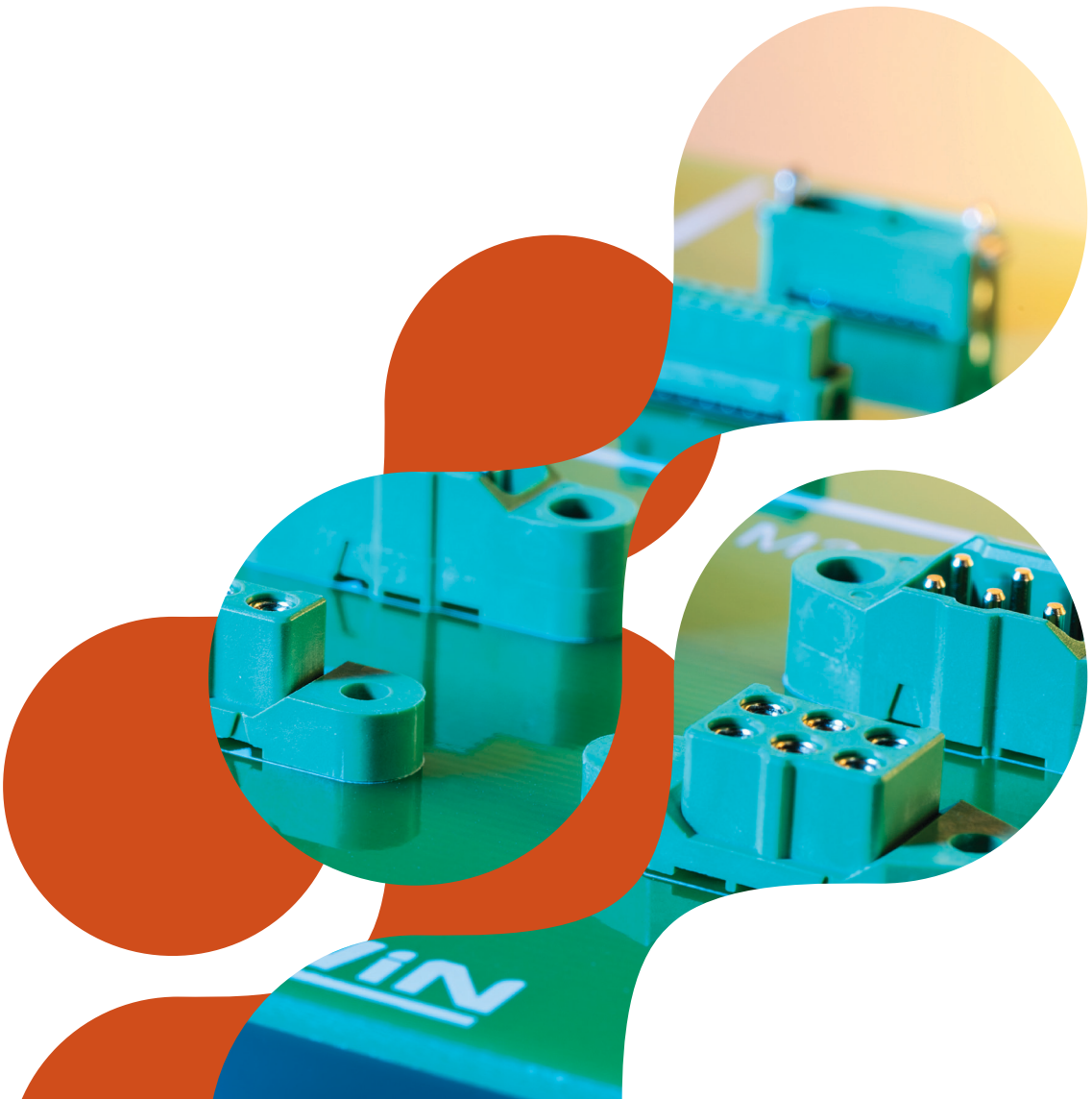
M300

Contents



M300 Connectors Introduction

Harwin M300 - 5 & 10A Power Connectors

High Reliabilty Connectors for Power Applications

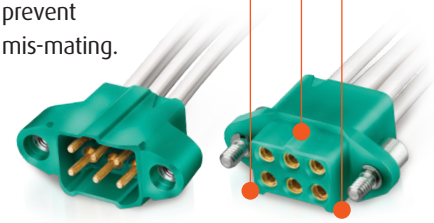
Harwin's M300 series is a 3.00mm pitch, high reliability / high performance connector system suited to aerospace, defense, industrial and other harsh environments. M300 provides a dual and single row cable-to-board and board-to-board solution for applications requiring up to 10A of power in a small space 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
- Up to 1,000 operations
- Extremes of temperature -65 to +175°C
- Scoop-proof female contacts help prevent damage in blind-mating conditions

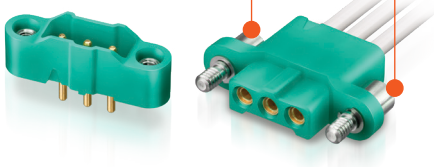
Keyway polarization points

3 polarizing points on each component prevent mis-mating.



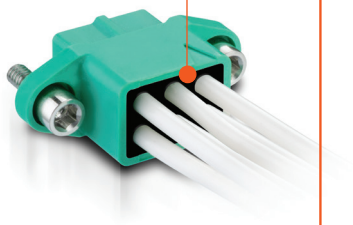
Jackscrew retention system

Optional Jackscrews for security of connection.



Potting Wall

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

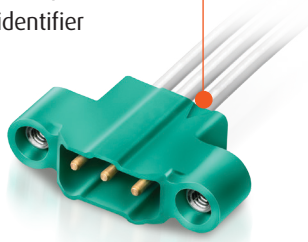


Four Finger Beryllium Copper Contact

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

No. 1 Position identified

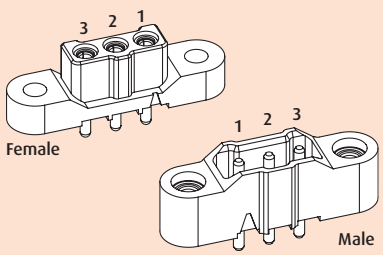
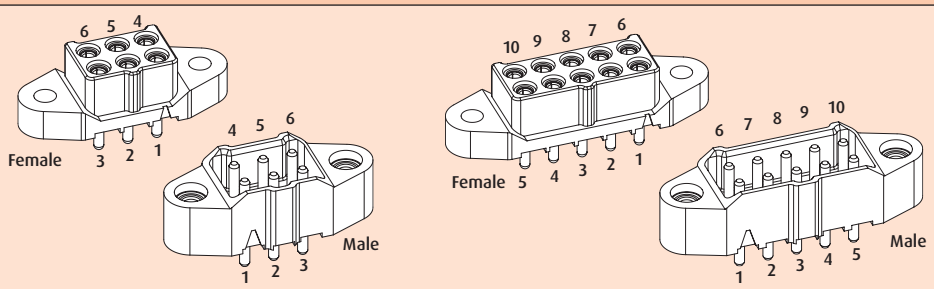
Housings are clearly marked with identifier for fast visual inspection.



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):	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

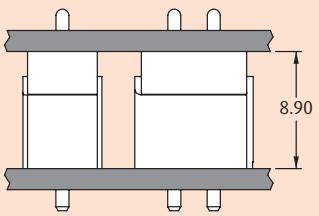
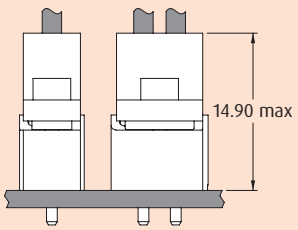
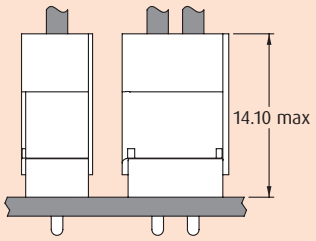
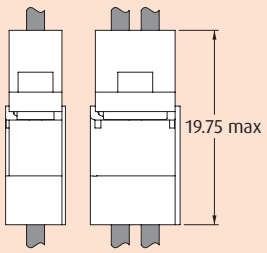
Mechanical

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)

Mating Profiles

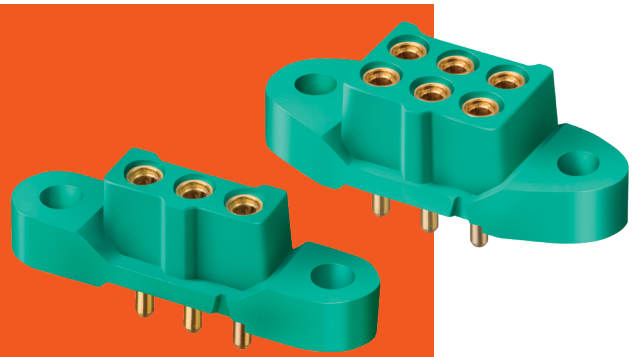
		FEMALE	
		VERTICAL PC TAIL	CABLE
MALE	VERTICAL PC TAIL		
	CABLE		

All dimensions in mm.

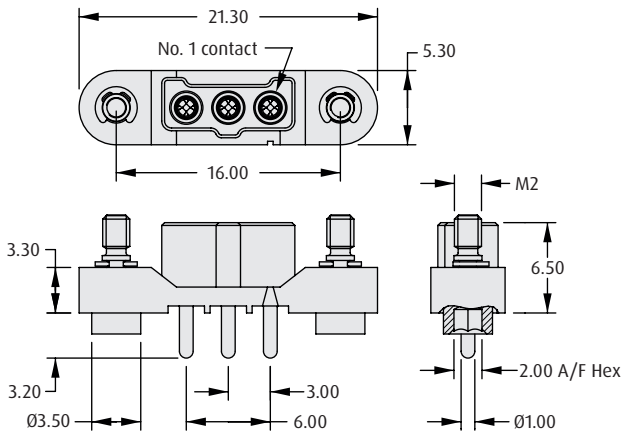
M300 Connectors

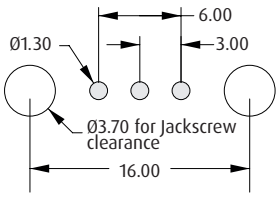
Female PC Tail

- 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.



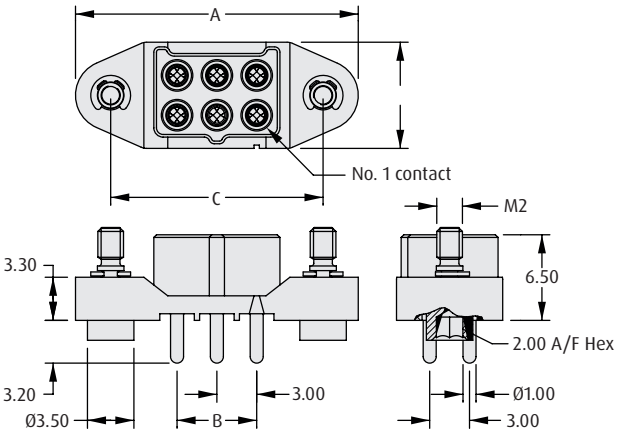
SINGLE ROW

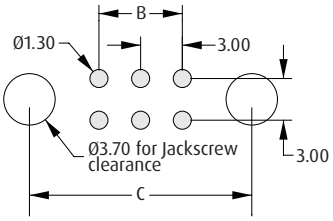




Recommended PC Board Pattern

DOUBLE ROW





Recommended PC Board Pattern

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

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

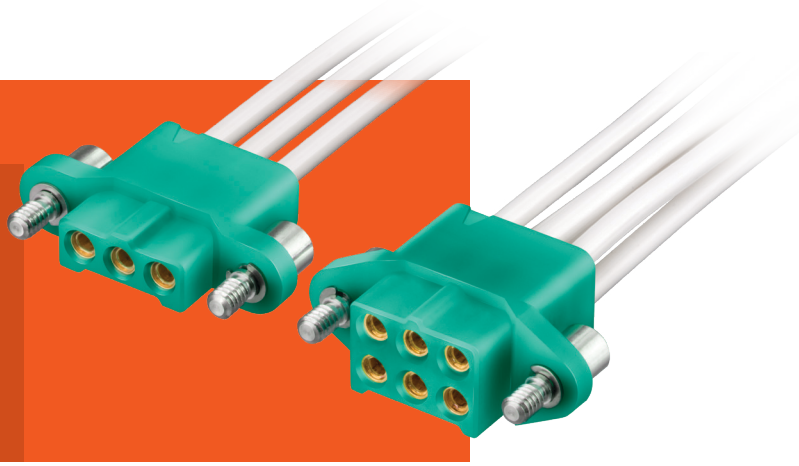
TOTAL NO. OF CONTACTS	
03	Single Row
06, 10	Double Row

All dimensions in mm.

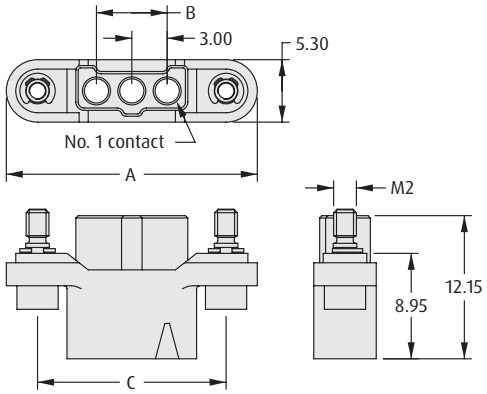
M300 Connectors

Female Cable Connector Housings

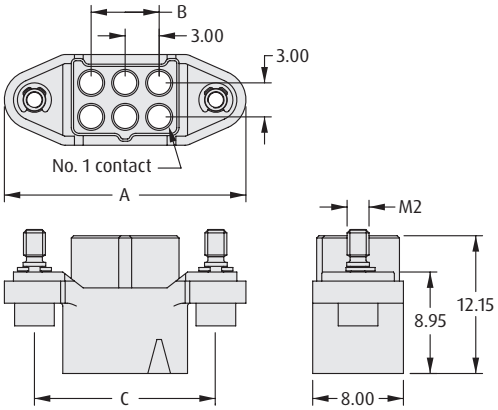
- 3 polarising points on each housing to prevent mis-mating.
- Features potting wall for extra security.
- No. 1 position identified on moulding.
- Scoop-proof contacts.
- 10A current capacity, resists high vibration and shock.
- Withstands extremes of temperature: -65°C to +175°C.



SINGLE ROW



DOUBLE ROW



CALCULATION	
A	B + 15.3
B	3 x (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

FINISH	
96	Housing

All dimensions in mm.

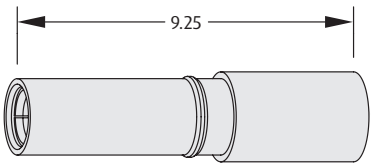
M300 Connectors

Female Cable Connector Contacts

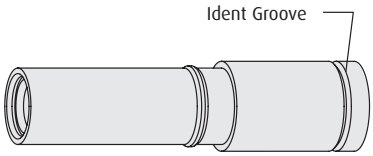
- 4-finger Beryllium Copper contact.
- Crimp barrel meets all crimp guidelines and standards.
- 10A current capacity, resists high vibration and shock.
- Withstands extremes of temperature: -65°C to +175°C.

CONTACTS

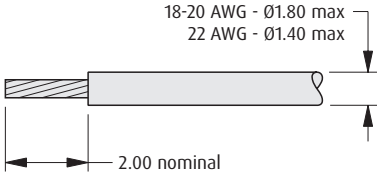
18-20 AWG



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

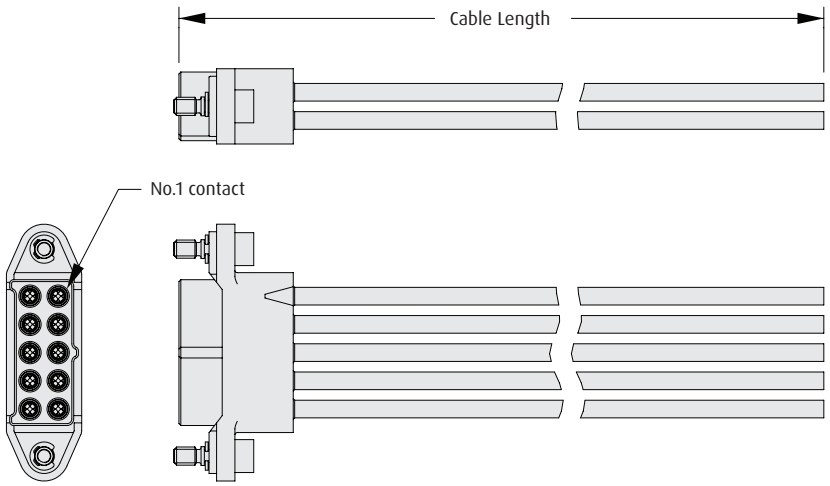
All dimensions in mm.

M300 Connectors

Female Cable Assemblies

- 4-finger Beryllium Copper contact.
- No. 1 position identified on moulding.
- 10A current capacity, resists high vibration and shock.
- Back potted for added strain relief.
- For non-standard cable lengths, please visit **harwin.com/cable-assemblies** and fill in your requirements.

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

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

FIXING

F2	Hex Socket Jackscrew

CABLE LENGTH

0150	150mm

TERMINATION - SECOND END

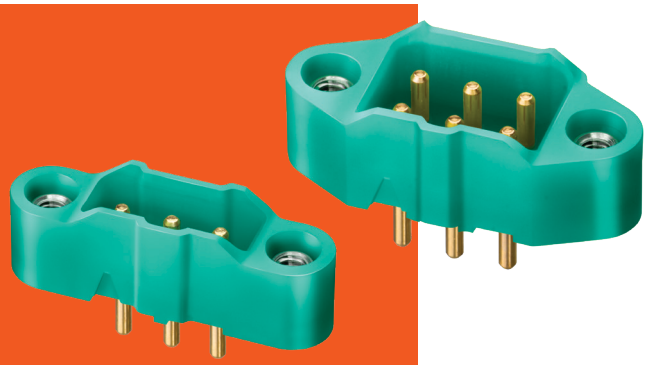
L	Loose cut end

All dimensions in mm.

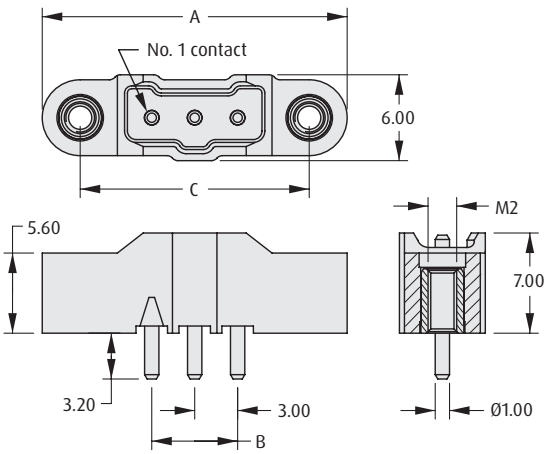
M300 Connectors

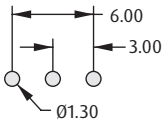
Male PC Tail

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



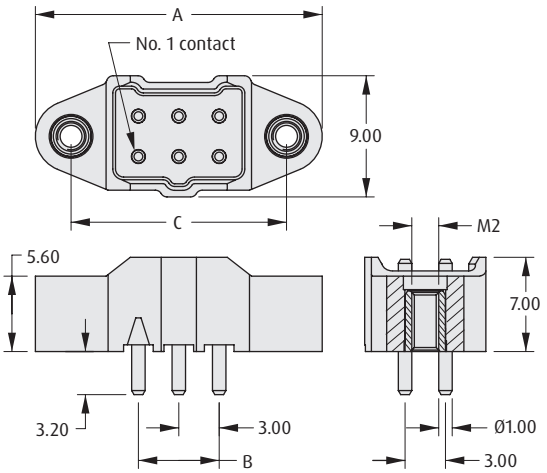
SINGLE ROW

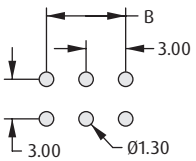




Recommended PC Board Pattern

DOUBLE ROW





Recommended PC Board Pattern

CALCULATION	
A	B + 15.3
B	3 x (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

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

FINISH

45	Gold

TYPE

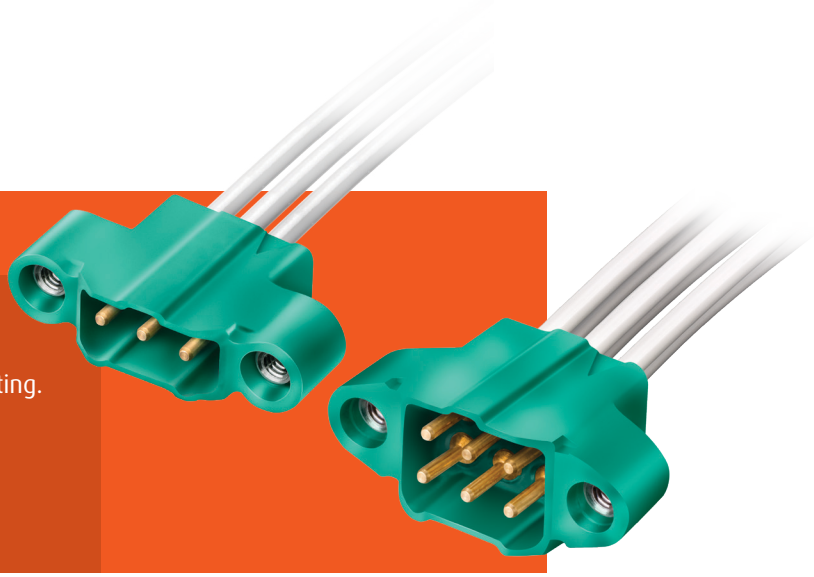
M1	Jackscrew

All dimensions in mm.

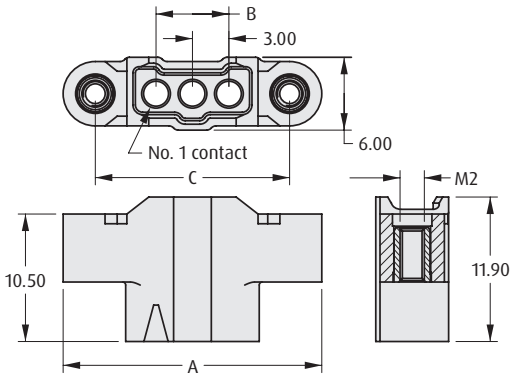
M300 Connectors

Male Cable Connector Housings

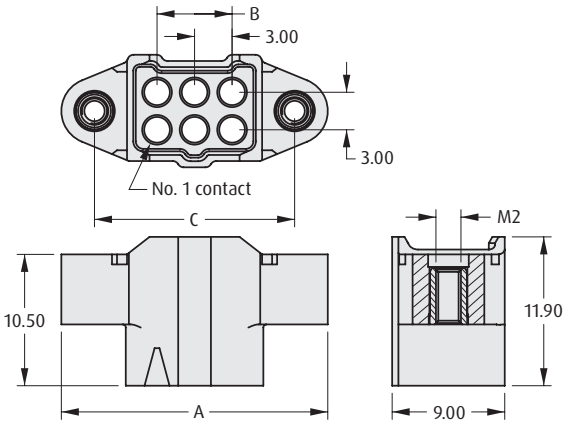
- Features potting wall for extra security.
- No. 1 position identified on moulding.
- 3 polarising points on each housing to prevent mis-mating.
- 10A current capacity, resists high vibration and shock.
- Withstands extremes of temperature: -65°C to +175°C.



SINGLE ROW



DOUBLE ROW



CALCULATION	
A	B + 15.3
B	3 x (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

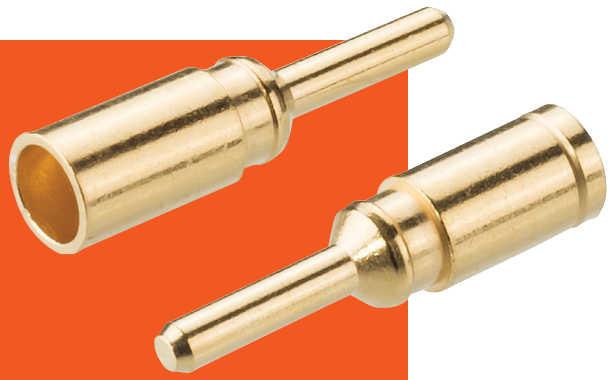
FINISH	
96	Housing

All dimensions in mm.

M300 Connectors

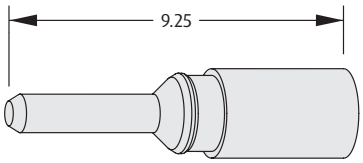
Male Cable Connector Contacts

- 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.

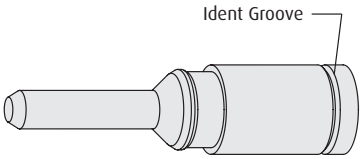


CONTACTS

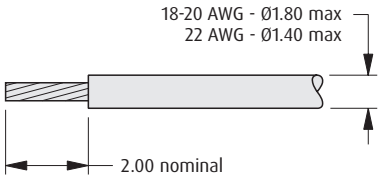
18-20 AWG



22 AWG



WIRE STRIPPING DETAILS



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

TYPE	
101	18-20 AWG crimp contact
102	22 AWG crimp contact

FINISH	
45	Gold

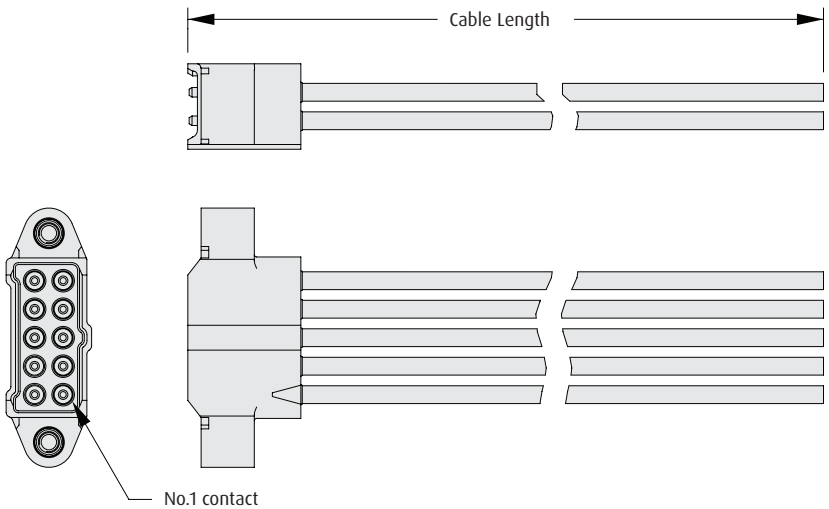
All dimensions in mm.

M300 Connectors

Male Cable Assemblies

- 4-finger Beryllium Copper contact.
- No. 1 position identified on moulding.
- 10A current capacity, resists high vibration and shock.
- Back potted for added strain relief.
- For non-standard cable lengths, please visit **harwin.com/cable-assemblies** and fill in your requirements.

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

TOTAL NO. OF CONTACTS

03	Single Row
06, 10	Double Row

FIXING

M1	Jackscrew

CABLE LENGTH

0150	150mm

TERMINATION - SECOND END

L	Loose cut end

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.