# Datamate

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# **Datamate Introduction**

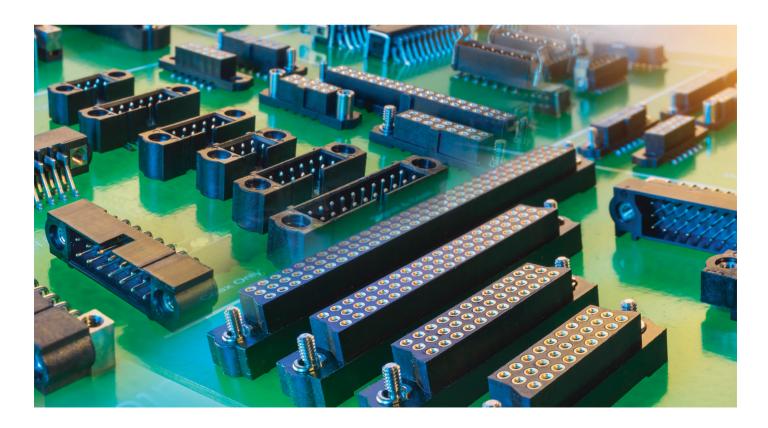
# Performance without compromise

Datamate is a 2mm pitch High-Reliability, high performance connector range from Harwin. Approved to British Standard 9525-F0033, the range has a proven track record for performance under extreme conditions.

Datamate provides a low-profile solution for all variations of cable-to-board, board-to-board and cable-to-cable interconnect requirements. The range has seen many developments to match customer and market demands, and now includes 1-, 2- and 3-row configurations, vertical and horizontal in both Throughboard and Surface Mount designs for PCB flexibility. To meet the demanding requirements of vibration, shock and acceleration, added security is available with the options of latches (for space-saving) or jackscrews (for maximum strain-relief).

With the addition of Datamate Mix-Tek, the 3A signal contacts can be supplied in the same connector as 20A power, 40A high power, or 6GHz coax connections, giving complete flexibility of design. Other range additions include the 101Lok fixing – designed for fast mating with a quarter-turn bayonet-style jackscrew.

- 3A per contact (all electrically loaded; 3.3A per individual contact)
- 4-finger contact design to maintain electrical contact through high vibration and shock
- Beryllium Copper Contact for improved temperature range: -55°C to +125°C
- ► 500 Mating cycles durability
- Professional connector system at commercial prices
- Ongoing development program for High-Reliability connectors from Harwin
- Online videos and Cable assembly facility for assistance with cabling requirements





## **Datamate - Product Features**

#### Four Finger Beryllium Copper Contact

Proven high-reliability contact design ensures signal integrity under extremes of bump, vibration and shock. Durable to over 500 mating cycles.



#### **Polarisation**

All Datamate designs feature polarisation to prevent mis-mating in everyday use.



#### Rugged construction

For use in harsh environments where high vibration, shock and temperature are a consideration.



#### **British Standard Specification connections**

Approved to BS9525-F0033, complies with CECC 75101-008.



#### Field proven across the globe

Proven history in aerospace, industrial, defense, oil & gas, etc. Stocked in depth across a global distribution network.

#### **Quality Customer Support**

Live Help, 3D CAD models and evaluation samples all available - click on **www.harwin.com/datamate**.





## **Datamate - Product Families**

## Datamate Mix-Tek

3 connector styles in one. Includes low frequency signal, power (20A), high power (40A) and coax (6Ghz) options. A stocked range of coax-only, power-only, high power-only, or mixed power and signal connectors, ideal for COTS requirements.



## Datamate J-Tek

Datamate low frequency connectors with a variety of optional Jackscrews for increased security of connection. Includes 2-row and 3-row configurations.



## Datamate 101 Lok

101Lok hardware reduces assembly time by simplifying the mating process. The fast mate hardware requires 101-degree turn to securely mate and requires no special tooling.



## Datamate Trio-Tek

Performing to the same high-reliability standards as conventional Datamate, the Trio-Tek open barrel crimp contact automates the crimp process to significantly save on assembly time and reduce process costs.



## Datamate L-Tek

Datamate low frequency connectors with 3 flexible mating options: friction latch, locking latch and no latch. Includes 1-row and 2-row configurations.









# **Datamate Mix-Tek Specification**

#### Materials

Mouldings: Glass-filled thermoplastic UL94V-0 Female contacts:

Brass shell, with Beryllium Copper

inner contact

Male contacts: Copper alloy

See individual pages Finish:

Individual contacts in isolation: 3.3A max (at 25°C) 2.6A max (at 85°C) All contacts simultaneously: 3.0A max (at 25°C)

2.2A max (at 85°C)

Working voltage

At sea level 1013 mbar: 800V DC or ACrms

Voltage proof

At sea level 1013 mbar: 1,200V DC or ACrms

Contact resistance

Initial: 20m0 max After conditionina: 25mΩ max

Insulation resistance

1.000MΩ min Initial: After conditioning: 100MΩ min

#### : Mechanical

**Durability:** 500 operations

Insertion force (max): 2.8N Withdrawal force (min): 0.2N

Signal crimp accommodation: 22 AWG to 28 AWG

BS 3G 210 Type A

#### Environmental

Environmental classification: 55/125/56 days at 95% RH

-55°C to +125°C Operational temperature:

\*Vibration sensitivity: 10Hz to 2000Hz. 0.75mm.

98m/s<sup>2</sup> (10G), duration 6h

\*Bump severity: 390m/s<sup>2</sup> (40G), 4000 ±10 bumps

\*Shock severity: 981m/s<sup>2</sup> (100G) for 6ms

\*Acceleration severity: 490m/s<sup>2</sup> (50G)

## **Power Contacts**

#### Materials

Latching collar: Beryllium Copper, Nickel plated Other metallic parts: Copper alloy, Gold plated

#### Electrical

Current (in isolation)

32x, 33x: 20A max

PFx, PMx: 40A nominal, up to 80A max

Contact resistance: 6mΩ max

#### Mechanical

Insertion force (max)

32x, 33x: N8 PFx, PMx: 15N Withdrawal force (min): 0.5N

Contact replacement

in connector: 5 times

Power contact accommodation

12 to 20 AWG 32x, 33x: PFx, PMx: 10 AWG

## Coax Contacts

#### ⇒ Materials

Latching collar: Beryllium Copper, Nickel plated Copper alloy, Gold plated Other metallic parts:

Insulator: PTFE

Frequency range: 6GHz (depending on cable)

Impedance:

1.05 + (0.04 x Frequency) GHz max VSWR:

Operating voltage (sea level): 180V AC at 500mA Maximum voltage (sea level): 1000V ACrms Contact resistance: 6mΩ max

Insulation resistance:  $10^6 M\Omega$  at 250V ACrms

#### Mechanical

Insertion force (max): N8 Withdrawal force (min): 0.5N

Contact replacement

in connector: 5 times

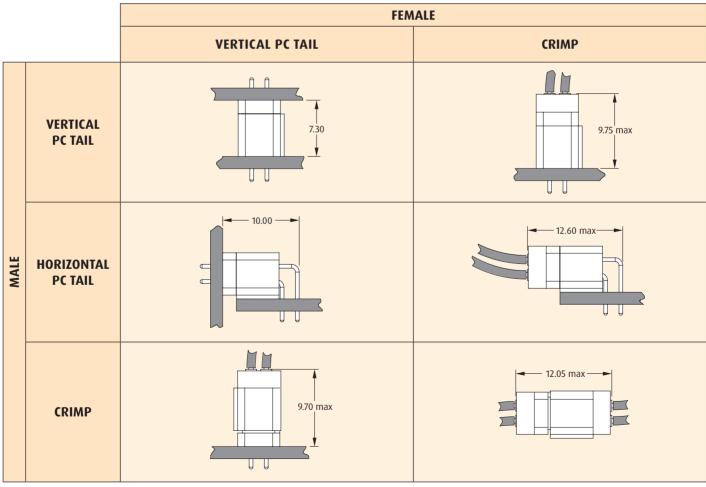


<sup>\*</sup> Tested with connectors with Jackscrews.

# Datamate Mix-Tek Pin Numbering

	FEMALE	MALE
POWER OR COAX ONLY	D C B A	A B C D
SIGNAL AND POWER	6 5 4 B A	A B 456 123

# **Mating Profiles**





Standard high-reliability connectors fitted with power contacts on 4mm pitch.

		ТҮРЕ		
		Female Cable - Hex Slotted Jackscrews	Male Horizontal 3.5mm PC Tail - 5mm Board Mount Jackcrew	
	2 Power	M80-4000000F1-02-325-00-000	M80-5000000M5-02-333-00-000	
	4 Power	M80-4000000F1-04-325-00-000	M80-5000000M5-04-333-00-000	
	6 Power	M80-4000000F1-06-325-00-000	M80-5000000M5-06-333-00-000	
F CONTACTS	8 Power	M80-4000000F1-08-325-00-000	M80-5000000M5-08-333-00-000	
TOTAL NO. OF	10 Power	M80-4000000F1-10-325-00-000	M80-5000000M5-10-333-00-000	
	2 High Power	M80-4000000F1-02-PF5-00-000	M80-5000000M5-02-PM3-00-000	
	4 High Power	M80-4000000F1-04-PF5-00-000	M80-5000000M5-04-PM3-00-000	
	6 High Power	M80-400000F1-06-PF5-00-000	M80-5000000M5-06-PM3-00-000	



Standard high-reliability connectors fitted with power contacts on 4mm pitch.

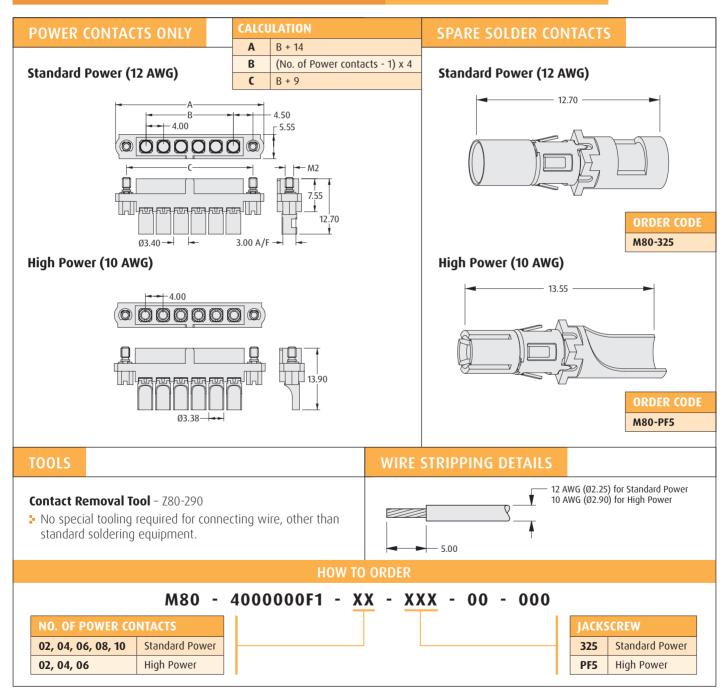
		ТҮРЕ		
		Male Vertical 3.5mm PC Tail - Jackscrew Fixing	Male Vertical 3.5mm PC Tail - 3.5mm Board Mount Jackcrew	Male Vertical 5mm PC Tail - 5mm Board Mount Jackcrew
	2 Power	M80-5000000M1-02-331-00-000	M80-5000000M2-02-331-00-000	M80-5000000M3-02-332-00-000
	4 Power	M80-5000000M1-04-331-00-000	M80-5000000M2-04-331-00-000	M80-5000000M3-04-332-00-000
	6 Power		M80-5000000M2-06-331-00-000	M80-5000000M3-06-332-00-000
OF CONTACTS	8 Power		M80-5000000M2-08-331-00-000	M80-5000000M3-08-332-00-000
TOTAL NO. 0	10 Power		M80-5000000M2-10-331-00-000	M80-5000000M3-10-332-00-000
	2 High Power	M80-5000000M1-02-PM1-00-000	M80-5000000M2-02-PM1-00-000	
	4 High Power	M80-5000000M1-04-PM1-00-000	M80-5000000M2-04-PM1-00-000	
	6 High Power	M80-5000000M1-06-PM1-00-000	M80-5000000M2-06-PM1-00-000	



## Female Power Cable Connector Kit

- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Hexagonal slotted jackscrews are assembled where specified
- Polarised mouldings.
- Standard Power contacts rated to 20A. High Power to 40A.



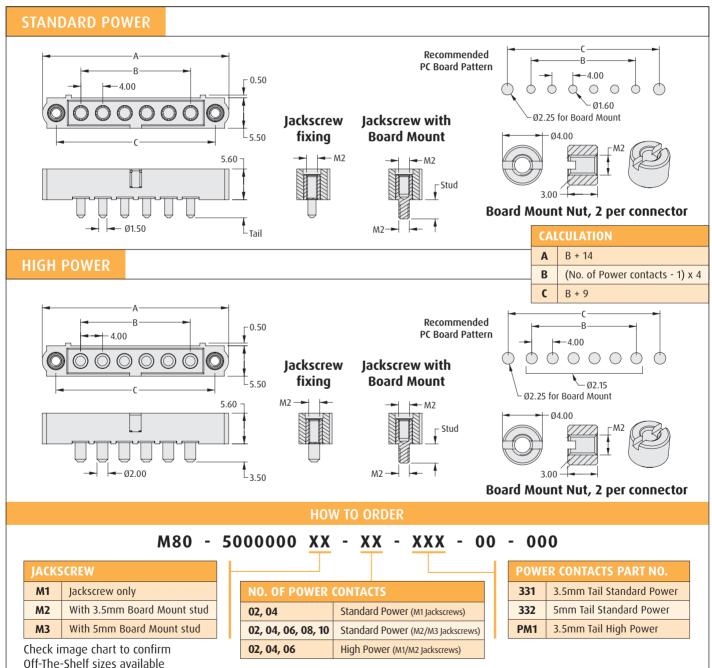




## Male Vertical PC Tail

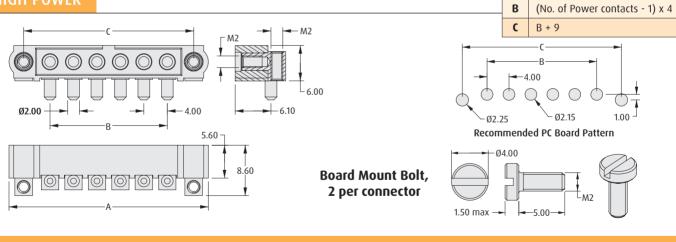
- A selection of stocked Datamate Mix-Tek solder tail standard layouts.
- Choice to suit two PCB thicknesses and two stud lengths
- Standard Power contacts rated to 20A.
- ▶ High Power rated to 40A nominal, up to 80A max.







# Male Horizontal PC Tail • Choice to suit two PCB thicknesses and two stud lengths. • Standard Power contacts rated to 20A. • High Power rated to 40A nominal, up to 80A max. STANDARD POWER STANDARD POWER Board Mount Bolt, 2 per connector CALCULATION A B+14 B (No. of Power contacts - 1) x 4 C B+9



#### HOW TO ORDER

M80 - 5000000 M5 - XX - XXX - 00 - 000

NO. OF POWER CONTACTS		
<b>02, 04, 06, 08, 10</b> Standard Power		
<b>02, 04, 06,</b> High Power		

POWER CONTACTS PART NO.

333 3.5mm Tail Standard Power

PM3 3.5mm Tail High Power



Standard high-reliability connectors fitted with a combination of signal and 20A power contacts.

			ТҮРЕ		
			Female Cable - Hex Slotted Jackscrews	Male Horizontal 3mm PC Tail - 5mm Board Mount Jackcrew	
	_	2 Signal	M80-4C10205F1-02-325-00-000		
		4 Signal	M80-4C10405F1-02-325-00-000	M80-5L10405M5-02-333-00-000	
	2 Power	6 Signal	M80-4C10605F1-02-325-00-000		
: CONTACTS		8 Signal	M80-4C10805F1-02-325-00-000		
		12 Signal	M80-4C11205F1-02-325-00-000		
T0TAL NO. 0F	4 Power	2 Signal	M80-4C10205F1-04-325-00-000		
		4 Signal	M80-4C10405F1-04-325-00-000	M80-5L10405M5-04-333-00-000	
		6 Signal	M80-4C10605F1-04-325-00-000		
		8 Signal	M80-4C10805F1-04-325-00-000		
		12 Signal	M80-4C11205F1-04-325-00-000		



Standard high-reliability connectors fitted with a combination of signal and 20A power contacts.

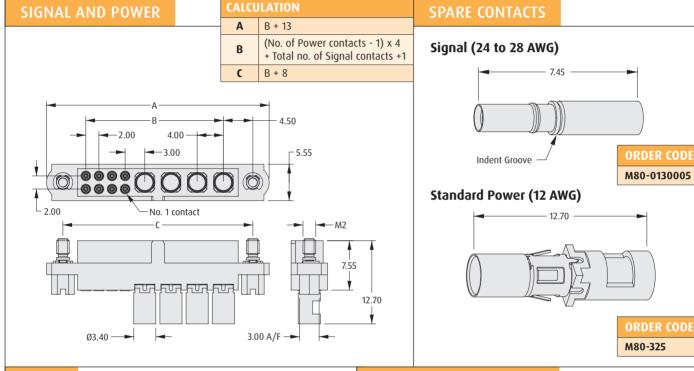
			TY	PE
			Male Vertical 3mm PC Tail - Jackscrew fixing	Male Vertical 3mm PC Tail - 3.5mm Board Mount Jackcrew
		2 Signal	M80-5T10205M1-02-331-00-000	M80-5T10205M2-02-331-00-000
		4 Signal	M80-5T10405M1-02-331-00-000	M80-5T10405M2-02-331-00-000
	2 Power	6 Signal	M80-5T10605M1-02-331-00-000	
		8 Signal	M80-5T10805M1-02-331-00-000	
CONTACTS		12 Signal	M80-5T11205M1-02-331-00-000	
TOTAL NO. OF		2 Signal	M80-5T10205M1-04-331-00-000	M80-5T10205M2-04-331-00-000
		4 Signal	M80-5T10405M1-04-331-00-000	M80-5T10405M2-04-331-00-000
	4 Power	6 Signal	M80-5T10605M1-04-331-00-000	M80-5T10605M2-04-331-00-000
		8 Signal	M80-5T10805M1-04-331-00-000	M80-5T10805M2-04-331-00-000
		12 Signal	M80-5T11205M1-04-331-00-000	



## Female Power/Signal Cable Connector Kit

- applicable number of contacts.
- ▶ Hexagonal slotted jackscrews are assembled.



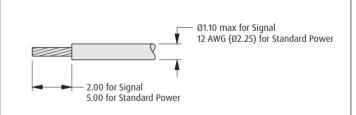


#### **WIRE STRIPPING DETAILS TOOLS**

Recommended Crimp Tool (Signal) - M22520/2-01 Positioner (Signal) - T5747

Contact Insertion/Removal Tool (Signal) - Z80-280 Contact Removal Tool (Power) - Z80-290

- No special tooling required for connecting Power wire. other than standard soldering equipment.
- Instruction sheets available at www.harwin.com/instructions.



02, 04

#### **HOW TO ORDER**

M80 - 4C1 XX 05F1 - XX - 325 - 00 - 000

**NO. OF SIGNAL CONTACTS** 02, 04, 06, 08, 12

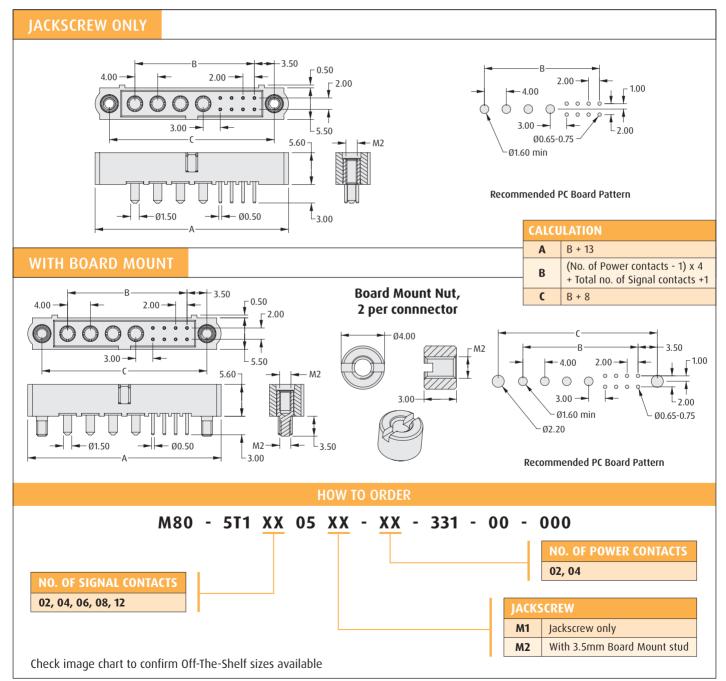
Check image chart to confirm Off-The-Shelf sizes available

NO. OF POWER CONTACTS

## Male Power/Signal Vertical PC Tail

- ♣ A selection of stocked Datamate Mix-Tek solder tail standard layouts.
- Choice to suit two PCB thicknesses and two stud lengths
- Polarised mouldings.
- Standard Power contacts rated to 20A, signal to 3A.



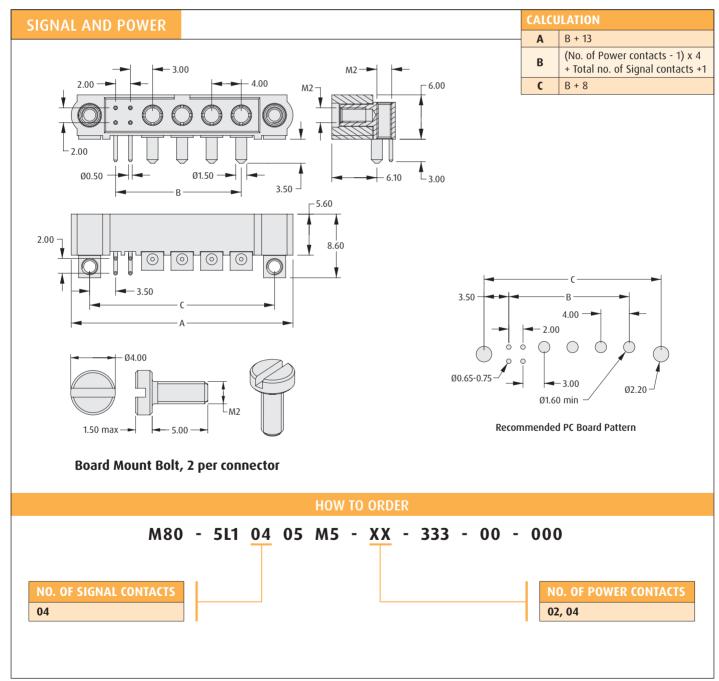




## Male Power/Signal Horizontal PC Tail

- A selection of stocked Datamate Mix-Tek solder tail standard layouts.
- ♣ Choice to suit two PCB thicknesses and two stud lengths
- ▶ Polarised mouldings.
- **▶** Standard Power contacts rated to 20A, signal to 3A.







> Standard high-reliability connectors fitted with coax contacts on 4mm pitch.

			ТҮРЕ	
		Female Cable Connectors - Hex Slotted Jackscrews	Male Vertical 3mm PC Tail - 3.5mm Board Mount Jackcrew	Male Vertical 4.5mm PC Tail - 5mm Board Mount Jackcrew
	2 Coax	M80-FC305F1-02	M80-MV311M2-02	M80-MV312M3-02
F CONTACTS	4 Coax	M80-FC305F1-04	M80-MV311M2-04	M80-MV312M3-04
TOTAL NO. 0	6 Coax	M80-FC305F1-06	M80-MV311M2-06	M80-MV312M3-06
	8 Coax	M80-FC305F1-08	M80-MV311M2-08	M80-MV312M3-08

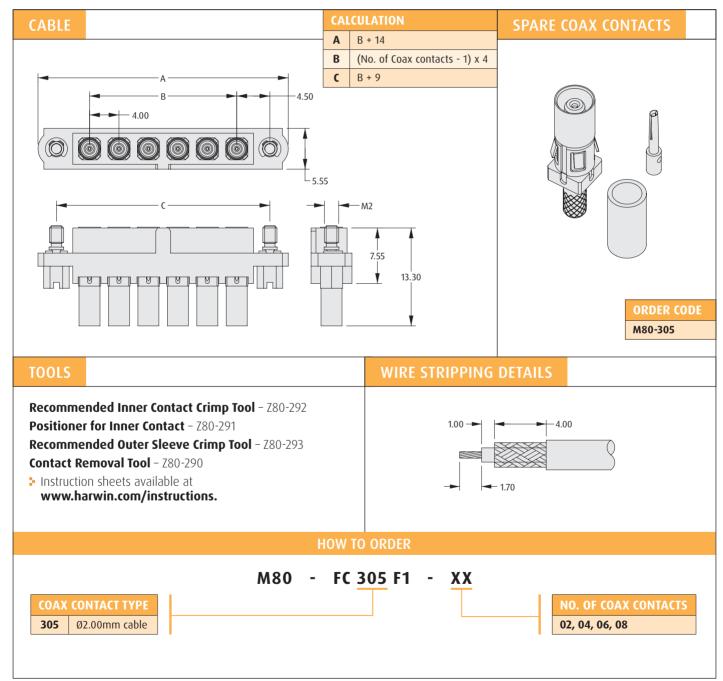
			ТҮРЕ	
		Female Cable Assemblies - Hex Slotted Jackscrews	Male Horizontal 3mm PC Tail - 5mm Board Mount Jackcrew	Male Horizontal 4.5mm PC Tail - 5mm Board Mount Jackcrew
	2 Coax	Single Ended (Female to Cut End) M80-FC305F1-02-0150L Double Ended (Female to Female) M80-FC305F1-02-0150F1	M80-MH313M5-02	M80-MH314M5-02
F CONTACTS	4 Coax	Single Ended (Female to Cut End) M80-FC305F1-04-0150L Double Ended (Female to Female) M80-FC305F1-04-0150F1	M80-MH313M5-04	M80-MH314M5-04
TOTAL NO. OF	6 Coax	Single Ended (Female to Cut End) M80-FC305F1-06-1050L Double Ended (Female to Female) M80-FC305F1-06-0150F1	M80-MH313M5-06	M80-MH314M5-06
	8 Coax	Single Ended (Female to Cut End) M80-FC305F1-08-0150L Double Ended (Female to Female) M80-FC305F1-08-0150F1	M80-MH313M5-08	M80-MH314M5-08



## Jack (Female) Crimp Kit

- A selection of stocked jack cable connectors in standard layouts.
- 6GHz, 50Ω Coax contacts, suitable for RG178 cable
- Product supplied as a complete kit; housing with jackscrew assembled, and the applicable number of coax contacts supplied loose, not assembled.
- Polarised mouldings.
- ♣ Hexagonal slotted jackscrew style.



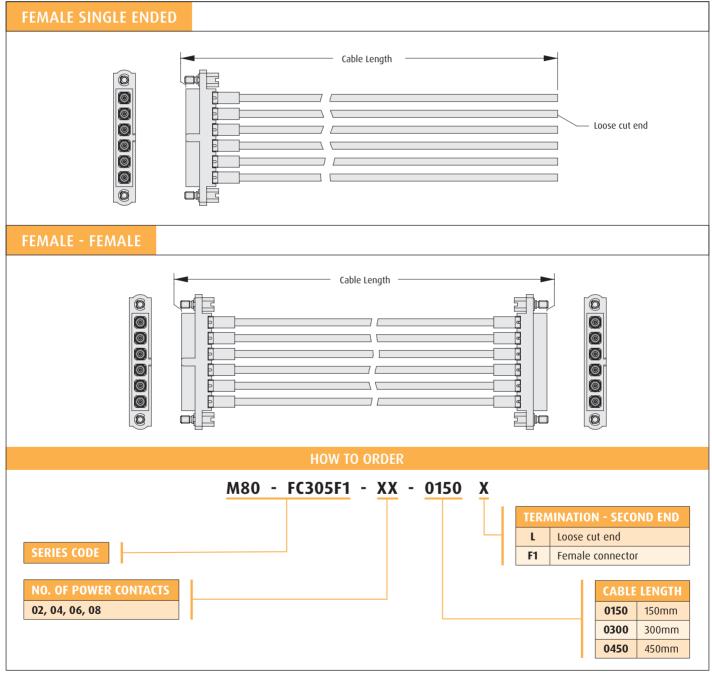




## Jack (Female) Cable Assemblies

- ➤ A selection of stocked ganged multiport coaxial cable assemblies in standard layouts.
- 6GHz,  $50\Omega$  Coax contacts, assembled with RG178 cable.
- Hexagonal slotted jackscrew style.
- For non-standard cable lengths, please visit harwin.com/cable-assemblies and fill in your requirements.



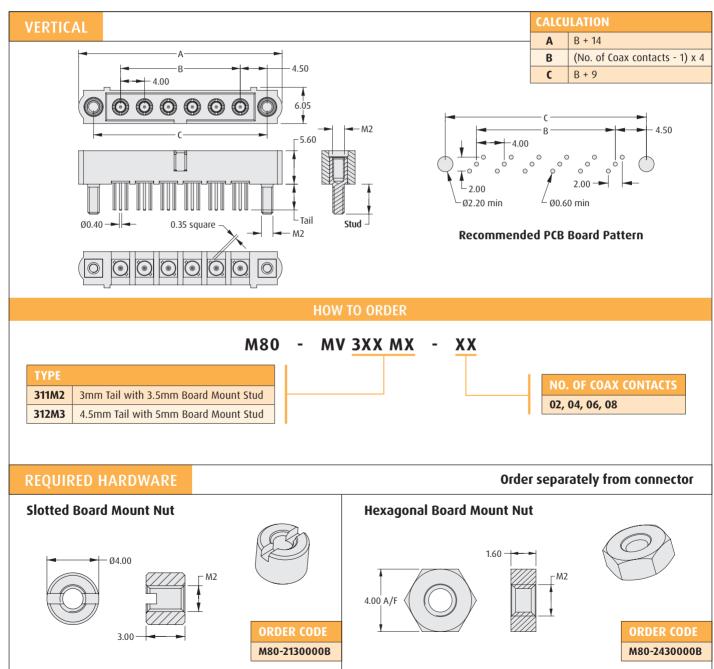




## Plug (Male) Vertical PC Tail

- Stocked coax connectors in vertical orientation, with board-mount jackscrews for added security
- ♣ 6GHz, 500 Coax contacts
- Choice to suit two PCB thicknesses.
- Order board mount nuts separately.
- Screwdriver Z80-298 available for assembling slotted iackscrew nuts.

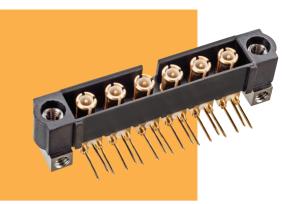


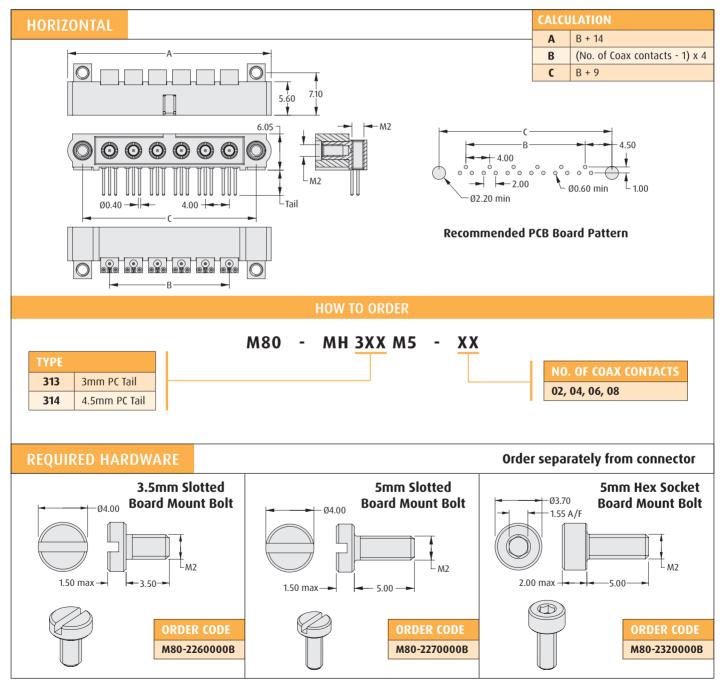




## Plug (Male) Horizontal PC Tail

- Stocked coax connectors in horizontal orientation with board-mount jackscrews for added security.
- 6GHz, 50Ω Coax contacts
- Choice to suit two PCB thicknesses.
- Order board mount bolts separately.







## Metal Backshell Accessories

- Metal Backshells that can be used with any female cable connector (up to 12AWG), or male connectors with board mount jackscrews.
- Female backshells come with jackscrews any existing jackscrews can be removed by removing the e-clip.
- Suitable for new designs, or in-production addition to enhance existing designs.



#### **PART NUMBERING SYSTEM**

M80 - 9 XX XX 02

FINISH

02 Nickel

CE	TC.	

TYPE	
06	Male
45	Female with Slotted Jackscrews
46	Female with Hex Socket Jackscrews

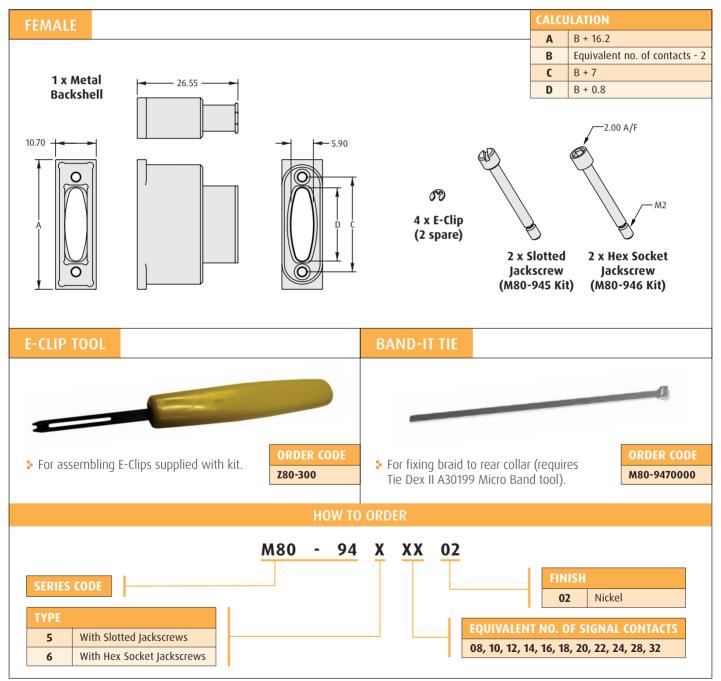
EQUIVALENT NO. OF SIGNAL CONTACTS	NO. OF POWER ONLY OR COAX ONLY CONTACTS	NO. OF CONTACTS IN POWER/SIGNAL COMBINATION
08	2 contacts	-
10	-	2 Power, 2 Signal
12	3 contacts	2 Power, 4 Signal
14	-	2 Power, 6 Signal
16	4 contacts	2 Power, 8 Signal
18	-	4 Power, 2 Signal
20	5 contacts	2 Power, 12 Signal or 4 Power, 4 Signal
22	-	4 Power, 6 Signal
24	6 contacts	4 Power, 8 Signal
28	7 contacts	4 Power, 12 Signal
32	8 contacts	-



#### Female Metal Backshell

- Supplied as an accessory kit, including metal backshell, e-clips and the applicable jackscrews.
- To be used with the appropriate size of Female Cable connector kit without jackscrews (existing jackscrews can be removed).
- Gives 360 degree shielding when used with conductive braid and mated to a compatible male connector with metal backshel
- **▶** Instruction sheets available at www.harwin.com/instructions.



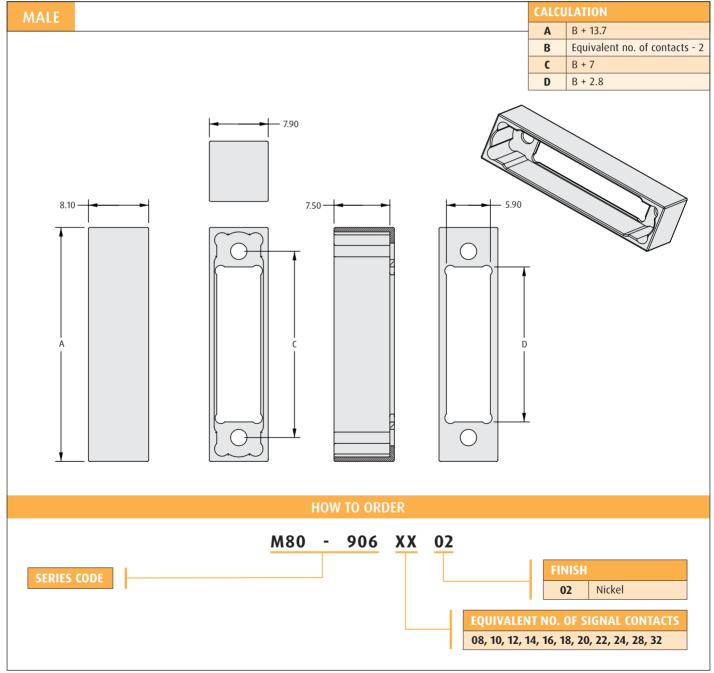




## Male Metal Backshell

- Supplied as an accessory, to be used with existing male connectors
- Can be fitted to either male vertical PCB connectors with board mount, or male cable connectors with panel mount lackscrews
- Gives 360 degree shielding when mounted to a conductive panel and mated to a compatible female connector with metal backshell







# **Datamate J-Tek Specification**

#### Materials

Mouldings: Glass-filled thermoplastic UL94V-0

Female contacts

Standard J-Tek: Brass shell, with Beryllium Copper

inner contact

T-Contact: Beryllium Copper
Trio-Tek: Beryllium Copper
Male contacts: Copper alloy

Finish: See individual pages

#### > Electrica

Current - Standard J-Tek, Trio-Tek

Individual contacts in isolation: 3.3A max (at 25°C) 2.6A max (at 85°C)

All contacts simultaneously: 3.0A max (at 25°C) 2.2A max (at 85°C)

Current - T-Contact

Individual contacts in isolation: 8.5A max (at 25°C)

6.5A max (at 85°C)

All contacts simultaneously: 3.5A max (at 25°C)

2.6A max (at 85°C)

Working voltage

At sea level 1013 mbar: 800V DC or AC peak

Voltage proof

At sea level 1013 mbar: 1,200V DC or AC peak

Contact resistance

Initial:  $20m\Omega$  max After conditioning:  $25m\Omega$  max

Insulation resistance

Initial:  $1,000M\Omega$  min After conditioning:  $100M\Omega$  min

#### : Mechanical

Durability

Standard J-Tek: 500 operations T-Contact: 1,000 operations Trio-Tek: 400 operations

Insertion force (max)

 Standard J-Tek:
 2.8N

 T-Contact:
 4.0N

 Trio-Tek:
 2.8N

Withdrawal force (min)

Standard J-Tek: 0.2N T-Contact: 0.5N Trio-Tek: 0.2N

Signal crimp accommodation: 22 AWG to 32 AWG

BS 3G 210 Type A, MIL-W-16878

#### Environmental

**Environmental classification**: 55/125/56 days at 95% RH

Operational temperature: -55°C to +125°C

\*Vibration sensitivity

Standard J-Tek, Trio-Tek: 10Hz to 2000Hz, 0.75mm,

 $98\text{m/s}^2$  (10G), duration 6 hours

T-Contact: 10Hz to 2000Hz, 0.75mm,

390m/s<sup>2</sup> (40G), duration 6 hours

**Bump severity:** 390m/s<sup>2</sup> (40G), 4000 ±10 bumps

\*Shock severity: 981m/s<sup>2</sup> (100G) for 6ms

\*Acceleration severity: 490m/s<sup>2</sup> (50G)

# Pin Numbering

FEMALE	MALE



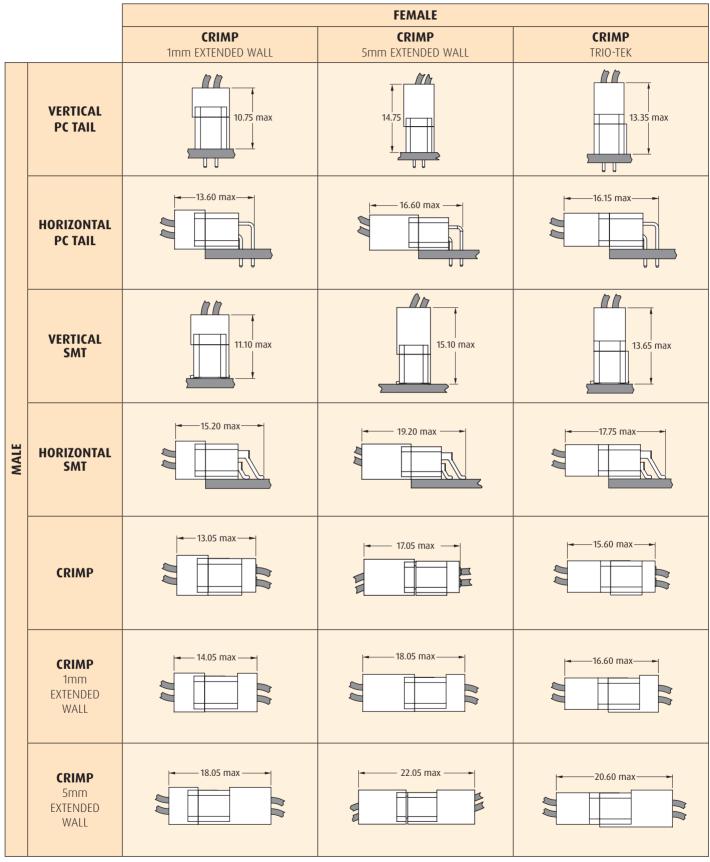
<sup>\*</sup> Tested with connectors with Jackscrews.

# **Datamate J-Tek Mating Profiles**

		FEMALE		
		VERTICAL PC TAIL	VERTICAL SMT	CRIMP
MALE	VERTICAL PC TAIL	7,30	7.80	9.75 max
	HORIZONTAL PC TAIL	10.00	10.50	12.60 max
	VERTICAL SMT	7.55	8.05	10.10 max
	HORIZONTAL SMT	11.60	12.10	14.20 max —
	CRIMP	9.85 max	10.35 max	12.05 max —
	CRIMP 1mm EXTENDED WALL	10.85 max	11.35 max	13.05 max—
	CRIMP 5mm EXTENDED WALL	14.85 max	15.35 max	17.05 max ———————————————————————————————————



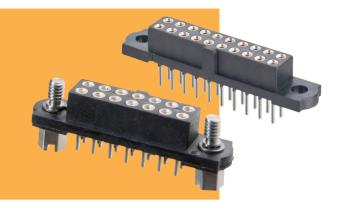
# **Mating Profiles**

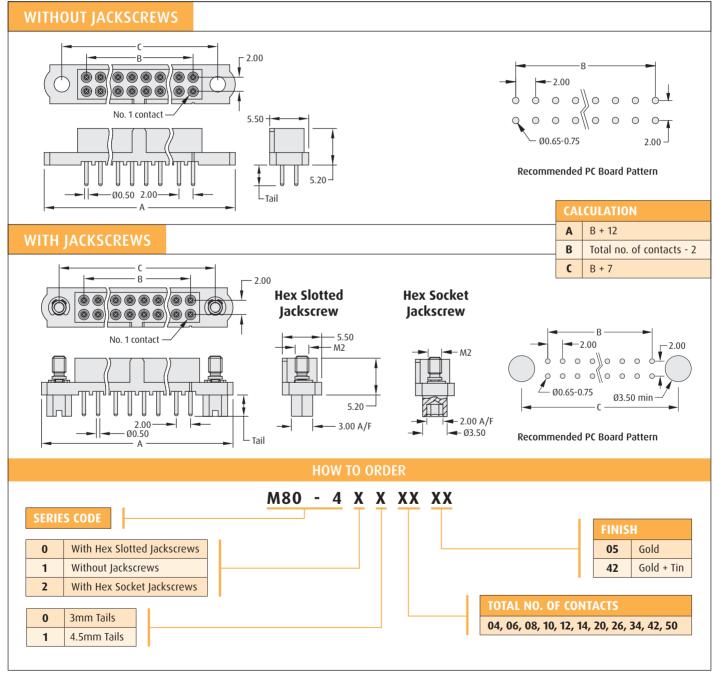




## Female Vertical PC Tail

- Fully shrouded contacts.
- Polarised mouldings
- Mates with all Datamate J-Tek male connectors with compatible jackscrews.

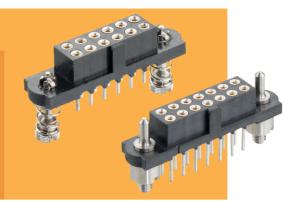


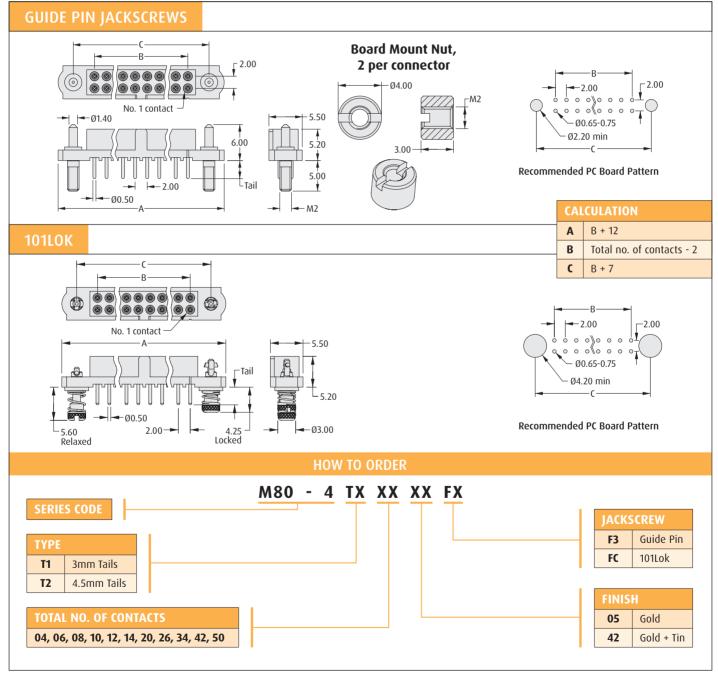




## Female Vertical PC Tail Guide Pin, 101Lok

- Guide pin style includes board mount fixing, and mates with Datamate J-Tek male connectors with compatible jackscrews.
- ➤ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- 101Lok style mates with Datamate J-Tek male connectors with compatible 101Lok fixings.



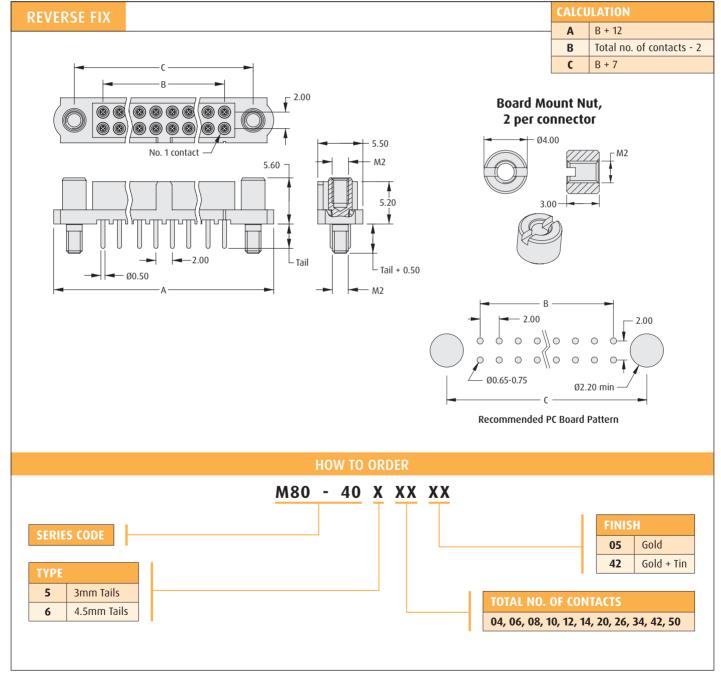




## Female Vertical PC Tail Reverse Fix

- Fully shrouded contacts.
- Polarised mouldings
- Includes board mount fixing.
- Mates with male Datamate J-Tek connectors with compatible Reverse Fix jackscrews.

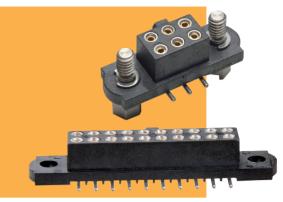


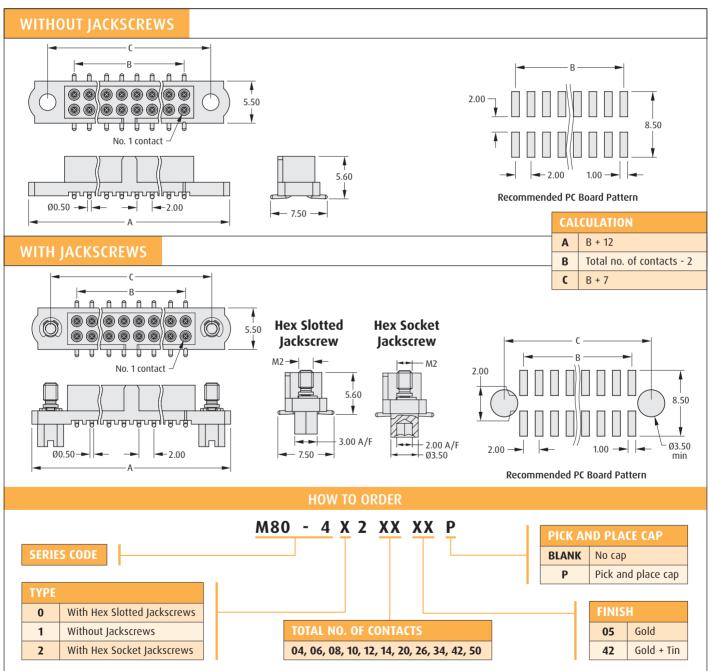




## **Female Vertical Surface Mount**

- ➤ Mates with all Datamate J-Tek male connectors with compatible jackscrews.
- Gull wing SMT tails simplify inspection process.
- Optional pick and place cap.
- **Contact datamate@harwin.com** for tape and reel options.

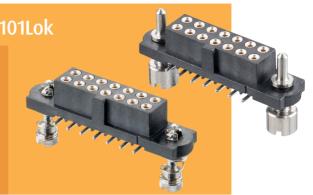


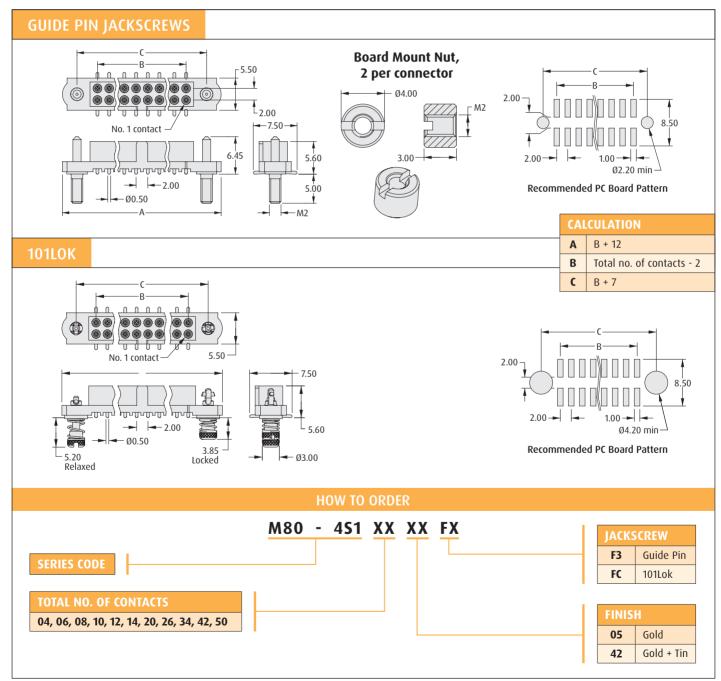




## Female Vertical Surface Mount Guide Pin, 101Lok

- Guide pin style includes board mount fixing, and mates with Datamate J-Tek male connectors with compatible jackscrews.
- → 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- 101Lok style mates with Datamate J-Tek male connectors with compatible 101Lok fixings.



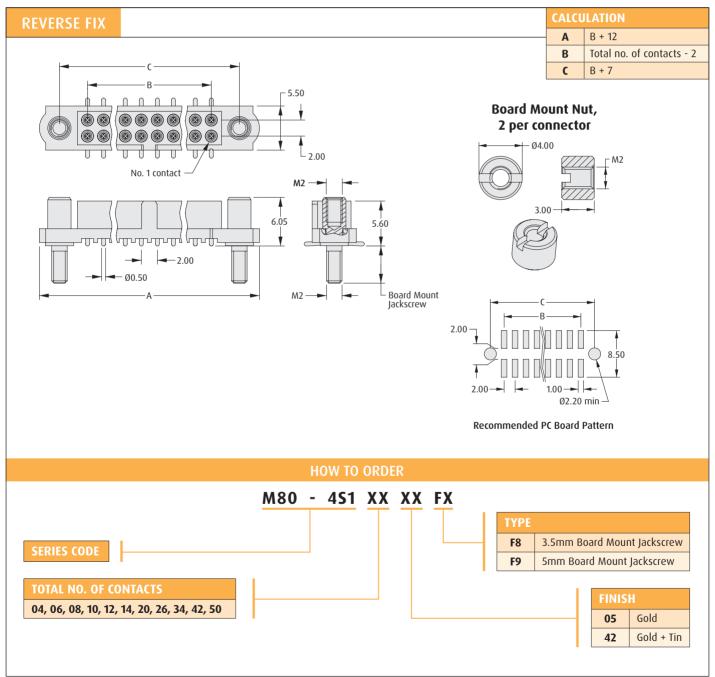




## Female Vertical Surface Mount Reverse Fix

- Fully shrouded contacts.
- Polarised mouldings.
- Includes Board Mount fixing.
- Mates with male Datamate J-Tek connectors with compatible Reverse Fix jackscrews.



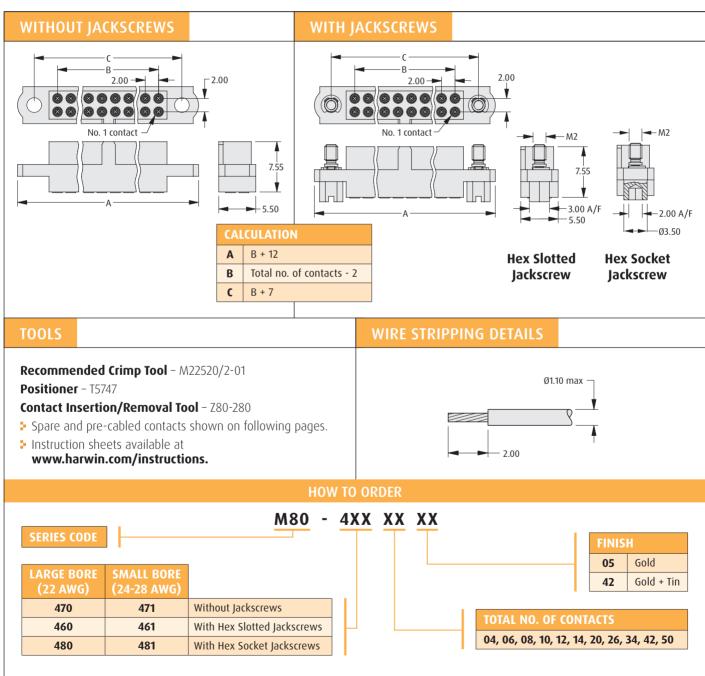




## Female Crimp Kit

- Part numbers are for a complete kit of a housing and the applicable number of contacts.
- **▶** Jackscrews are assembled where specified.
- Crimp contacts are rear insertable
- ➤ Version also available for 28 32 AWG cable see the following page.
- Spare contacts are available.



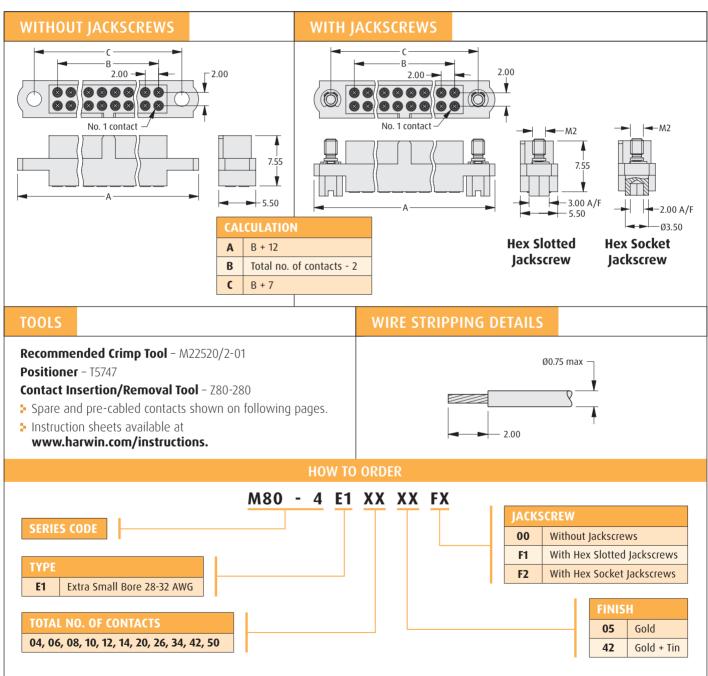




## Female Crimp Kit - Extra Small Bore

- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Jackscrews are assembled where specified.
- Crimp contacts are rear insertable.
- ➤ Versions also available for 22 28 AWG cable see the previous page.
- Spare contacts are available.



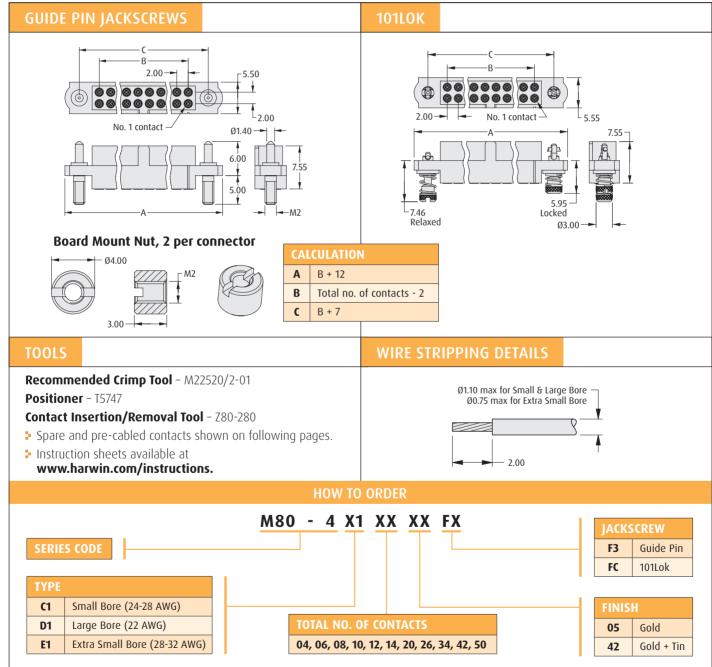




## Female Crimp Kit - Guide Pin, 101Lok

- Guide pin style includes board mount fixing.
- → 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek male connectors with applicable jackscrews or 101Lok fixings.
- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.

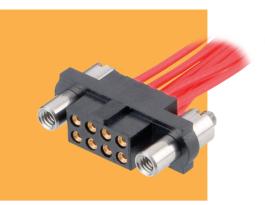


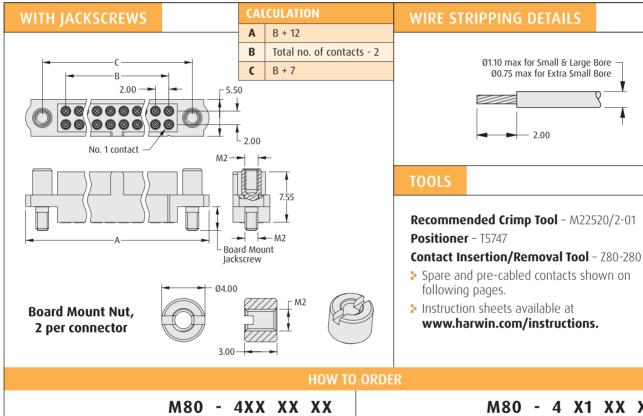




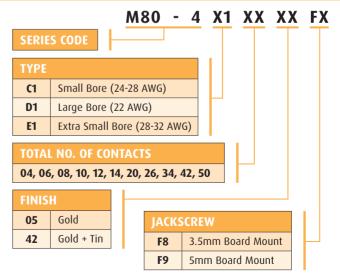
#### Female Crimp Kit - Reverse Fix

- Allows for further flexibility in system design
- **▶** Crimp contacts supplied loose and are inserted from rear.
- Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Jackscrews are assembled.
- Mates with male Datamate J-Tek connectors with compatible Reverse Fix jackscrews.





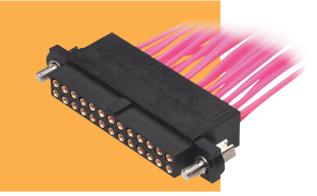
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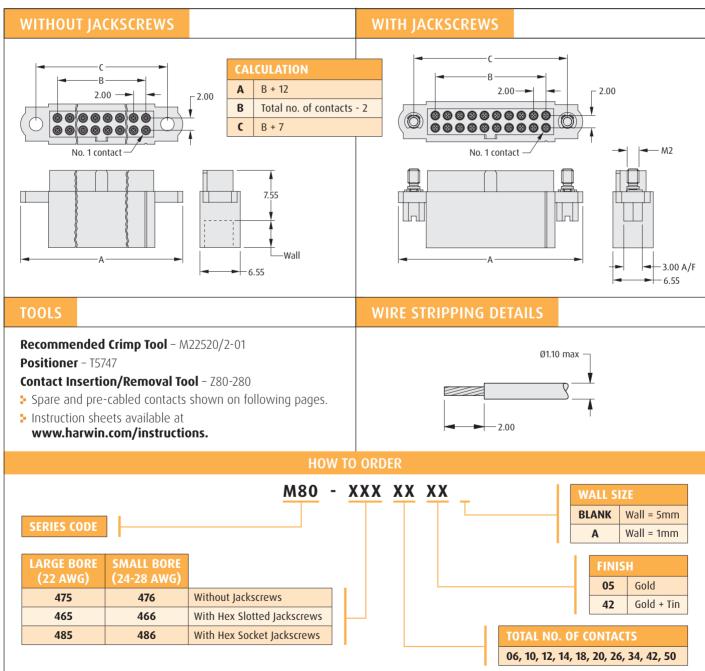




### Female Crimp Kit - Extended Wall

- **Extended Wall Datamate allows back potting to be performed.**
- Polarised mouldings
- Crimp contacts are rear insertable
- Large bore 22 AWG, small bore 24 28 AWG.
- ▶ Part numbers are for a housing and the equivalent number of contacts



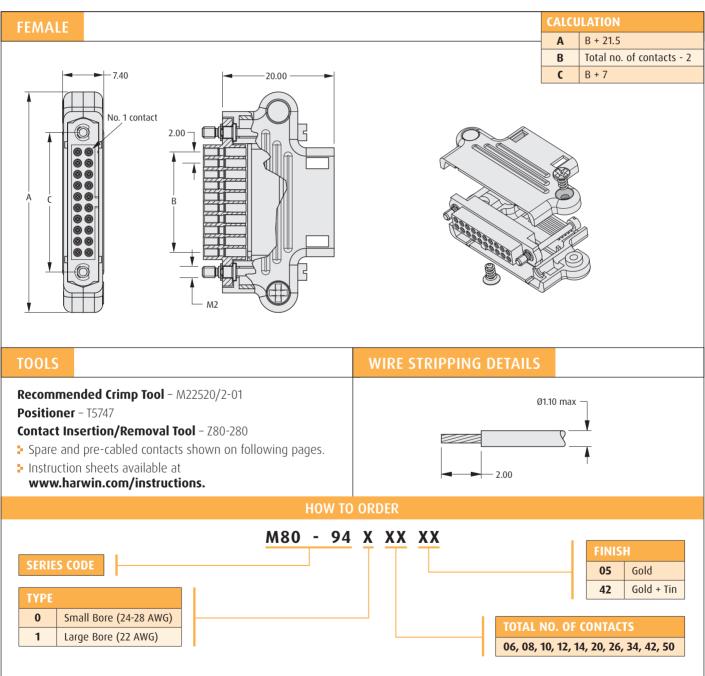




### Female Crimp Kit with Hood

- Supplied as a complete kit: jackscrews assembled to housing hood, contacts and assembly screws supplied loose.
- Provides strain relief by preventing cable bending at the rear of the connector, and also has the option of inserting a cable tie to reduce pull strain.



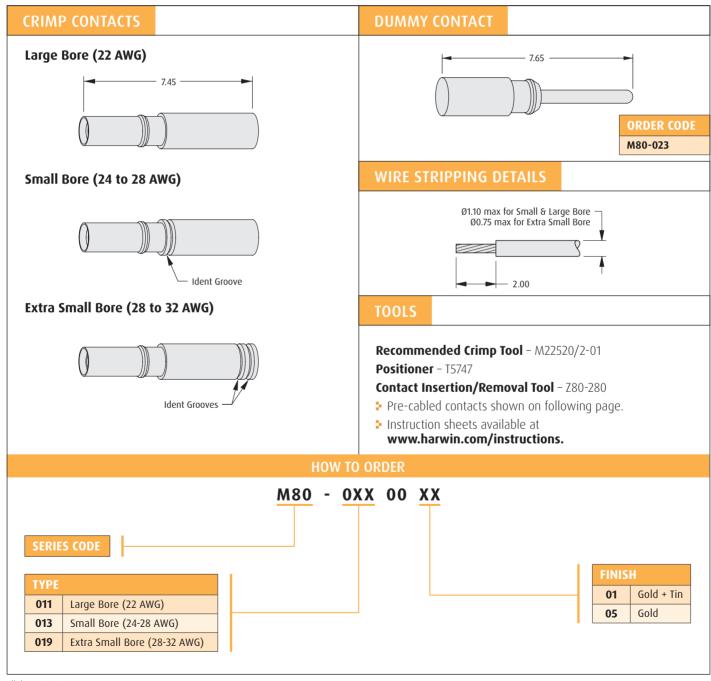




### **Spare Female Crimp Contacts**

**▶** Barrel Crimp Contacts are supplied with the connectors - see previous page. Use the order code for extra spare crimps.

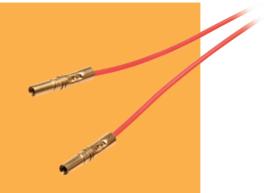


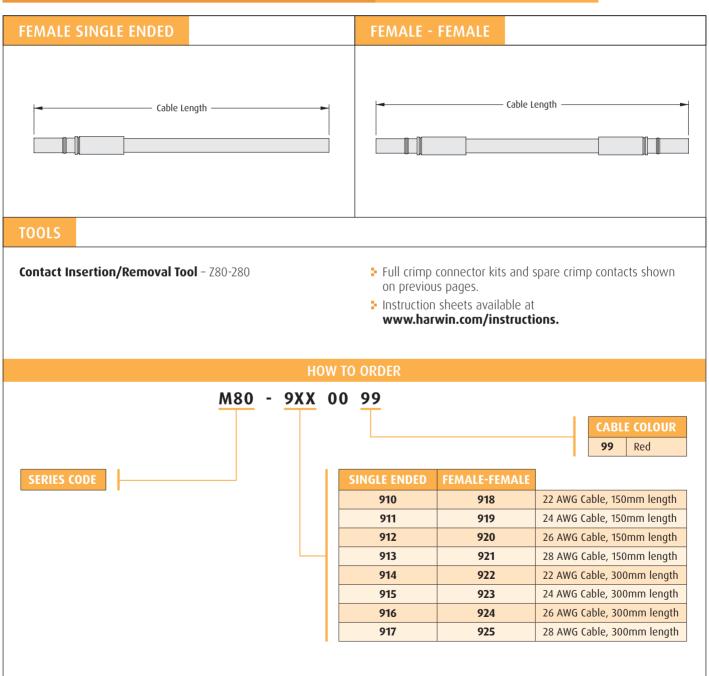




### Female Crimp Contacts - Pre-Crimped Wires

- ► Female crimp contacts pre-assembled with a choice of BS 3G 210 Type A cable at selected lengths.
- PTFE-insulated, multi-strand silver-plated copper conductor equipment wire.
- Ideal for prototype and pre-production applications.
- ➤ For non-standard cable lengths, please visit harwin.com/cable-assemblies and fill in your requirements.







### **Female Crimp T-Contact**

- ♣ Advanced single-piece contact design using Beryllium Copper for a 6-finger contact with improved capabilities.
- Current carrying capacity up to 8.5 Amps per contact.
- ▶ Improved mating durability to 1,000 operations.
- Suitable for use with 22AWG cable, Ø1.1mm maximum insulation diameter.
- Compatible cable housings showing on the following pages order contact and housings separately.



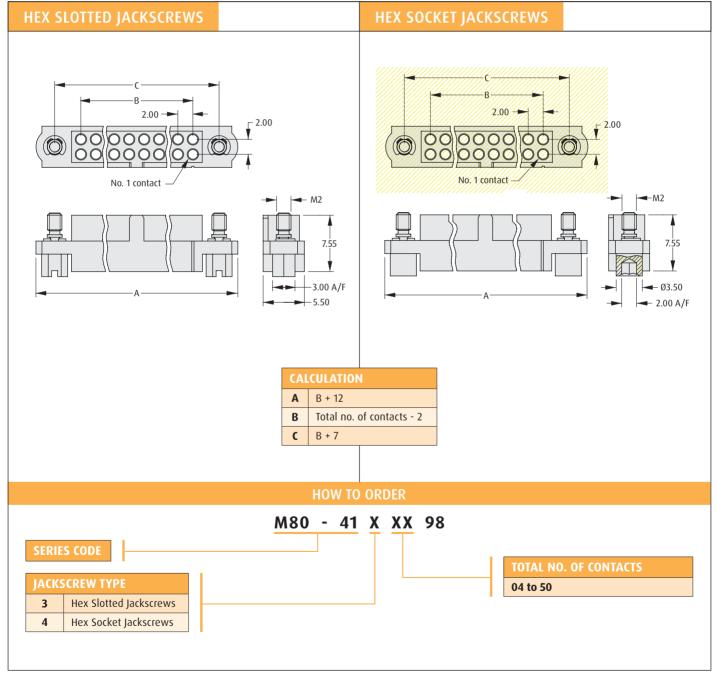
# **CRIMP CONTACTS** Large Bore (22 AWG) 6.95 **TOOLS** Ø1.10 max **Recommended Crimp Tool** – M22520/2-01 Positioner - Z80-444 Contact insertion/Removal Tool - Z80-280 > Instruction sheets available at www.harwin.com/instructions. M80 206 00 05 Gold



### **Female Crimp Housing**

- ➤ Compatible with all female signal barrel crimp contacts, including T-Contact shown on previous page.
- Use insertion tool to insert crimped contacts into rear of connector housing: order code Z80-280.
- Connectors mate with Datamate J-Tek male connectors with applicable jackscrews.
- Jackscrews are supplied already assembled to housing.



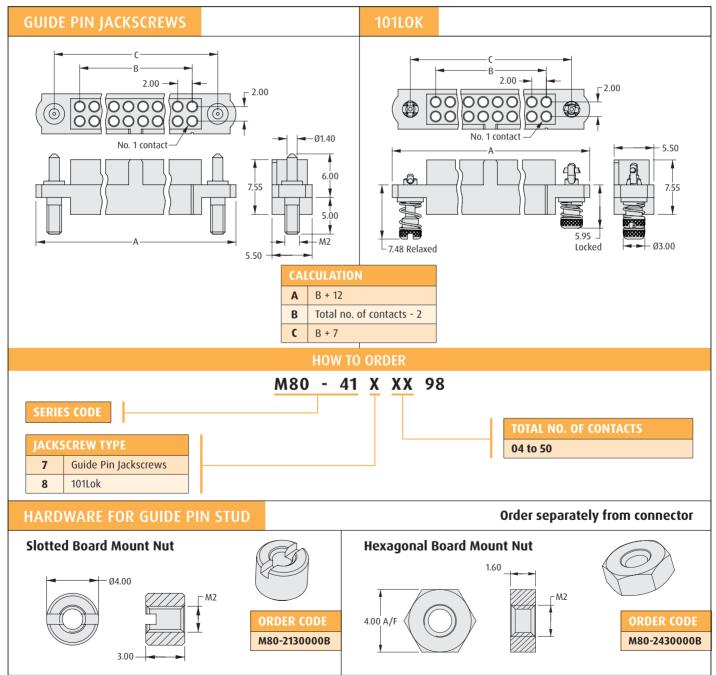




## Female Crimp Housing - Guide Pin, 101Lok

- ➤ Compatible with all female signal barrel crimp contacts, including T-Contact shown on previous page.
- **▶** Guide pin style includes board mount fixing.
- 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek male connectors with applicable jackscrews or 101Lok fxings.

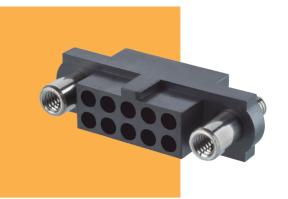


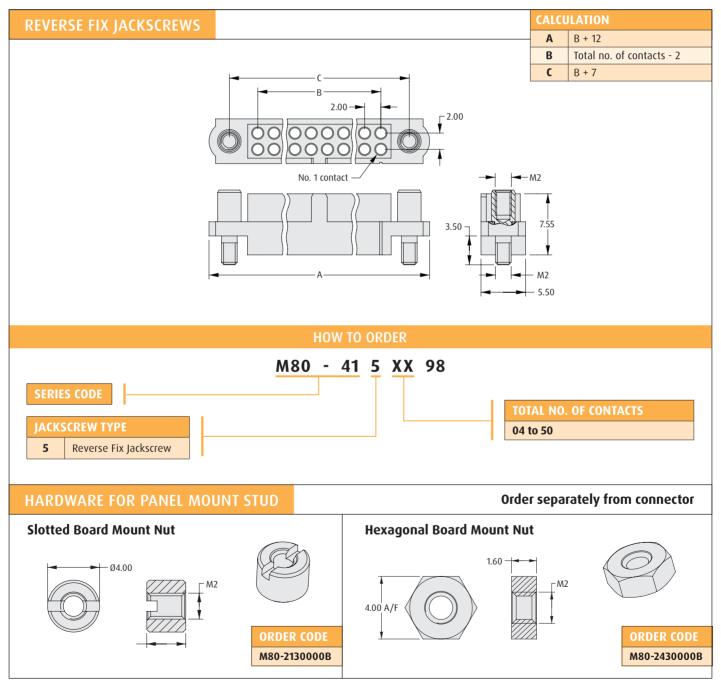




### Female Crimp Housing - Reverse Fix

- ➤ Compatible with all female signal barrel crimp contacts, including T-Contact shown on previous page.
- Use insertion tool to insert crimped contacts into rear of connector housing: order code Z80-280.
- Jackscrews are supplied already assembled to housing
- ➤ Connectors mate with Datamate J-Tek male connectors with compatible Reverse Fix jackscrews.



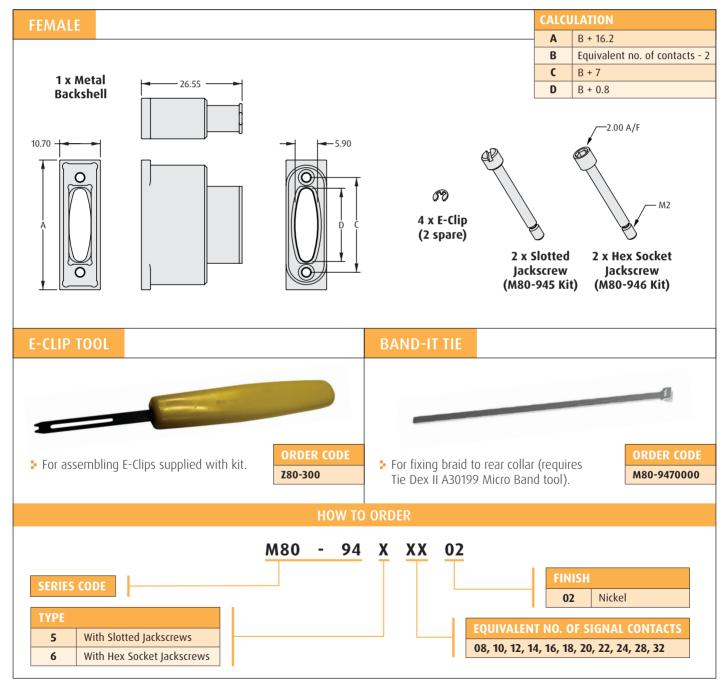




#### Female Metal Backshell

- Supplied as an accessory kit, including metal backshell, e-clips and the applicable jackscrews.
- To be used with the appropriate size of Female Crimp Kit without iackscrews.
- Gives 360 degree shielding when used with conductive braid and mated to a compatible male connector with metal backshell
- **▶** Instruction sheets available at www.harwin.com/instructions.



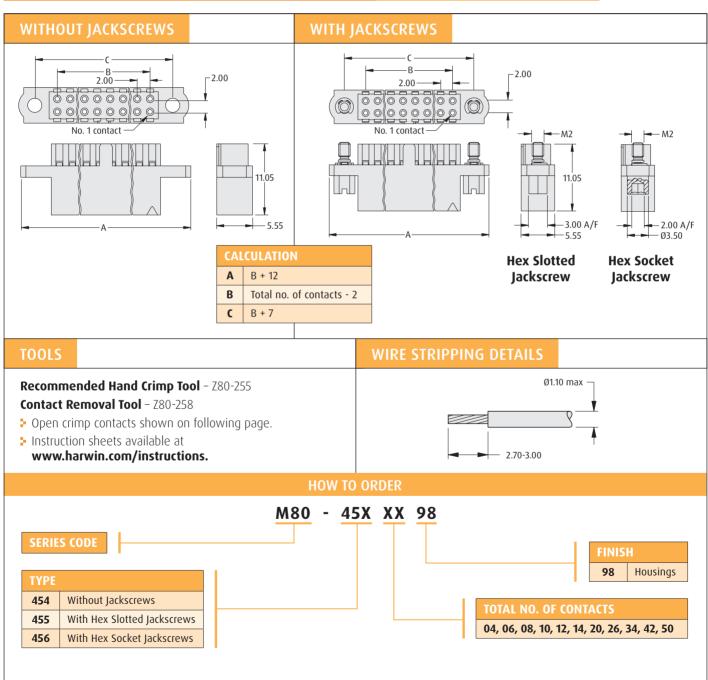




### Female Crimp Trio-Tek Housings

- Part numbers are for housings only, see following page for Trio-Tek contacts.
- Contacts are rear insertable.
- Crimp inspection window in housing
- ▶ Mates with all standard Datamate J-Tek male connectors.
- Ideal for volume applications.



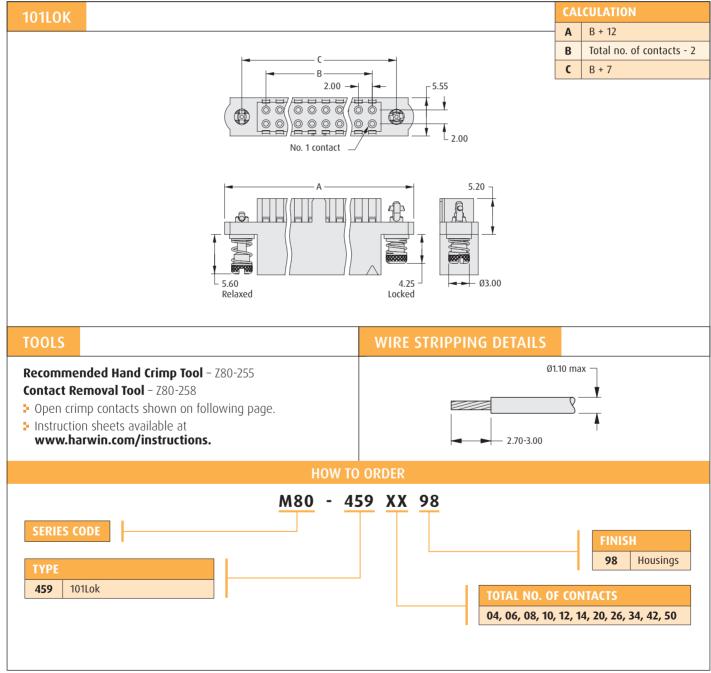




### Female Crimp Trio-Tek - 101Lok

- ▶ Part numbers are for housings only, see following page for Trio-Tek contacts.
- Ideal for volume applications.
- ▶ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek male connectors with 1011 ok fixings



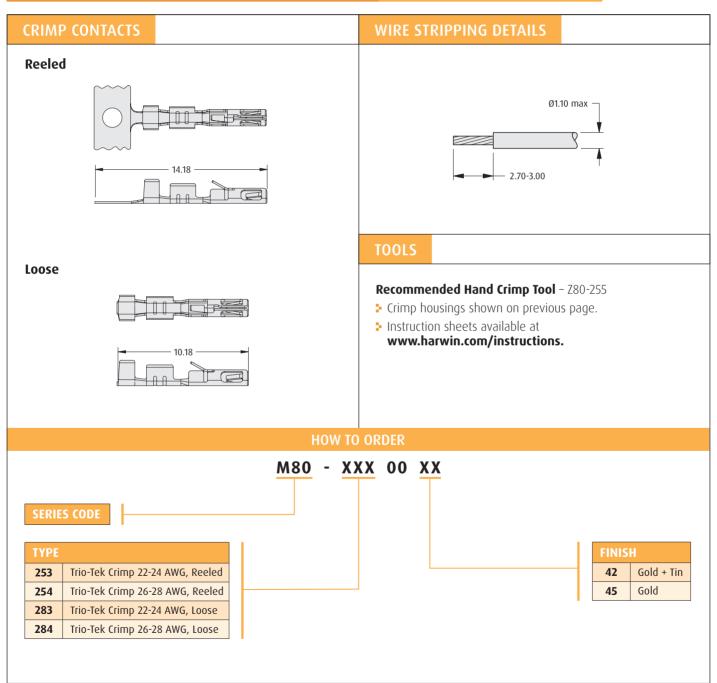




### Female Crimp Contacts Trio-Tek

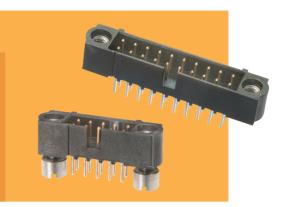
- Trio-Tek contacts must be ordered separately see previous pages for applicable housings.
- Crimp contacts are available loose, or in continuous reeled format for automated crimping.

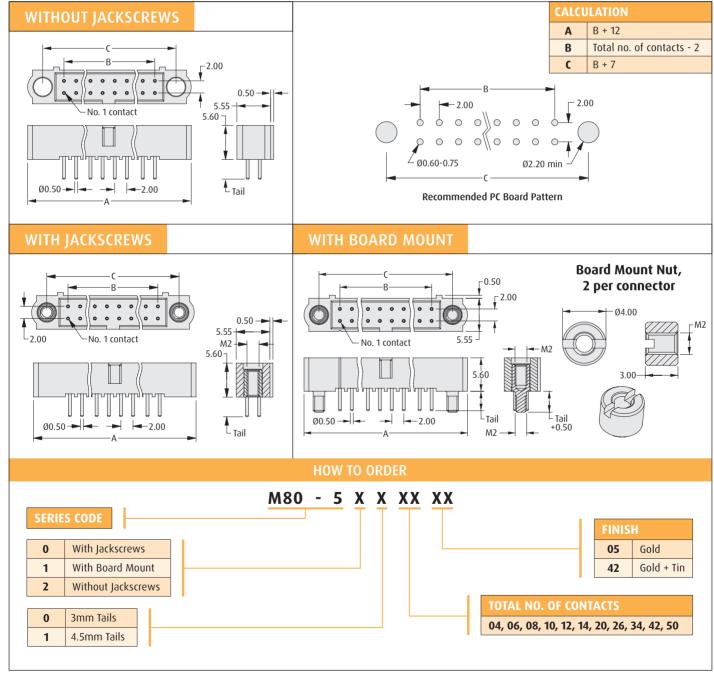




### Male Vertical PC Tail

- Polarised mouldings.
- ▶ Fully shrouded contacts
- ▶ Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.
- ➤ Mates with female Datamate J-Tek connectors with compatible jackscrews.

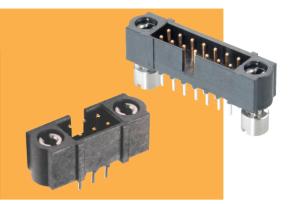


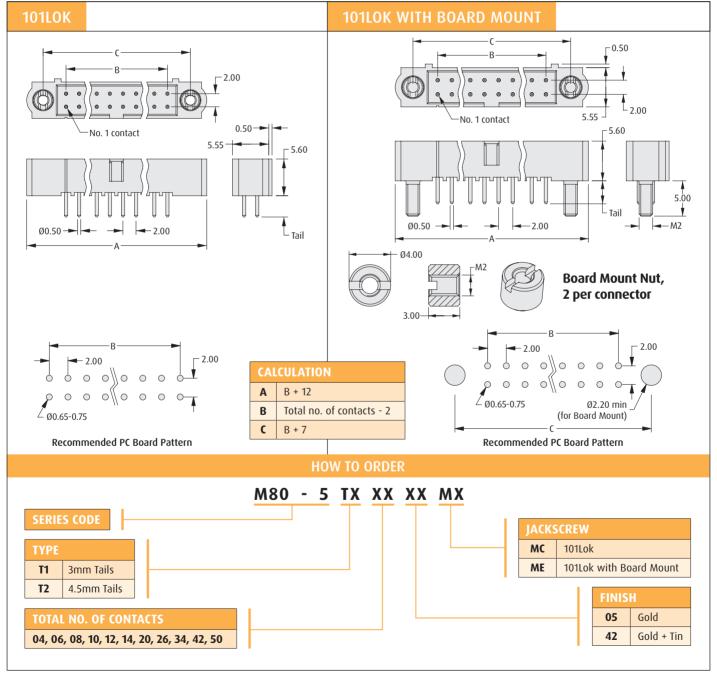




#### Male Vertical PC Tail 101Lok

- ▶ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek female connectors with applicable 101Lok fixings.
- Board Mount provides PCB strain relief
- ► Choice of PC tail length.

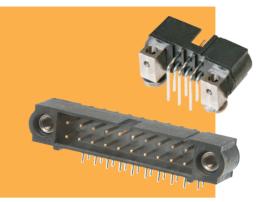


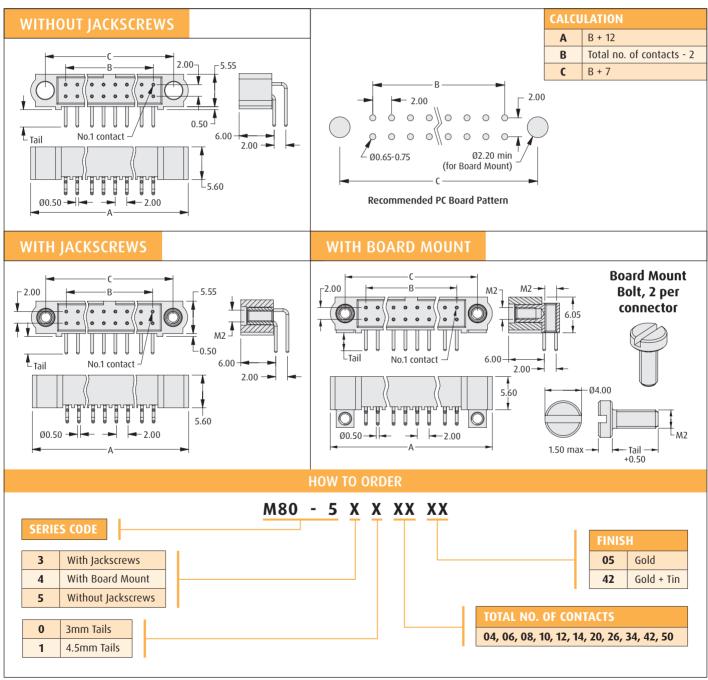




#### Male Horizontal PC Tail

- Polarised mouldings.
- Fully shrouded contacts
- ▶ Jackscrews are assembled where specified.
- Choice of PC tail length.
- Board Mount provides PCB strain relief.
- Mates with female Datamate J-Tek connectors with compatible jackscrews.



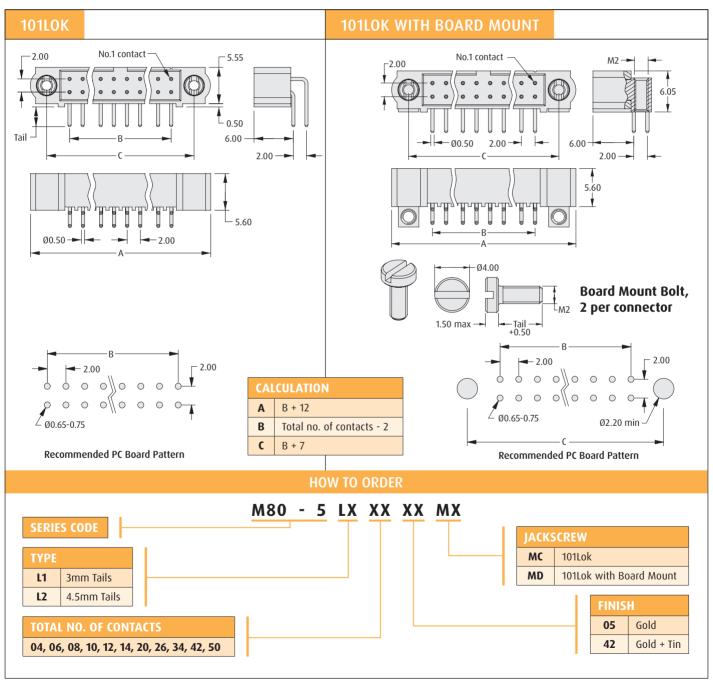




#### Male Horizontal PC Tail 101Lok

- ▶ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek female connectors with applicable 101Lok fixings.
- Board Mount provides PCB strain relief
- ► Choice of PC tail length.



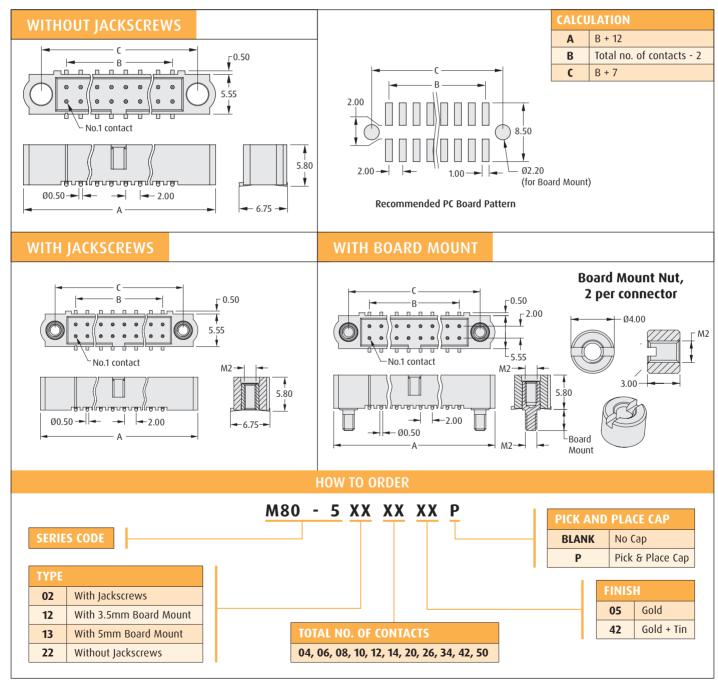




#### Male Vertical Surface Mount

- Gull wing SMT tails simplify inspection process.
- Board Mount provides PCB strain relief.
- ▶ Optional pick and place cap.
- Mates with female Datamate J-Tek connectors with compatible jackscrews.
- Contact datamate@harwin.com for tape and reel options.



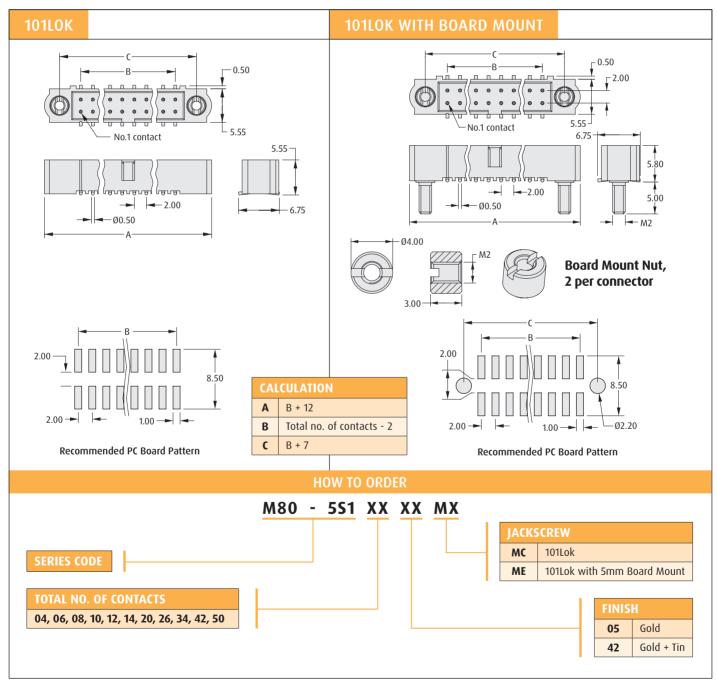




#### Male Vertical Surface Mount 101Lok

- ♣ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek female connectors with applicable 101Lok fixings.
- Board Mount provides PCB strain relief.
- Gull wing SMT tails simplify inspection process.
- Contact datamate@harwin.com for tape and reel options.

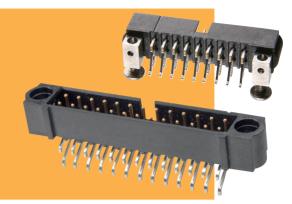


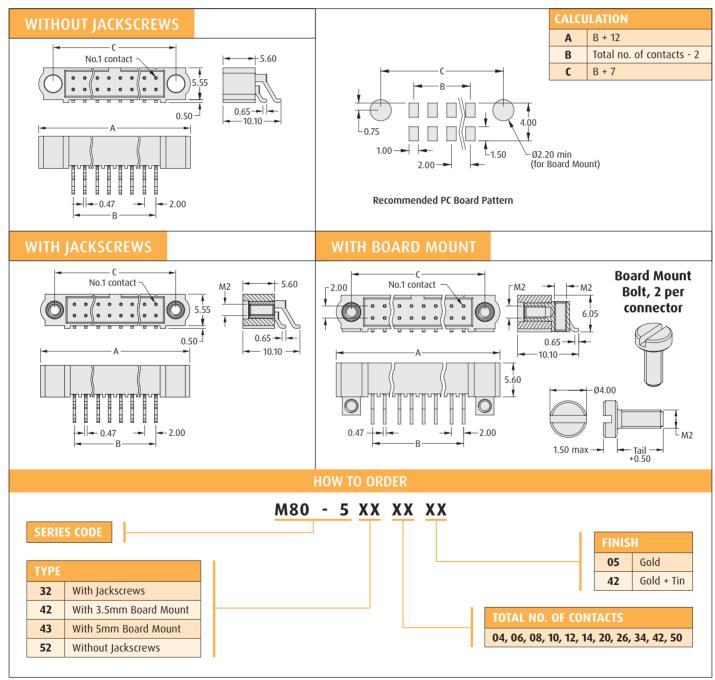




#### Male Horizontal Surface Mount

- Stamped contact ensures co-planarity.
- Board Mount provides PCB strain relief
- Mates with female Datamate J-Tek connectors with compatible jackscrews.
- **Contact datamate@harwin.com** for tape and reel options.

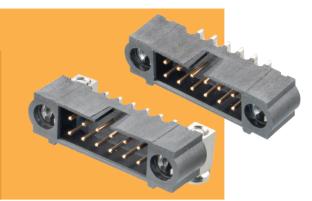


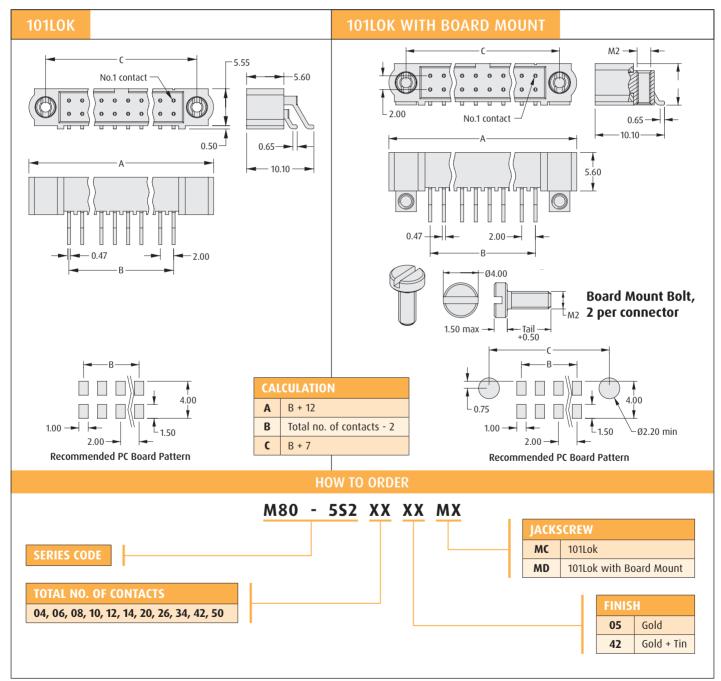




#### Male Horizontal Surface Mount 101Lok

- ♣ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- Connectors mate with Datamate J-Tek female connectors with applicable 101Lok fixings.
- Board Mount provides PCB strain relief.
- Stamped contact ensures co-planarity.
- Contact datamate@harwin.com for tape and reel options.

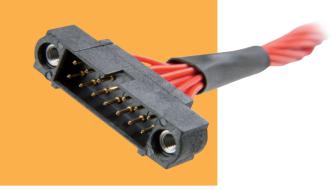


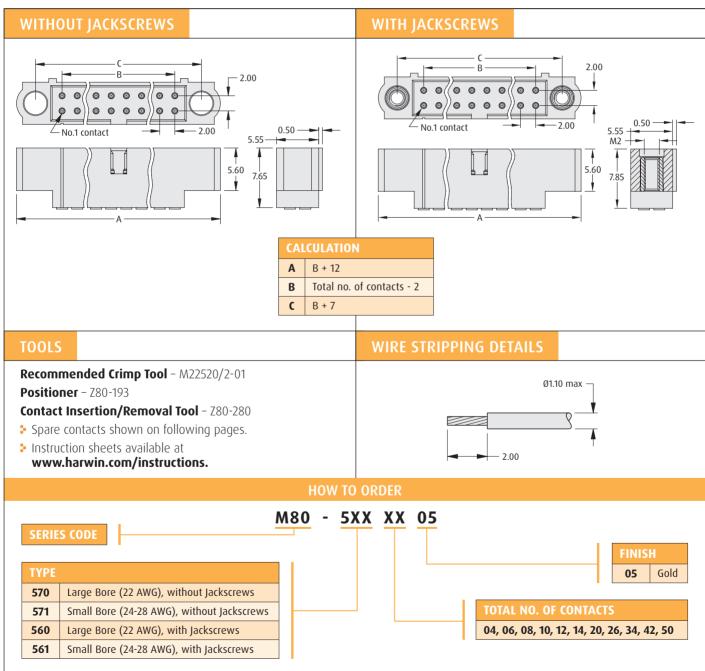




### Male Crimp Kit

- ▶ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- **▶** Jackscrews are assembled where specified.
- Crimp contacts supplied loose.
- **▶** Crimp contacts are rear insertable and replaceable.
- Spare contacts are available.

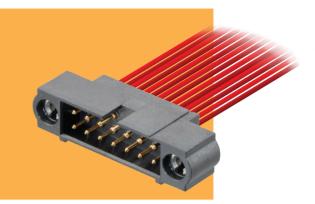


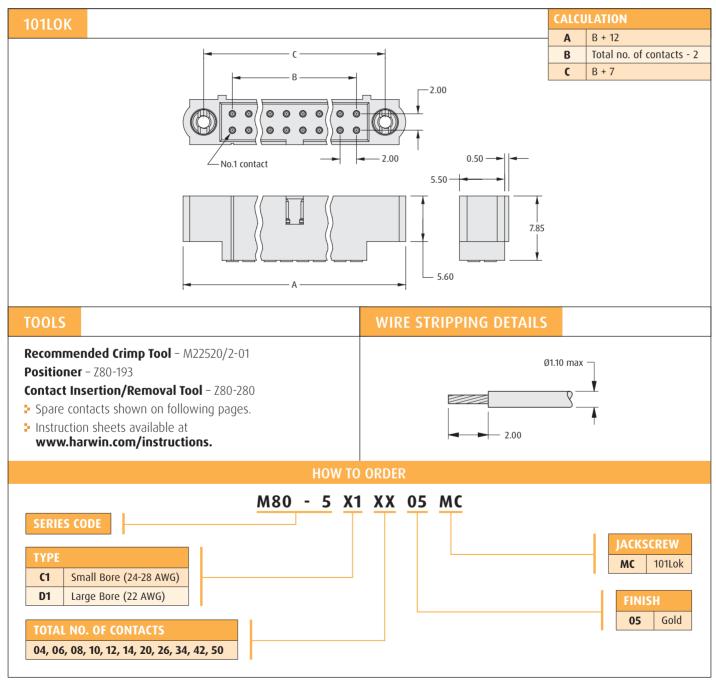




### Male Crimp Kit 101Lok

- Part numbers are for a complete kit of a housing and the applicable number of contacts.
- ➤ 101Lok fixing gives secure, fast and simple mating; no special tooling required. Just a simple 101-degree turn is required to fix the connectors together.
- ➤ Connectors mate with Datamate J-Tek female connectors with applicable 101Lok fixings.
- Crimp contacts supplied loose.



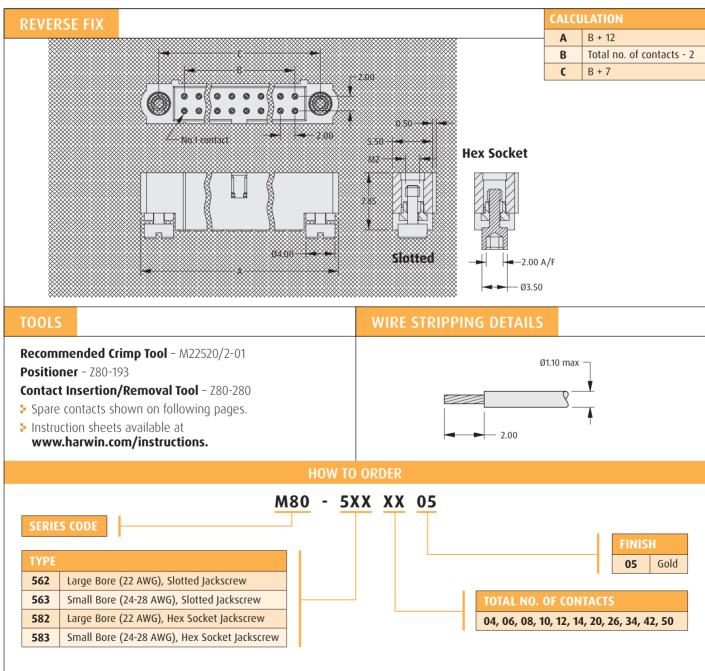




### Male Crimp Kit Reverse Fix

- Allows for further flexibility in system design.
- Part numbers are for a complete kit of a housing and the applicable number of contacts.
- **▶** Crimp contacts are rear insertable and replaceable.
- Mates with female Datamate J-Tek connectors with compatible Reverse Fix jackscrews.



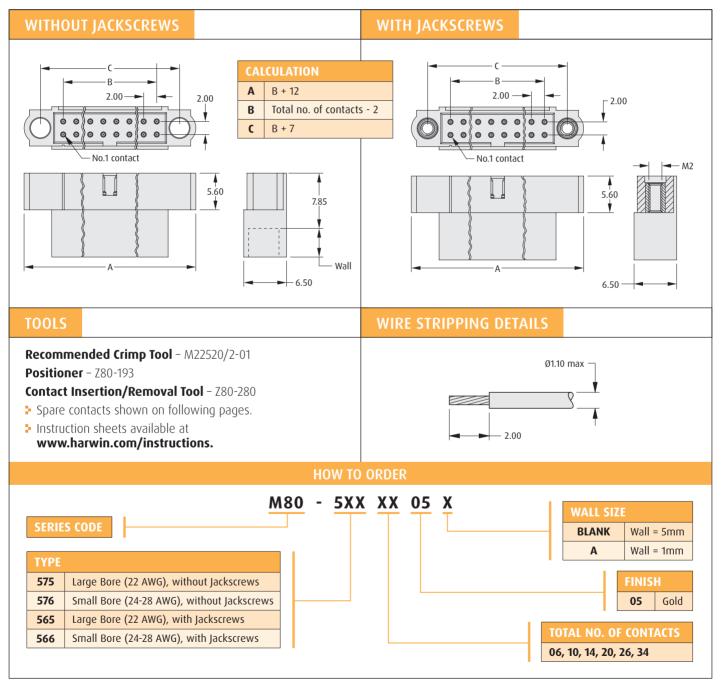




#### Male Crimp Kit Extended Wall

- Extended Wall Datamate allows back potting to be performed
- Fully shrouded contacts.
- Large Bore 22 AWG, Small Bore 24 28 AWG.
- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- **▶** Crimp contacts are rear insertable and replaceable.
- Crimp contacts supplied loose.



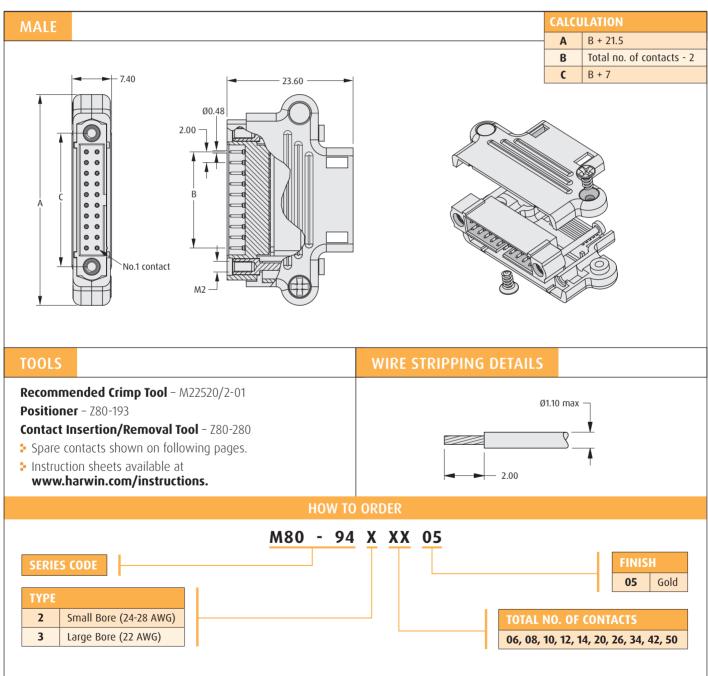




### Male Crimp with Hood

- Supplied as a complete kit: jackscrews assembled to housing; hood, contacts and assembly screws supplied loose.
- Provides strain relief by preventing cable bending at the rear of the connector, and also the option of inserting a cable tie to reduce pull strain



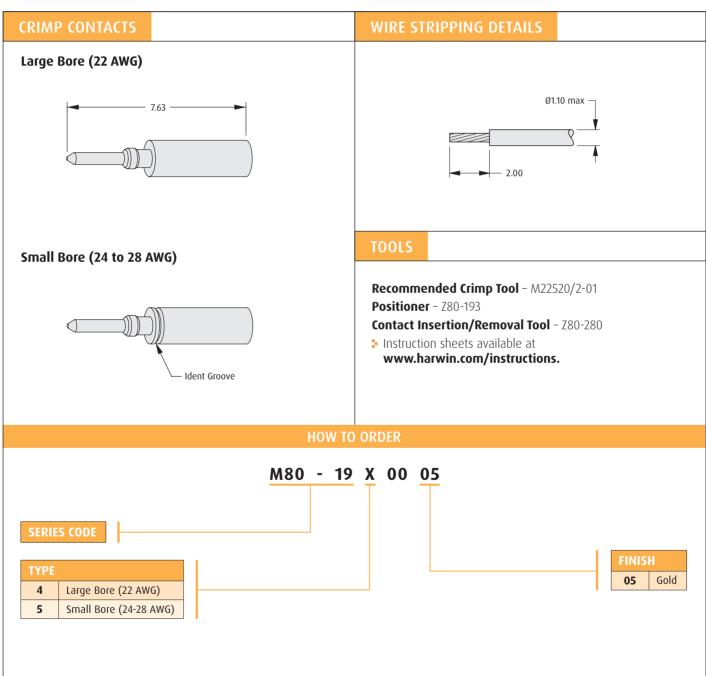




### **Spare Male Crimp Contacts**

**▶** Barrel Crimp Contacts are supplied with the connectors - see previous page. Use the order code for extra spare crimps.



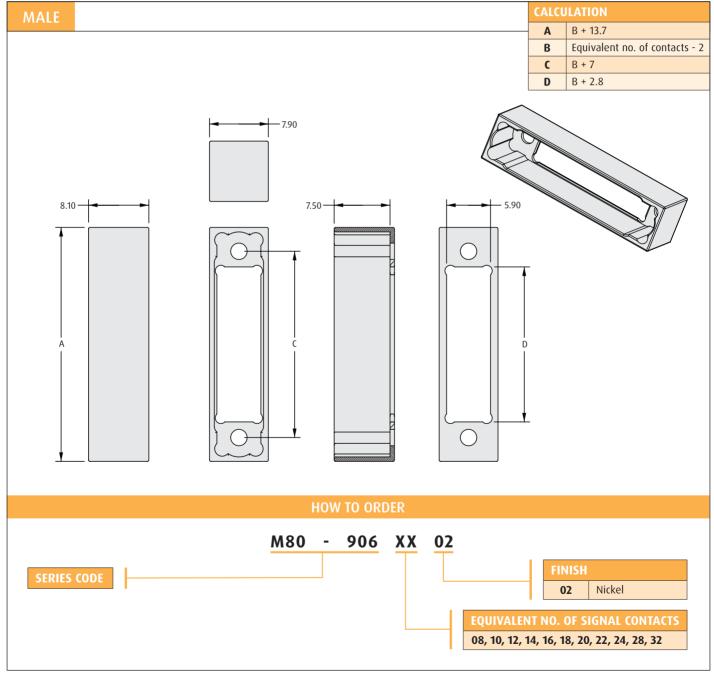




#### Male Metal Backshell

- Supplied as an accessory, to be used with existing male connectors.
- Can be fitted to either male vertical PCB connectors with board mount, or male cable connectors with panel mount jackscrews.
- Gives 360 degree shielding when mounted to a conductive panel and mated to a compatible female connector with metal backshell.







## Datamate J-Tek 3-Row Specification

#### Materials

Mouldings: Glass-filled thermoplastic UL94V-0
Female contacts: Brass shell, with Beryllium Copper

inner contact

Male contacts: Phosphor bronze

Finish: Gold

#### > Electrical

#### Current

Individual contacts in isolation: 3.3A max (at 25°C)

2.6A max (at 85°C)

All contacts simultaneously: 3.0A max (at 25°C) 2.2A max (at 85°C)

Working voltage

At sea level 1013 mbar: 800V DC or ACrms

Voltage proof

At sea level 1013 mbar: 1200V DC or ACrms

Contact resistance

Initial:  $20m\Omega$  max After conditioning:  $25m\Omega$  max

Insulation resistance

Initial:  $1000M\Omega$  min After conditioning:  $100M\Omega$  min

#### Mechanical

**Durability:** 500 operations

Insertion force (max): 1.0N Withdrawal force (min): 0.2N

Signal crimp accommodation: 22 AWG to 28 AWG

BS 3G 210 Type A or MIL-DTL-16878/6 Type ET

#### **► Environmental**

Environmental classification: 55/125/56 days at 95% RH

Operational temperature: -55°C to +125°C

\*Vibration sensitivity: 10Hz to 2000Hz, 0.75mm, 98m/s<sup>2</sup>

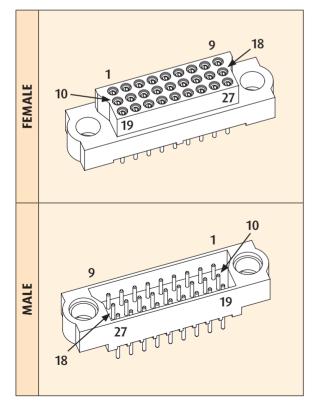
(10G), duration 6h

**Bump severity:** 390m/s² (40G), 4000 ±10 bumps

\*Shock severity: 981m/s<sup>2</sup> (100G) for 6ms

\*Acceleration severity: 490m/s² (50G)

## Pin Numbering



#### All dimensions in mm.

# **Mating Profiles**

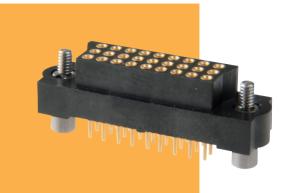
		FEMALE					
		VERTICAL PC TAIL	CRIMP				
31	VERTICAL PC TAIL	10.65	12.85				
MALE	HORIZONTAL PC TAIL	15.85	18.00				

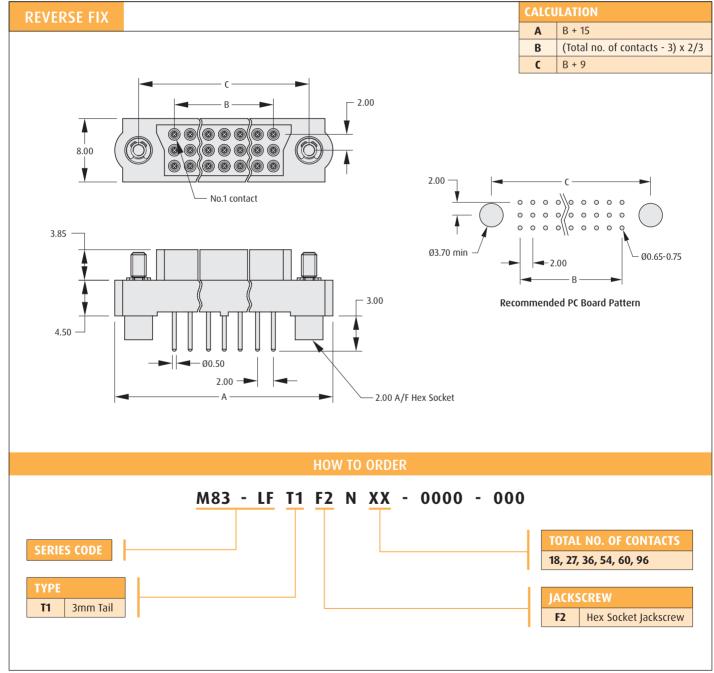


<sup>\*</sup> Tested with connectors with Jackscrews.

#### Female Vertical PC Tail

- Low-force 4-finger Beryllium Copper contact clip.
- Fully shrouded contacts
- **▶** Polarised mouldings.
- **♣** All contacts are gold finish for full RoHS compliance.
- Mates with all Datamate 3-Row male connectors with compatible jackscrews.

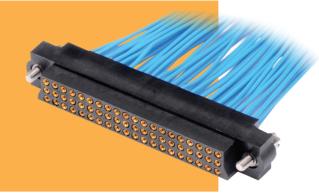


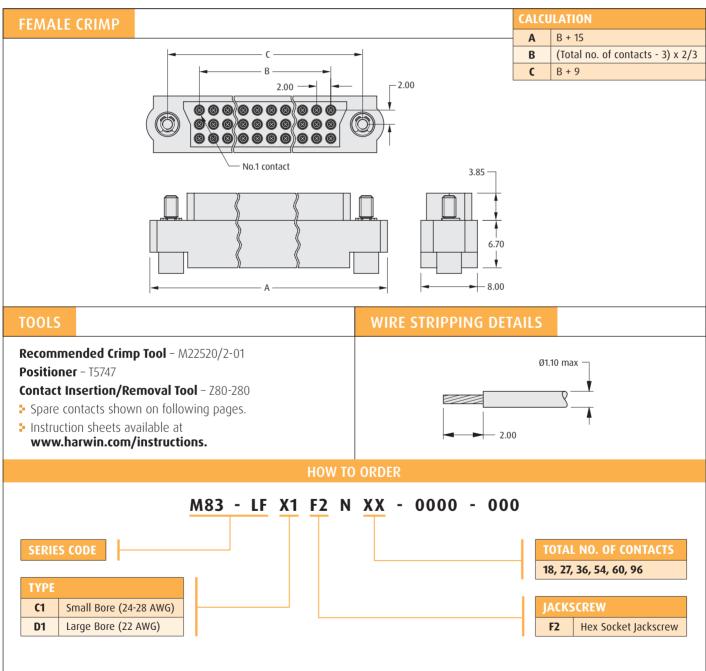




### Female Crimp Kit

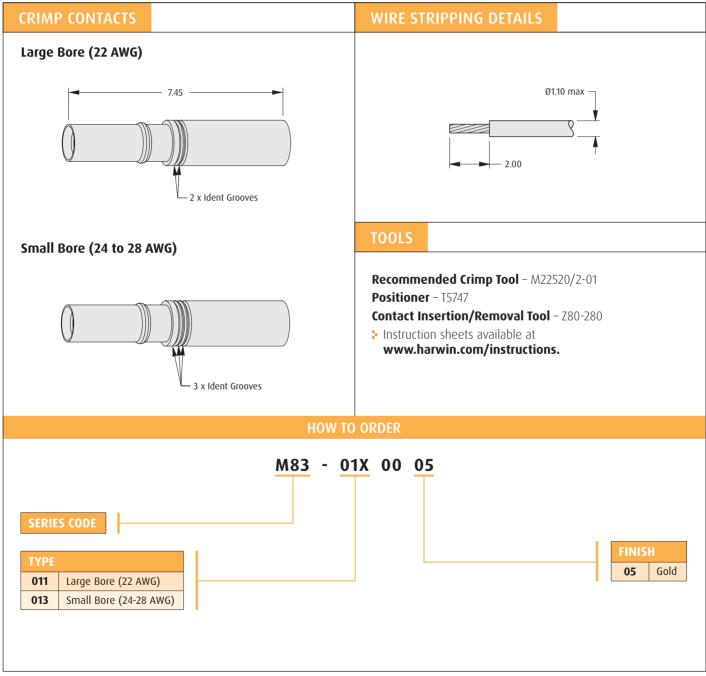
- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Jackscrews are assembled where specified.
- **Crimp** contacts are rear insertable.
- Low-force 4-finger Beryllium Copper contact clip
- Spare contacts are available.







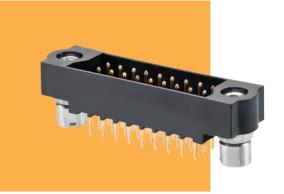


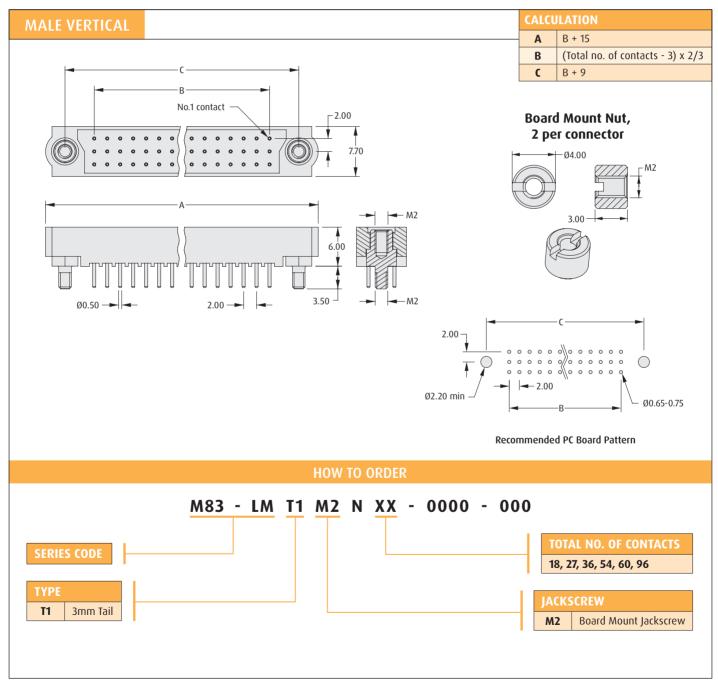




#### Male Vertical PC Tail

- ➤ Board Mount nuts to be tightened to a maximum torque of 23cmN.
- Fully shrouded contacts.
- Polarised mouldings.
- ♣ All contacts are gold finish for full RoHS compliance.
- ► Mates with all Datamate 3-Row female connectors with compatible jackscrews.

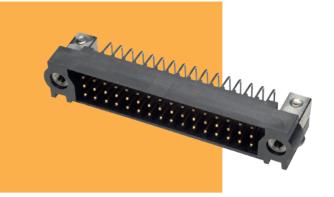


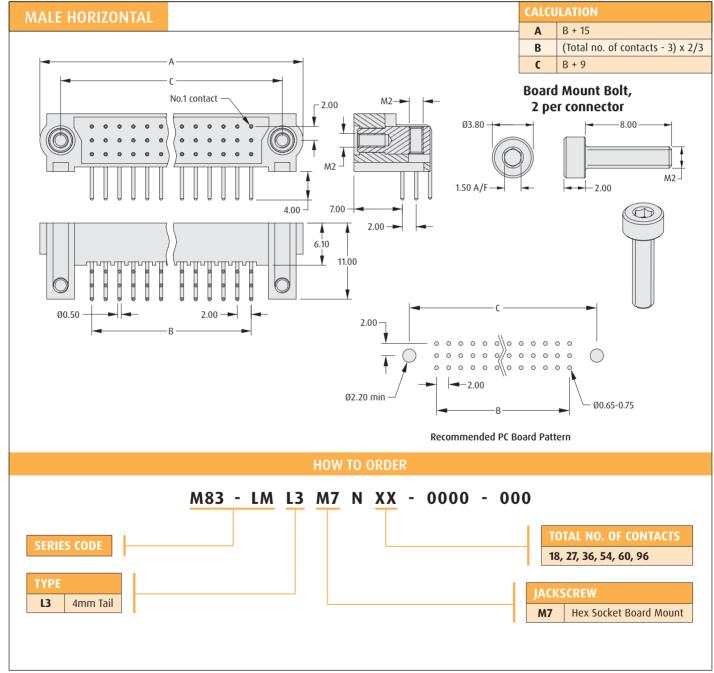




#### Male Horizontal PC Tail

- ► Board Mount screws to be tightened to a maximum torque of 23cmN.
- Suitable for motherboard/daughterboard configurations.
- Fully shrouded contacts, polarised mouldings
- **♣** All contacts are gold finish for full RoHS compliance.
- Mates with all Datamate 3-Row female connectors with compatible jackscrews.







## **Datamate L-Tek Specification**

Glass-filled thermoplastic UL94V-0 Mouldings: Brass shell, with Beryllium Copper Female contacts:

inner contact

Male contacts: Copper alloy

Finish: See individual pages

#### > Electrical

Individual contacts in isolation: 3.3A max (at 25°C)

2.6A max (at 85°C)

All contacts simultaneously: 3.0A max (at 25°C) 2.2A max (at 85°C)

Working voltage

At sea level 1013 mbar: 800V DC or ACrms

Voltage proof

At sea level 1013 mbar: 1,200V DC or ACrms

Contact resistance

Initial: 20mΩ max After conditioning: 25mΩ max

Insulation resistance

Initial:

1,000MΩ min After conditioning: 100MΩ min

#### : Mechanical

Durability

Standard L-Tek: 500 operations Trio-Tek: 400 operations

Insertion force (max): 2.8N Withdrawal force (min): 0.2N

Signal crimp accommodation: 22 AWG to 32 AWG

BS 3G 210 Type A, MIL-W-16878

#### : Environmental

Environmental classification: 55/125/56 days at 95% RH

Operational temperature: -55°C to +125°C

\*Vibration sensitivity: 10Hz to 2000Hz, 0.75mm,

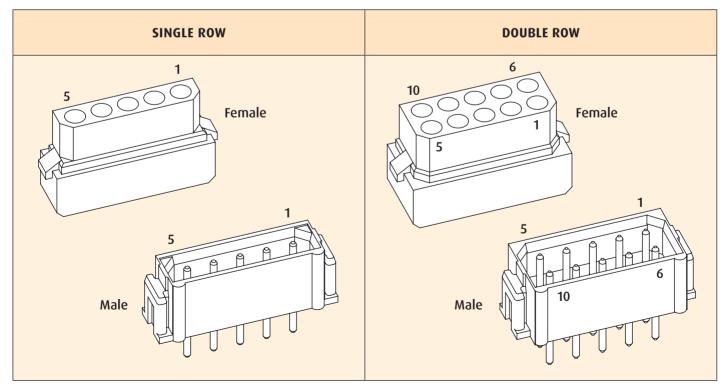
98m/s<sup>2</sup> (10G), duration 6h

\*Bump severity: 390m/s<sup>2</sup> (40G), 4000 ±10 bumps

\*Shock severity: 981m/s<sup>2</sup> (100G) for 6ms

\*Acceleration severity: 490m/s<sup>2</sup> (50G)

## Pin Numbering





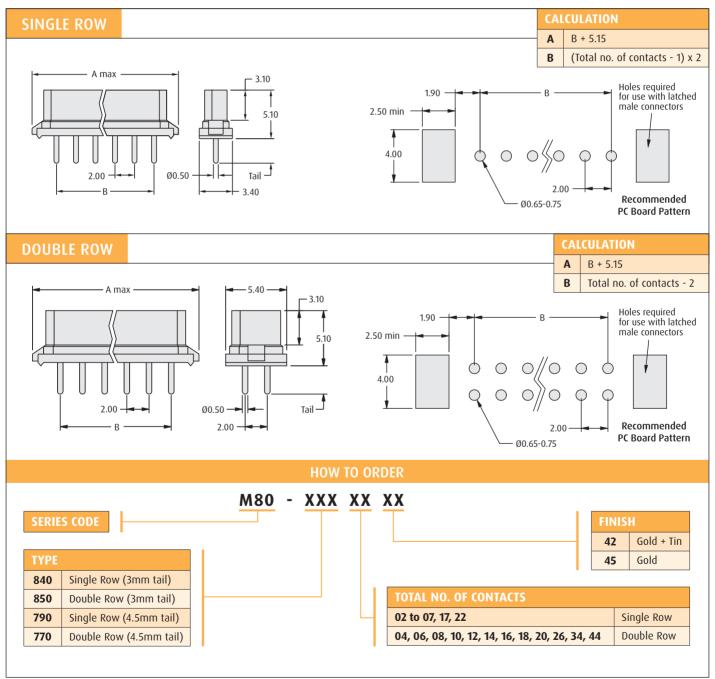
<sup>\*</sup> Tested with latched connectors.

# **Datamate L-Tek Mating Profiles**

		FEMALE								
		VERTICAL PC TAIL		VERTICAL SMT	CRIMP		CRIMP (TRIO-TEK)			
	ı	SIL	DIL	DIL	SIL	DIL	SIL	DIL		
MALE	VERTICAL PC TAIL	7,23	7.23	7.83	10.00 max	10.00 max	13.46 max	13.51 max		
	HORIZONTAL PC TAIL	7.98	9.98	10.58	10.85 max	12.95 max	14.30 max	16.35 max		
	VERTICAL SMT		7.93	8.53		10.75 max		14.25 max		
	HORIZONTAL SMT		11.78	12.38		14.60 max		18.10 max		
	CRIMP	10.79 max	10.79 max	11.39 max	13.30 max	13.30 max	16.75 max	16.80 max		



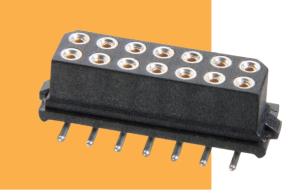
# Female Vertical PC Tail Polarised mouldings. Dummy contacts are available for additional polarisation, use order code M80-023.

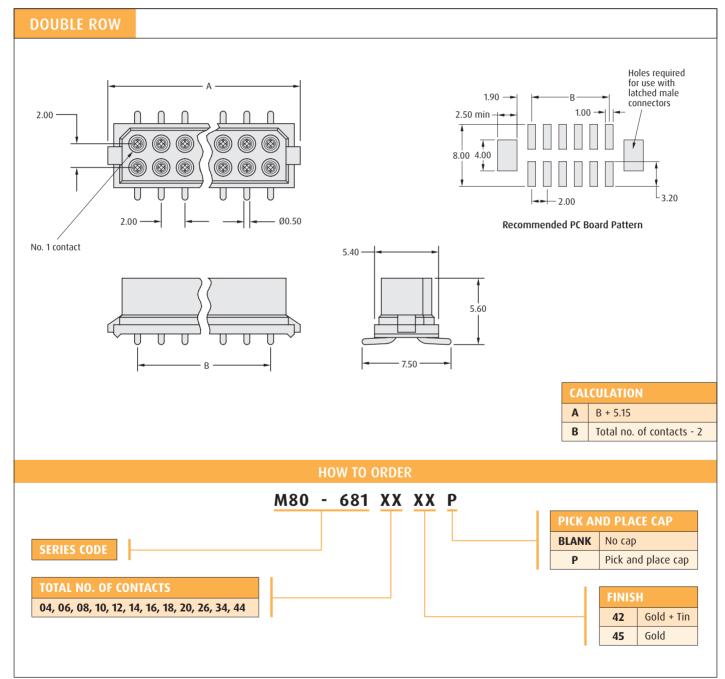




### Female Vertical Surface Mount

- ▶ Optional pick and place cap.
- **▶** Contact **datamate@harwin.com** for tape & reel options.
- Gull wing SMT tails simplify inspection process.



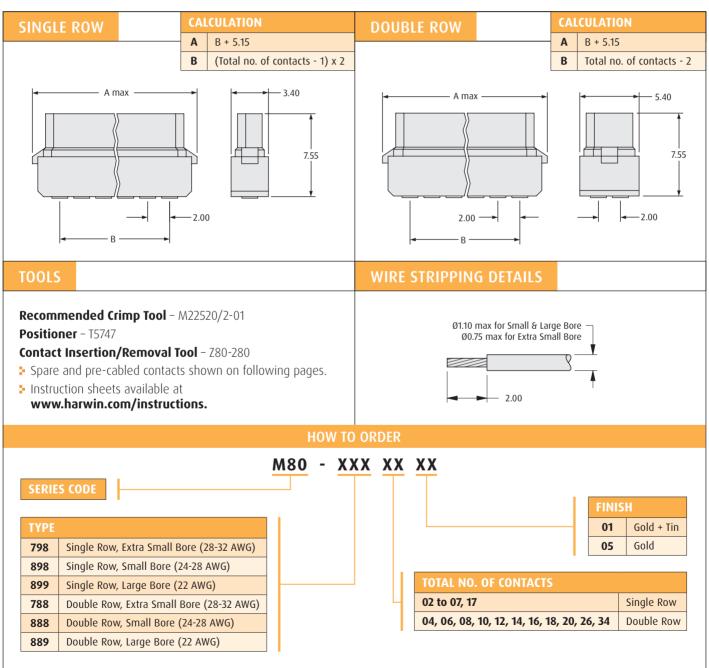




### Female Crimp Kit

- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Contacts are rear insertable
- Spare contacts are available see the following page.



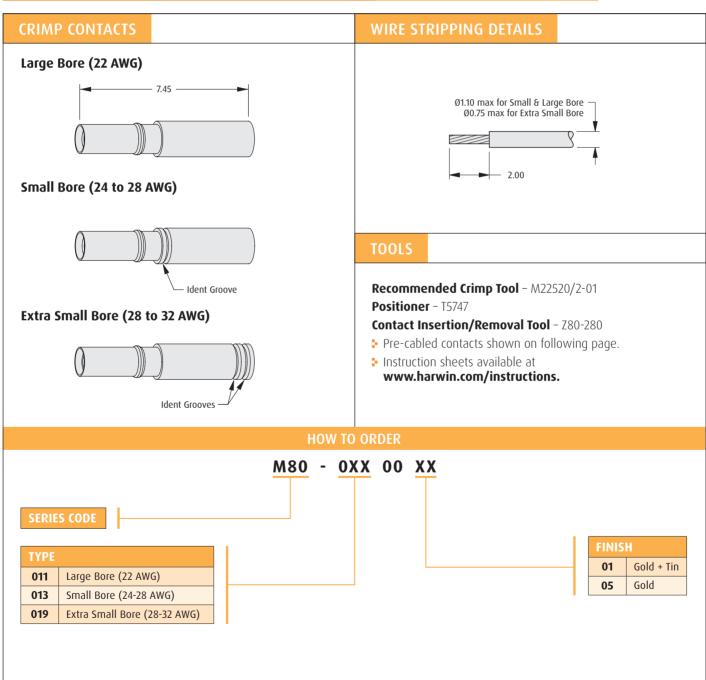




### **Spare Female Crimp Contacts**

▶ Barrel Crimp Contacts are supplied with the connectors
 - see previous page. Use the order code for extra spare crimps

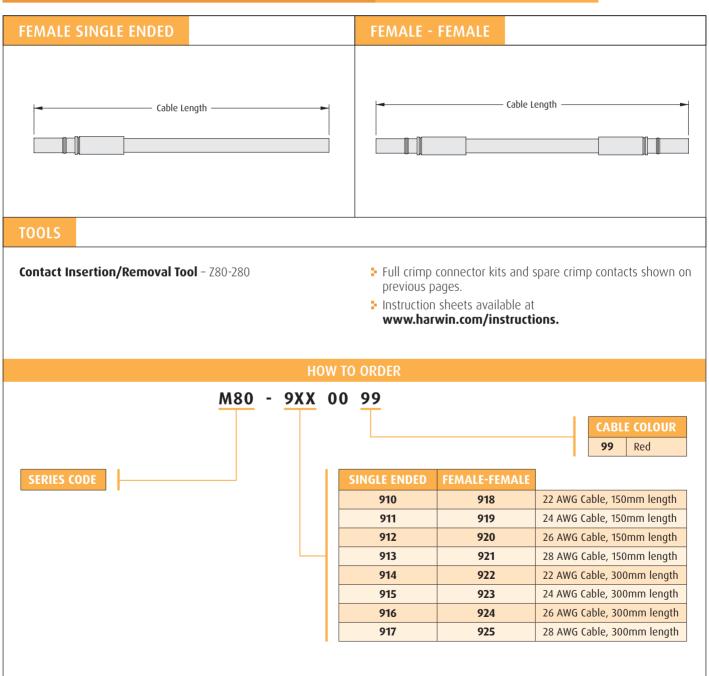




### Female Crimp Contacts - Pre-Crimped Wires

- ► Female crimp contacts pre-assembled with a choice of BS 3G 210 Type A cable at selected lengths.
- PTFE-insulated, multi-strand silver-plated copper conductor equipment wire.
- Ideal for prototype and pre-production applications.
- ➤ For non-standard cable lengths, please visit harwin.com/cable-assemblies and fill in your requirements.



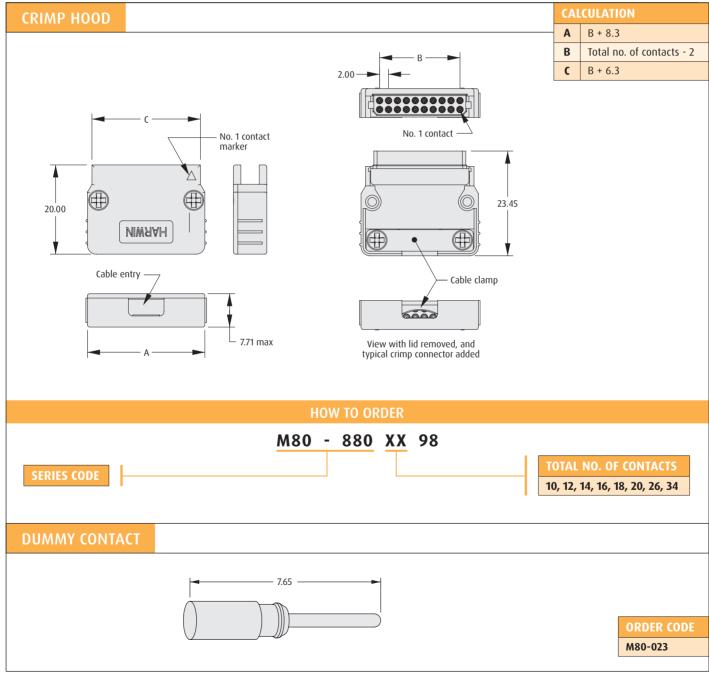




### Female Accessories

- ♣ Crimp Hood is supplied as a kit of parts, including body, lid, cable clamp and 4 screws.
- For use with double row female crimp connectors.
- ▶ Mates with unlatched male connectors.
- ➤ Dummy contact can be used for additional polarisation or keying of multiple connectors.
- Fits both female PC Tail and Crimp housings.



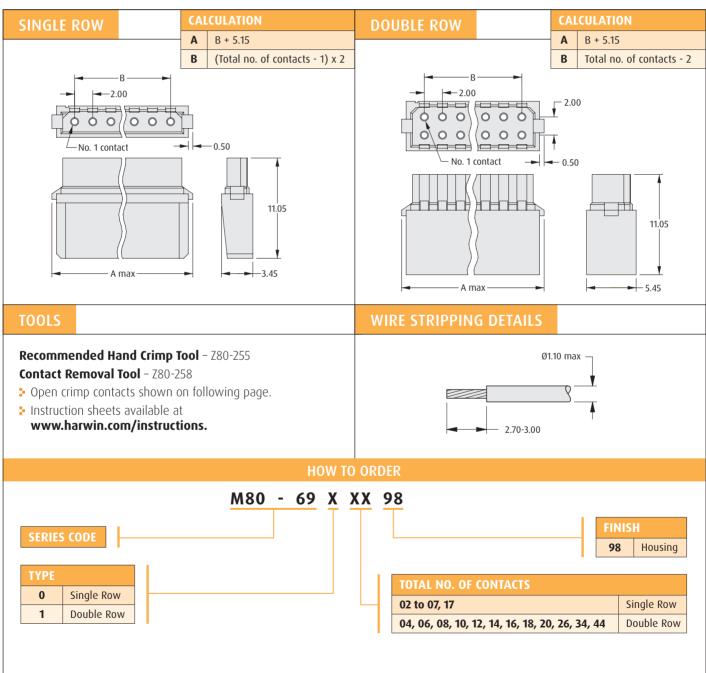




### Female Crimp Housings Trio-Tek

- Part numbers are for housings only, see following page for Trio-Tek contacts.
- Contacts are rear-insertable.
- Crimp inspection window in housing
- Mates with all standard Datamate L-Tek male connectors
- Ideal for volume applications.



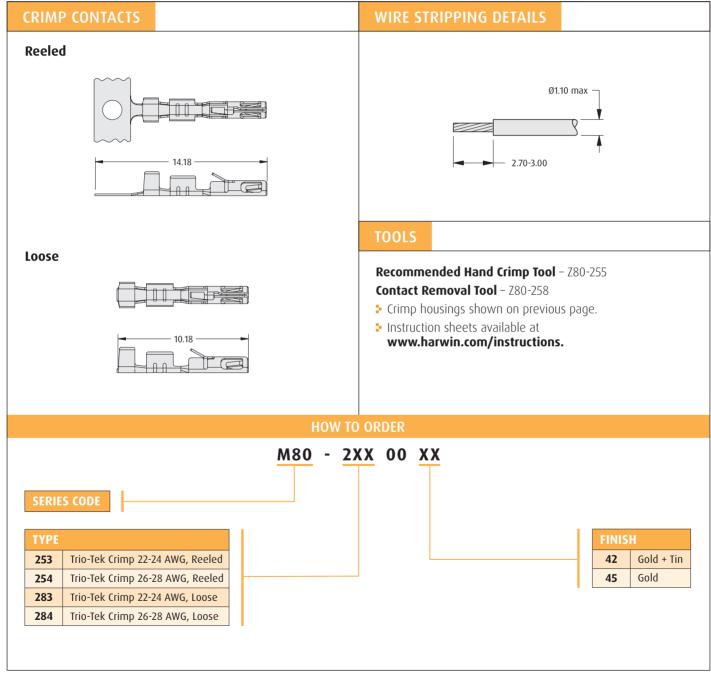




### Female Crimp Contacts Trio-Tek

- Trio-Tek contacts must be ordered separately see previous page for applicable housings.
- Crimp contacts are available loose, or in continuous reeled format for automated crimping.

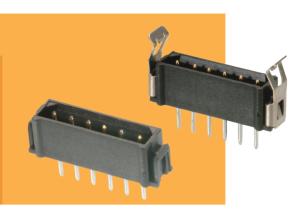


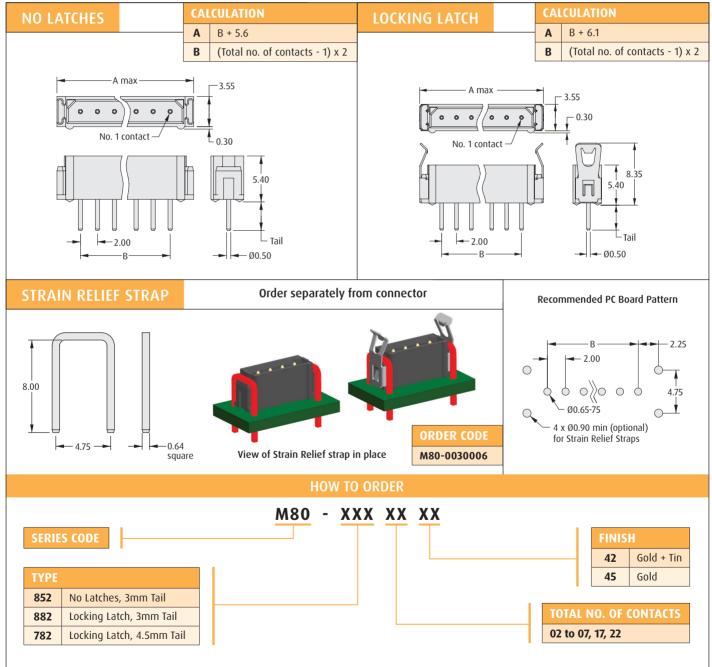




### Male Single Row Vertical PC Tail

- Polarised mouldings
- ▶ Fully shrouded contacts
- ▶ Mates with standard Datamate L-Tek female connectors.
- Can be used with optional Strain Relief straps, available to order separately: order code M80-0030006.

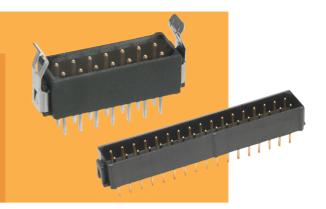


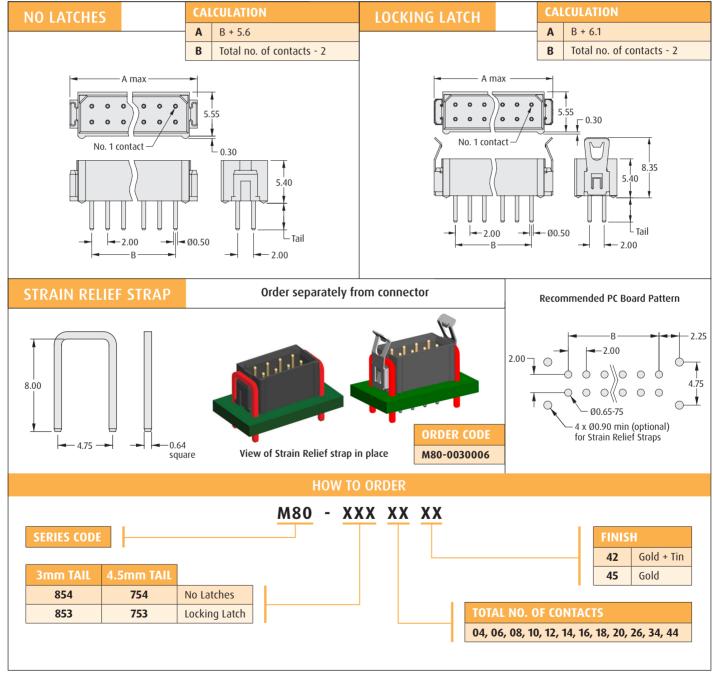




### Male Double Row Vertical PC Tail

- Polarised mouldings.
- Fully shrouded contacts
- ▶ Mates with standard Datamate L-Tek female connectors.
- Can be used with optional Strain Relief straps, available to order separately: order code M80-0030006.

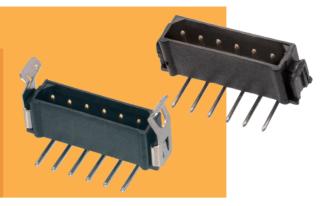


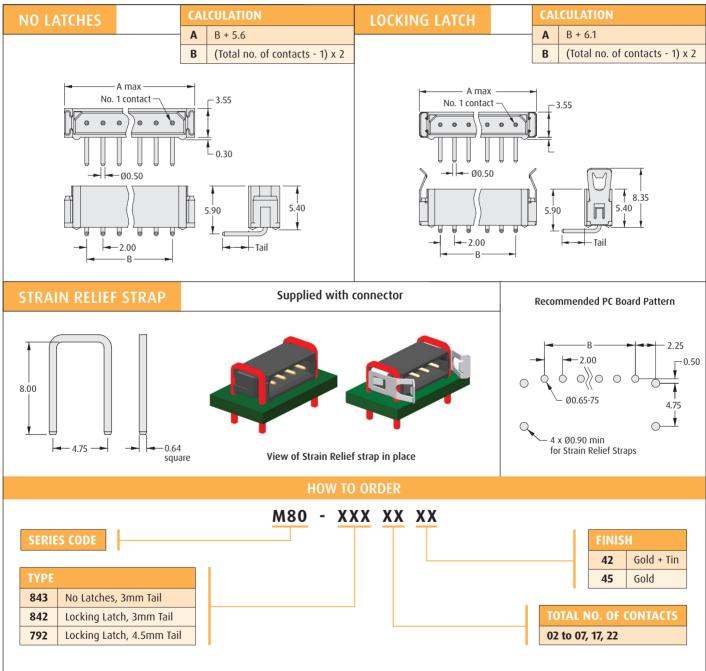




### Male Single Row Horizontal PC Tail

- Polarised mouldings
- Fully shrouded contacts.
- Mates with standard Datamate L-Tek female connectors
- Supplied with two Strain Relief straps per connector, spares available under order code M80-0030006.

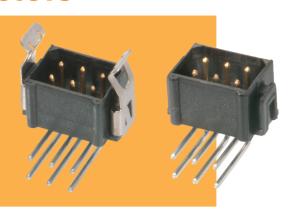


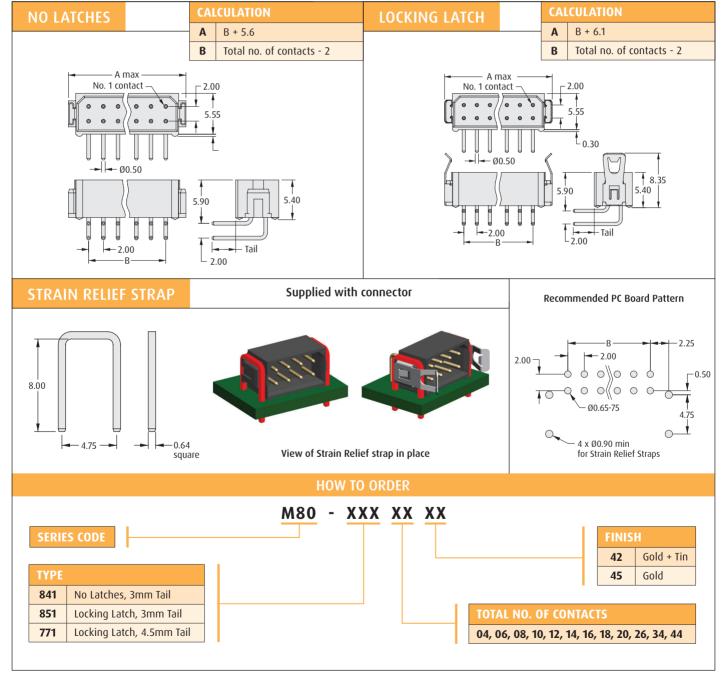




### Male Double Row Horizontal PC Tail

- Polarised mouldings.
- Fully shrouded contacts
- ▶ Mates with standard Datamate L-Tek female connectors.
- Supplied with two Strain Relief straps per connector; spares available under order code M80-0030006.

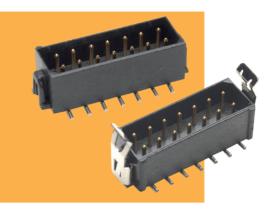


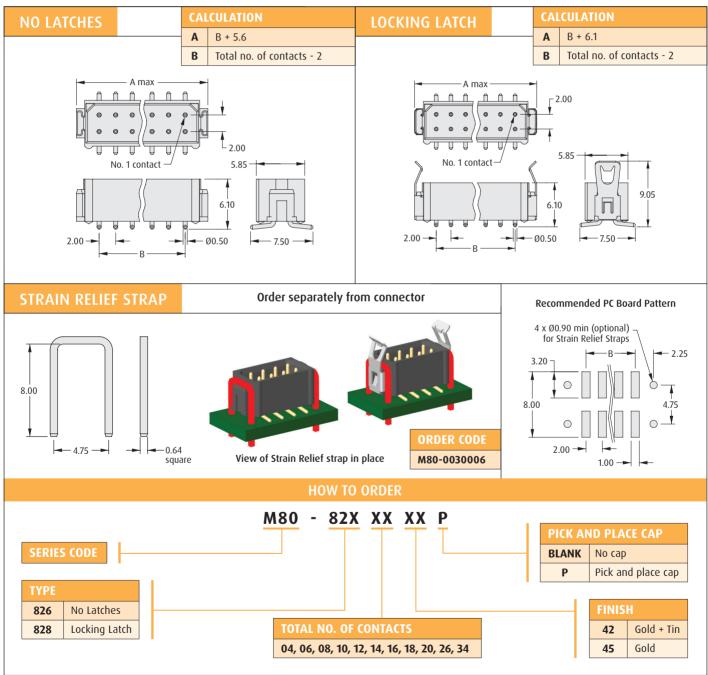




### Male Vertical Surface Mount

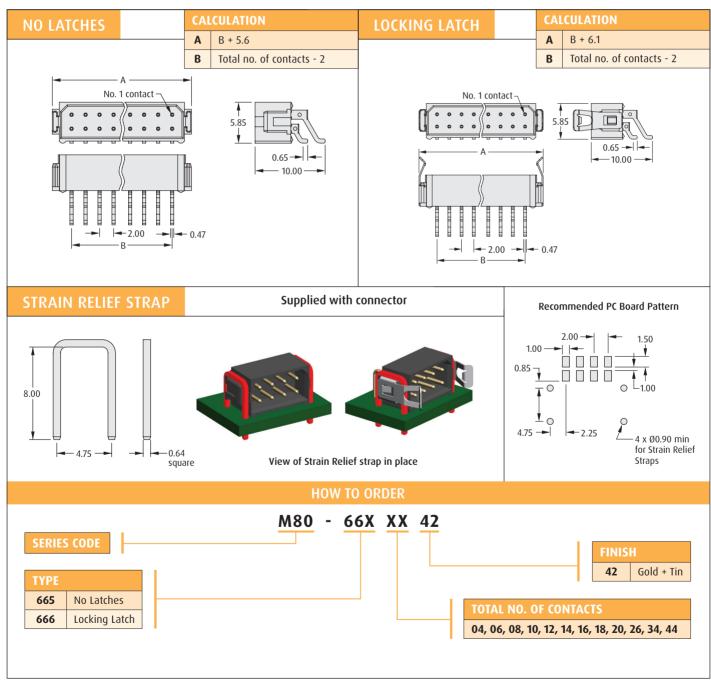
- Mates with standard Datamate L-Tek female connectors
- Can be used with optional Strain Relief straps, available to order separately: order code M80-0030006.
- **Contact datamate@harwin.com** for tape & reel options.
- Optional pick and place cap.
- Gull wing SMT tails simplify inspection process.







# Male Horizontal Surface Mount ➤ Mates with standard Datamate L-Tek female connectors. ➤ Supplied with two Strain Relief straps per connector; spares available under order code M80-0030006. ➤ Stamped contact ensures co-planarity. ➤ Contact datamate@harwin.com for tape & reel options.

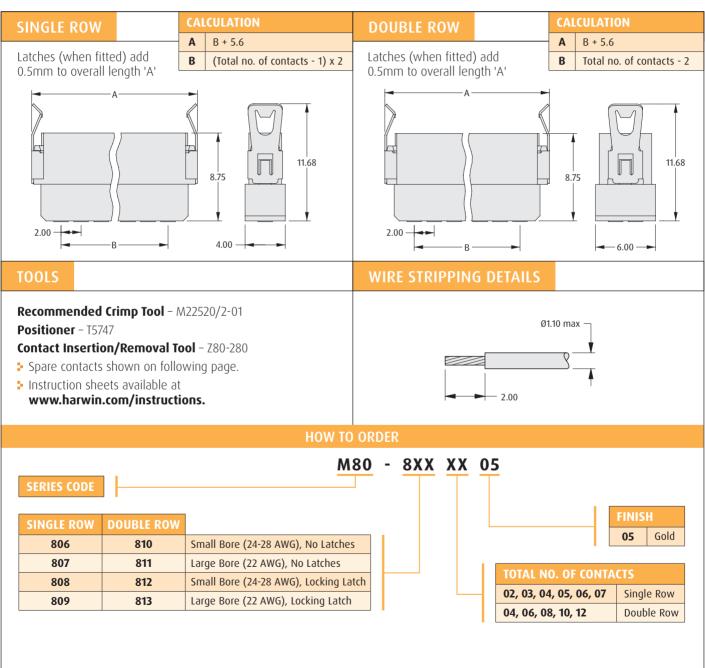




### Male Crimp Kit

- ➤ Part numbers are for a complete kit of a housing and the applicable number of contacts.
- Contacts are rear insertable
- Spare contacts are available see the following page.
- **▶** Back potting & cable assembly service available, contact **cables@harwin.com**.



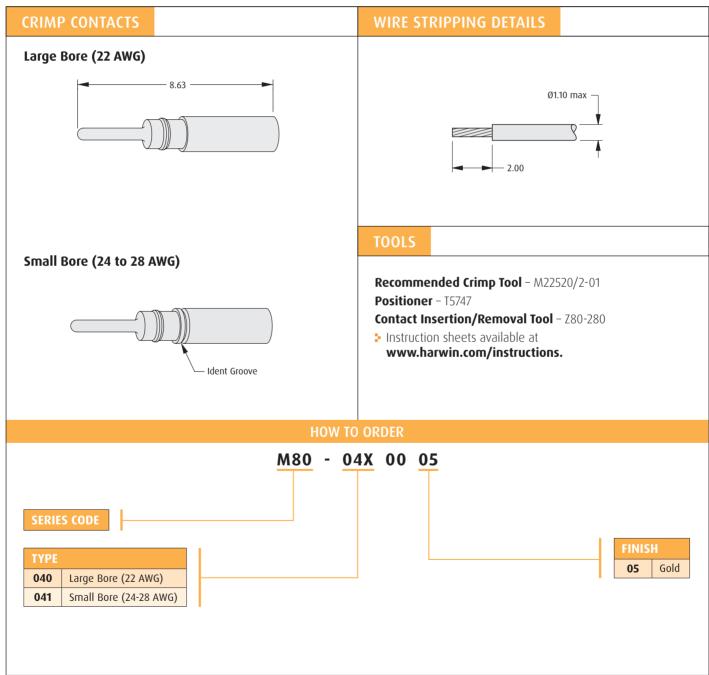




### **Spare Male Crimp Contacts**

Barrel Crimp Contacts are supplied with the connectors
 see previous page. Use the order code for extra Spare crimps







- Instruction sheets can be accessed at www.harwin.com/instructions.
- A Datamate Crimping Instruction video is available at www.harwin.com/harwintv.

### HAND CRIMP TOOL

- Standard circular crimp tool BS5210-3A-300 and MIL specification M22520/2-01.
- Precision tool with ratchet mechanism and 8-indent form.
- Must be used with applicable positioner shown below.
- Instruction sheet available.



Signal contacts, L-Tek, J-Tek & Mix-Tek

### HAND CRIMP TOOL

- Standard circular crimp tool.
- Precision tool with ratchet mechanism and 8-indent form.
- Must be used with applicable positioner shown below.
- Instruction sheet available.



Inner contact of Mix-Tek coax contacts

Z80-292

### HAND CRIMP TOOL

- Standard coax crimp tool for crimping the outer sleeve of Mix-Tek coax contacts.
- Instruction sheet available.



### **ORDER CODE**

Outer sleeve of Mix-Tek coax contacts **Z80-293** 

153

### **POSITIONER**

Used with applicable hand crimp tool.





ORDER CODE	
Female Signal Barrel Crimp, Male L-Tek Crimp	T5747
Male J-Tek, Mix-Tek Signal Crimp	Z80-193
Inner contact of Mix-Tek coax contacts	Z80-291
Female T-Contact	Z80-444



- Instruction sheets can be accessed at www.harwin.com/instructions.
- A Datamate Crimping Instruction video is available at www.harwin.com/harwintv.

## **REMOVAL TOOL** For inserting crimped contacts into the rear > To aid removal of special cable contacts from Mix-Tek connectors. of mouldings. Instruction sheet available. Suitable for all Datamate signal Barrel crimp contacts. **ORDER CODE ORDER CODE** Barrel Signal crimps for Mix-Tek special Z80-280 Z80-290 L-Tek, J-Tek & Mix-Tek cable connectors **SCREWDRIVER** Recommended for unplugging L-Tek latched connectors Recommended for use on J-Tek board mount nuts. (tool releases the latches prior to disengagement). Board mount nuts and bolts to be tightened to a torque Can also be used with unlatched and friction latched of 21 ±2cmN. connectors. Suitable for all sizes. **ORDER CODE ORDER CODE** L-Tek **Z80-299** Z80-298 J-Tek screwdriver



Frechnical drawings can be accessed from the individual product pages at **www.harwin.com** - just search for the part number.

# **HEX DRIVE BIT HEX DRIVE BIT** ▶ 1.5mm A/F Hex end for board mount Hex Socket bolts. 2mm A/F Hex end for Hex Socket floating jackscrews (Female jackscrews or Male Reverse fix jackscrews). For use with torque tooling or similar equipment. For use with torque tooling or similar equipment. HD2 1:50 Million St. **ORDER CODE ORDER CODE** Z9950-00 Z9951-00 **BALL HEX DRIVER BALL HEX DRIVER** ▶ 1.5mm A/F Hex end for board mount Hex Socket bolts. 2mm A/F Hex end for Hex Socket floating jackscrews (Female jackscrews or Male Reverse fix jackscrews). **▶** Ball-shaped end can be used at a wide range of angles. ▶ Ball-shaped end can be used at a wide range of angles. **ORDER CODE ORDER CODE** Z9952-00 Z9953-00



- Tooling suitable for Datamate Trio-Tek contacts and housings.
- Instruction sheets can be accessed at www.harwin.com/instructions.

### HAND CRIMP TOOL

- 'Rigidus' crimp tool design.
- Precision parallel action crimp tool with ratchet mechanism.
- Supplied with locator and die-set spares available.
- Instruction sheet available.



### REMOVAL TOOL

- For removal of crimped contacts from mouldings.
- Instruction sheet available.

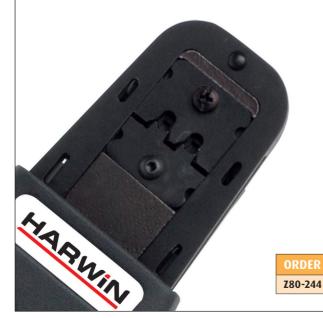


ORDER CODE

Z80-258

### SPARE DIF-SET

Spare die-set for use with hand crimp tool shown above.



### **SPARE LOCATOR**

Used with hand crimp tool shown above.



Z80-259

