

M225 Connector Series Industrial 2mm pitch Cable-to-Board

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COMPONENT SPECIFICATION

**1.0 DESCRIPTION OF CONNECTOR AND INTENDED APPLICATION.**

The M225 series of connectors is aimed at the industrial market, and is a 2.00mm pitch, high performance connector range from Harwin.

The M225 stamped contact is an open barrel crimp, designed to resist industrial levels of vibration and shock, in a practical package suitable for automated assembly at high volume.

The M225 range is available in a cable-to-board configuration. The female cable variants double row design mates to a through-board PCB male connector with a choice of crimp contacts, accommodating 22 to 28AWG wires.

The female crimp contacts are available in both loose (for prototyping) and reeled (for high-volume automation) packaging. A hand crimp tool is available for low-volume work.

To meet the higher requirements of vibration, shock and acceleration for industrial products, the contact style utilises three contact surfaces touching the mating male contact. Added security is provided with a unique and simple connector locking mechanism fitted to the female housing, which is engaged by pressing home a pin on either end of the connector.

2.0 RATINGS.**2.1 MATERIALS**

Female Contact.....	Beryllium Copper
Male Contact.....	Phosphor Bronze
Housing.....	Glass Filled Thermoplastic
Housing Flame Retardant rating.....	UL94V-0
Rubber Locking.....	Fluoroelastic Polymer
Locking Pin	Glass-filled PPS

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**2.2 ELECTRICAL CHARACTERISTICS**

Current – 50 contact connector at an ambient temperature of 25°C.....	3.0A max
Current – 10 contact connector at an ambient temperature of 25°C.....	4.0A max
Working Voltage (1013mbar, sea level)	800V DC or AC peak
Voltage Proof (1013mbar, sea level).....	1200V DC or AC peak
Contact Resistance (initial).....	20mΩ max
Contact Resistance (after conditioning).....	25mΩ max
Insulation Resistance (initial).....	1,000MΩ min
Insulation Resistance (hot after conditioning).....	100MΩ min
Creepage Distance (contact-to-contact)	0.35mm min
Clearance Distance (contact-to-contact).....	0.35mm min

2.3 ENVIRONMENTAL CHARACTERISTICS

Environmental Classification.....	55/125/56 at 95% RH
Low Air Pressure Severity when only one contact is electrically loaded.....	300 mbar**
Vibration Severity *	10Hz to 2000Hz at 98m/s ² (10g) duration 12 hours over 0.75mm
Shock Severity *	981m/s ² (100g) for 3ms
Operating Temperature.....	-55°C to +125°C

* The M225 connectors fully mated with push pin fixings fully utilized

**The connector will function correctly using a simultaneous combination of high temperature and low air pressure down to 300mbar.

2.4 MECHANICAL CHARACTERISTICS

Durability	50 operations
High Temperature, Long Term (no electrical load).....	1000 hours at 125°C
High Temperature, Short Term (no electrical load).....	250 hours at 125°C
Contact Insertion into Housing.....	5.0N max, 0.5N min
Contact Retention in Housing	6N min
Contact Holding Force	0.2N min
Insertion Force (per contact, using mating contact)	5.0N max, 0.5N min
Withdrawal Force (per contact, using mating contact).....	4.0N max, 0.2N min

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2.5 WIRE TERMINATION RANGE - M225 CRIMP PRODUCTS ONLY

Wire Type (recommended)BS 3G 210 Type A

Refer to Component Specification C049xx for suitable alternatives to BS 3G 210 Type A.

Maximum Insulation Diameter.....Ø1.1mm

Insulation Strip Length.....2.7-3.0mm

All dimensions are nominal unless otherwise stated

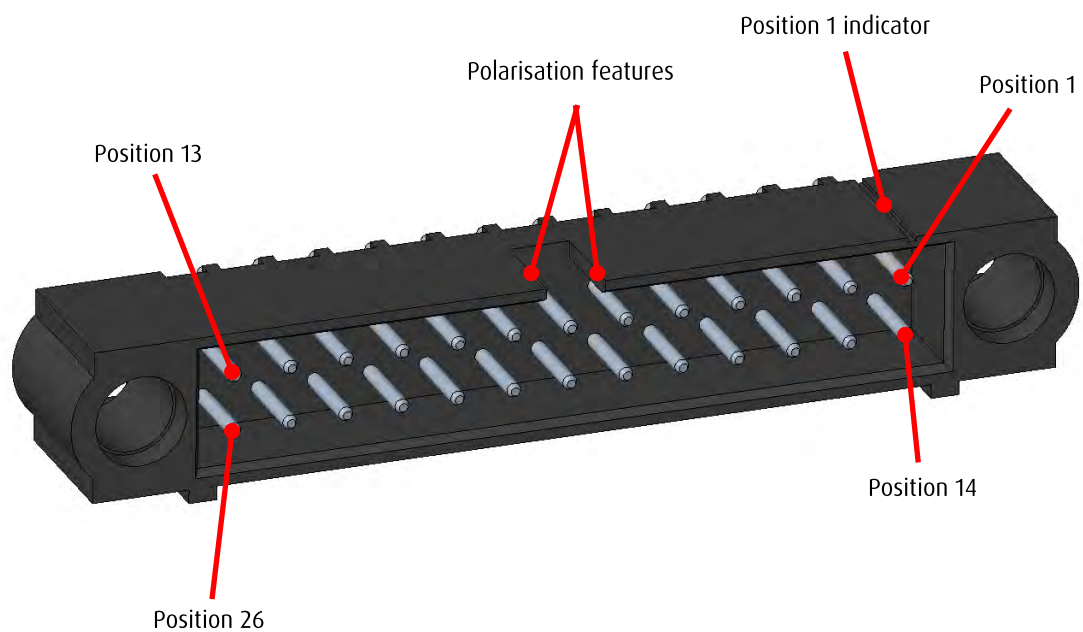
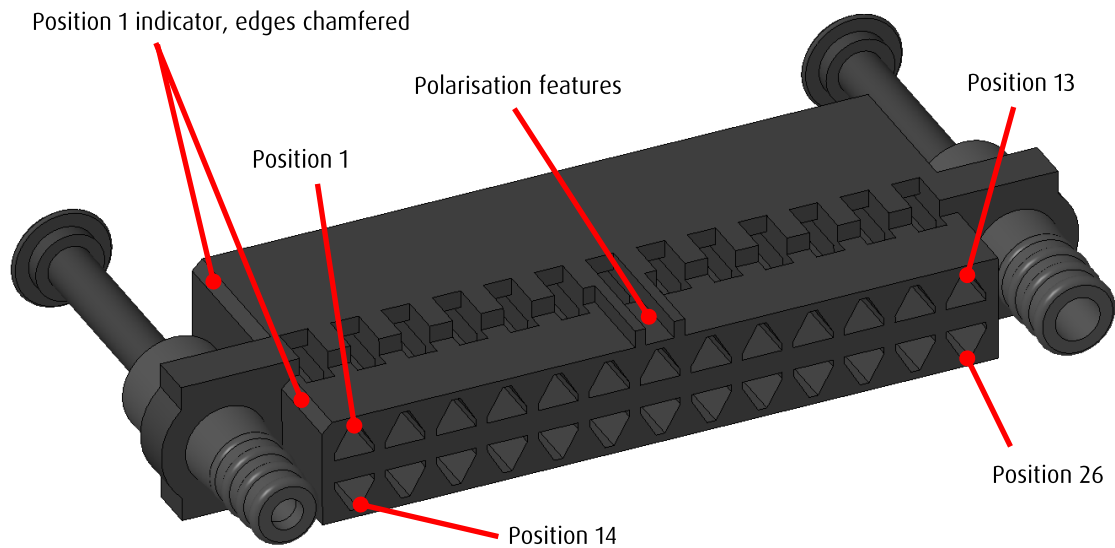
Size	Conductor				Maximum Insulation Diameter	Hand Crimp Tool Z80-255 Nest I/D	Conductor Barrel		Minimum Pull-off Force
	Stranding	Diameter	Area	Circular MIL Area			Crimp Height	Crimp Width	
AWG	No. x Ømm	Ømm	mm ²	CMA	Ømm	No.	mm	mm	N
28	7 x 0.12	0.36	0.0792	156	0.71	26-28	0.50-0.56	1.02	9.5
26	7 x 0.15	0.45	0.1237	244	0.80				20
24	7 x 0.20	0.60	0.2199	434	0.95	22-24	0.76-0.82	1.21	30
22	19 x 0.15	0.75	0.3358	663	1.10				45



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These diagrams show examples of contact numbering with reference to the polarisation feature. They represent female connectors, with push pin fixings.



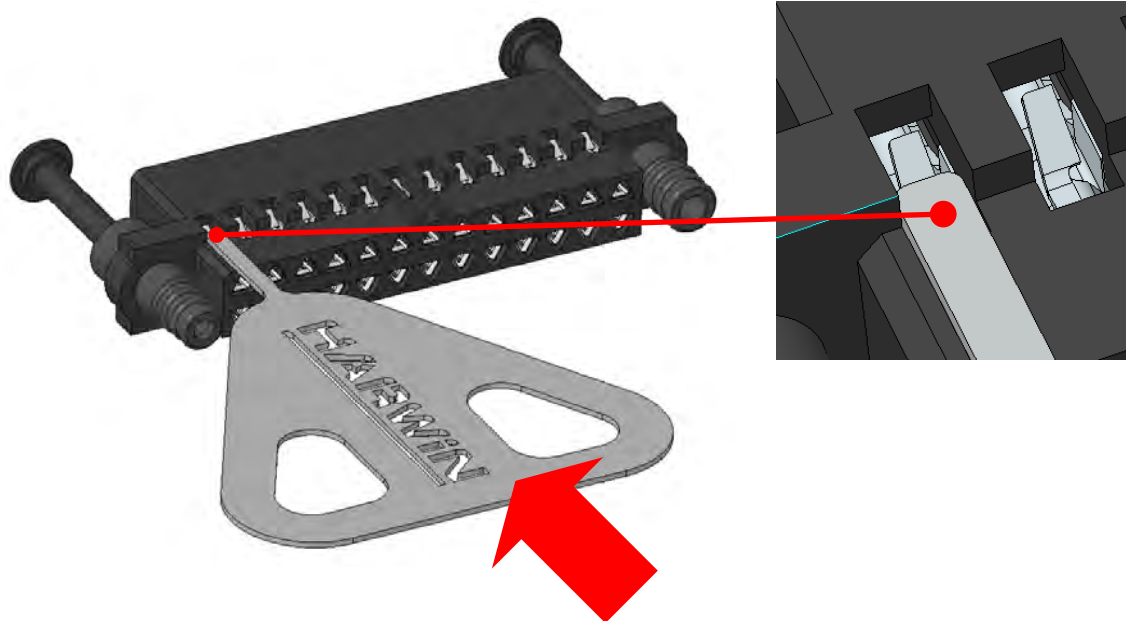
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APPENDIX B - Contact Extraction from Housing Instructions

Z80-258 tool has been developed to assist with the removal of the M225 contacts from the respective housings. The tool should be held parallel to the body as shown below and inserted in to the relevant slot to depress the locking tab and release the contact as shown.

It is not recommended that a contact is re-used in the housing after removal. For more information on contact extraction see instruction sheet IS- 50. Housing can be re-used.



APPENDIX C - Retaining Pin Extraction from Mated Assembly

It is recommended that pliers or similar tool are used to remove the fixing pins from the mated assembly, as shown (PCB hidden for illustration purposes).

