



M300

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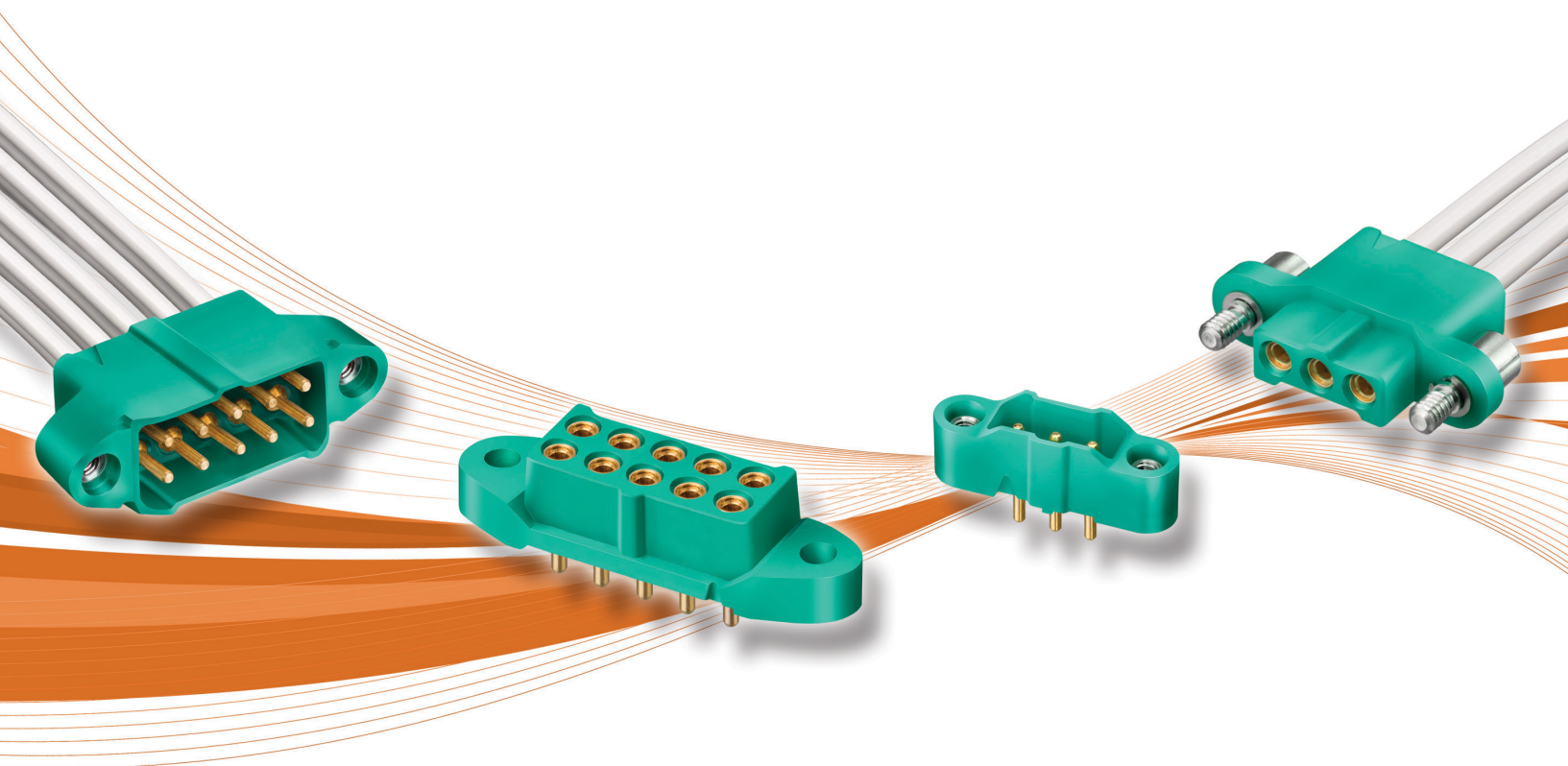
M300 Connectors Introduction

M300

M300 Series is a 3.00mm pitch High-Reliability, high performance connector range from Harwin. Building on the Datamate series design, these connectors increase the power-handling capacity in a larger contact size, while maintaining compactness and weight saving features.

The M300 series provides a robust mid-range power connector range for board-to-board, board-to-cable and cable-to-cable requirements. The compact form can carry up to 10A in a small space envelope, suited to aerospace, defense, industrial and other harsh environments. Stainless Steel jackscrews, replicated from both Datamate and Gecko, provide the vibration and shock resistance required in these applications. Housings are manufactured from Halogen-free and Red-Phosphorus-free glass-filled thermoplastic and all connectors are fully RoHS compliant.

- ❖ Up to 5A or up to 10A current ratings (dependent on cable size choice)
- ❖ Increased durability of 1,000 mating operations (minimum)
- ❖ Improved heat resistance: withstands -65°C to +175°C operating temperature
- ❖ Scoop-proof female contact design to help prevent damage in blind-mating conditions
- ❖ Ready-made cable assemblies manufactured in-house by experienced Harwin personnel
- ❖ Strong stainless steel jackscrews for maximum strain relief



M300 Connectors Product Features

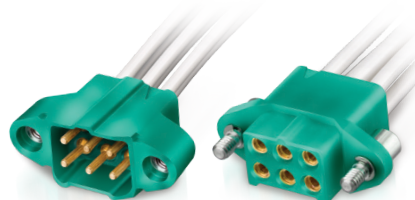
Four Finger Beryllium Copper Contact

Proven high-reliability contact design ensures signal integrity under extremes of bump, vibration and shock. Durable to over 1,000 mating cycles.



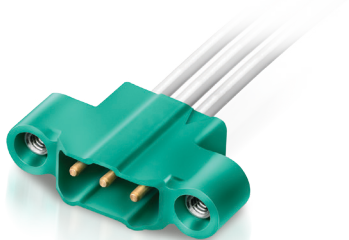
Keyway Polarization Points

3 polarizing points on each component prevent mis-mating.



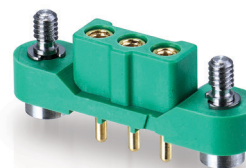
No. 1 Position identified

Housings are clearly marked with identifier for fast visual inspection.



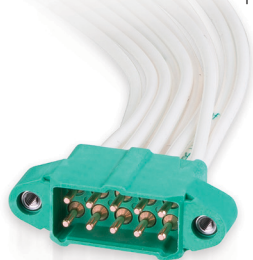
Rugged Construction

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



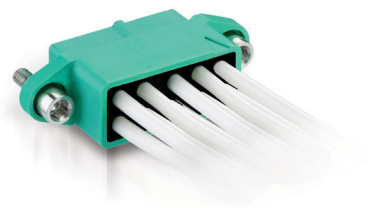
Pre-assembled Cable Configurations

Cable connectors supplied in ready-made cable assemblies. Single-ended configurations available in standard lengths off-the-shelf, or custom assemblies on request.



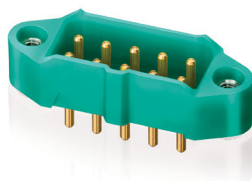
Potting Wall

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



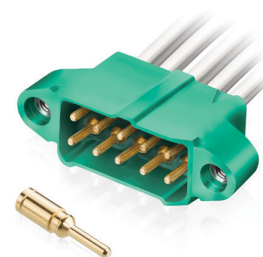
Minimal Outgassing

Low outgassing properties from future-proofed plastic; within NASA and ESA recommendations.



Comprehensive Operating Temperature

Performance is maintained across the full operating temperature range of -65°C to +175°C.



M300 Connectors Specifications

M300

✦ 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):	600V min DC or AC peak
(at altitude 21,336m/70,000ft, 44mb):	150V min DC or AC peak
Voltage proof	
(at sea level, 913/1050mb):	1800V max DC or AC peak
(at altitude 21,336m/70,000ft, 44mb):	450V max DC or AC peak
Contact resistance:	6mΩ max
Insulation resistance:	100MΩ min at 100V DC

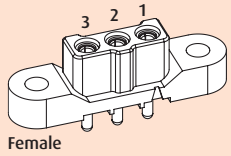
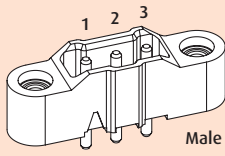
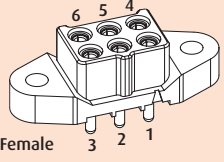
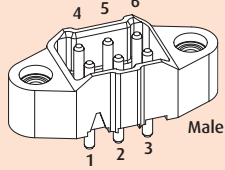
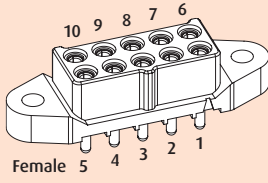
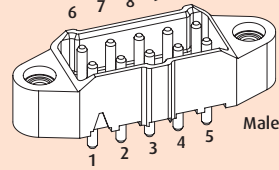
✦ Mechanical

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

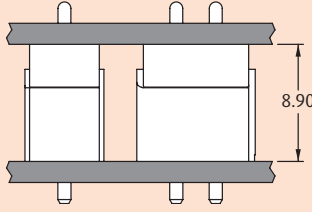
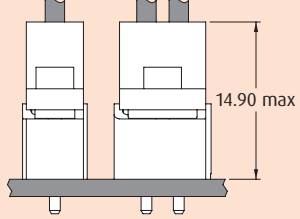
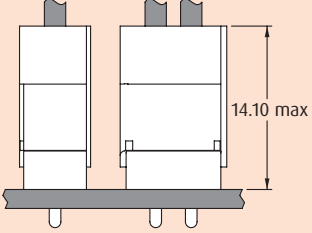
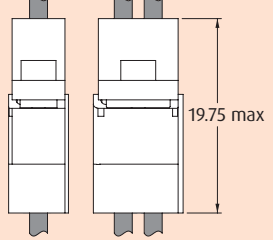
Environmental Classification:	65/175/56 days at 90%RH
Operating temperature:	-65°C to +175°C
Vibration sensitivity:	10Hz to 2000Hz, 1.52mm, 196.1m/s ² (20G), 12 hours
Bump severity:	390m/s ² (40G), 4000 bumps
Shock severity:	981m/s ² (100G), 6ms
Acceleration severity:	490m/s ² (50G)

M300 Connectors Pin Numbering

SINGLE ROW	DOUBLE ROW
 <p>Female</p>  <p>Male</p>	 <p>Female</p>  <p>Male</p>  <p>Female</p>  <p>Male</p>

M300

M300 Connectors Mating Profiles

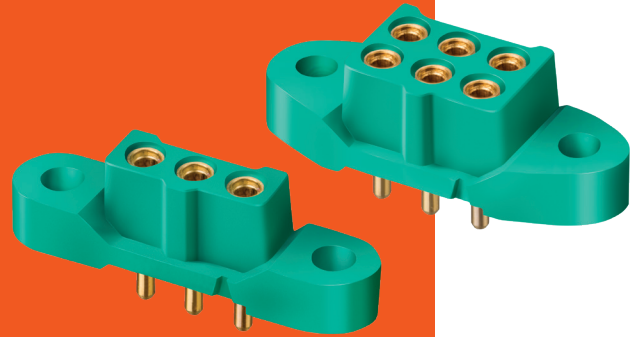
		FEMALE	
		VERTICAL THROUGHBOARD	CABLE
MALE	VERTICAL THROUGHBOARD	 <p>8.90</p>	 <p>14.90</p>
	CABLE	 <p>14.10 max</p>	 <p>19.75 max</p>

All dimensions in mm.

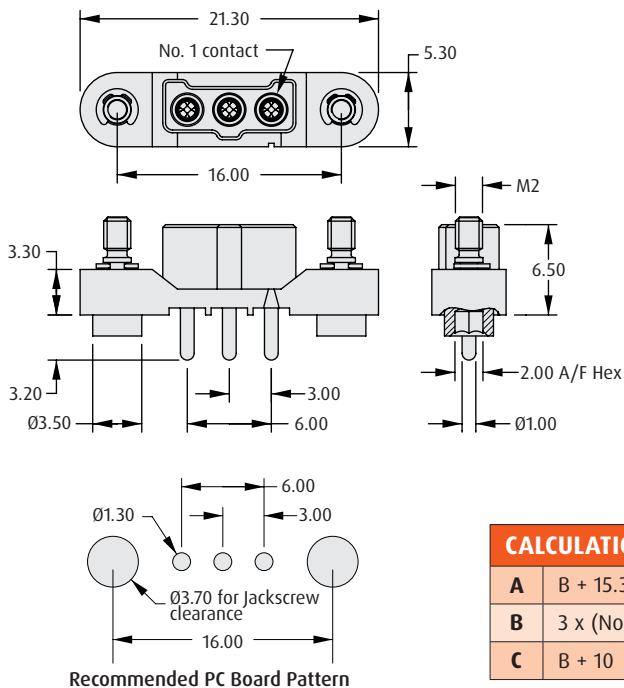
M300 Connectors

Female Throughboard

- ❖ 4-finger Beryllium Copper contact.
- ❖ Positive keyway polarization 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.



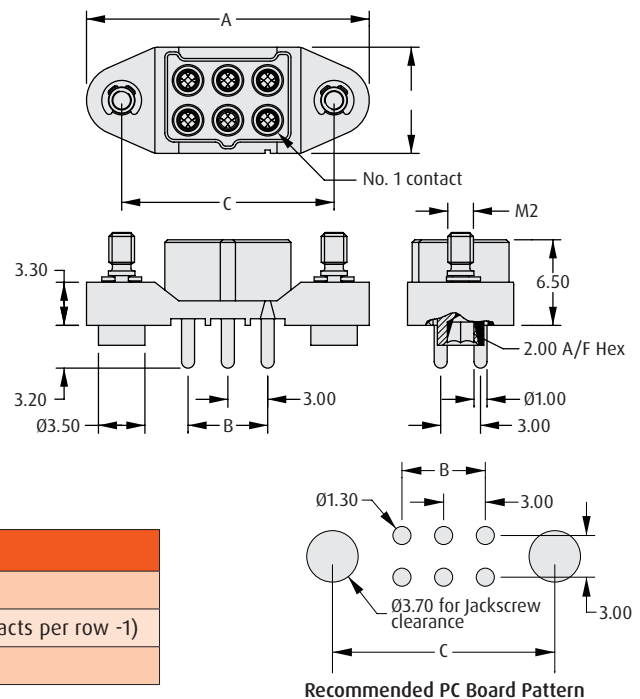
SINGLE ROW



CALCULATION

A	B + 15.3
B	3 x (No. of contacts per row -1)
C	B + 10

DOUBLE ROW



HOW TO ORDER

M300 - F VX XX 45 XX

SERIES CODE

GENDER

F Female

TYPE

V1	Single Row
V3	Double Row

TYPE

00	No Jackscrew
F2	Hex Socket Jackscrew

FINISH

45 Gold

TOTAL NO. OF CONTACTS

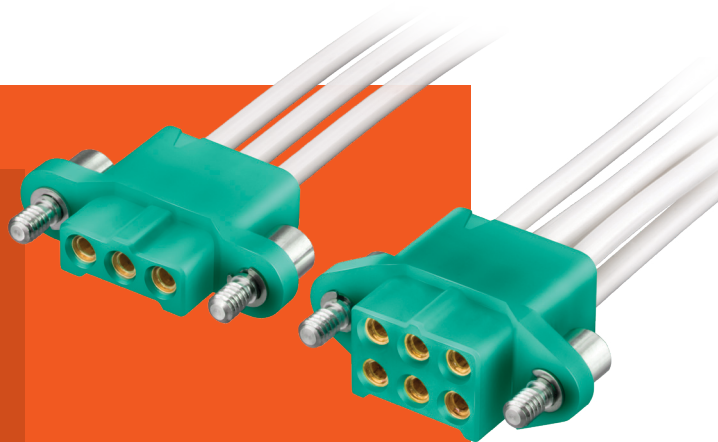
03	Single Row
06, 10	Double Row

All dimensions in mm.

M300 Connectors

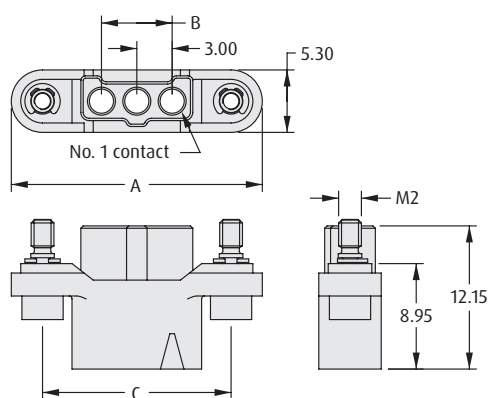
Female Cable Connector Housings

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

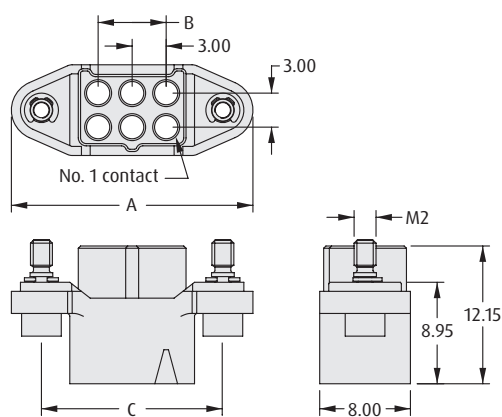


M300

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

- ❖ 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

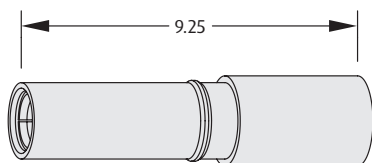
Female Cable Connector Contacts

- ❖ 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.

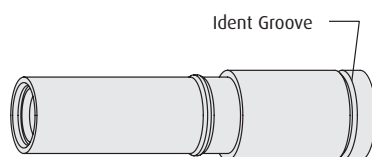


CONTACTS

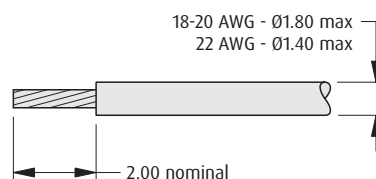
18-20 AWG



22 AWG



WIRE STRIPPING DETAILS



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

TYPE

001	18-20 AWG crimp contact
002	22 AWG crimp contact

FINISH

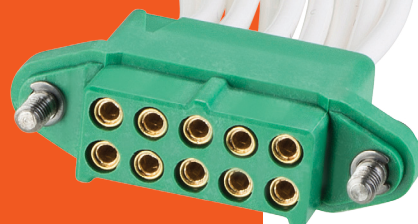
45 Gold

All dimensions in mm.

M300 Connectors

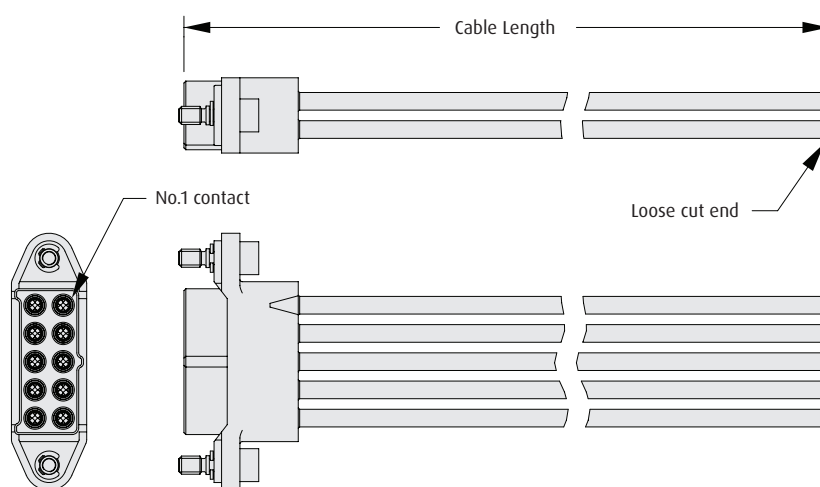
Female Cable Assemblies

- ❑ 4-finger Beryllium Copper contact.
- ❑ No. 1 position identified on housing.
- ❑ 10A current capacity, resists high vibration and shock.
- ❑ Back potted for added strain relief.



M300

FEMALE



HOW TO ORDER

M300 - F C X XX 05 F2 - XXXX L

SERIES CODE

GENDER - FIRST END

F Female

CABLE SIZE

1	18 AWG, for Double Row
2	20 AWG, for Double Row
3	22 AWG, for Double Row
5	18 AWG, for Single Row
6	20 AWG, for Single Row
7	22 AWG, for Single Row

TERMINATION - SECOND END

L Loose cut end

CABLE LENGTH

0150	150mm
0300	300mm
0450	450mm

FIXING

F2 Hex Socket Jackscrew

TOTAL NO. OF CONTACTS

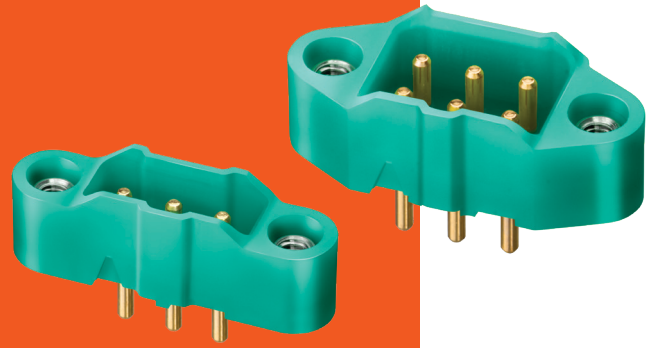
03	Single Row
06, 10	Double Row

All dimensions in mm.

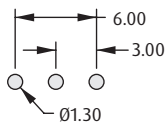
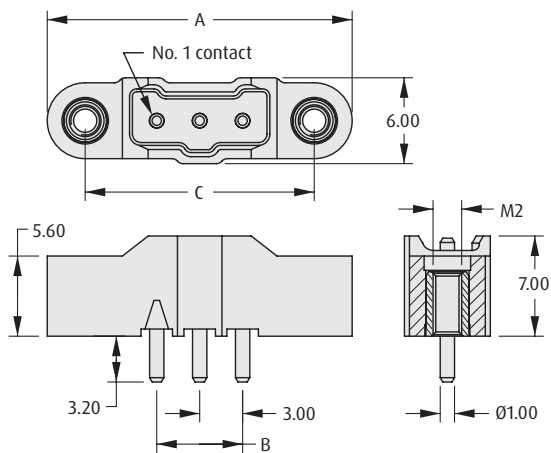
M300 Connectors

Male Throughboard

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



SINGLE ROW

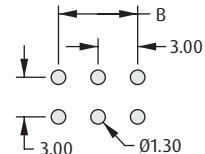
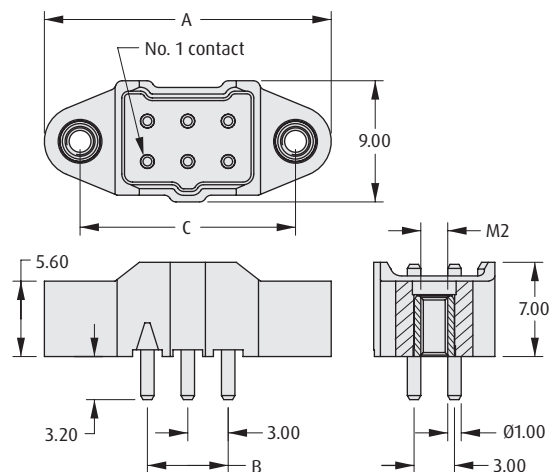


Recommended PC Board Pattern

CALCULATION

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

DOUBLE ROW



Recommended PC Board Pattern

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

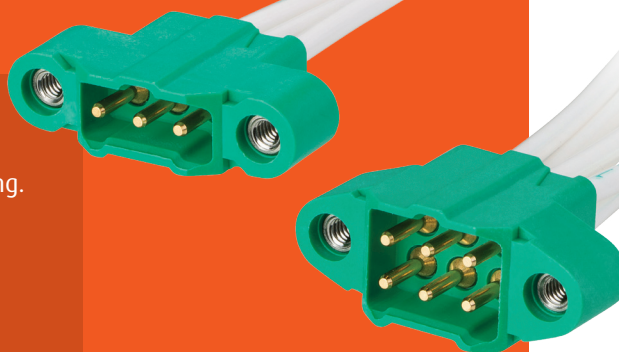
03 Single Row
06, 10 Double Row

All dimensions in mm.

M300 Connectors

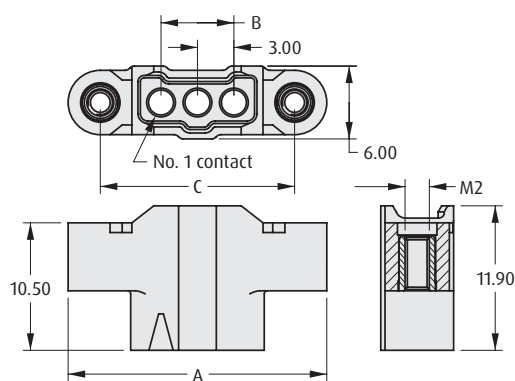
Male Cable Connector Housings

- ❖ Features potting wall for extra security.
- ❖ No. 1 position identified on housing.
- ❖ 3 polarizing 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.

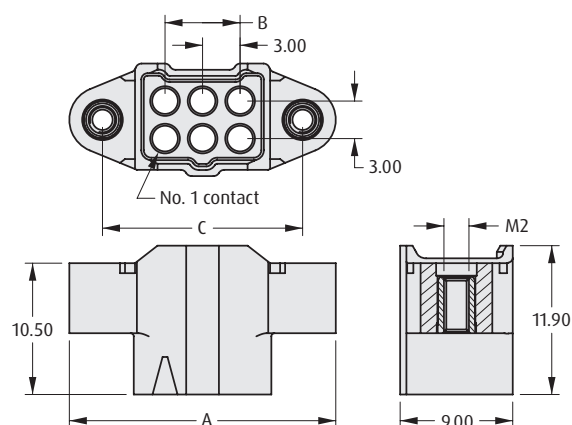


M300

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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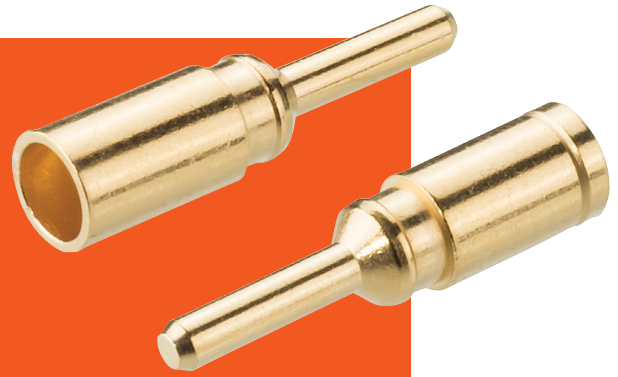
All dimensions in mm.

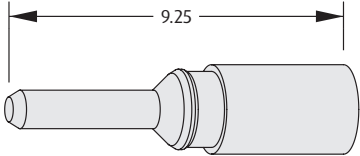
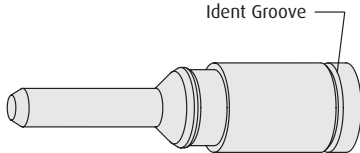
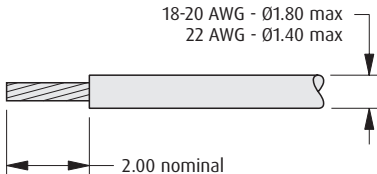
M300 Connectors

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

All dimensions in mm.

M300 Connectors

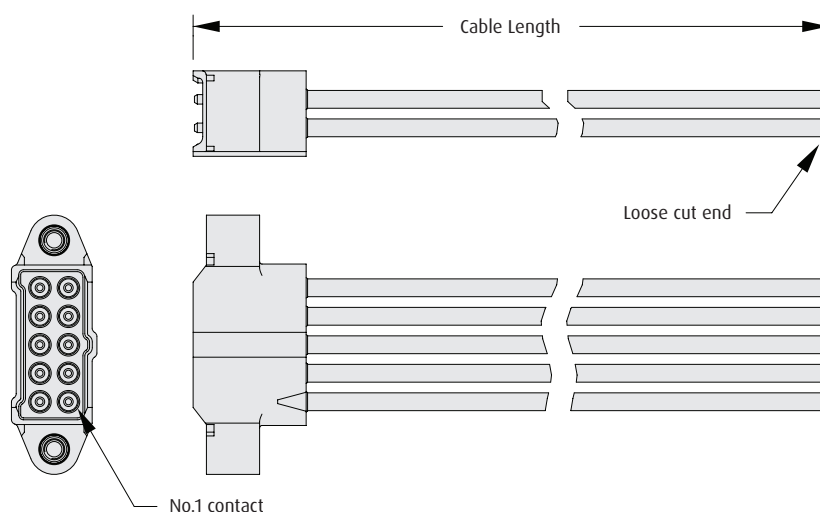
Male Cable Assemblies

- ❖ 4-finger Beryllium Copper contact.
- ❖ No. 1 position identified on housing.
- ❖ 10A current capacity, resists high vibration and shock.
- ❖ Back potted for added strain relief.



M300

MALE



HOW TO ORDER

M300 - M C X XX 05 M1 - XXXX L

SERIES CODE

GENDER - FIRST END

M Male

CABLE SIZE

1	18 AWG, for Double Row
2	20 AWG, for Double Row
3	22 AWG, for Double Row
5	18 AWG, for Single Row
6	20 AWG, for Single Row
7	22 AWG, for Single Row

TERMINATION - SECOND END

L Loose cut end

CABLE LENGTH

0150	150mm
0300	300mm
0450	450mm

FIXING

M1 Jackscrew

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

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 housings.
- ❖ 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.