

M40-600/620 Connectors Specification

❖ A range of double row 1.00mm pitch SMT male and female connectors for board-to-board stacking.

❖ Materials

Mouldings:	High Temp Thermoplastic, UL94V-0
Contacts:	Phosphor Bronze
Finish:	Tin

❖ Mechanical

Durability:	30 operations
Insertion force (max):	2.7N per contact
Withdrawal force (min):	0.4N per contact

❖ Electrical

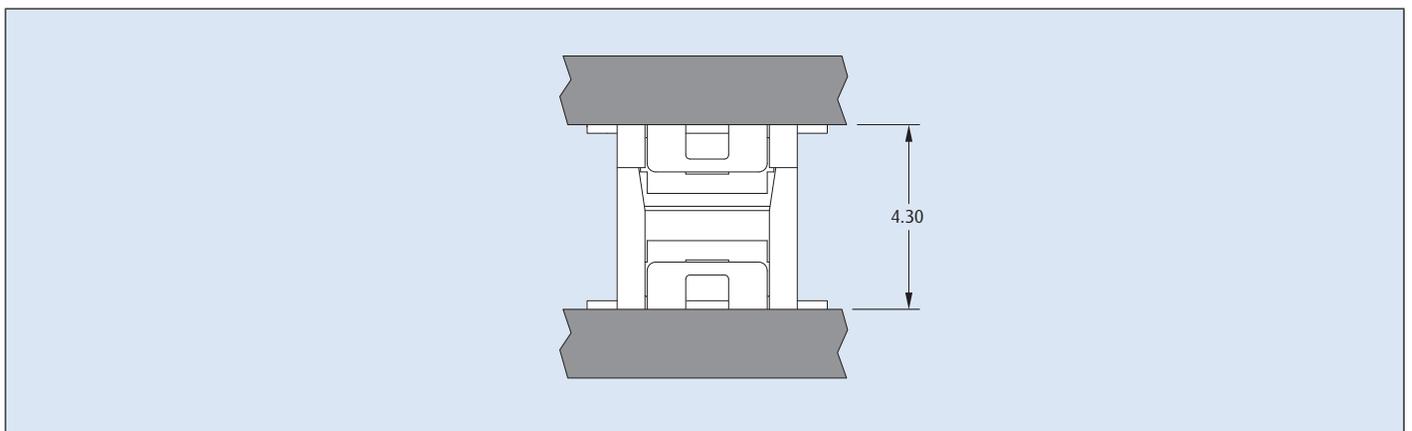
Current:	0.5A per contact
Working voltage:	150V AC
Voltage proof:	250V AC
Contact resistance:	50mΩ max
Insulation resistance:	500MΩ min

❖ Environmental

Operating temperature:	-20°C to +125°C
Solderability:	210°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

1mm (.039") PITCH

Mating Profile

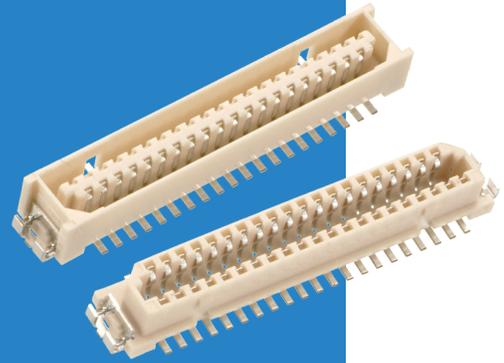


All dimensions in mm.

M40 Connectors

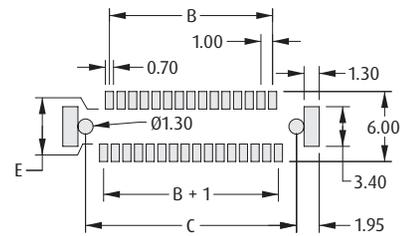
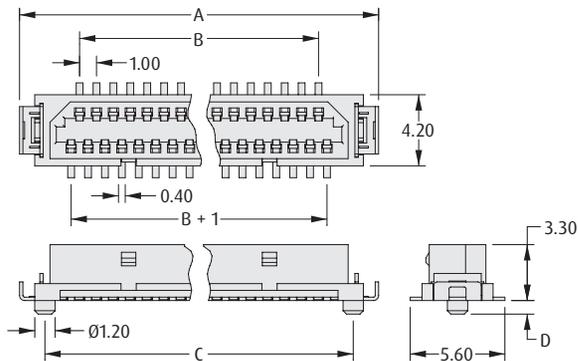
Vertical Surface Mount

- Locating pegs to ensure correct positioning onto the board.
- Polarised to prevent mis-mating.
- Staggered pin-out to help board layout.



1mm (.039") PITCH

FEMALE

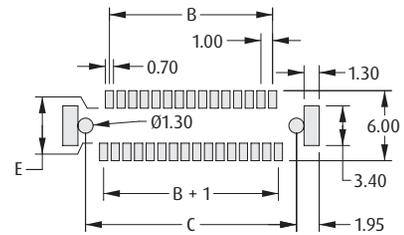
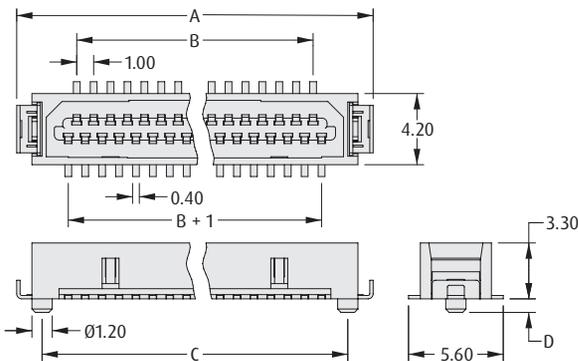


Recommended PC Board Pattern

CALCULATION

A	$B + 7.1$
B	$(\text{Total No. Of Contacts} - 3) / 2$
C	$B + 4.1$
D	1.00mm for 9, 15, 21, 25 way; otherwise 0.80mm
E	1.84mm for 9, 15, 21, 25 way; otherwise 3.00mm

MALE



Recommended PC Board Pattern

HOW TO ORDER

M40 - 6 X 0 XX XX X

SERIES CODE

GENDER

0	Male
2	Female

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

46	Tin
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TOTAL NO. OF CONTACTS

09, 15, 21, 25, 31, 41, 51

All dimensions in mm.

M40-310/320 Connectors Specification

❖ A range of double row 1.00mm pitch SMT pin header and socket connectors.

❖ Materials

Mouldings:	High Temp Thermoplastic, UL94V-0
Contacts	
Male:	Brass
Female:	Phosphor Bronze
Finish:	Gold

❖ Electrical

Current:	1.0A per contact
Voltage proof:	500V AC
Contact resistance:	30mΩ max
Insulation resistance:	1,000MΩ min

❖ Mechanical

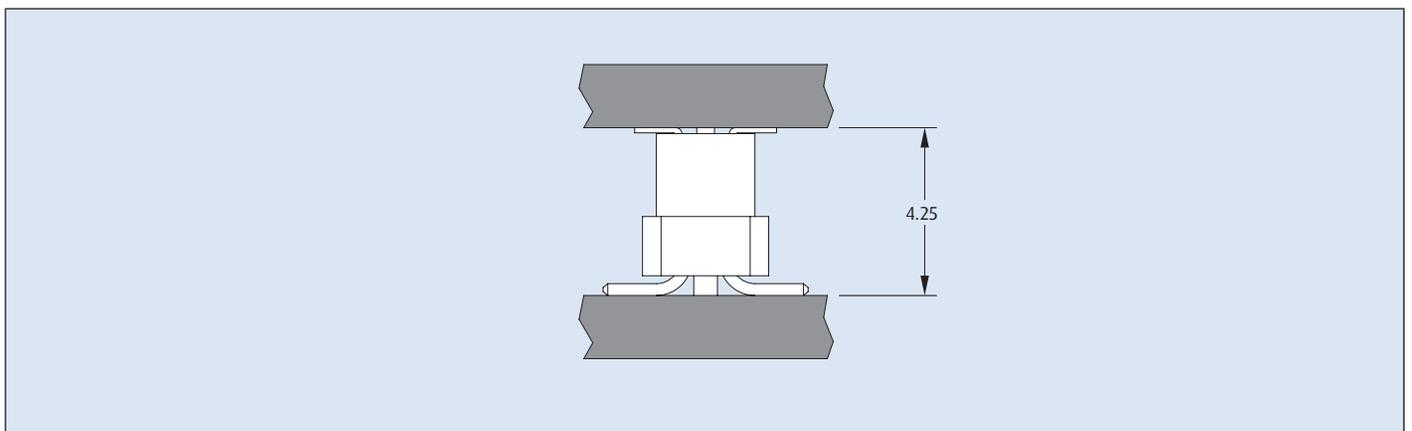
Durability:	300 operations
Insertion force (max):	1.5N per contact
Withdrawal force (min):	0.1N per contact
Vibration sensitivity:	50 – 2000Hz, 45 minutes duration
Shock severity:	294m/s ² (30G) for 11ms

❖ Environmental

Operating temperature:	-40°C to +105°C
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

1mm (.039") PITCH

Mating Profile

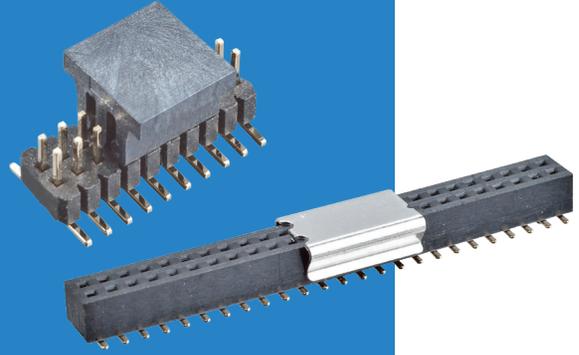


All dimensions in mm.

M40 Connectors

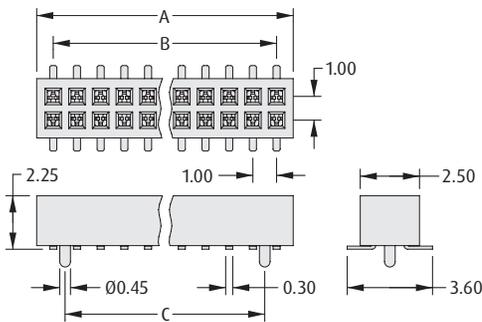
Vertical Surface Mount

- Locating pegs to ensure correct positioning onto the board.
- Supplied in tape and reel packaging with pick and place caps as standard.
- Twin beam female connector for higher durability.



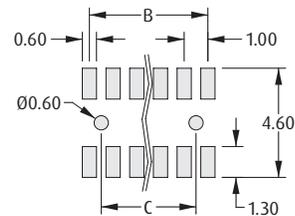
1mm (.039") PITCH

FEMALE



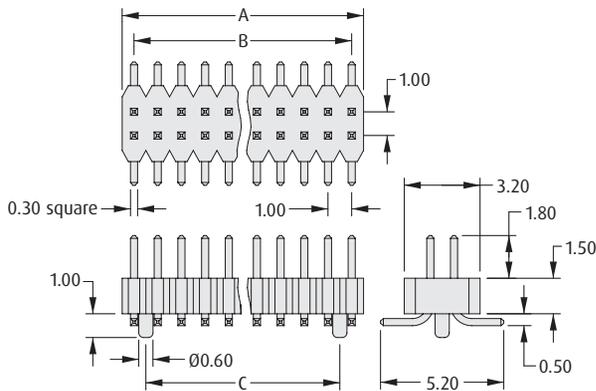
CALCULATION

A	$B + 1.4$
B	No. of contacts per row - 1
C	No. of contacts per row - 2



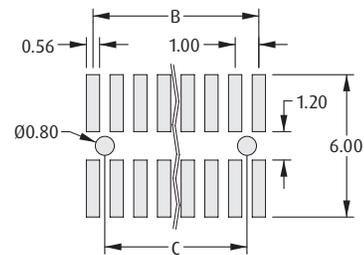
Recommended PC Board Pattern

MALE



CALCULATION

A	No. of contacts per row
B	No. of contacts per row - 1
C	No. of contacts per row - 2



Recommended PC Board Pattern

HOW TO ORDER

M40 - 3 X 0 XX 45 R

SERIES CODE

GENDER

1	Female
2	Male

TAPE & REELED

FINISH

45 Gold

NO. OF CONTACTS PER ROW

03, 04, 05, 06, 08, 10, 20, 25

All dimensions in mm.

M40 Cable-to-Board Specification

- ❖ A range of cable-to-board connectors on 1.00mm pitch - SMT male connectors and cable female connectors in single and double row options.

❖ Materials

Mouldings	
SMT Connectors:	High Temp Thermoplastic, UL94V-0
Cable Housings:	Thermoplastic, UL94V-0
Contacts:	Phosphor Bronze
Finish:	Tin

❖ Electrical

Current:	1A per contact
Working voltage:	50V AC/DC
Voltage proof:	500V AC/DC
Contact resistance:	30mΩ max
Insulation resistance:	100MΩ min

❖ Mechanical

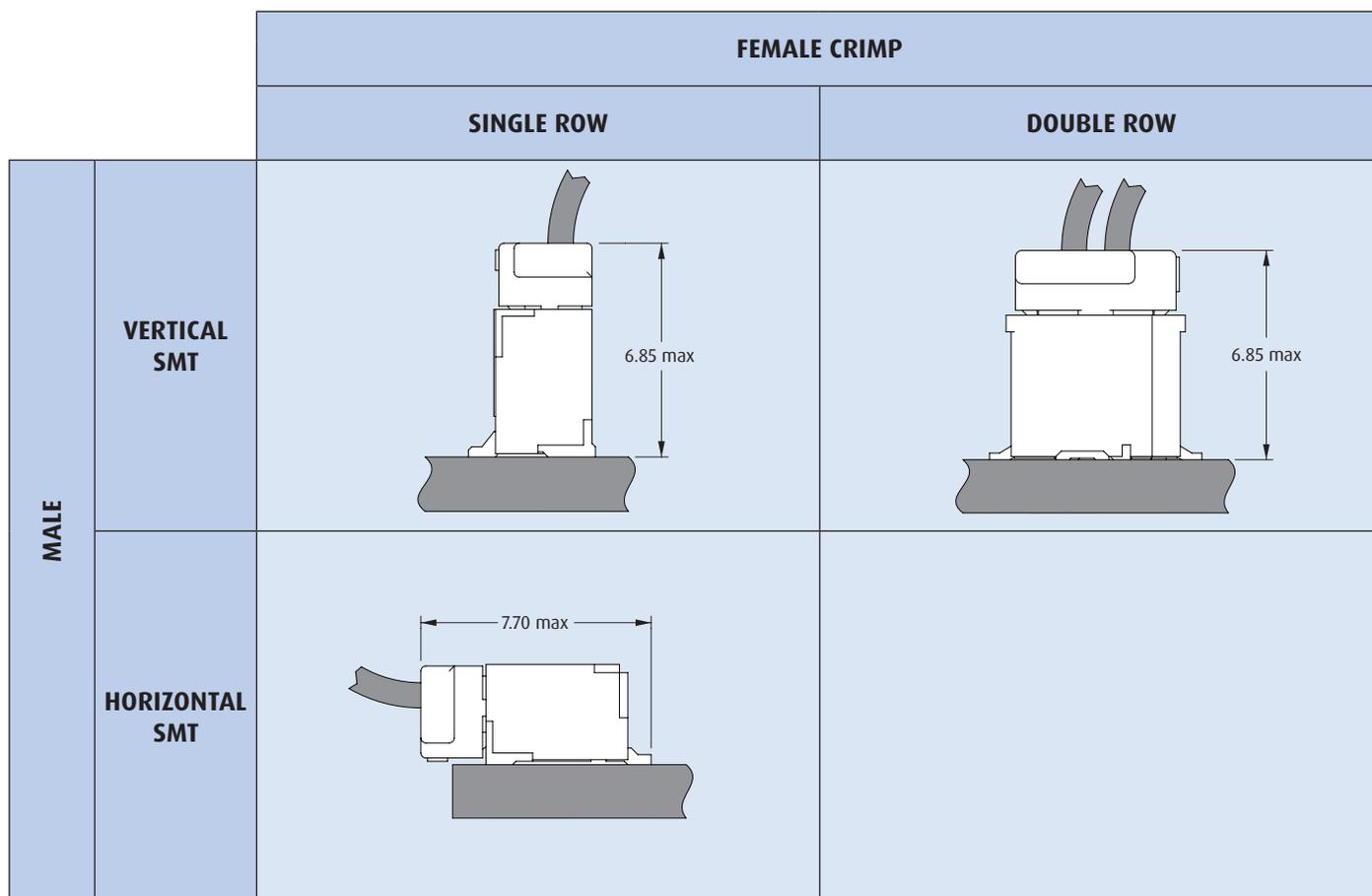
Durability:	50 operations
Insertion force (max):	2.0N per contact
Withdrawal force (min):	0.4N per contact
Crimped wire retention (min)	
28 AWG wire:	12.7N
30 AWG wire:	9.8N
32 AWG wire:	4.9N
Vibration sensitivity:	10 – 55Hz, 1.5mm, 6 hours duration
Shock severity:	490m/s ² (50G) for 11ms

❖ Environmental

Operating temperature:	-25°C to +85°C
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 5 seconds

1mm (.039") PITCH

Mating Profiles



All dimensions in mm.

M40 Cable-to-Board Connectors

Female Crimp Housings

- Crimp contacts or pre-cabled contacts are ordered separately - see following pages.
- Crimped contacts on wires are inserted into rear of connector housing - no additional tooling required.



1mm (.039") PITCH

SINGLE ROW	CALCULATION	DOUBLE ROW	CALCULATION
	A B + 4		A B + 4
	B No. of contacts per row - 1		B No. of contacts per row - 1

HOW TO ORDER

M40 - 1X0 XX 00

SERIES CODE

TYPE

110	Single Row
120	Double Row

NO. OF CONTACTS PER ROW

02 to 20	Single Row
05 to 10, 12, 15, 20, 25	Double Row

All dimensions in mm.

M40 Cable-to-Board Connectors

Female Crimp Contacts

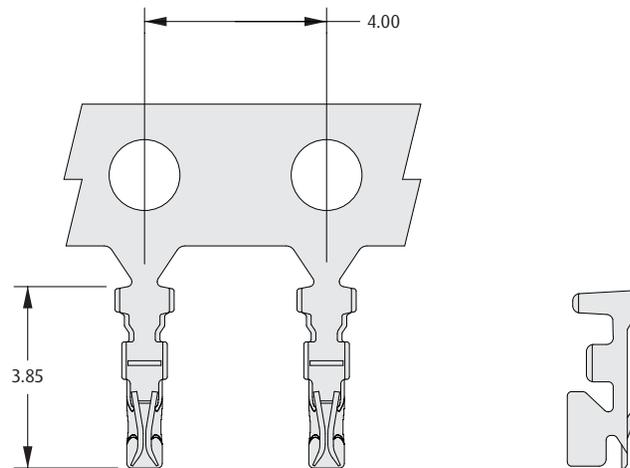
- ❖ Open crimp design, ideal for automation.
- ❖ Use with female crimp housings shown on previous page.
- ❖ Pre-crimped contacts with wire attached shown on following page.
- ❖ Requires crimp machine with applicable tooling for crimping to wires.



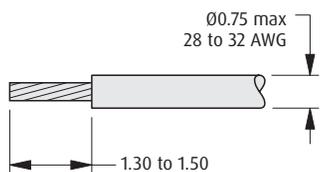
1mm (.039") PITCH

CONTACTS

- ❖ Order code is for one reel of 15,000 contacts.



WIRE STRIPPING DETAIL



HOW TO ORDER

M40 - 100 00 46

SERIES CODE

FINISH

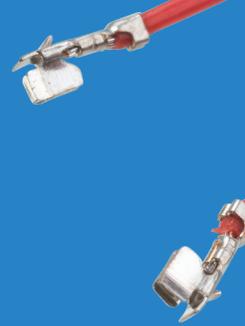
46	Tin
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All dimensions in mm.

M40 Cable-to-Board Connectors

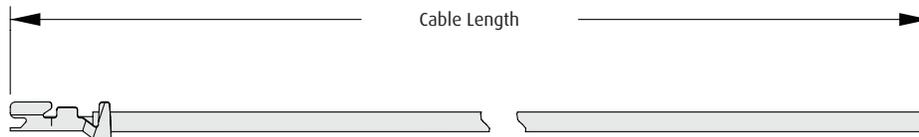
Female Crimp Contacts - Pre-Crimped Wires

- Female crimp contacts pre-assembled with a choice of wire sizes and lengths.
- PVC insulated multi-strand tinned copper equipment wire to UL1571.
- Use with female crimp housings shown on previous page.
- Ideal for prototype and pre-production applications.
- Individual contacts without wire shown on previous page.

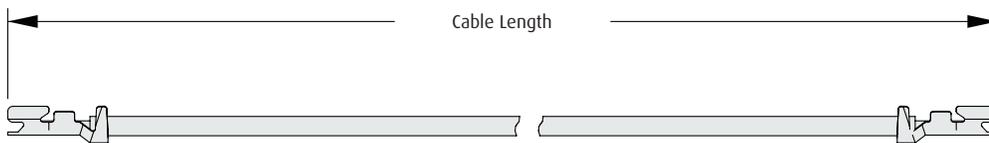


1mm (.039") PITCH

FEMALE SINGLE ENDED



FEMALE - FEMALE



HOW TO ORDER

M40 - 9XX 00 99

SERIES CODE

CABLE COLOUR

99 | Red

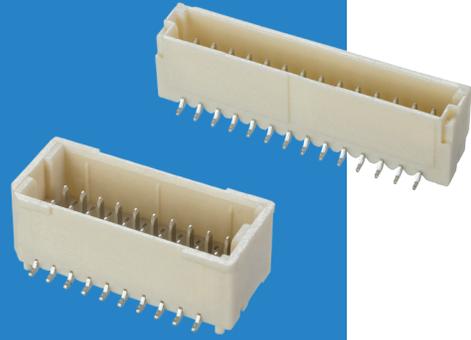
SINGLE ENDED	FEMALE - FEMALE	
900	904	28 AWG cable, 150mm length
901	905	32 AWG cable, 150mm length
902	906	28 AWG cable, 300mm length
903	907	32 AWG cable, 300mm length
910		30 AWG cable, 150mm length
911		30 AWG cable, 300mm length

All dimensions in mm.

M40 Cable-to-Board Connectors

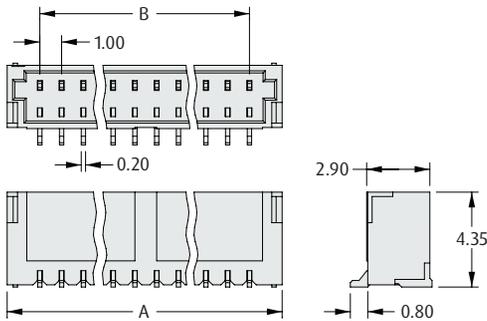
Male Vertical Surface Mount

- ❖ Shrouded male connectors.
- ❖ Double row connector features locating pegs to ensure correct positioning onto the board.
- ❖ Tape and Reel option supplied fitted with pick and Place cap.



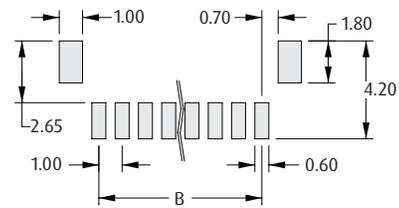
1mm (.039") PITCH

SINGLE ROW



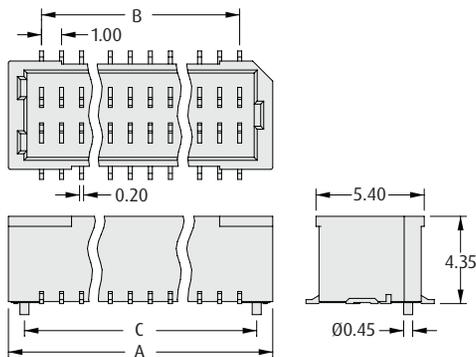
CALCULATION

A	$B + 3$
B	No. of contacts per row - 1



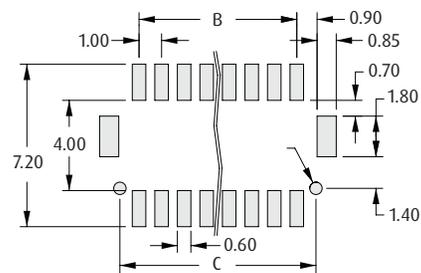
Recommended PC Board Pattern

DOUBLE ROW



CALCULATION

A	$B + 3$
B	No. of contacts per row - 1
C	$B + 1.7$



Recommended PC Board Pattern

HOW TO ORDER

M40 - 30 X XX 46 X

SERIES CODE

TYPE

1	Single Row
2	Double Row

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

46 Tin

NO. OF CONTACTS PER ROW

02 to 20	Single Row
05 to 08, 10, 12, 15	Double Row

All dimensions in mm.

M40 Cable-to-Board Connectors

Male Horizontal Surface Mount

- Shrouded male connectors.
- Tape and Reel option does not require Pick and Place cap.

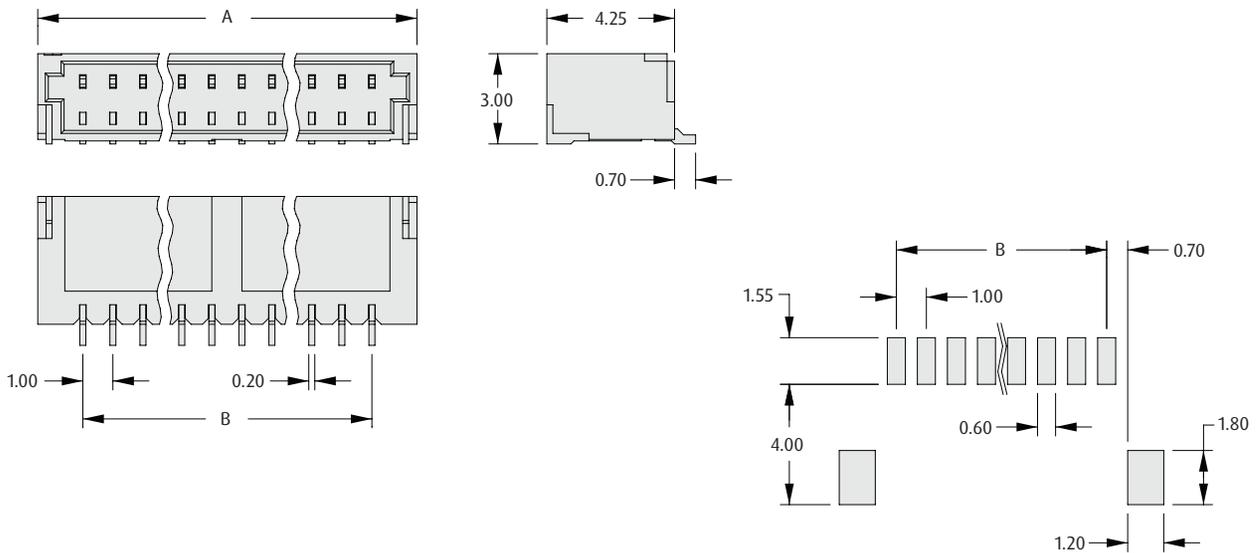


1mm (.039") PITCH

SINGLE ROW

CALCULATION

A	B + 3
B	No. of contacts per row - 1



Recommended PC Board Pattern

HOW TO ORDER

M40 - 401 XX 46 X

SERIES CODE

NO. OF CONTACTS PER ROW

02 to 20

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

46 Tin

All dimensions in mm.

M30 Connectors Specification

❖ A range of 1.25mm pitch male and female connectors, for cable-to-board applications.

❖ Material

Mouldings	
SMT:	Nylon 6T, UL94V-0
Others:	Nylon 66, UL94V-0
Contacts	
Male:	Brass
Female:	Phosphor Bronze
Finish:	Tin

❖ Electrical

Current:	1A per contact
Working voltage:	150V AC
Voltage proof:	500V AC/DC
Contact resistance:	30mΩ max
Insulation resistance:	500MΩ min

❖ Mechanical

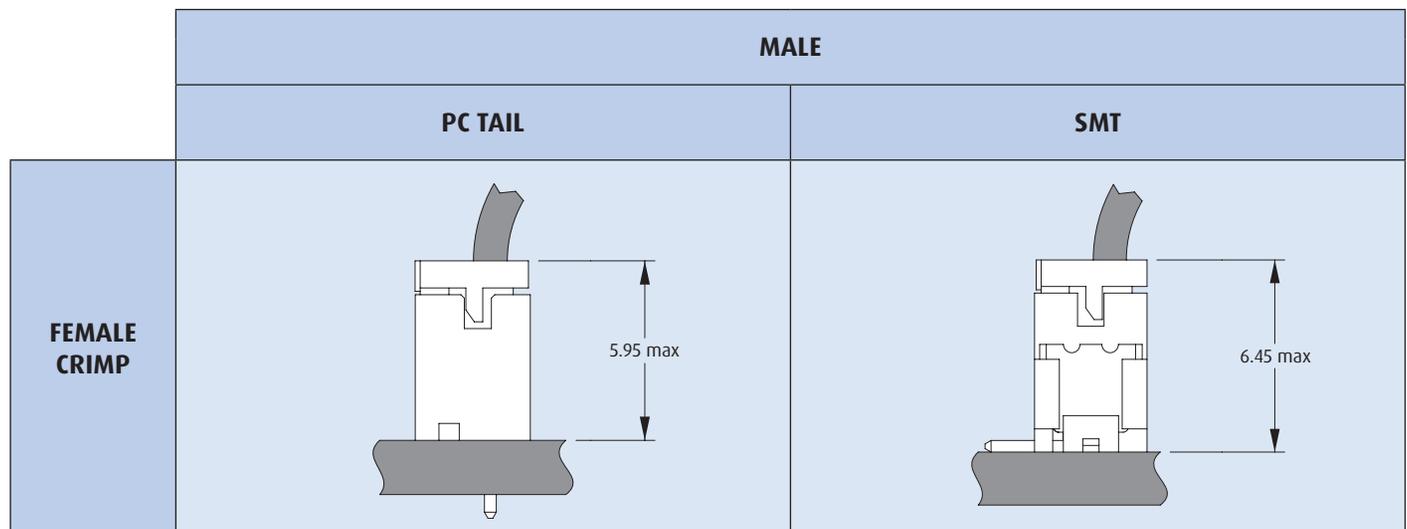
Durability:	50 operations
Insertion force (max):	4.9N per contact
Withdrawal force (min):	0.5N per contact
Crimp retention (min):	4.9N per contact
Crimped wire retention (min)	
26 AWG wire:	19.6N
28 AWG wire:	9.8N
30 AWG wire:	7.8N
Vibration sensitivity:	10 – 55Hz, 1.5mm, 6 hours duration
Shock severity:	490m/s ² (50G) for 11ms

❖ Environmental

Operating temperature:	-25°C to +85°C
Solderability:	245°C for 5 seconds
Soldering heat resistance	
PC Tail:	250°C for 5 seconds
SMT:	260°C for 10 seconds

1.25mm (.049") PITCH

Mating Profiles

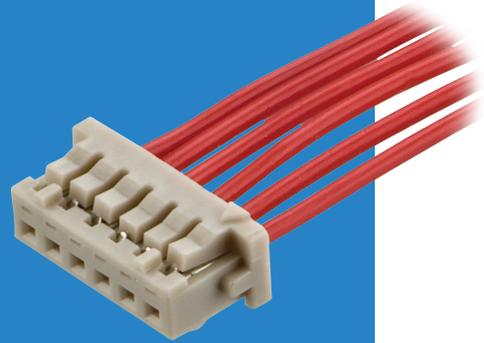


All dimensions in mm.

M30 Connectors

Female Crimp Housing

- Loose or reeled contacts.
- Crimp contacts or pre-cabled contacts are ordered separately - see the following pages.

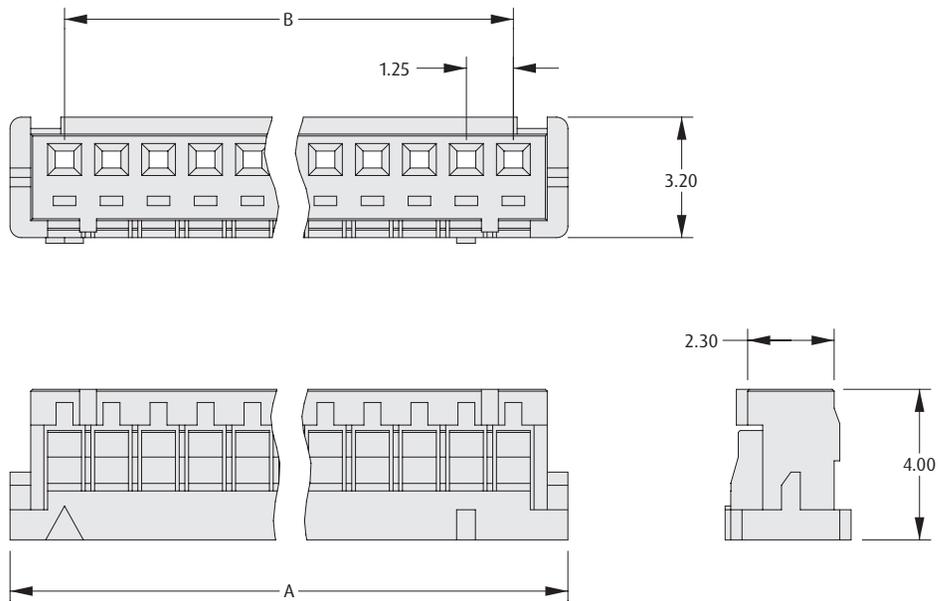


1.25mm (.049") PITCH

HOUSING

CALCULATION

A	$B + 2.9$
B	$1.25 \times (\text{No. of contacts per row} - 1)$



HOW TO ORDER

M30 - 110 XX 00

SERIES CODE

NO. OF CONTACTS PER ROW

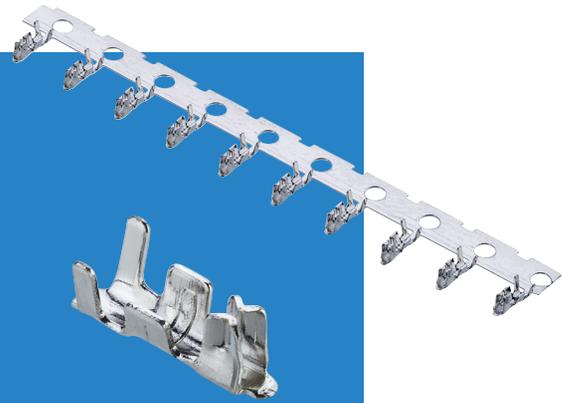
02 to 15

All dimensions in mm.

M30 Connectors

Female Crimp Contacts

- ❖ Loose or reeled contacts.
- ❖ Open crimp design, ideal for automation.
- ❖ Use with female crimp housings shown on previous page.
- ❖ Pre-crimped contacts with wire attached shown on following page.

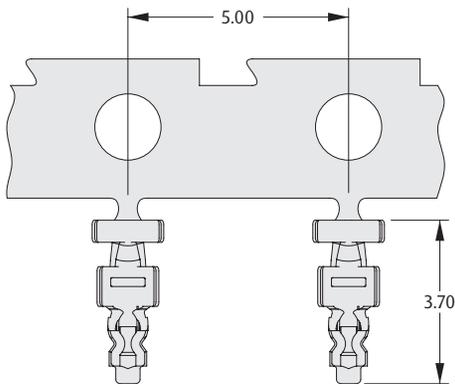


1.25mm (.049") PITCH

CONTACTS

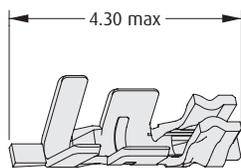
Reeled (continuous strip)

- ❖ Order code is for one reel of 10,000 contacts.



Loose (cropped)

- ❖ Order code is for one pack of 100 contacts.



HAND CRIMP TOOL

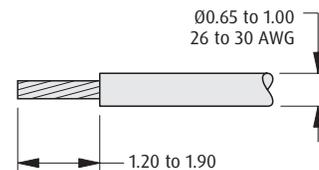
- ❖ Instruction sheet is available at www.harwin.com/instructions.
- ❖ For use with loose contacts.



ORDER CODE

Z30-021

WIRE STRIPPING DETAILS



HOW TO ORDER

M30 - 10 X 00 46

SERIES CODE

TYPE

5	Reeled contact
6	Loose contact

FINISH

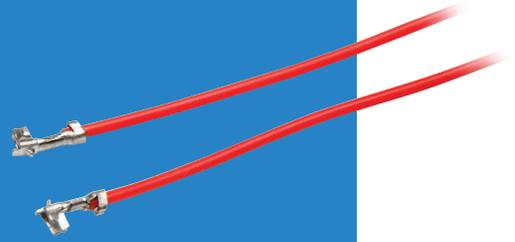
46 Tin

All dimensions in mm.

M30 Connectors

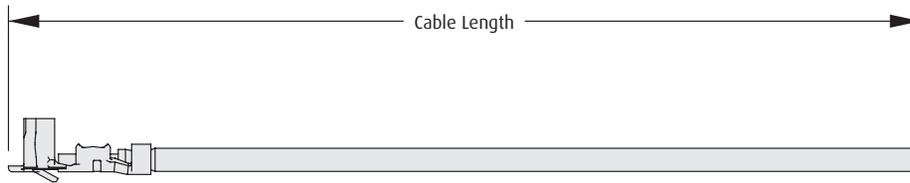
Female Crimp Contacts – Pre-Crimped Wires

- Female crimp contacts pre-assembled with a choice of wire sizes and lengths.
- PTFE-insulated, multi-strand silver-plated copper conductor equipment wire.
- Use with female crimp housings shown on previous page.
- Ideal for prototype and pre-production applications.
- Individual contacts without wire shown on previous page.

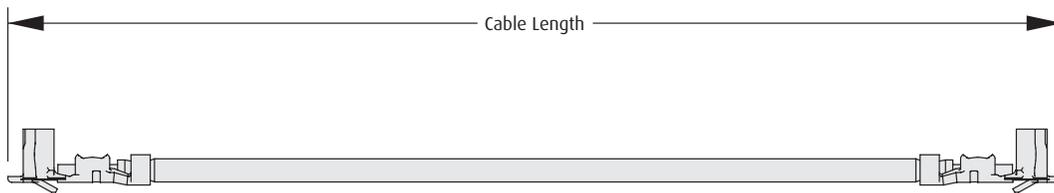


1.25mm (.049") PITCH

FEMALE SINGLE ENDED



FEMALE - FEMALE



HOW TO ORDER

M30 - 9XX 00 99

SERIES CODE

CABLE COLOUR

99 Red

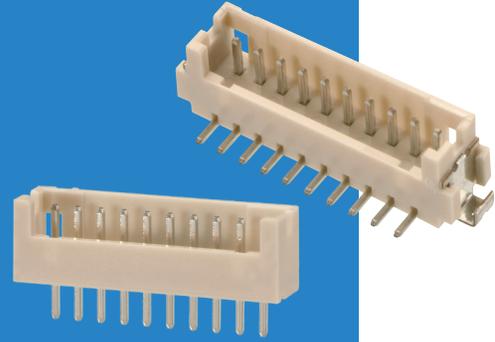
SINGLE ENDED	FEMALE - FEMALE	
900	904	26 AWG cable, 150mm length
901	905	30 AWG cable, 150mm length
902	906	26 AWG cable, 300mm length
903	907	30 AWG cable, 150mm length

All dimensions in mm.

M30 Connectors

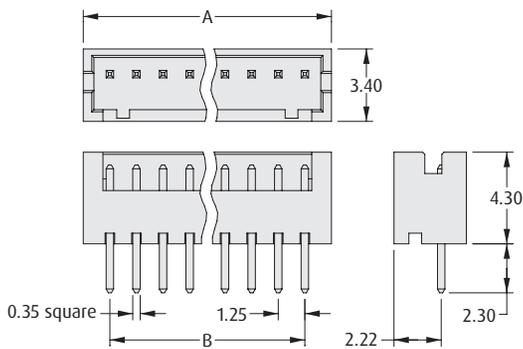
Male Vertical

- ❖ Shrouded male connectors.
- ❖ SMT version features metal solder-down tabs and locating pegs to ensure correct positioning onto the board.
- ❖ Tape and Reel option supplied fitted with Pick and Place cap, contact technical@harwin.com for availability.



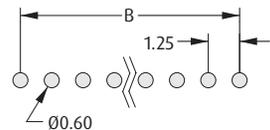
1.25mm (.049") PITCH

PC TAIL



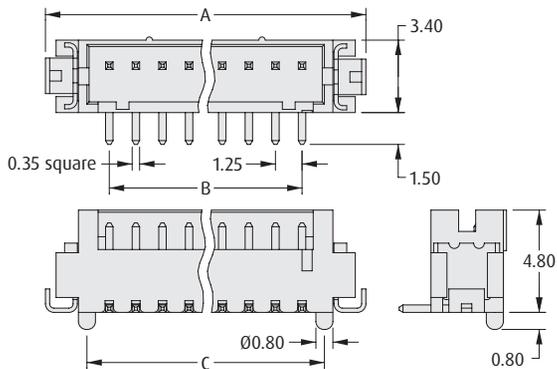
CALCULATION

A	$1.25 \times (\text{No. of contacts per row} + 1)$
B	$1.25 \times (\text{No. of contacts per row} - 1)$



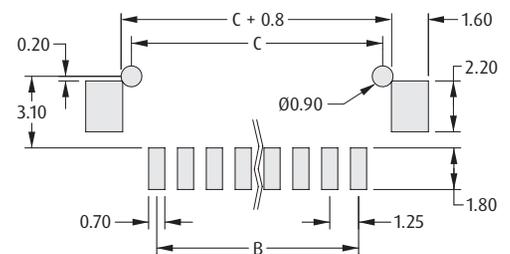
Recommended PC Board Pattern

SURFACE MOUNT



CALCULATION

A	$B + 6$
B	$1.25 \times (\text{No. of contacts per row} - 1)$
C	$B + 2.1$



Recommended PC Board Pattern

HOW TO ORDER

M30 - 6 X 0 XX XX X

SERIES CODE

TYPE

0	Surface Mount
1	PC Tail

PACKAGING

Blank	Loose
R	Tape & Reeled (M30-600)

FINISH

46 Tin

NO. OF CONTACTS PER ROW

02 to 15

All dimensions in mm.