

M300

Contents

Introduction

Specifications

Mating Profiles

Jackscrew 3.00mm Pitch High-Reliability Connectors

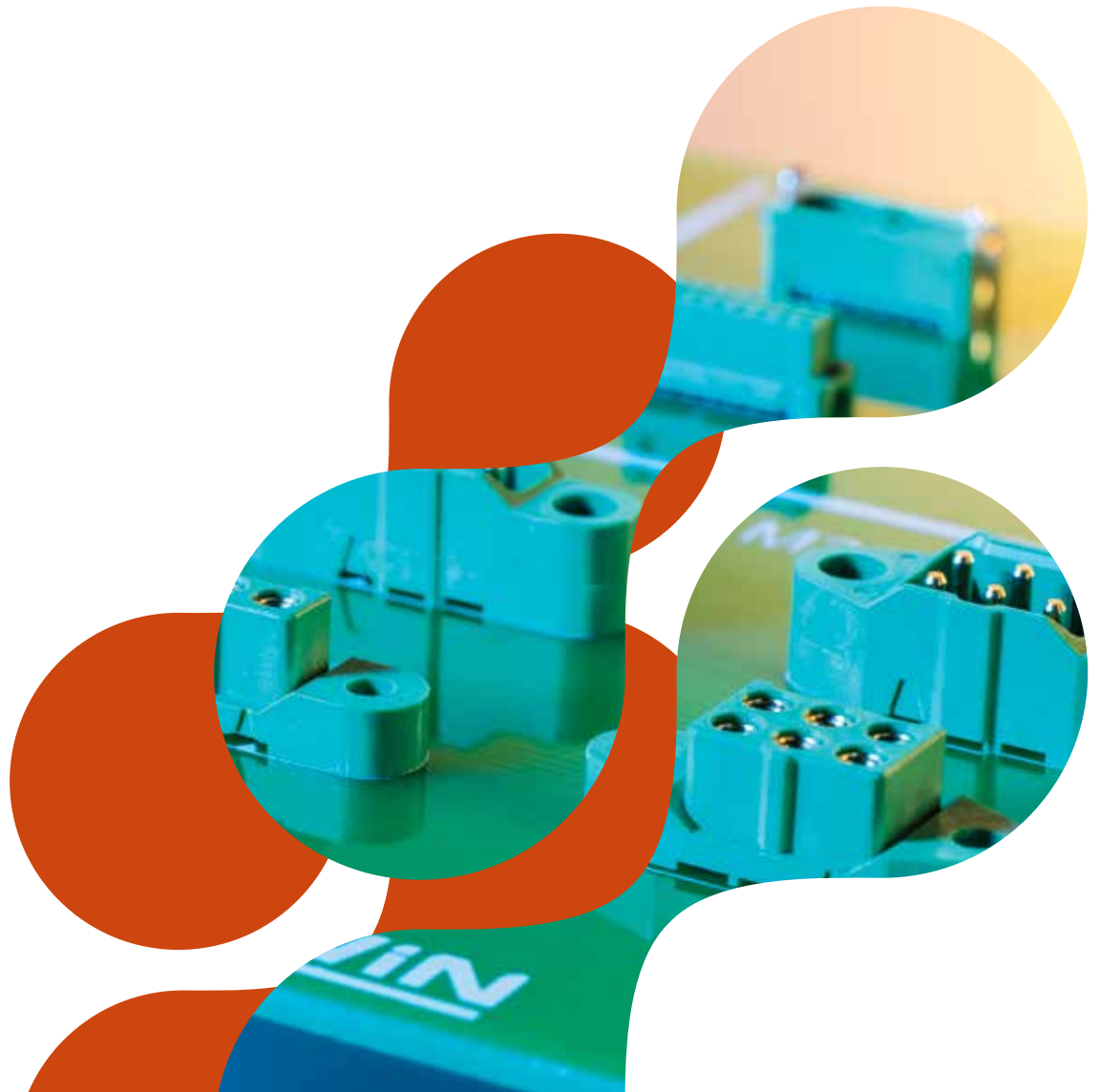
- Female PCB Connectors

- Female Cable Connectors

- Male PCB Connectors

- Male Cable Connectors

Tooling



M300 Connectors Introduction

Harwin M300 - 5 & 10A Power Connectors High Reliability Connectors for Power Applications

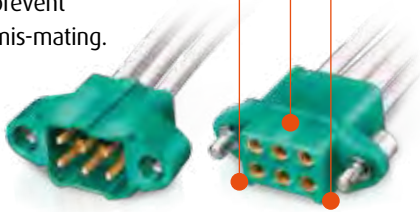
Harwin's M300 series is a 3.00mm pitch, high reliability / high performance connector system suited to aerospace, defense, industrial and other harsh environments. M300 provides a dual and single row cable-to-board and board-to-board solution for applications requiring up to 10A of power in a small space envelope. Featuring an extended rear potting wall for additional strain relief, the housings are clearly marked with a "position 1" identifier. Housings are manufactured from Halogen and Red Phosphorus-free glass-filled thermoplastic and all M300 connector assemblies are RoHS compliant.

Features

- Up to 5 and up to 10 Amp versions
- Extremes of temperature -65 to +175°C
- Scoop-proof female contacts help prevent damage in blind-mating conditions
- Up to 1,000 operations

Keyway polarization points

3 polarizing points on each component prevent mis-mating.



Jackscrew retention system

Optional Jackscrews for security of connection.



Potting Wall

Cable connectors feature a rear potting wall adding an extra level of strain relief.



Four Finger Beryllium Copper Contact

Unique high-reliability contact design ensures signal integrity under extremes of bump, vibration and shock.



No. 1 Position identified

Housings are clearly marked with identifier for fast visual inspection.



Environmentally Friendly Materials

Moldings are manufactured from halogen & Red Phosphorus free, glass-filled thermoplastic, an environmentally friendly material. All M300 connectors are RoHS compliant.



Pin Numbering

SINGLE ROW	DOUBLE ROW

M300 Connectors Specifications

Materials

Housings:	Glass Filled Thermoplastic UL94V-0
Female contacts:	Beryllium Copper Contact Clip, Brass Shell
Male contacts:	Brass
Contact finish	Gold
Male contacts:	Brass
Jackscrew hardware:	Stainless Steel

Electrical

Current

All contacts simultaneously with 18 AWG wire:	10A max (30°C temp. rise)
All contacts simultaneously with 22 AWG wire:	5A max (30°C temp. rise)

Working voltage

(at sea level, 913/1050mb):	1800V max DC or AC peak
(at altitude 21,336m/ 70,000ft, 44mb):	450V max DC or AC peak

Voltage proof

(at sea level, 913/1050mb):	600V min DC or AC peak
(at altitude 21,336m/ 70,000ft, 44mb):	150V min DC or AC peak

Contact resistance: 6mΩ max

Insulation resistance: 100MΩ min at 100V DC

Mechanical

Durability: 1000 operations

Mating forces (per contact pair)

Insertion force:	9N max
Withdrawal force:	1N min

Contact retention in housing

Cable contact:	15N min
PC-Tail contact:	5N min

Signal crimp accommodation: 18 AWG to 22 AWG
BS 3G 210 Type A, MIL-16878E Type E

Environmental

Environmental Classification: 65/175/56 days at 90%RH

Operating temperature: -65°C to +175°C

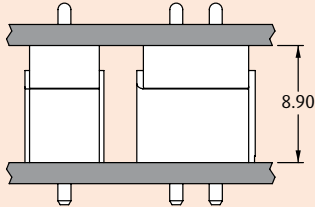
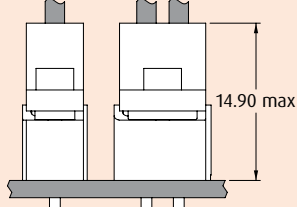
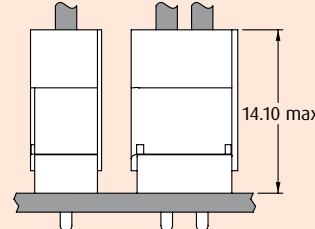
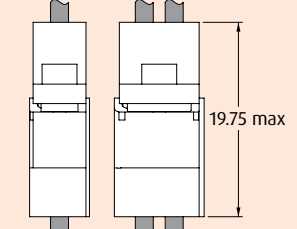
Vibration sensitivity: 10Hz to 2000Hz, 1.52mm, 196.1m/s² (20G), 12 hours

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

Shock severity: 981m/s² (100G), 6ms

Acceleration severity: 490m/s² (50G)

Mating Profiles

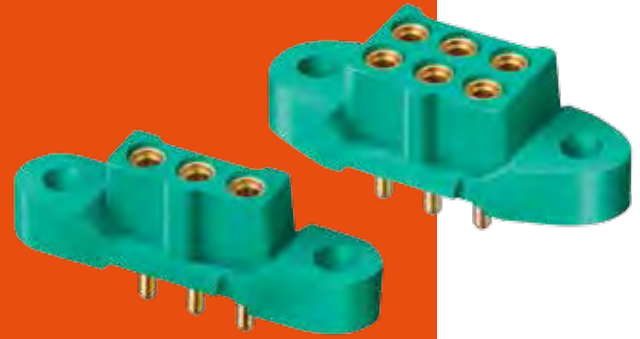
		FEMALE	
		VERTICAL PC TAIL	CABLE
MALE	VERTICAL PC TAIL		
	CABLE		

All dimensions in mm.

M300 Connectors

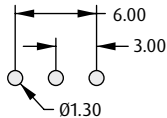
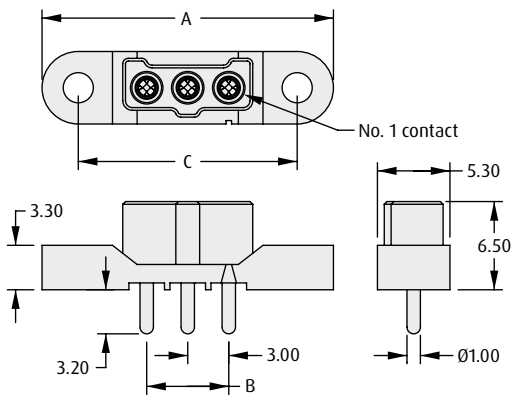
Female PC Tail

- ❖ 4-finger Beryllium Copper contact.
- ❖ Positive keyway polarisation features.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Withstands extremes of temperature: -65°C to +175°C.
- ❖ Scoop-proof contacts.
- ❖ No. 1 position ident on housing.



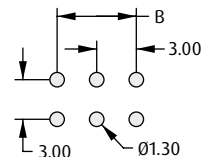
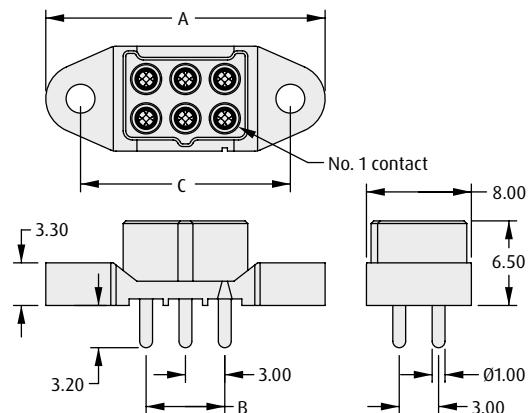
M300

SINGLE ROW



Recommended PC Board Pattern

DOUBLE ROW



Recommended PC Board Pattern

CALCULATION

A	$B + 15.3$
B	$3 \times (\text{No. of contacts per row} - 1)$
C	$B + 10$

HOW TO ORDER

M300 - F VX XX 45 00

SERIES CODE

GENDER

F Female

TYPE

V1 Single Row
V3 Double Row

TYPE

00 No Jackscrew

FINISH

45 Gold

TOTAL NO. OF CONTACTS

03 Single Row
06, 10 Double Row

All dimensions in mm.

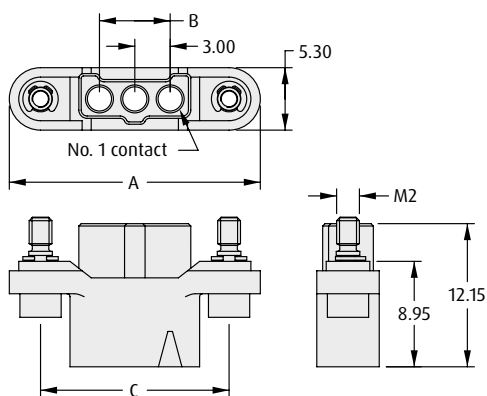
M300 Connectors

Female Cable Connector Housings

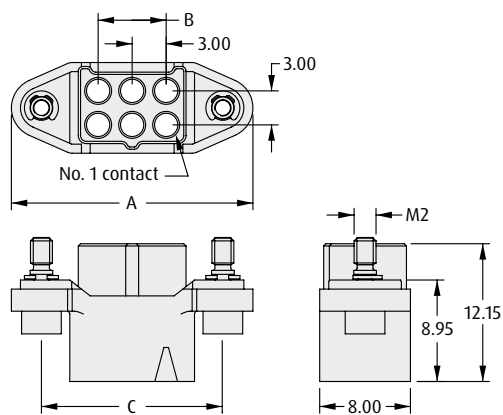
- ❖ 3 polarising points on each housing to prevent mis-mating.
- ❖ Features potting wall for extra security.
- ❖ No. 1 position identified on moulding.
- ❖ Scoop-proof contacts.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Withstands extremes of temperature: -65°C to +175°C.



SINGLE ROW



DOUBLE ROW



CALCULATION

A	$B + 15.3$
B	$3 \times (\text{No. of contacts per row} - 1)$
C	$B + 10$

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-058
Contact Insertion/Removal Tool – Z300-902

- ❖ Female contacts shown on following pages.
- ❖ Instruction sheets available at www.harwin.com/instructions.

HOW TO ORDER

M300 - 22X XX 96 F2

SERIES CODE

TYPE

224	Double Row
225	Single Row

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

FIXING

F2	Hex Socket Jackscrew
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FINISH

96	Housing
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All dimensions in mm.

M300 Connectors

Female Cable Connector Contacts

- ❖ 4-finger Beryllium Copper contact.
- ❖ Crimp barrel meets all crimp guidelines and standards.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Withstands extremes of temperature: -65°C to +175°C.



M300

CONTACTS		WIRE STRIPPING DETAILS							
18-20 AWG 22 AWG									
TOOLS									
Recommended Crimp Tool – M22520/2-01 Positioner – Z80-058 Contact Insertion/Removal Tool – Z300-902		❖ Female crimp housings shown on previous page. ❖ Instruction sheets available at www.harwin.com/instructions.							
HOW TO ORDER									
M300 - 00X 00 45									
SERIES CODE		FINISH							
TYPE <table><tr><td>001</td><td>18-20 AWG crimp contact</td></tr><tr><td>002</td><td>22 AWG crimp contact</td></tr></table>		001	18-20 AWG crimp contact	002	22 AWG crimp contact	<table><tr><td>45</td><td>Gold</td></tr></table>		45	Gold
001	18-20 AWG crimp contact								
002	22 AWG crimp contact								
45	Gold								

All dimensions in mm.

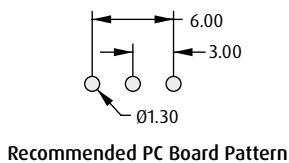
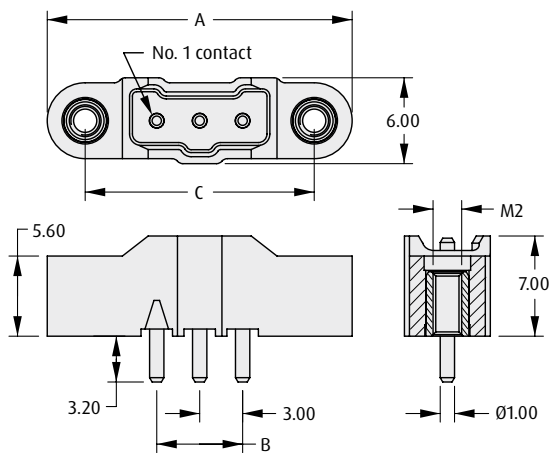
M300 Connectors

Male PC Tail

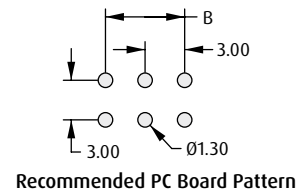
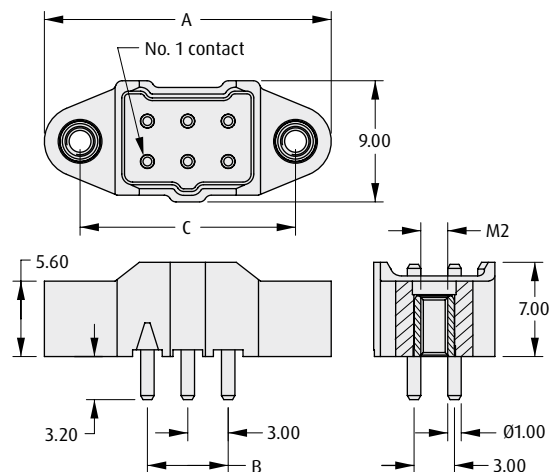
- 10A current capacity, resists high vibration and shock.
- Withstands extremes of temperature: -65°C to +175°C.



SINGLE ROW



DOUBLE ROW



CALCULATION

A	$B + 15.3$
B	$3 \times (\text{No. of contacts per row} - 1)$
C	$B + 10$

HOW TO ORDER

M300 - M VX XX 45 M1

SERIES CODE

GENDER

M Male

TYPE

V1 Single Row
V3 Double Row

TYPE

M1 Jackscrew

FINISH

45 Gold

TOTAL NO. OF CONTACTS

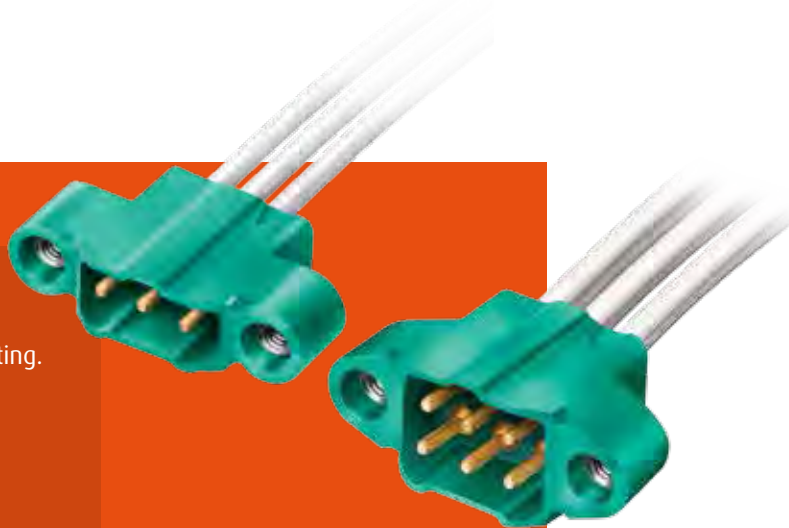
03 Single Row
06, 10 Double Row

All dimensions in mm.

M300 Connectors

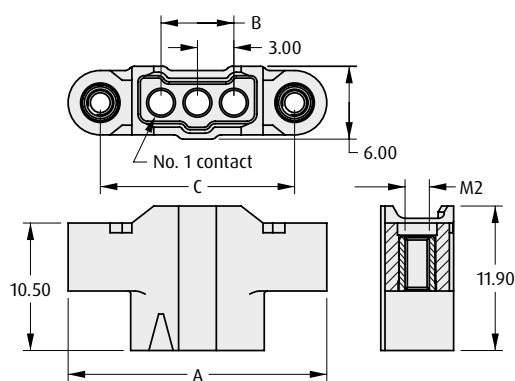
Male Cable Connector Housings

- ❖ Features potting wall for extra security.
- ❖ No. 1 position identified on moulding.
- ❖ 3 polarising points on each housing to prevent mis-mating.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Withstands extremes of temperature: -65°C to +175°C.

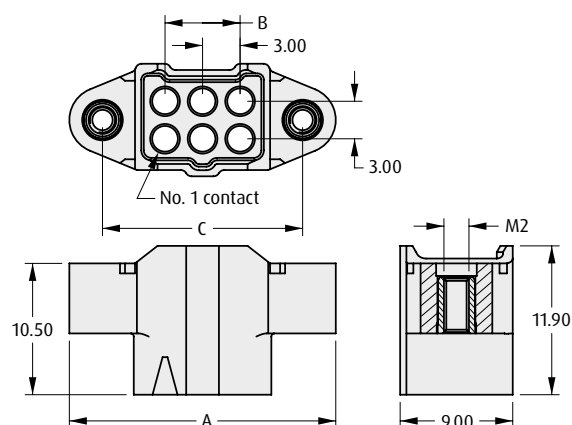


M300

SINGLE ROW



DOUBLE ROW



CALCULATION

A	$B + 15.3$
B	$3 \times (\text{No. of contacts per row} - 1)$
C	$B + 10$

TOOLS

Recommended Crimp Tool – M22520/2-01
Positioner – Z80-058
Contact Insertion/Removal Tool – Z300-902

- ❖ Male contacts shown on following pages.
- ❖ Instruction sheets available at www.harwin.com/instructions.

HOW TO ORDER

M300 - 32X XX 96 M1

SERIES CODE

TYPE

324	Double Row
325	Single Row

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

TYPE

M1	JackscREW
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FINISH

96	Housing
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All dimensions in mm.

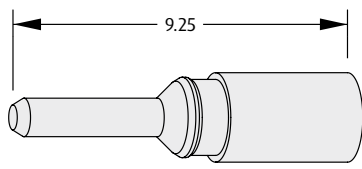
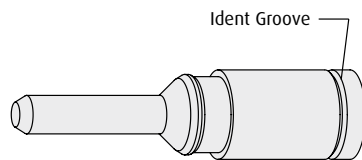
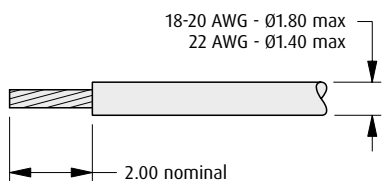
M300 Connectors

M300

Male Cable Connector Contacts

- ❖ Crimp barrel meets all crimp guidelines and standards.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Withstands extremes of temperature: -65°C to +175°C.



CONTACTS		WIRE STRIPPING DETAILS							
18-20 AWG  22 AWG 									
TOOLS									
Recommended Crimp Tool – M22520/2-01 Positioner – Z80-058 Contact Insertion/Removal Tool – Z300-902		❖ Male crimp housings shown on previous page. ❖ Instruction sheets available at www.harwin.com/instructions.							
HOW TO ORDER									
		M300 - 10X 00 45							
SERIES CODE		FINISH							
TYPE <table><tr><td>101</td><td>18-20 AWG crimp contact</td></tr><tr><td>102</td><td>22 AWG crimp contact</td></tr></table>		101	18-20 AWG crimp contact	102	22 AWG crimp contact	<table><tr><td>45</td><td>Gold</td></tr></table>		45	Gold
101	18-20 AWG crimp contact								
102	22 AWG crimp contact								
45	Gold								

All dimensions in mm.

M300 Connectors Tooling

❖ Instruction sheets can be accessed at www.harwin.com/instructions.

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 together. ❖ Instruction sheet available.  ORDER CODE Hand Crimp Tool M22520/2-01 Positioner Z80-058	INSERTION/REMOVAL TOOL ❖ For inserting and removing crimped contacts into the rear of mouldings. ❖ Instruction sheet available.  ORDER CODE Z300-902
HEX DRIVE BIT ❖ 2mm A/F Hex end for M300 Hex Socket jackscrews. ❖ For use with torque tooling or similar equipment.  ORDER CODE Z9951-00	BALL HEX DRIVER ❖ 2mm A/F Hex end for M300 Hex Socket jackscrews. ❖ Ball-shaped end can be used at a wide range of angles.  ORDER CODE Z9953-00

All dimensions in mm.