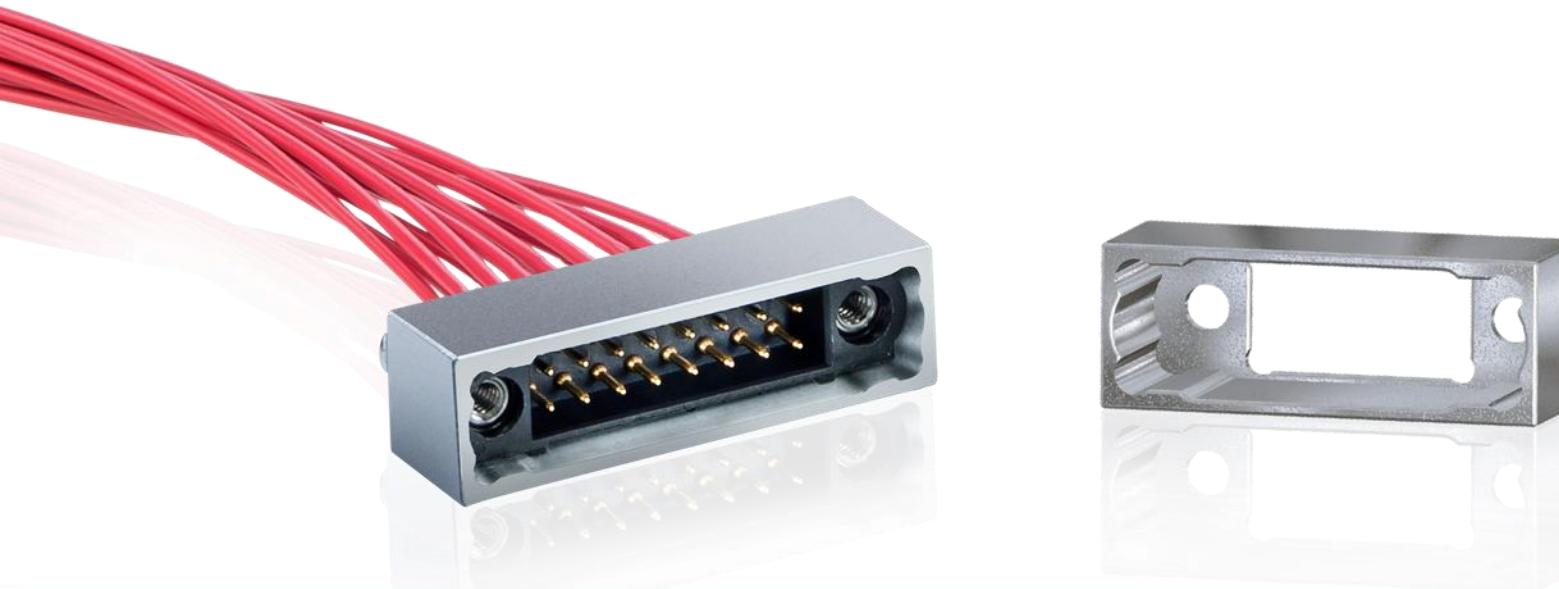
The [E-clip/Circlip tool](#) is required for the female backshell kit, to assemble the jackscrews correctly.

The Band-It Tool is recommended to help assemble the Band-It tie over the female backshell collar, when braid is being used.



Datamate Metal Backshells

Vertical Male Backshell – PCB and Panel Mount



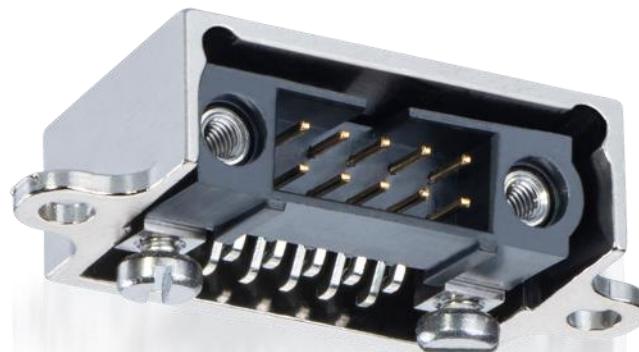
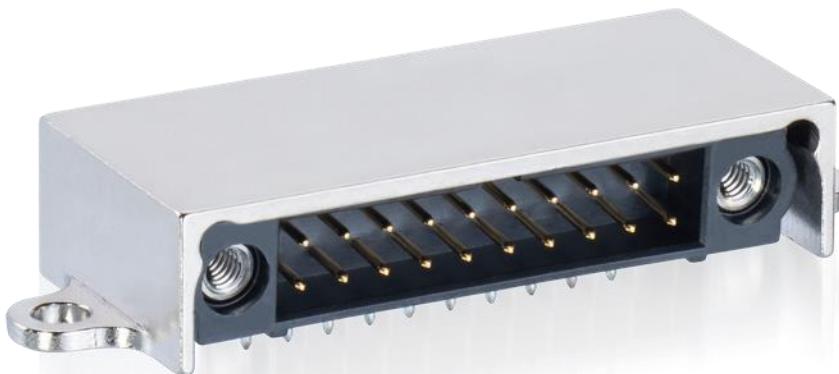
Male backshells are single items (see page 12 for explanation of the xx in the part number):

- [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).

Datamate Metal Backshells

Horizontal Male Backshell - PCB Mount



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

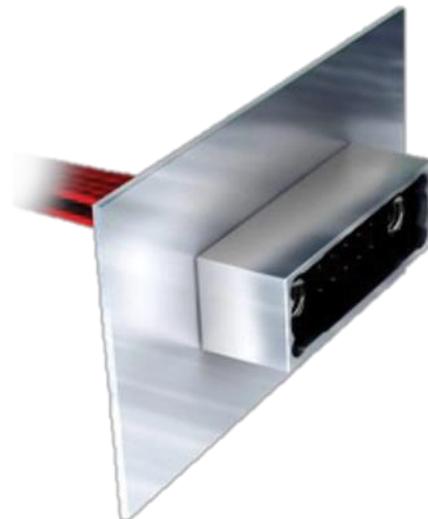
- [M80-904xx02](#) – Horizontal Backshell only.

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

Datamate Metal Backshells

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, with the female cable connector (complete with conductive metal braid), complete transmission line shielding is achieved. This configuration is recommended for I/O applications.



Datamate Metal Backshells

Flexibility of compatible Datamate connectors

XX: Number of Signal Contacts (J-Tek)	Number of Special Contacts (Mix-Tek)
08	2
10	n/a
12	3
14	n/a
16	4
18	n/a
20	5

XX: Number of Signal Contacts (J-Tek)	Number of Special Contacts (Mix-Tek)
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 Special contact is equivalent to 4 signal contacts. Hence, a 24 signal contact shell will accommodate 6 Special contacts. The table shows the total range of sizes available. Special contacts can be either Power (up to 20A) or Coax contacts – straight configuration. The shells are not recommended for use with the 40A High Power Contacts (M80-PF5).



Datamate Metal Backshells

Flexibility of compatible Datamate connectors

XX: Number of Signal Contacts (J-Tek)	Number of Special Contacts (Mix-Tek)	XX: Number of Signal Contacts (J-Tek)	Number of Special Contacts (Mix-Tek)
32	8	42	n/a
34	n/a	44	11
36	9	46	n/a
38	n/a	48	12
40	10	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 Special contact is equivalent to 4 signal contacts. Hence, a 32 signal contact shell will accommodate 8 Special contacts. The table shows the total range of sizes available. Special contacts can be either Power (up to 20A) or Coax contacts – straight configuration. The shells are not recommended for use with the 40A High Power Contacts (M80-PF5).



Datamate Metal Backshells

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 special contact (power or coax). The connector used in this example can be found on the website at [M80-4C1040500-03-328-00-000](https://www.datamate.com/part/M80-4C1040500-03-328-00-000).



Datamate Metal Backshells

Full Cable Assembly Service available

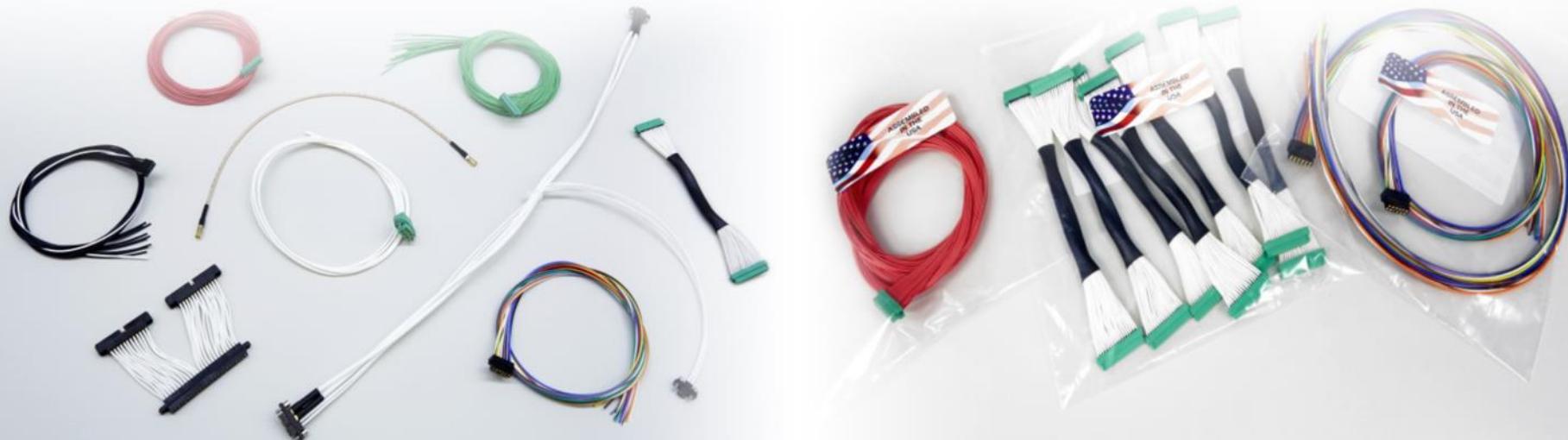


If you would like Harwin to take the strain of manufacturing your shielded cable assemblies, our [Cable Assembly Service](#) is available to fulfill your requirements. Based in the USA, the facility offers small orders for low runs and prototyping, as well as full production volumes. All cables are 100%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



Datamate Metal Backshells

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

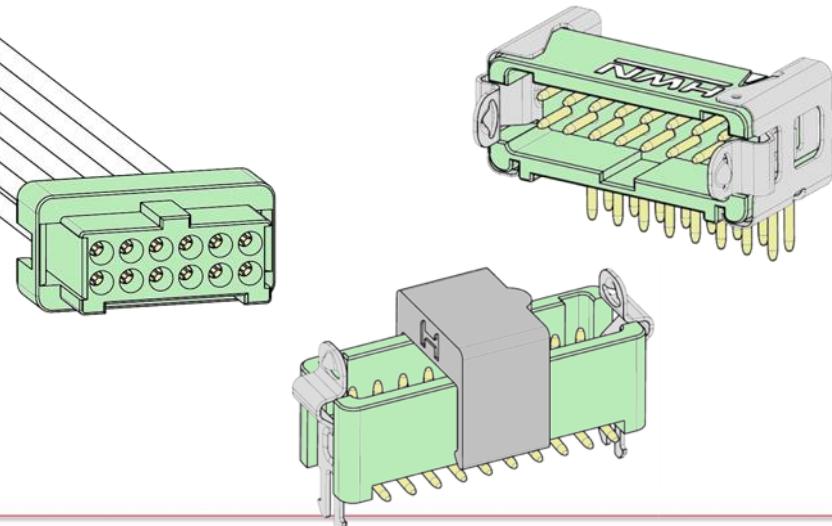
- Security



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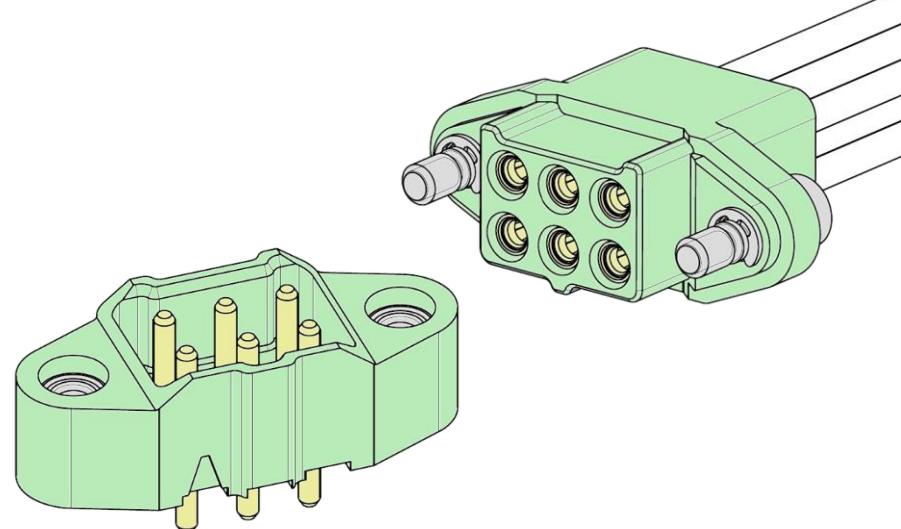


- 1.25mm Pitch



- 2A per contact
- Locking latch system for strain relief
- Resists Vibration to 20G and Shock to 50G
- Temperature range -65°C to +150°C
- Vertical, Horizontal and Cable options

M300 - 3.00mm Pitch



- 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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Our experts are specialists in their field with many years of experience in their respective roles and industries.

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