

Connectors

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Female PCB Connectors

Female Cable Connectors

Jumper Sockets

Male PCB Connectors

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Specifications, Mating Profiles

Female PCB Connectors

Female Cable Connectors

Jumper Sockets

Male PCB Connectors

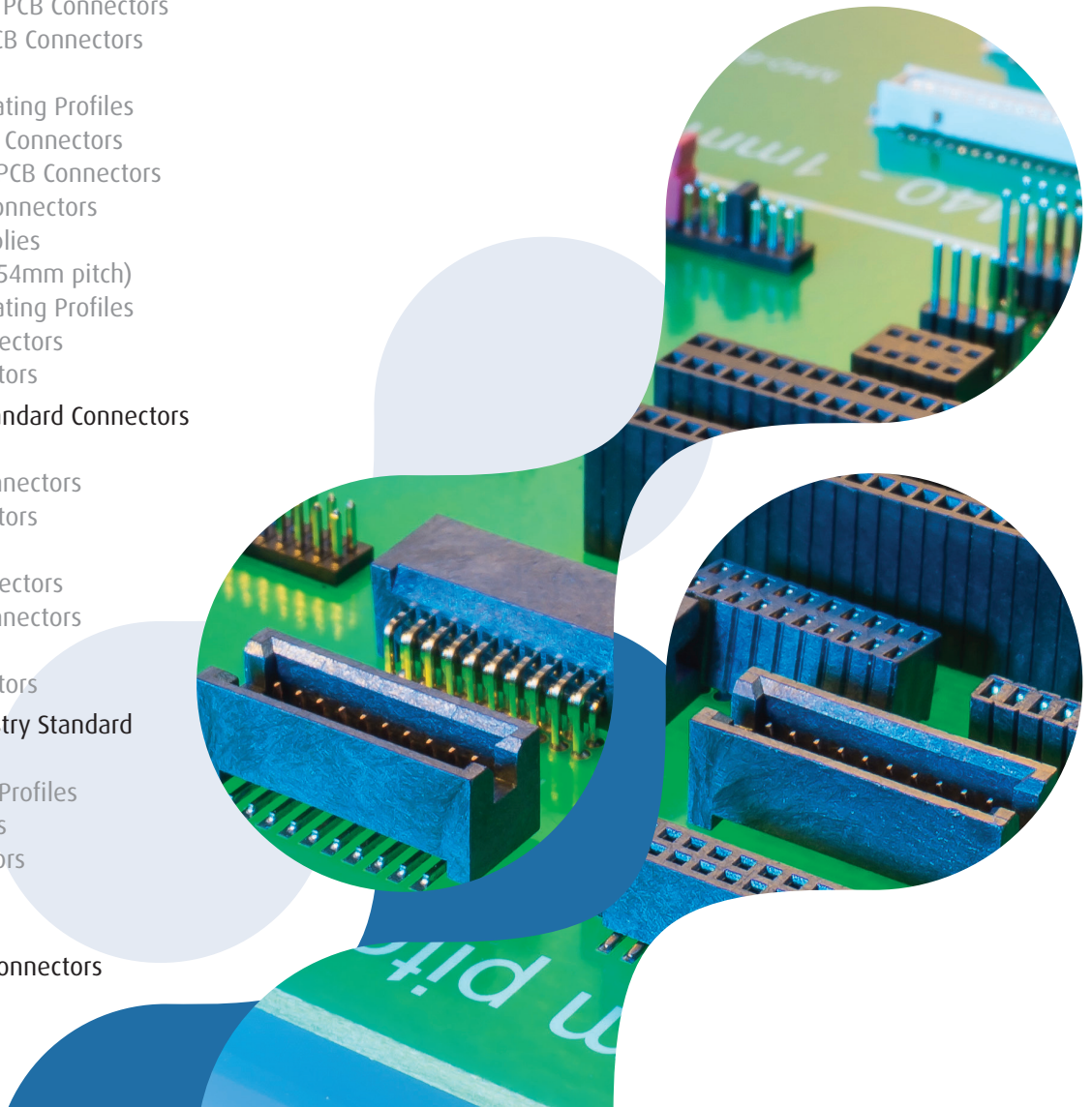
PC/104 and PC/104-Plus Connectors

Clarke & Severn Electronics

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www.clarke.com.au



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

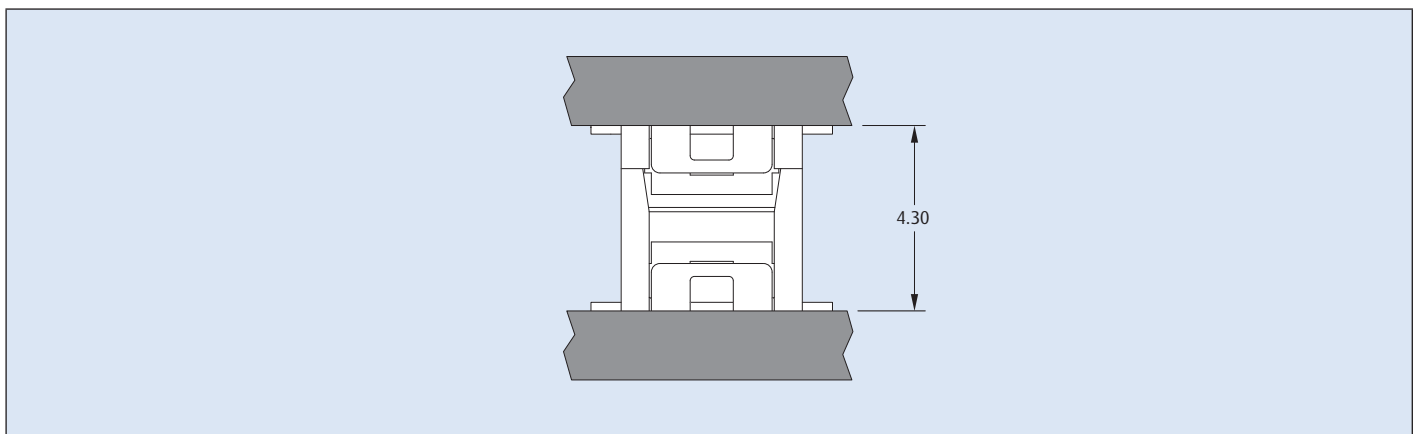
Current:	0.5A per contact
Working voltage:	150V AC
Voltage proof:	250V AC
Contact resistance:	50mΩ max
Insulation resistance:	500MΩ min

❖ 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

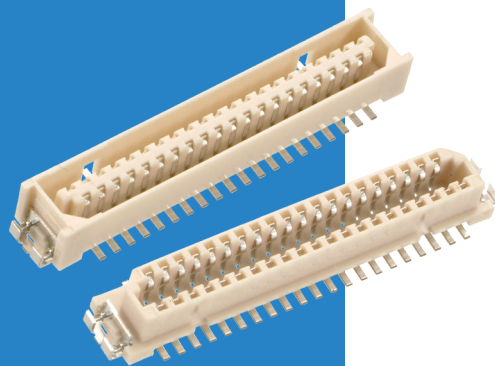


All dimensions in mm.

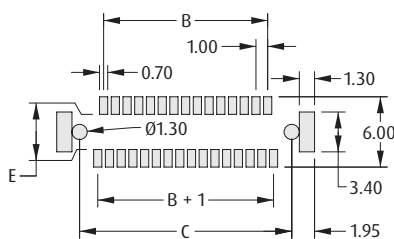
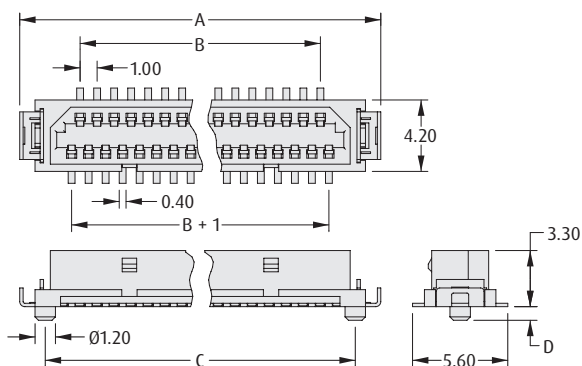
M40 Connectors

Vertical Surface Mount

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



FEMALE

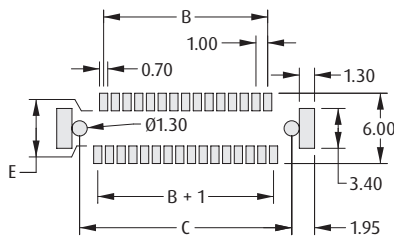
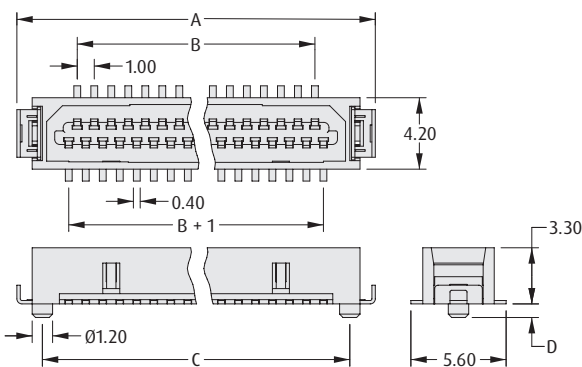


Recommended PC Board Pattern

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

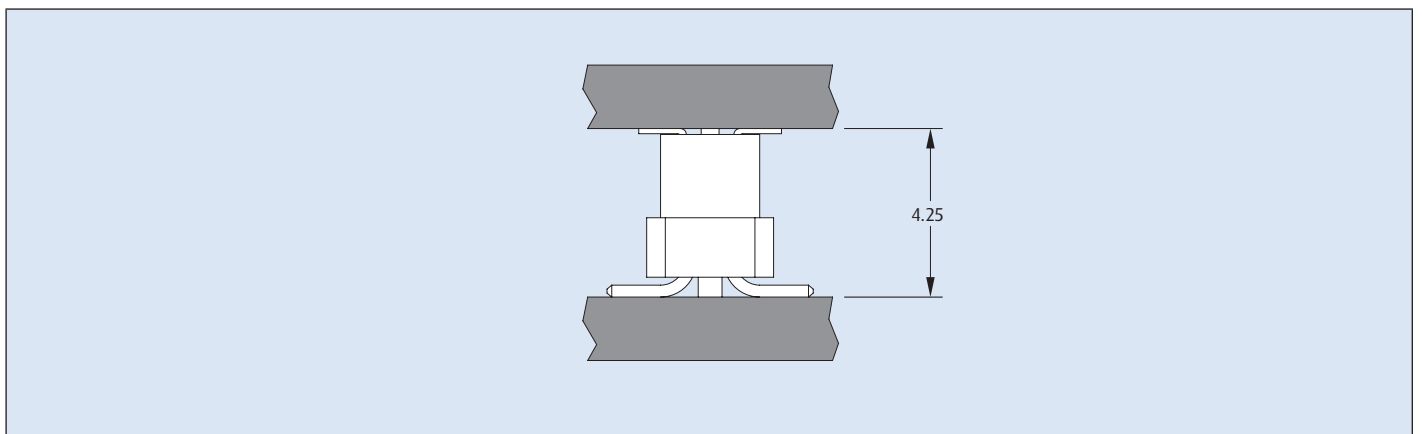
Durability:	300 operations
Insertion force (max):	1.5N per contact
Withdrawal force (min):	0.1N per contact
Vibration sensitivity:	50 – 2000Hz, 45 minutes duration
Shock severity:	294m/s ² (30G) for 11ms

➤ 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

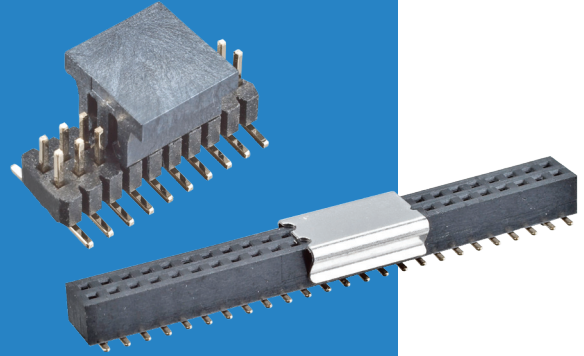


All dimensions in mm.

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
		<p>Recommended PC Board Pattern</p>	
MALE		CALCULATION	
		A	No. of contacts per row
		B	No. of contacts per row - 1
		C	No. of contacts per row - 2
		<p>Recommended PC Board Pattern</p>	
HOW TO ORDER			
M40 - 3 X 0 XX 45 R			
SERIES CODE	M40 - 3 X 0		TAPE & REELED
GENDER	XX		FINISH
1 Female			45 Gold
2 Male			
		45	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

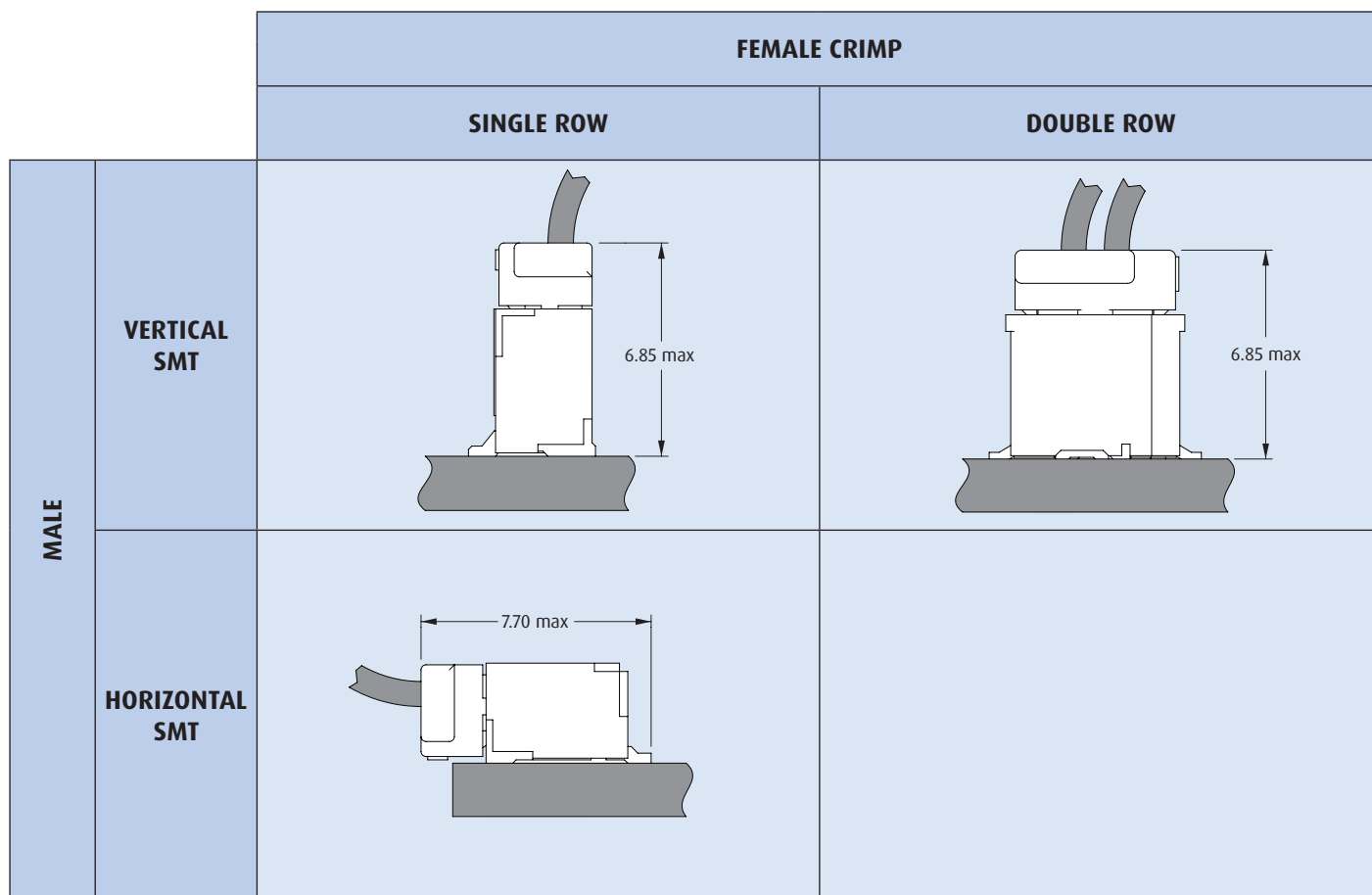
Durability:	50 operations
Insertion force (max):	2.0N per contact
Withdrawal force (min):	0.4N per contact
Crimped wire retention (min)	
28 AWG wire:	12.7N
30 AWG wire:	9.8N
32 AWG wire:	4.9N
Vibration sensitivity:	10 - 55Hz, 1.5mm, 6 hours duration
Shock severity:	490m/s ² (50G) for 11ms

❖ 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

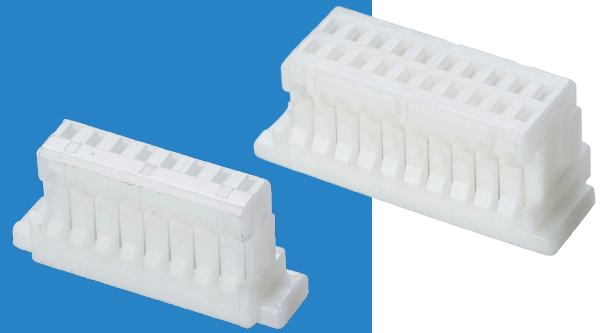


All dimensions in mm.

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

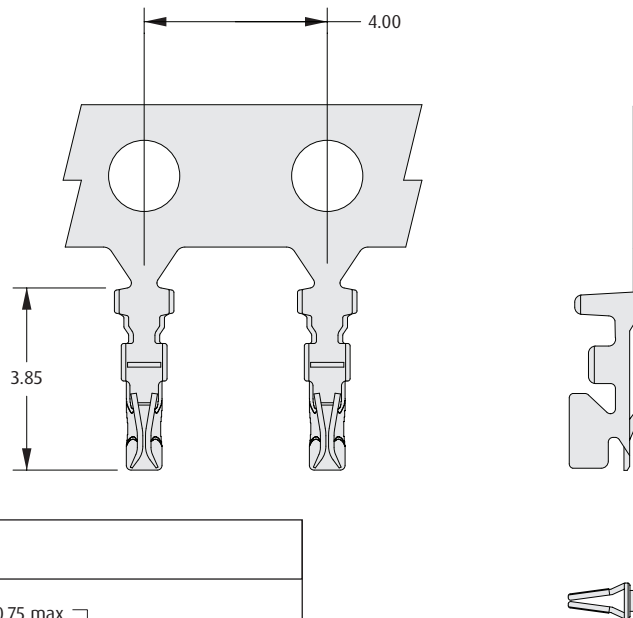
- ❖ Open crimp design, ideal for automation.
- ❖ Use with female crimp housings shown on previous page.
- ❖ Pre-crimped contacts with wire attached shown on following page.
- ❖ Requires crimp machine with applicable tooling for crimping to wires.



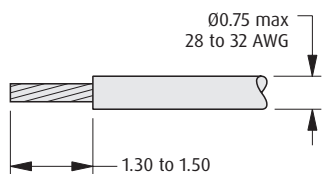
1mm (.039") PITCH

CONTACTS

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



WIRE STRIPPING DETAIL



HOW TO ORDER

M40 - 100 00 46

SERIES CODE

FINISH

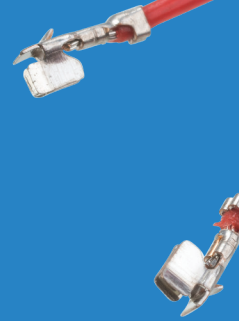
46 Tin

All dimensions in mm.

M40 Cable-to-Board Connectors

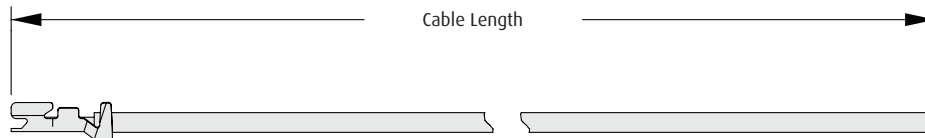
Female Crimp Contacts - Pre-Crimped Wires

- 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.

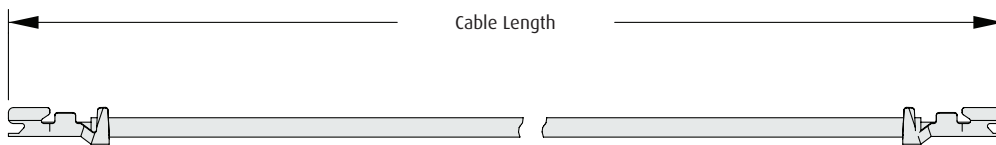


1mm (.039") PITCH

FEMALE SINGLE ENDED



FEMALE - FEMALE



HOW TO ORDER

M40 - 9XX 00 99

SERIES CODE

CABLE COLOUR

99 | Red

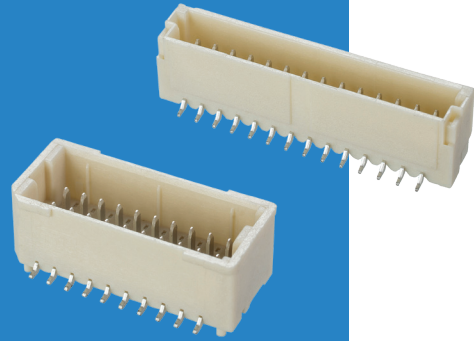
SINGLE ENDED	FEMALE - FEMALE	
900	904	28 AWG cable, 150mm length
901	905	32 AWG cable, 150mm length
902	906	28 AWG cable, 300mm length
903	907	32 AWG cable, 300mm length
910		30 AWG cable, 150mm length
911		30 AWG cable, 300mm length

All dimensions in mm.

M40 Cable-to-Board Connectors

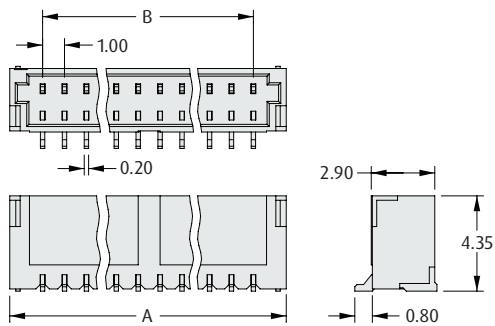
Male Vertical Surface Mount

- ❖ 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.



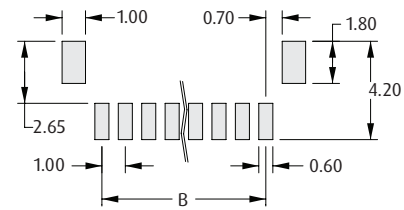
1mm (.039") PITCH

SINGLE ROW



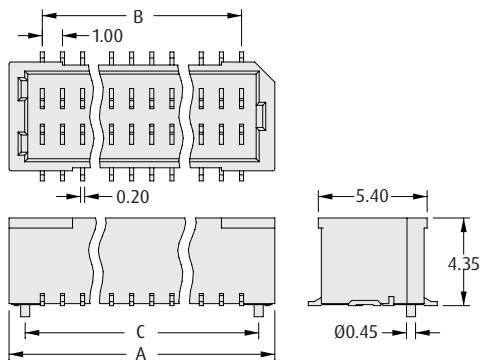
CALCULATION

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



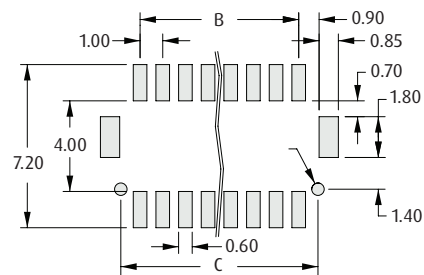
Recommended PC Board Pattern

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.

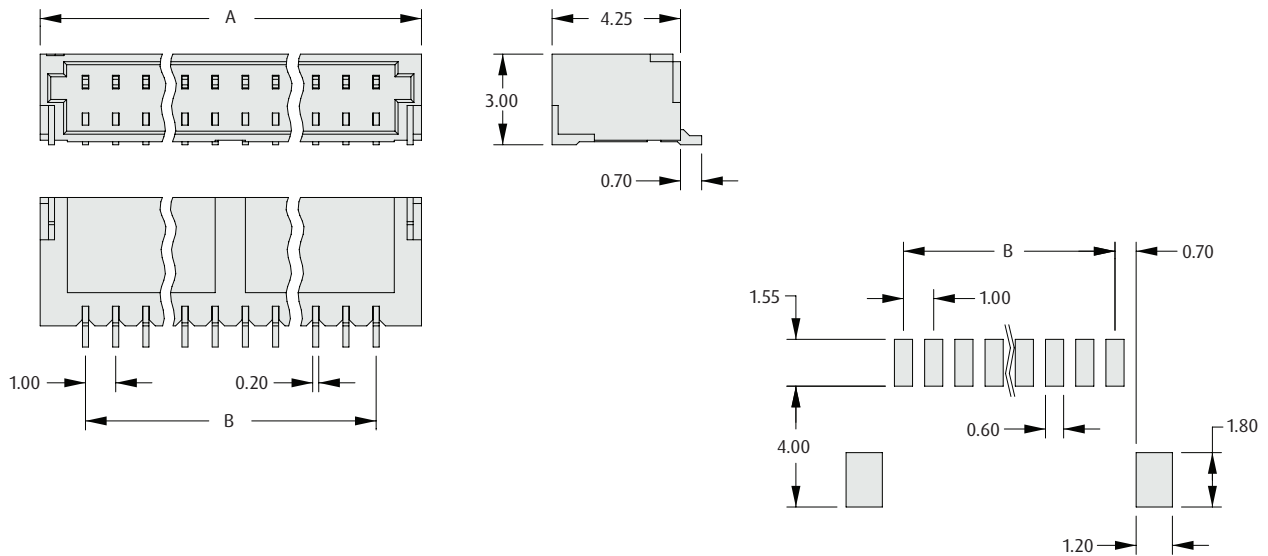


1mm (.039") PITCH

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

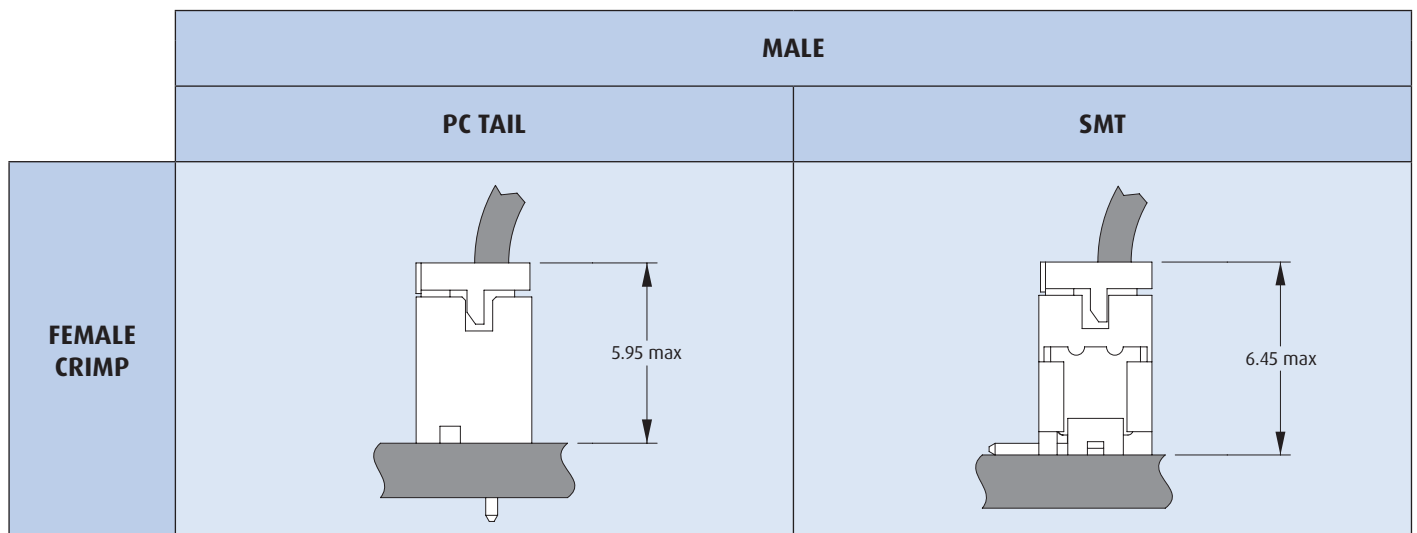
Durability:	50 operations
Insertion force (max):	4.9N per contact
Withdrawal force (min):	0.5N per contact
Crimp retention (min):	4.9N per contact
Crimped wire retention (min)	
26 AWG wire:	19.6N
28 AWG wire:	9.8N
30 AWG wire:	7.8N
Vibration sensitivity:	10 – 55Hz, 1.5mm, 6 hours duration
Shock severity: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

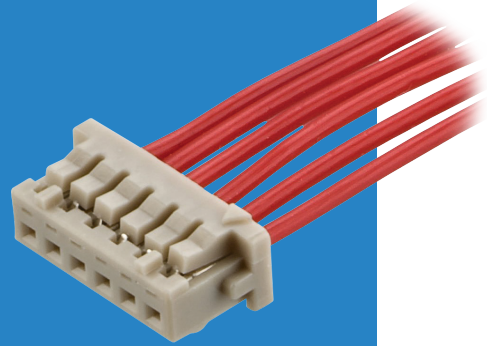


All dimensions in mm.

M30 Connectors

Female Crimp Housing

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

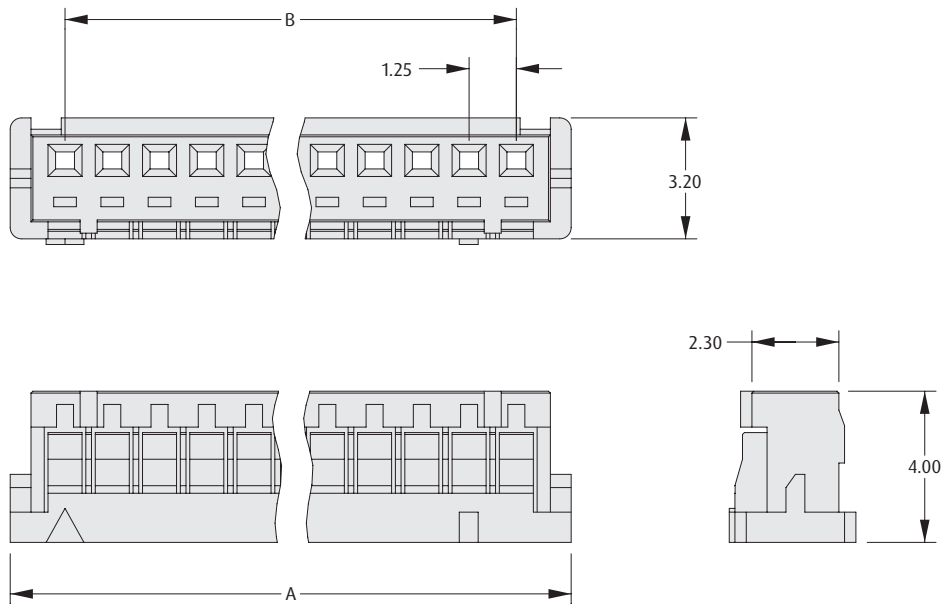


1.25mm (.049") PITCH

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

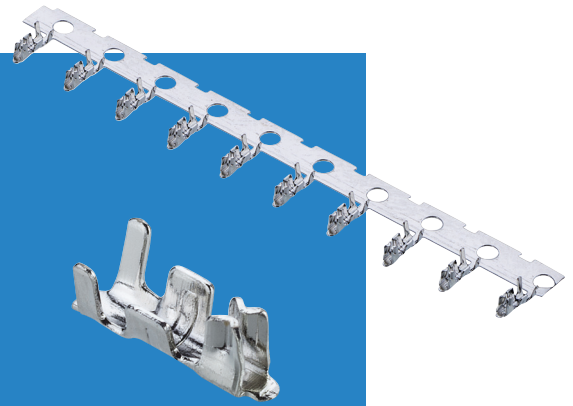
02 to 15

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.

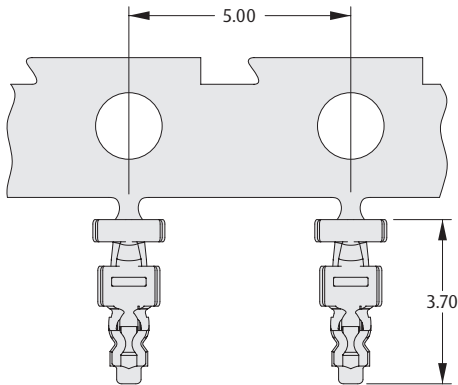


1.25mm (.049") PITCH

CONTACTS

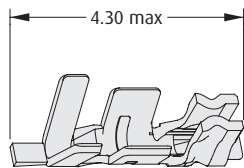
Reeled (continuous strip)

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



Loose (cropped)

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



HAND CRIMP TOOL

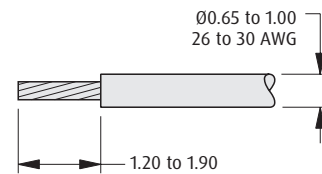
- ❖ Instruction sheet is available at www.harwin.com/instructions.
- ❖ For use with loose contacts.



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

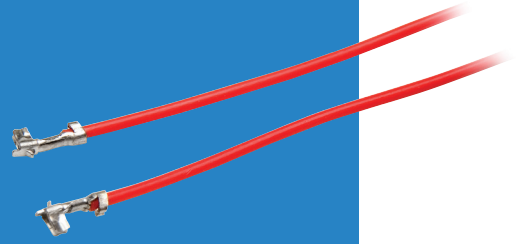
All dimensions in mm.

M30 Connectors

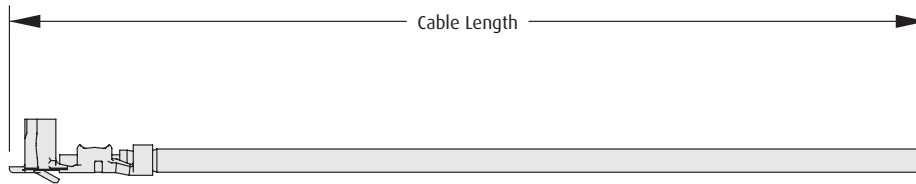
1.25mm (.049") PITCH

Female Crimp Contacts – Pre-Crimped Wires

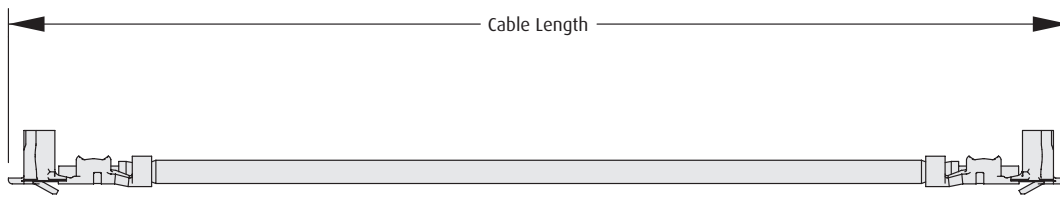
- Female crimp contacts pre-assembled with a choice of wire sizes and lengths.
- PTFE-insulated, multi-strand silver-plated copper conductor equipment wire.
- Use with female crimp housings shown on previous page.
- Ideal for prototype and pre-production applications.
- Individual contacts without wire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



FEMALE SINGLE ENDED



FEMALE - FEMALE



HOW TO ORDER

M30 - **9XX** 00 **99**

SERIES CODE

CABLE COLOUR

99 Red

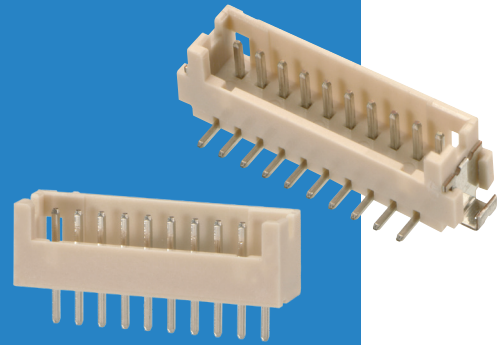
SINGLE ENDED	FEMALE - FEMALE	
900	904	26 AWG cable, 150mm length
901	905	30 AWG cable, 150mm length
902	906	26 AWG cable, 300mm length
903	907	30 AWG cable, 150mm length

All dimensions in mm.

M30 Connectors

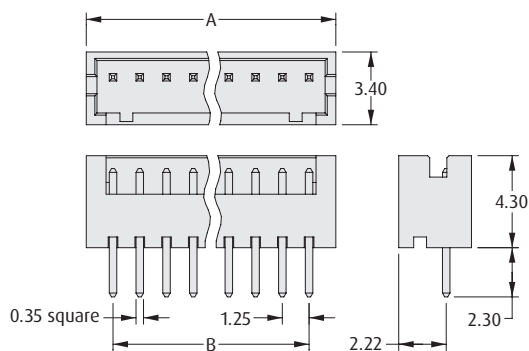
Male Vertical

- ❖ 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.



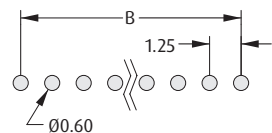
1.25mm (.049") PITCH

PC TAIL



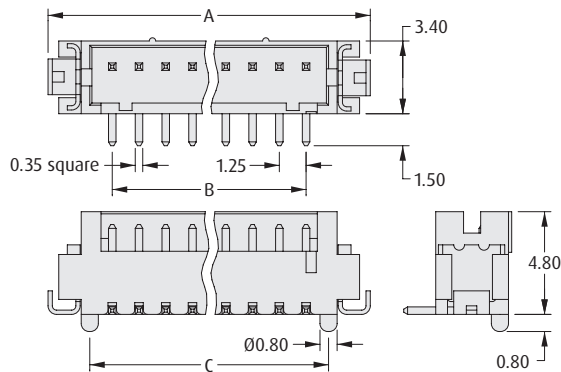
CALCULATION

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



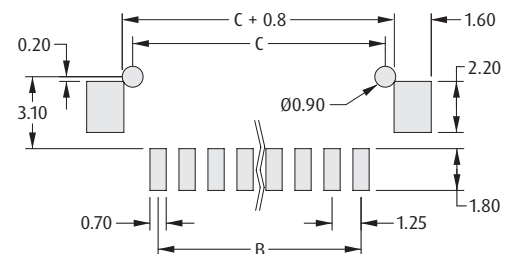
Recommended PC Board Pattern

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

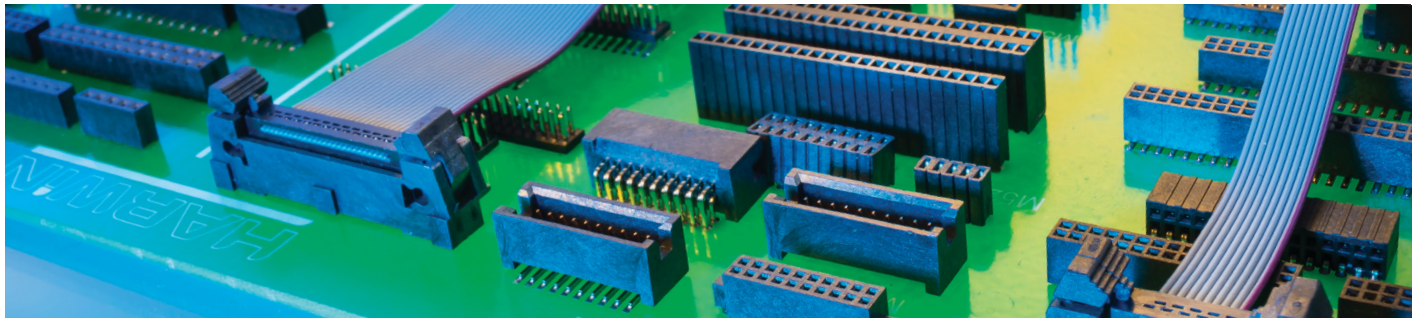
02 to 15

All dimensions in mm.

Archer Connectors

The Archer range from Harwin is a series of 1.27mm (0.05") pitch connectors, offering single and double row options at half the PCB footprint of a 2.54mm (0.1") pitch connector. These Industry Standard connectors are backed by Harwin's outstanding service, quality and distribution network, and are an ideal choice for a miniature alternative to larger pin header and socket connections.

- ❖ M50 – Single and Double row pin headers and sockets, in vertical and horizontal orientations, for board-to-board connections. 1.27mm (0.05") pitch in both directions, with 0.4mm square male pins. Jumper Sockets and Pin Header Variants also available.
- ❖ M50 Polarised – Double row connectors for board-to-board, with added shrouding and a polarisation feature.
- ❖ M50 IDC – Cable connectors for 0.635mm pitch ribbon cable, and associated board connectors with securing latches and polarisation, for cable-to-board connection. Complete cable assemblies also supplied as standard.
- ❖ M52 – Single and Double row pin headers and sockets, in vertical and horizontal orientations, for board-to-board connections. 1.27mm (0.05") pitch along the connector, 2.54mm (0.1") between connector rows using 0.46mm square male pins. Pin Header Variants also available.



Archer Kontrol

1.27mm pitch durable, rugged board-to-board connectors. Available in a choice of orientations and mating heights, these connectors add a tougher option to the Archer family. Due to the fully shrouded design, these connectors are suited for blind-mating applications. They can withstand lateral and twisting forces, and tolerate a significant amount of mis-alignment.

- ❖ Current rating of 1.2A per contact.
- ❖ Vertical and Horizontal options in both male and female connectors – board-to-board connection for parallel/mezzanine, motherboard to daughterboard, or coplanar/edge-to-edge PCB layouts.
- ❖ Variable stacking height options with multiple connector sizes in both genders.
- ❖ Enhanced durability of 500 mating cycles minimum.
- ❖ Additional strain relief with retaining SMT tabs.
- ❖ Supplied in tape and reel, with pick-and-place caps where required, for automated assembly.
- ❖ Increased operating temperature range: -55°C to +125°C.

Archer Kontrol offers the ideal connection system for demanding industrial environments:

- ❖ Drives and controls
- ❖ Dataloggers
- ❖ IOT installations
- ❖ Vehicle control systems
- ❖ Trackside monitoring equipment
- ❖ Large scale factory installations

Archer Kontrol Specification

Materials

Mouldings:	High Temperature Plastic UL94V-0
Contacts:	Phosphor Bronze
Retaining strap:	Brass
Finish:	See individual pages
Contacts:	Gold on contact area, Tin on tails
Retaining strap:	Tin

Electrical

Current:	1.2A max per contact
Voltage proof:	500V AC for 1 minute
Contact resistance:	25mΩ max
Insulation resistance:	10GΩ min

Mechanical

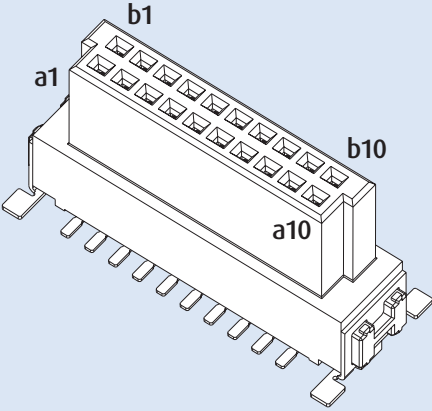
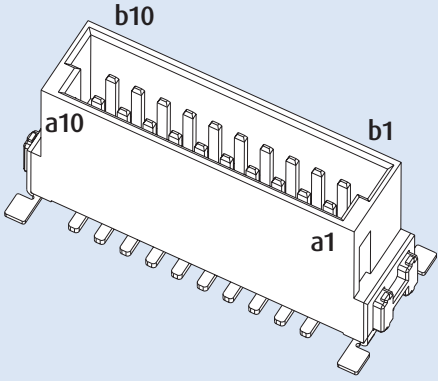
Durability:	500 operations
Insertion force (max):	0.8N per contact
Withdrawal force (min):	0.2N per contact

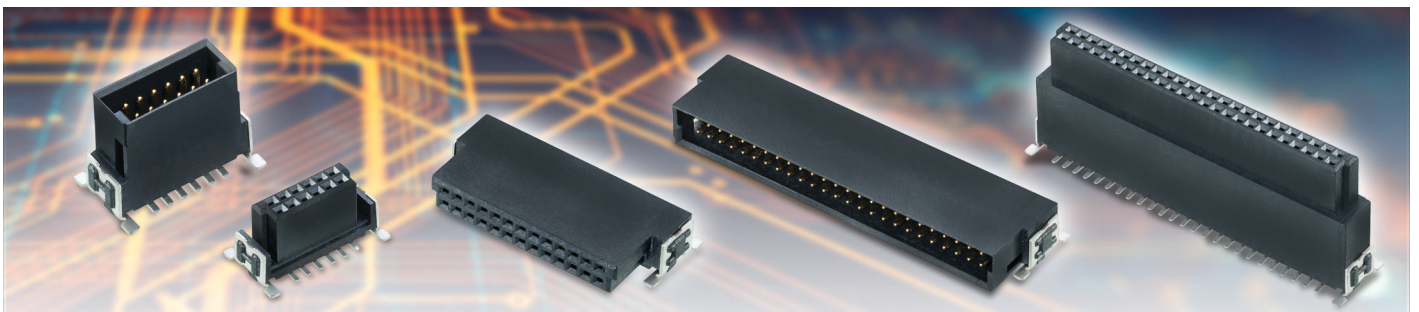
Environmental

Operating temperature:	-55°C to +125°C
Vibration sensitivity:	10Hz to 2000Hz, 1.52mm, 196m/s ² (20G), duration 12h
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

1.27mm (.050") PITCH

Pin Numbering

FEMALE	MALE
	



Archer Kontrol Mating Profiles

❖ Mating heights shown in fully mated condition. Product can be used up to 1.5mm separated and still perform to the same specifications.

1.27mm (.050") PITCH

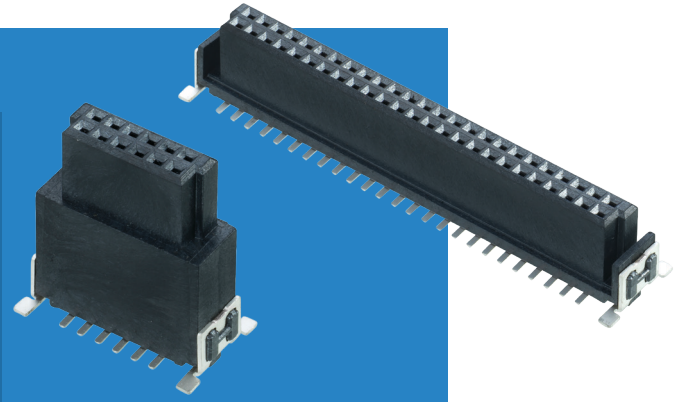
		FEMALE			
		VERTICAL SMT			HORIZONTAL SMT
		6.25mm HEIGHT	9.05mm HEIGHT	13.65mm HEIGHT	
MALE	VERTICAL SMT				
	8.25mm HEIGHT				
	9.85mm HEIGHT				
	HORIZONTAL SMT				

All dimensions in mm.

Archer Kontrol Connectors

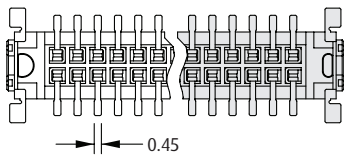
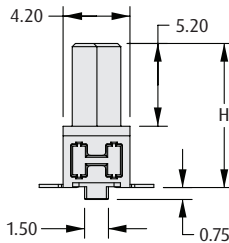
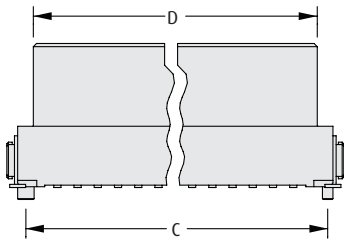
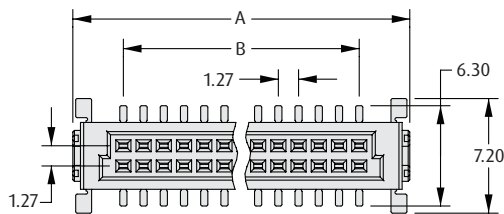
Female Vertical Surface Mount

- ❖ Suitable for parallel board-to-board (mezzanine stacking) or motherboard-to-daughterboard configurations.
- ❖ Choice of three height options.
- ❖ Polarised and shrouded housing design.
- ❖ Location pegs and tape & reel packaging for automated assembly processes.



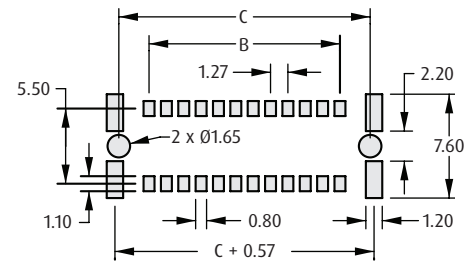
1.27mm (.050") PITCH

VERTICAL



CALCULATION

A	$B + 6.35$
B	$0.635 \times (\text{Total No. of contacts} - 2)$
C	$B + 4.42$
D	$B + 3.02$



Recommended PC Board Pattern

HOW TO ORDER

M55 - 60 X XX 42 R

SERIES CODE

CONNECTOR HEIGHT

0	H = 6.25mm
1	H = 9.05mm
2	H = 13.65mm

PACKAGING

R	Tape & Reeled
----------	---------------

FINISH

42	Gold + Tin
-----------	------------

TOTAL NO. OF CONTACTS

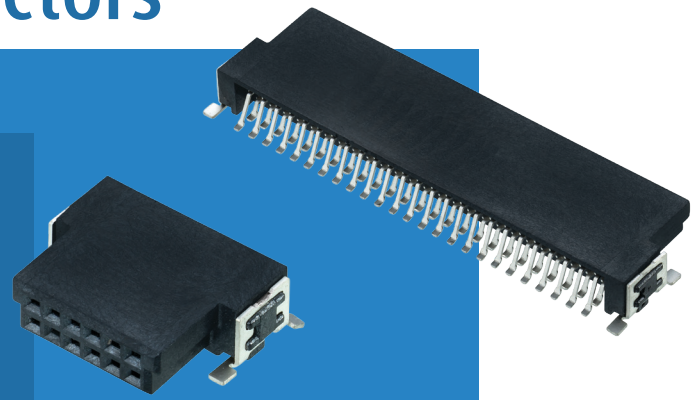
12, 16, 20, 26, 32, 40, 50, 68, 80

All dimensions in mm.

Archer Kontrol Connectors

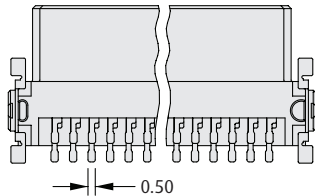
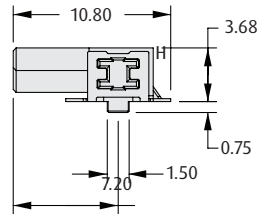
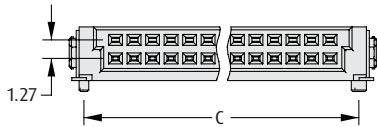
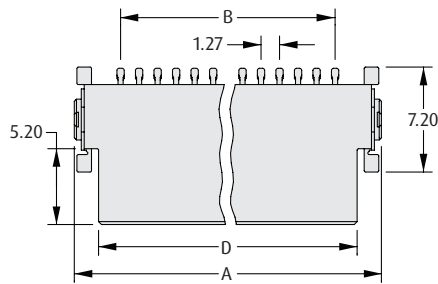
Female Horizontal Surface Mount

- ❖ Suitable for coplanar (edge-to-edge) or motherboard-to-daughterboard configurations.
- ❖ Hold-down SMT retaining straps for additional retention to the board.
- ❖ Polarised and shrouded housing design.
- ❖ Location pegs and tape & reel packaging for automated assembly processes.



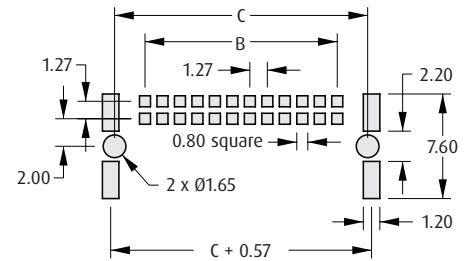
1.27mm (.050") PITCH

HORIZONTAL



CALCULATION

A	$B + 6.35$
B	$0.635 \times (\text{Total No. of contacts} - 2)$
C	$B + 4.42$
D	$B + 3.02$



Recommended PC Board Pattern

HOW TO ORDER

M55 - 610 XX 42 R

SERIES CODE

PACKAGING

R Tape & Reeled

FINISH

42 Gold + Tin

TOTAL NO. OF CONTACTS

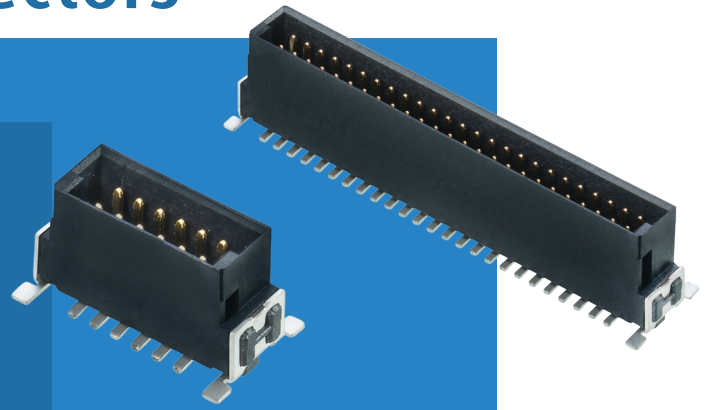
12, 16, 20, 26, 32, 40, 50, 68, 80

All dimensions in mm.

Archer Kontrol Connectors

Male Vertical Surface Mount

- ❖ Suitable for parallel board-to-board (mezzanine stacking) or motherboard-to-daughterboard configurations.
- ❖ Choice of three height options.
- ❖ Polarised and shrouded housing design.
- ❖ Location pegs and tape & reel packaging for automated assembly processes.

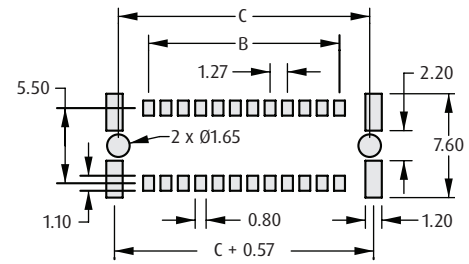
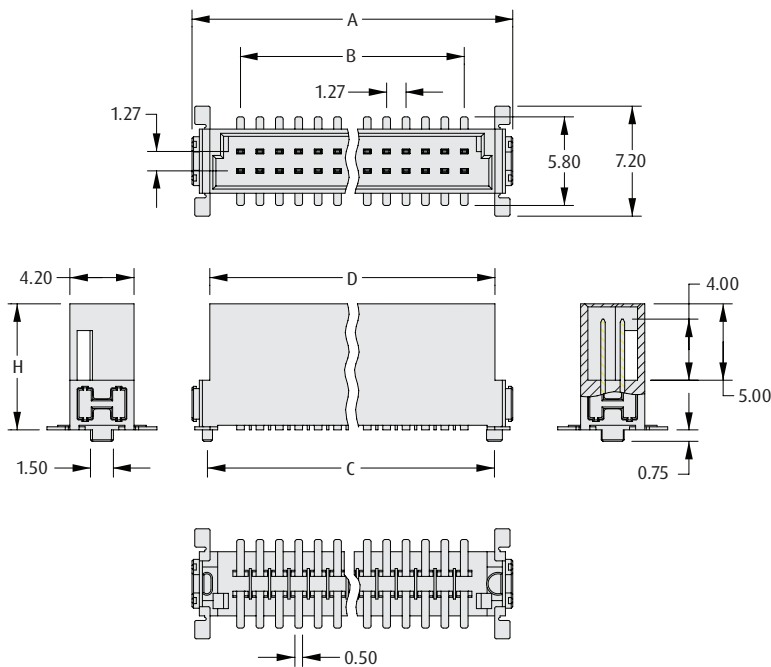


1.27mm (.050") PITCH

VERTICAL

CALCULATION

A	$B + 6.35$
B	$0.635 \times (\text{Total No. of contacts} - 2)$
C	$B + 4.42$
D	$B + 4.02$



Recommended PC Board Pattern

HOW TO ORDER

M55 - 70 X XX 42 R

SERIES CODE

CONNECTOR HEIGHT

0	H = 6.75mm
1	H = 8.25mm
2	H = 9.85mm

PACKAGING

R Tape & Reeled

FINISH

42 Gold + Tin

TOTAL NO. OF CONTACTS

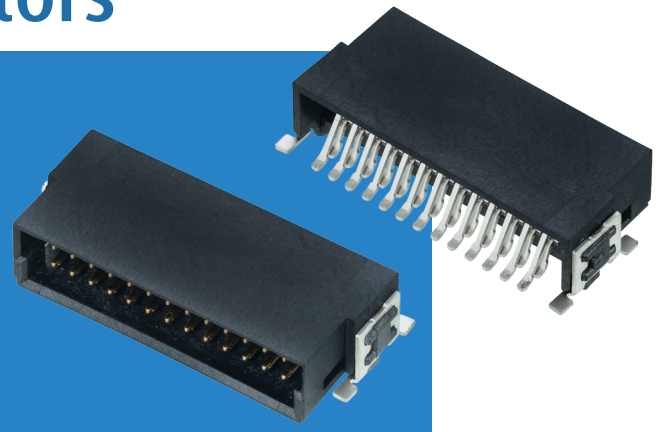
12, 16, 20, 26, 32, 40, 50, 68, 80

All dimensions in mm.

Archer Kontrol Connectors

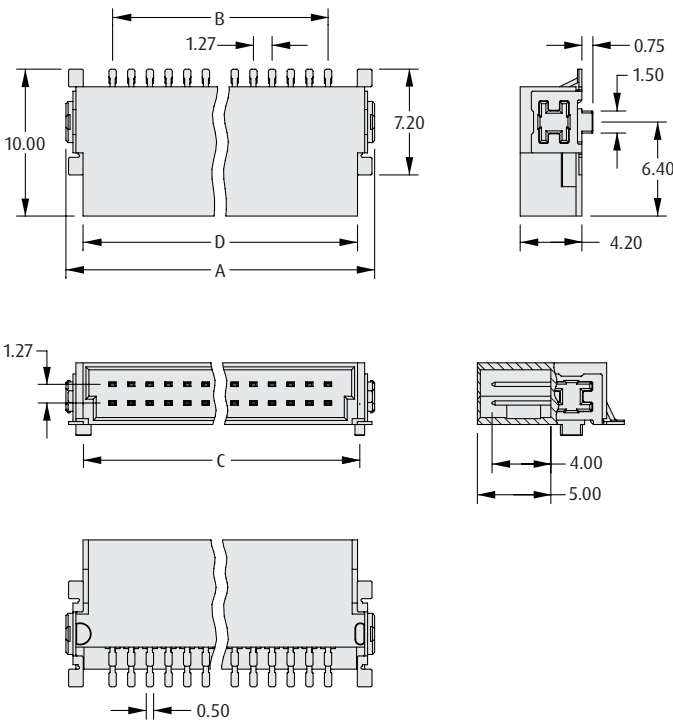
Male Horizontal Surface Mount

- ❖ Suitable for coplanar (edge-to-edge) or motherboard-to-daughterboard configurations.
- ❖ Hold-down SMT retaining straps for additional retention to the board.
- ❖ Polarised and shrouded housing design.
- ❖ Location pegs and tape & reel packaging for automated assembly processes.



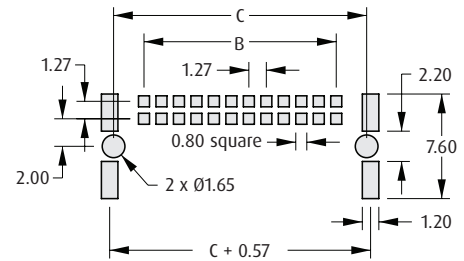
1.27mm (.050") PITCH

HORIZONTAL



CALCULATION

A	$B + 6.35$
B	$0.635 \times (\text{Total No. of contacts} - 2)$
C	$B + 4.42$
D	$B + 4.02$



Recommended PC Board Pattern

HOW TO ORDER

M55 - 710 XX 42 R

SERIES CODE

PACKAGING

R Tape & Reeled

FINISH

42 Gold + Tin

TOTAL NO. OF CONTACTS

12, 16, 20, 26, 32, 40, 50, 68, 80

All dimensions in mm.

Archer Connectors - M50 Specification

❖ 1.27mm pitch male pin headers (with 0.4mm square pins) and female sockets, for board-to-board connection.

❖ Materials

Mouldings:	High Temperature Plastic UL94V-0
Contacts:	Copper Alloy
Finish:	See individual pages

❖ Electrical

Current:	1A per contact
Voltage proof:	300V AC, 500V DC for 1 minute (see individual drawings)
Contact resistance:	30mΩ max
Insulation resistance:	500MΩ min

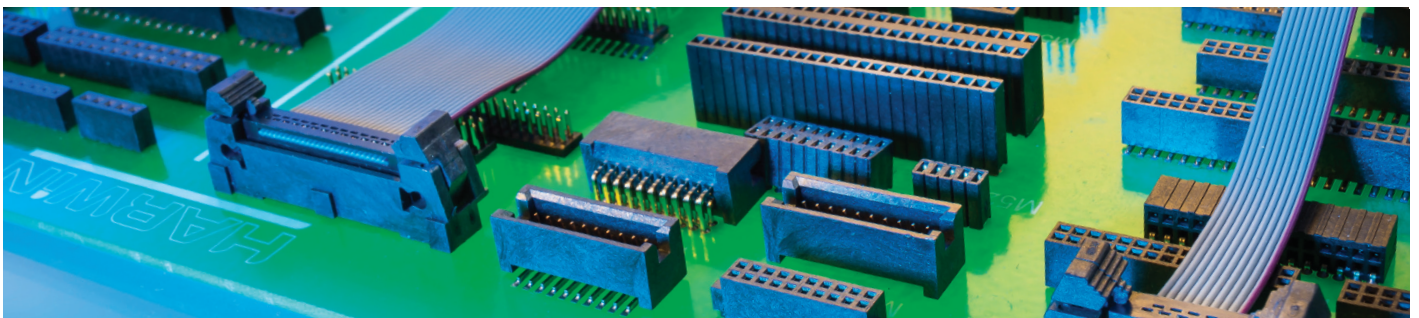
❖ Mechanical

Durability	
M50-310, 312, 491:	100 operations
M50-311:	600 operations
M50-315:	25 operations
M50-353, 363, 393:	500 operations
Others:	300 operations
Insertion force (max)	
M50-303, 313, 314:	1.17N per contact
Jumper sockets:	10.0N
Others:	2.0N per contact
Withdrawal force (min)	
Jumper sockets:	1.3N
Others:	0.1N per contact
Vibration sensitivity:	10 - 55Hz, 1.5mm, 6 hours duration
Shock severity:	294m/s ² (30G) for 11ms

❖ Environmental

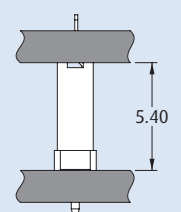
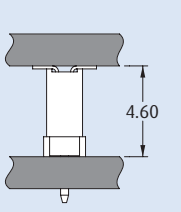
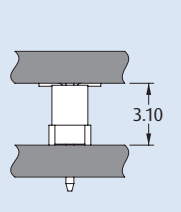
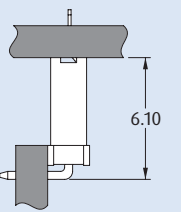
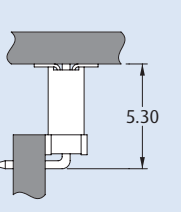
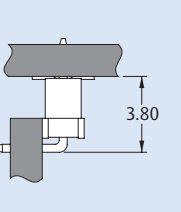
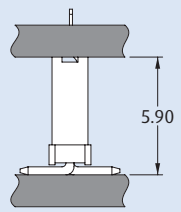
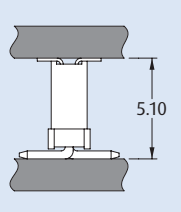
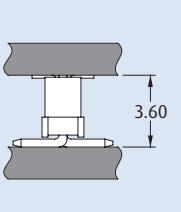
Operating temperature:	-40°C to +105°C
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 5 seconds

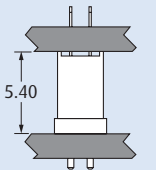
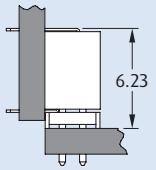
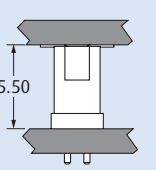
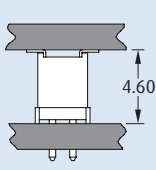
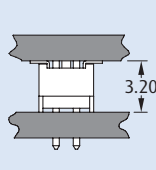
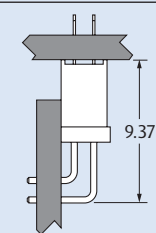
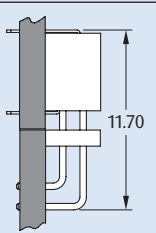
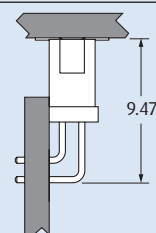
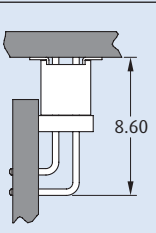
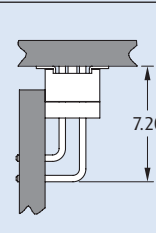
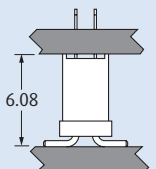
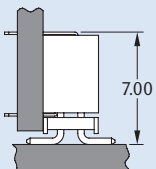
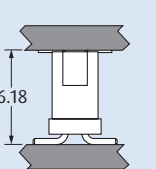
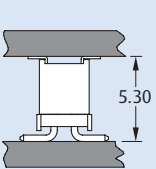
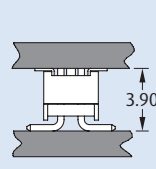
1.27mm (.050") PITCH



Archer Connectors - M50 Mating Profiles

1.27mm (.050") PITCH

SINGLE ROW		FEMALE		
		VERTICAL PC TAIL	VERTICAL SMT	VERTICAL SMT Low Profile
MALE	VERTICAL PC TAIL	 5.40	 4.60	 3.10
	HORIZONTAL PC TAIL	 6.10	 5.30	 3.80
	VERTICAL SMT	 5.90	 5.10	 3.60

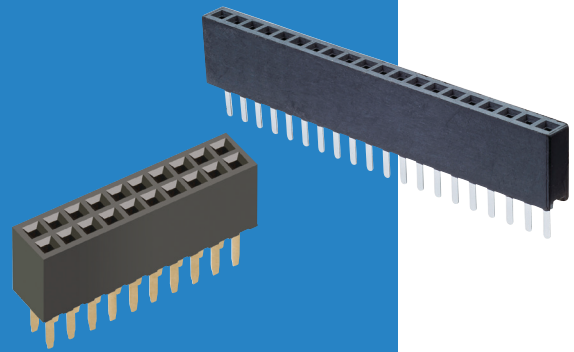
DOUBLE ROW		FEMALE				
		VERTICAL PC TAIL	HORIZONTAL PC TAIL	VERTICAL SMT	VERTICAL SMT Low Profile	
MALE	VERTICAL PC TAIL	 5.40	 6.23	 5.50	 4.60	 3.20
	HORIZONTAL PC TAIL	 9.37	 11.70	 9.47	 8.60	 7.20
	VERTICAL SMT	 6.08	 7.00	 6.18	 5.30	 3.90

All dimensions in mm.

Archer Connectors – M50

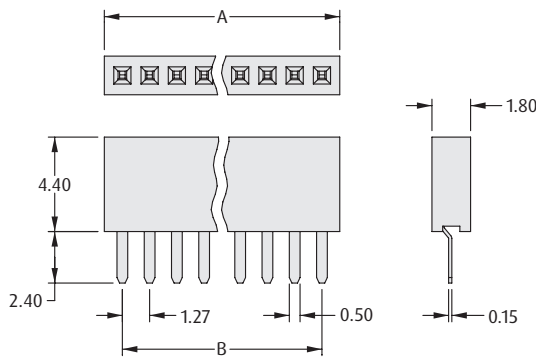
Female PC Tail Vertical

▸ Twin beam connector for higher durability.



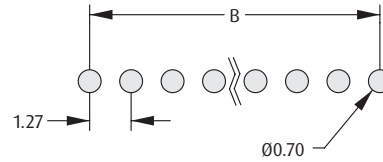
1.27mm (.050") PITCH

SINGLE ROW



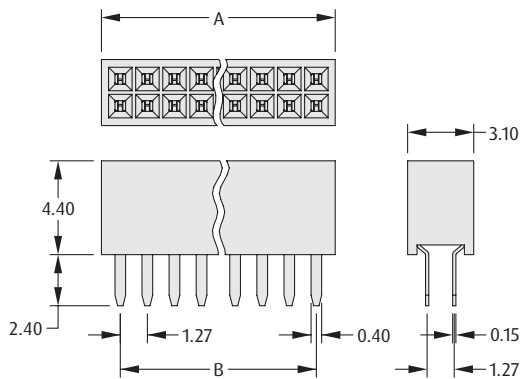
CALCULATION

A	$B + 1.67$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



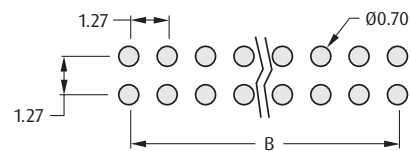
Recommended PC Board Pattern

DOUBLE ROW



CALCULATION

A	$B + 1.77$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



Recommended PC Board Pattern

HOW TO ORDER

M50 - 3 0 X XX XX

SERIES CODE

TYPE

0	Double Row
3	Single Row

FINISH

42	Gold + Tin (Single Row)
45	Gold (Double Row)

NO. OF CONTACTS PER ROW

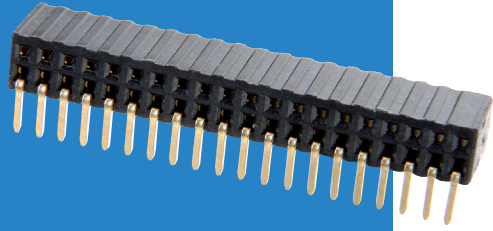
02 to 06, 08, 10, 20	Single Row
03 to 15, 20, 25, 50	Double Row

All dimensions in mm.

Archer Connectors – M50

Female PC Tail Horizontal

- Horizontal connector has two point solder fixing for connector rigidity.
- Twin beam connector for higher durability.

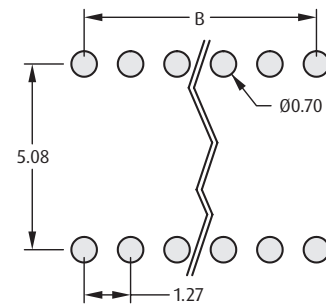
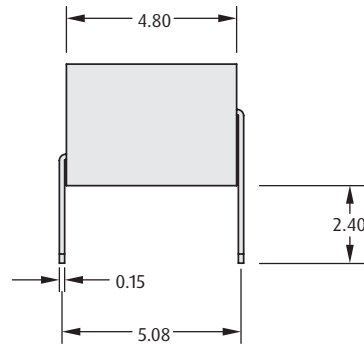
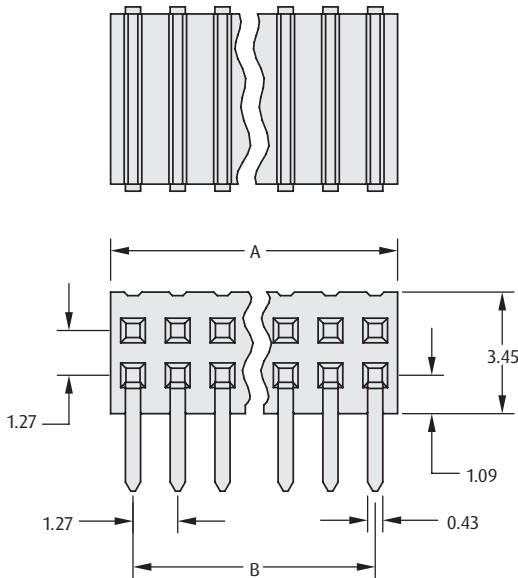


1.27mm (.050") PITCH

HORIZONTAL

CALCULATION

A	$B + 1.77$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



Recommended PC Board Pattern

HOW TO ORDER

M50 - 320 XX 45

SERIES CODE

FINISH

45 Gold

NO. OF CONTACTS PER ROW

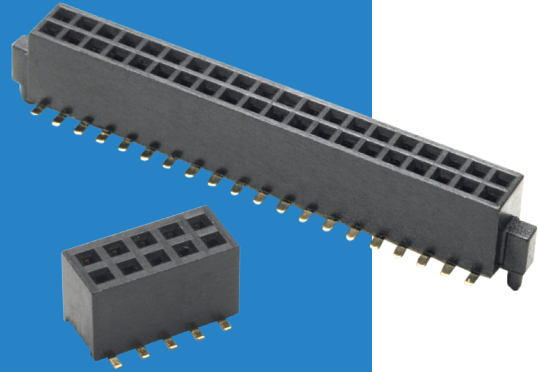
03 to 15, 20, 25

All dimensions in mm.

Archer Connectors – M50

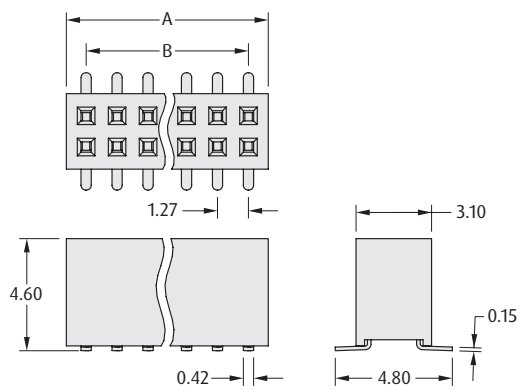
Female Vertical Surface Mount

- ❖ Locating pegs (posts) available to ensure correct positioning on the board.
- ❖ Alternative height connectors available on the following page.
- ❖ Contact technical@harwin.com for Tape and Reel options.
- ❖ Dual entry connector can be used as either top or bottom entry.



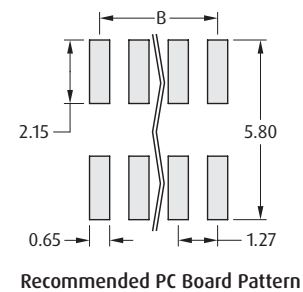
1.27mm (.050") PITCH

WITHOUT POST

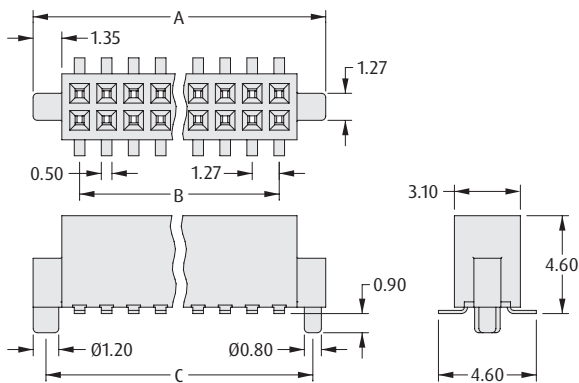


CALCULATION

A	$B + 1.62$
B	$1.27 \times (\text{No. of contacts per row} - 1)$

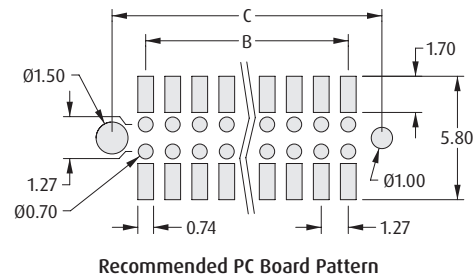


WITH POST, DUAL ENTRY



CALCULATION

A	$B + 4.37$
B	$1.27 \times (\text{No. of contacts per row} - 1)$
C	$B + 3.16$



HOW TO ORDER

M50 - 31 X XX XX

SERIES CODE

TYPE

0	Without Posts
1	With Posts

FINISH

42	Gold + Tin (With Posts)
45	Gold (Without Posts)

NO. OF CONTACTS PER ROW

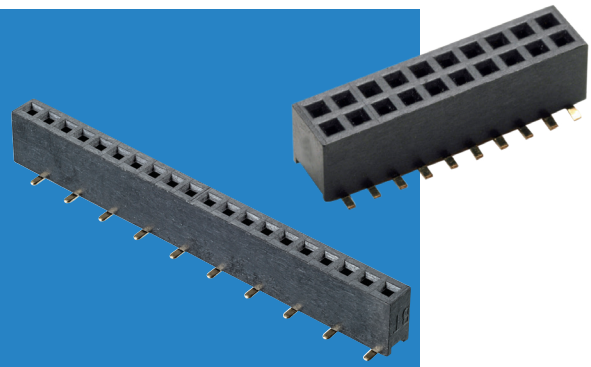
03 to 15, 20, 25, 50	Without Posts
03 to 15, 20, 25, 30	With Posts

All dimensions in mm.

Archer Connectors – M50

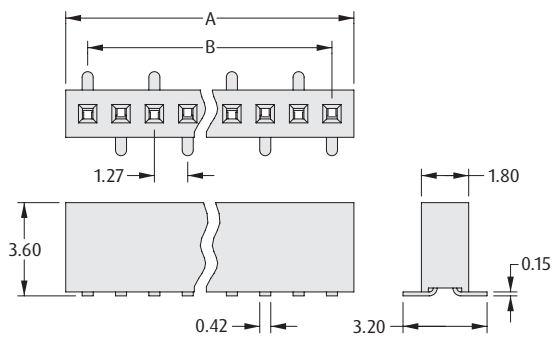
Female Vertical Surface Mount, Low Profile

- Lower profile surface mount connector with twin beam contacts for additional board-to-board height options.
- Contact technical@harwin.com for Tape and Reel options.



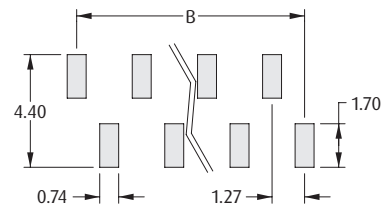
1.27mm (.050") PITCH

SINGLE ROW



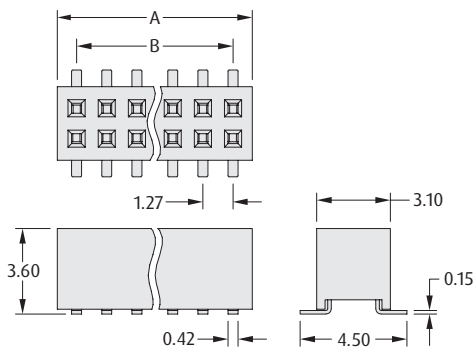
CALCULATION

A	$B + 1.67$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



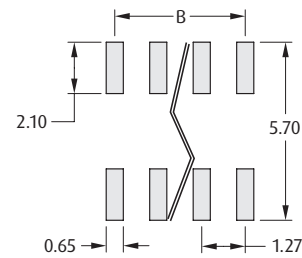
Recommended PC Board Pattern

DOUBLE ROW



CALCULATION

A	$B + 1.73$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



Recommended PC Board Pattern

HOW TO ORDER

M50 - 31 X XX XX X

SERIES CODE

TYPE

2	Double Row
4	Single Row

PACKAGING

R	Tape & Reeled (Single Row)
Blank	Loose

FINISH

45	Gold
-----------	------

NO. OF CONTACTS PER ROW

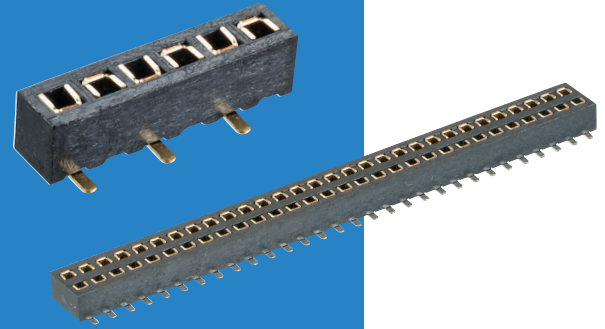
03 to 15, 20, 25, 30, 50	Double Row
02 to 06, 08, 10, 20	Single Row

All dimensions in mm.

Archer Connectors – M50

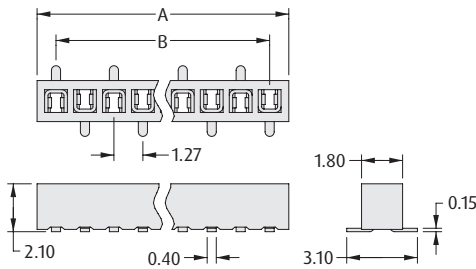
Female Vertical Surface Mount, Low Profile

- Locating pegs (posts) available on double row to ensure correct positioning on the board.
- Dual entry connectors can be used as either top or bottom entry.
- Contact technical@harwin.com for Tape and Reel options on double row.



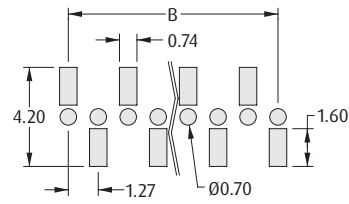
1.27mm (.050") PITCH

SINGLE ROW



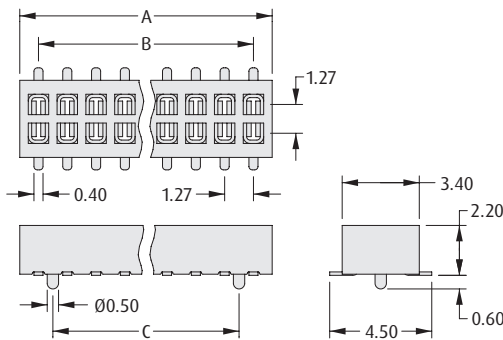
CALCULATION

A	$B + 1.67$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



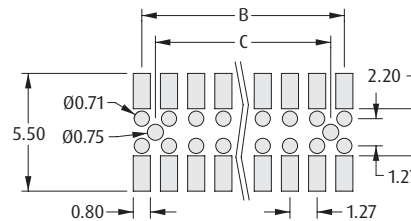
Recommended PC Board Pattern

DOUBLE ROW WITH POSTS



CALCULATION

A	$B + 1.67$
B	$1.27 \times (\text{No. of contacts per row} - 1)$
C	$B + 1.27$



Recommended PC Board Pattern

HOW TO ORDER

M50 - 31 X XX XX X

SERIES CODE

TYPE

3	Single Row (without posts)
5	Double Row with posts

PACKAGING

R	Tape & Reeled (Single Row)
Blank	Loose

FINISH

42	Gold + Tin (Double Row)
45	Gold (Single Row)

NO. OF CONTACTS PER ROW

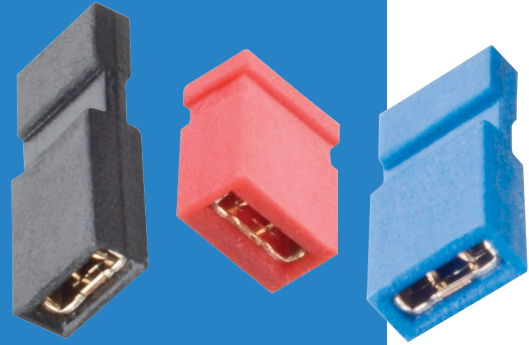
02 to 06, 08, 10, 20	Single Row
03 to 15, 20, 22, 25, 30	Double Row

All dimensions in mm.

Archer Connectors – M50

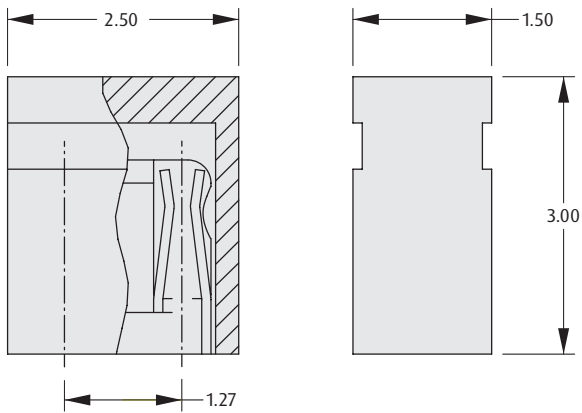
Jumper Sockets

- ❖ Can be fitted and removed by hand, giving an alternative on-board programming method to DIP switches.
- ❖ Suitable for use with male M50 pin headers.
- ❖ Choice of colours available.
- ❖ Closed top with handle available for easier handling, placing and removing.

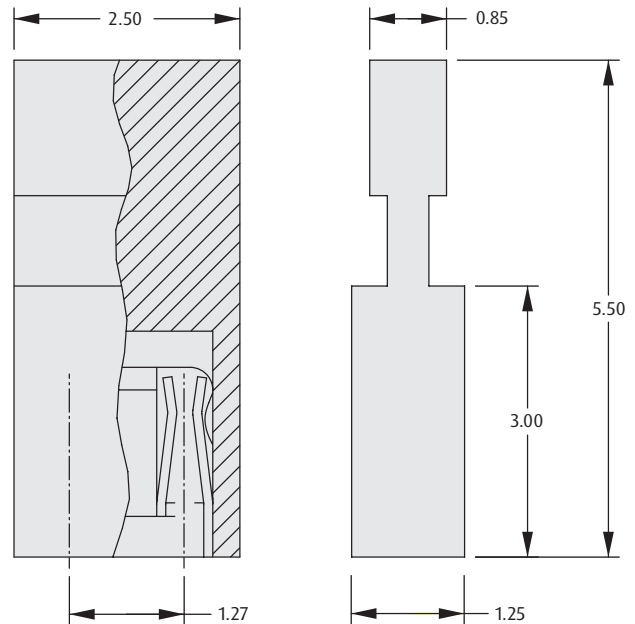


1.27mm (.050") PITCH

CLOSED TOP



CLOSED TOP WITH HANDLE



HOW TO ORDER

M50 XXX 00 05

SERIES CODE

TYPE			
Closed Top		Closed Top with Handle	
190	Black	200	Black
192	Red	202	Red
193	Blue	203	Blue

FINISH

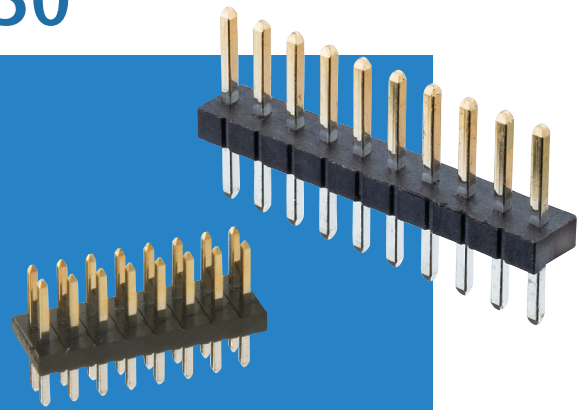
05 Gold

All dimensions in mm.

Archer Connectors – M50

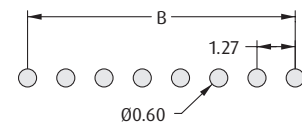
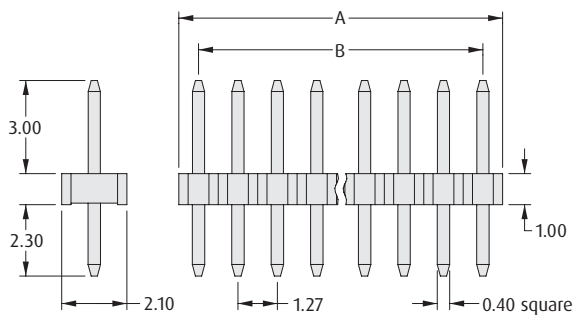
Male PC Tail Vertical

- Suitable for use with female connectors and jumper sockets.
- Also available with variable dimensions.



1.27mm (.050") PITCH

SINGLE ROW

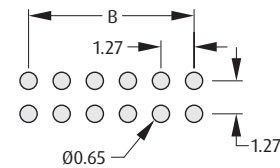
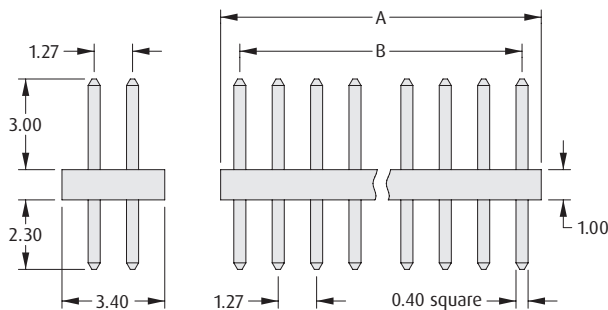


Recommended PC Board Pattern

CALCULATION

A	$1.27 \times \text{No. of contacts per row}$
B	$1.27 \times (\text{No. of contacts per row} - 1)$

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M50 - 35 X XX 42

SERIES CODE

TYPE

0	Double Row
3	Single Row

FINISH

42 Gold + Tin

NO. OF CONTACTS PER ROW

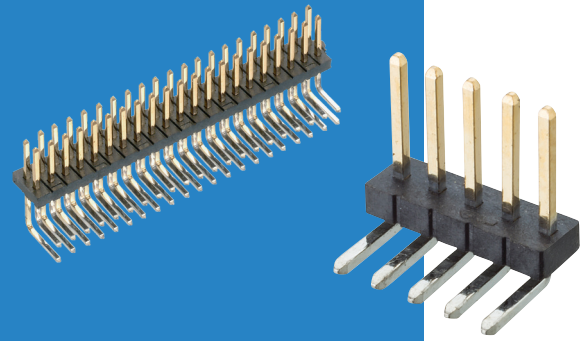
02 to 15, 20, 25, 50	Double Row
02 to 06, 08, 10, 20	Single Row

All dimensions in mm.

Archer Connectors – M50

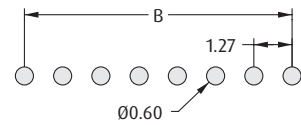
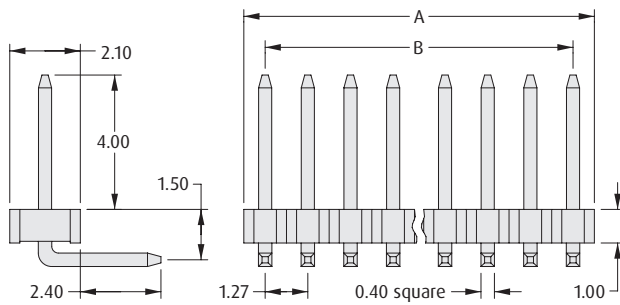
Male PC Tail Horizontal

- Suitable for use with female connectors and jumper sockets.
- Also available with variable dimensions.



1.27mm (.050") PITCH

SINGLE ROW

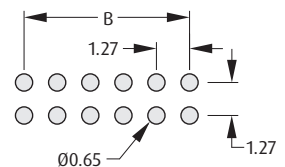
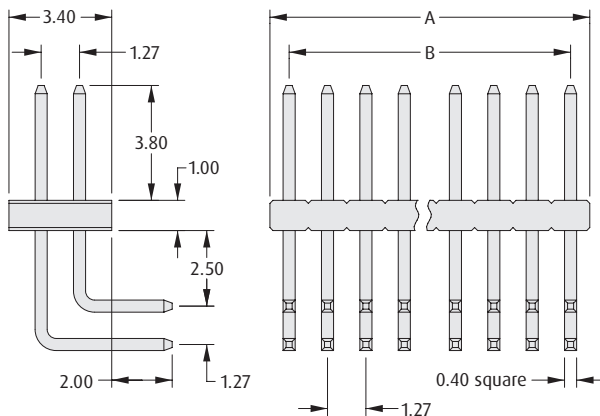


Recommended PC Board Pattern

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M50 - 39 X XX 42

SERIES CODE

TYPE

0	Double Row
3	Single Row

FINISH

42 Gold + Tin

NO. OF CONTACTS PER ROW

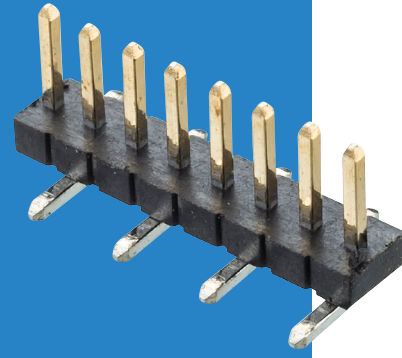
02 to 15, 20, 25	Double Row
02 to 06, 08, 10, 20	Single Row

All dimensions in mm.

Archer Connectors – M50

Male Vertical Surface Mount Single Row

- ❖ Suitable for use with female connectors and jumper sockets.
- ❖ Tape and Reel packaging option includes Pick and Place cap for automated assembly.

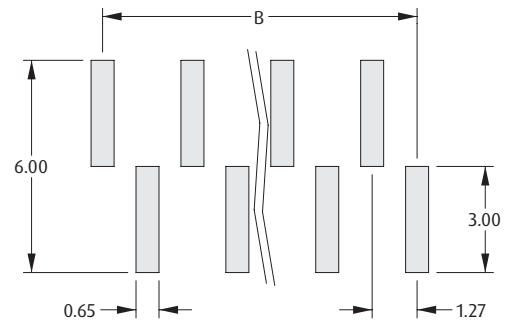
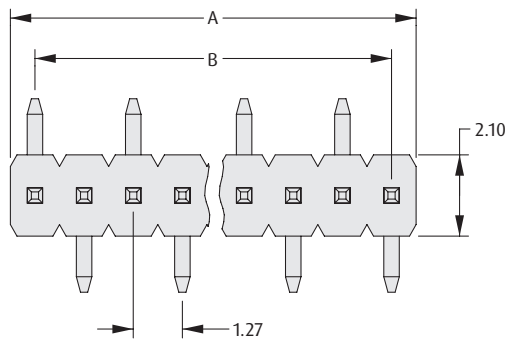


1.27mm (.050") PITCH

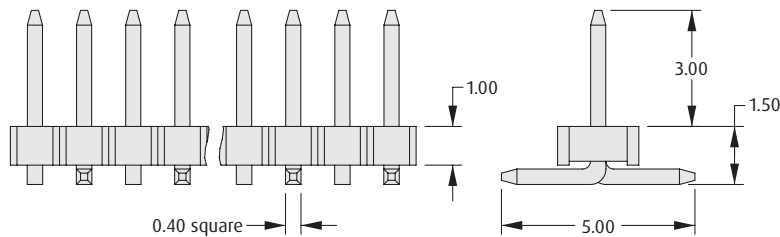
SINGLE ROW

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)



Recommended PC Board Pattern



HOW TO ORDER

M50 - 363 XX 42 X

SERIES CODE

NO. OF CONTACTS PER ROW

02 to 06, 08, 10, 20

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

42	Gold + Tin
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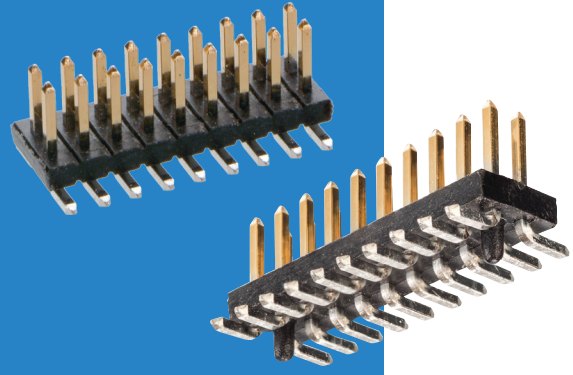
All dimensions in mm.

Archer Connectors – M50

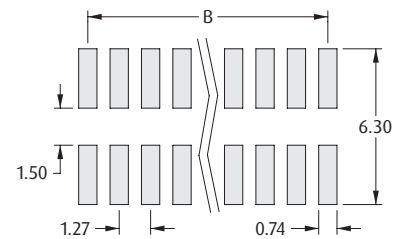
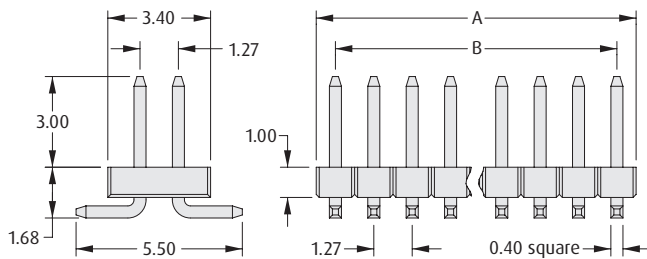
1.27mm (.050") PITCH

Male Vertical Surface Mount Double Row

- ❖ Suitable for use with female connectors and jumper sockets.
- ❖ Also available with variable dimensions.
- ❖ Available with or without location posts.
- ❖ Tape and Reel packaging option includes Pick and Place cap for automated assembly.



WITHOUT POSTS

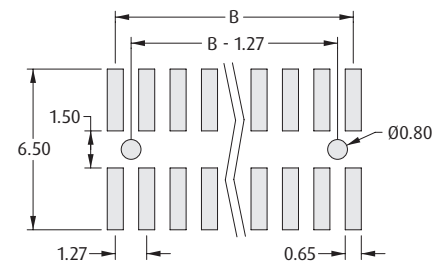
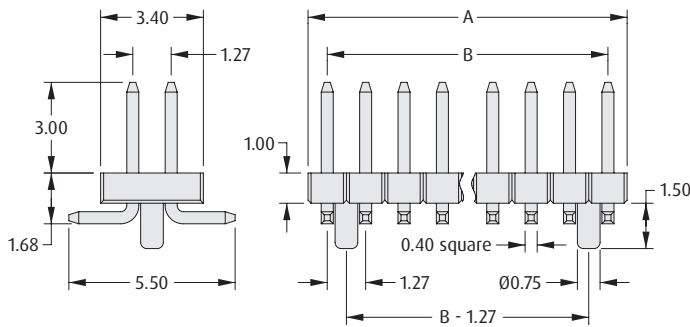


Recommended PC Board Pattern

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)

WITH POSTS



Recommended PC Board Pattern

HOW TO ORDER

M50 - 36 X XX 42 X

SERIES CODE

TYPE

0	Without Posts
1	With Posts

NO. OF CONTACTS PER ROW

02 to 15, 20, 25	Without Posts
05 to 08, 10, 12, 15, 20, 25	With Posts

PACKAGING

Blank	Loose
R	Tape & Reeled (check website for available sizes)

FINISH

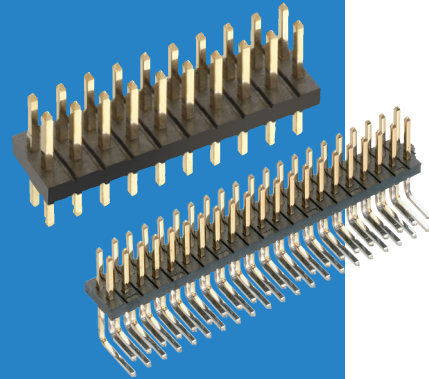
42	Gold + Tin
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All dimensions in mm.

Archer Connectors – M50

Pin Header Variants

- ❖ If you are unable to specify the connector you require from our standard range of Archer M50 connectors, use the order code below to create an application-specific connector.
- ❖ Contact technical@harwin.com for further information, or search online for M50-XXX.
- ❖ Suitable for use with female connectors and jumper sockets.

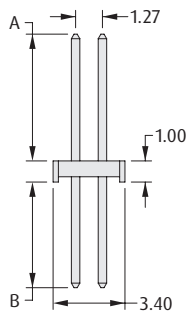


1.27mm (.050") PITCH

TERMINATION STYLES

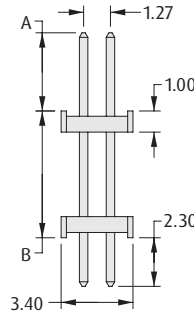
Vertical PC Tail W Series

- ❖ Pin section is 0.40mm square.
- ❖ PCB mounting hole is $\varnothing 0.65\text{mm}$.



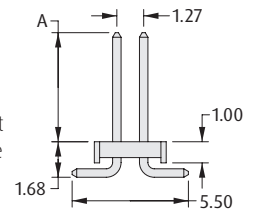
Extended PC Tail F Series

- ❖ Pin section is 0.40mm square.
- ❖ PCB mounting hole is $\varnothing 0.65\text{mm}$.



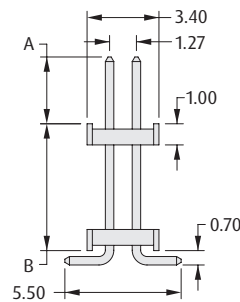
Vertical SMT S Series

- ❖ Pin section is 0.40mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.
- ❖ B dimension is 000.



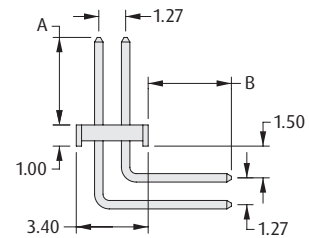
Extended SMT T Series

- ❖ Pin section is 0.40mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.
- ❖ $A+B+0.68$ not to exceed 24.3mm.



Horizontal PC Tail J Series

- ❖ Pin section is 0.40mm square.
- ❖ PCB mounting hole is $\varnothing 0.65\text{mm}$.



HOW TO ORDER

M50 - XXX XXX X XX 45

SERIES CODE

DIMENSION A

Example: 7.8mm = 078

DIMENSION B

Example: 5.0mm = 050

FINISH

45

Gold

NO. OF CONTACTS PER ROW

01 to 50

TYPE

W	Vertical PC Tail
F	Extended PC Tail
S	Vertical SMT
T	Extended SMT
J	Horizontal PC Tail

All dimensions in mm.

Archer Connectors – Polarised Specification

❖ 1.27mm pitch male and female connectors, for board-to-board connection with polarisation.

❖ Materials

Mouldings:	High Temperature Plastic UL94V-0
Contacts:	Copper Alloy
Finish:	Gold

❖ Mechanical

Durability:	100 operations
Insertion force (max):	2.0N per contact
Withdrawal force (min):	0.15N per contact

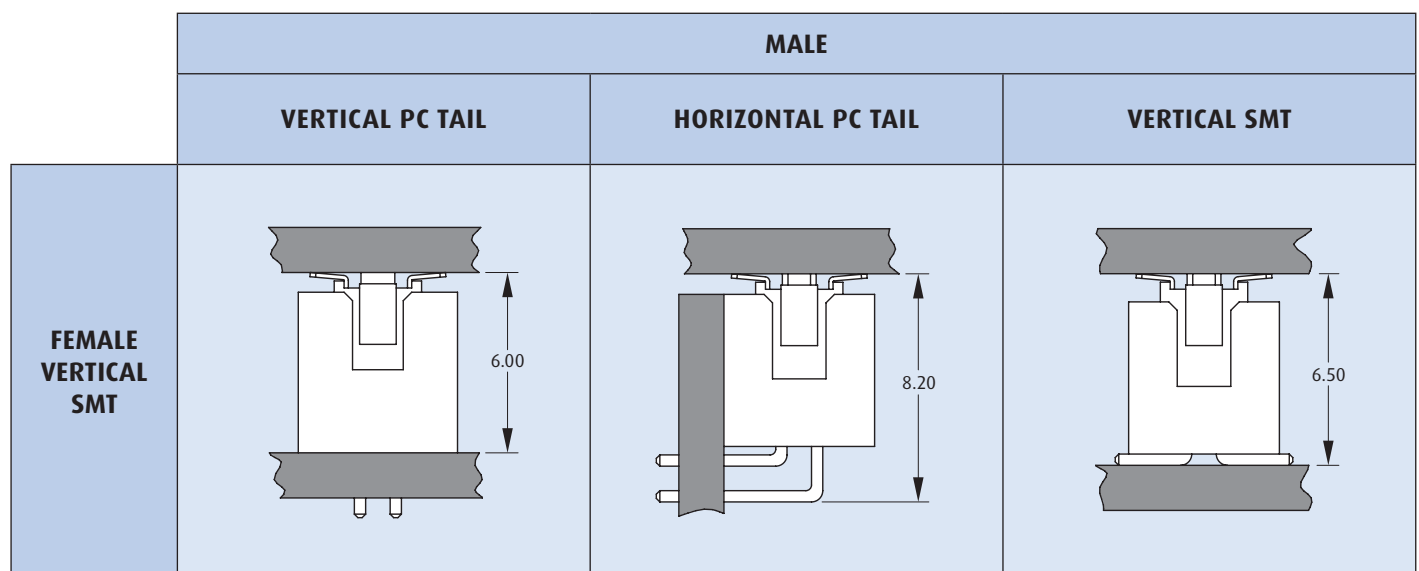
❖ Electrical

Current:	1A per contact
Voltage proof:	300V AC, 500V DC for 1 minute
Contact resistance:	30mΩ max
Insulation resistance:	500MΩ min

❖ Environmental

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

Mating Profiles



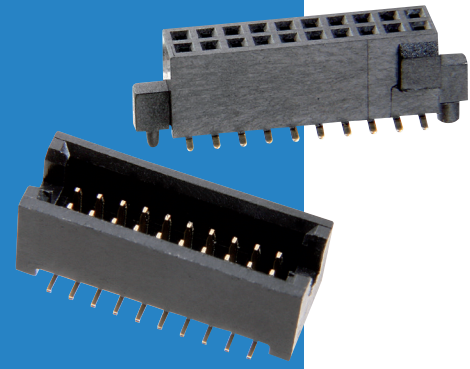
All dimensions in mm.

Archer Connectors – Polarised

1.27mm (.050") PITCH

Vertical Surface Mount

- Mating connectors in Surface Mount format.
- Female connector is also suitable for use with male PC Tail connectors on the following page.
- Polarisation to prevent mis-mating.
- Locating pegs of different sizes ensure correct orientation and positioning on the board.
- Shrouded for additional pin protection.



FEMALE	CALCULATION
	A B + 1.62
	B 1.27 x (No. of contacts per row - 1)
<p style="text-align: center;">Recommended PC Board Pattern</p>	C B + 3.15
	D B + 5.02

MALE	CALCULATION
	A B + 4.47
	B 1.27 x (No. of contacts per row - 1)
<p style="text-align: center;">Recommended PC Board Pattern (Holes for With pegs connector)</p>	C B + 3.15

HOW TO ORDER

M50 - 4XX XX 45 X

SERIES CODE

TYPE	
430	Female
490	Male without pegs
491	Male with pegs

NO. OF CONTACTS PER ROW

03 to 15, 19, 20, 25, 50	Female
05 to 15, 20, 25, 50	Male without pegs
05 to 08, 10, 12, 15, 20, 25	Male with pegs

PACKAGING

Blank	Loose
R	Tape & Reeled (check website for available sizes)

FINISH

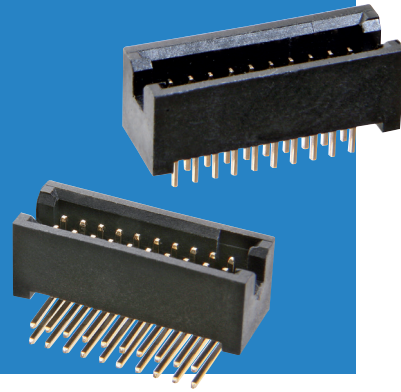
45 Gold

All dimensions in mm.

Archer Connectors – Polarised

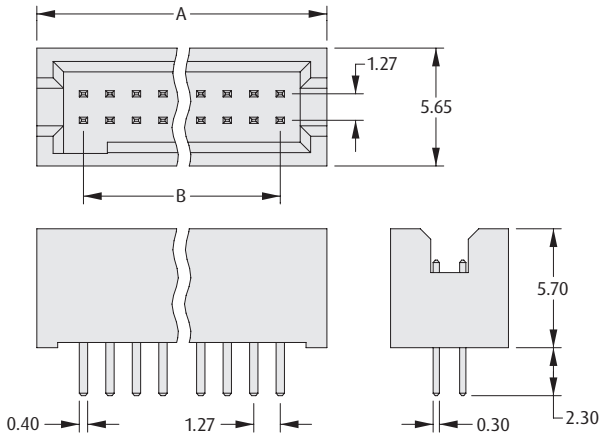
Male PC Tail

- ❖ PC Tail male connectors suitable for use with female connector M50-430 Series, shown on previous page.
- ❖ Polarisation to prevent mis-mating.
- ❖ Shrouded for additional pin protection.

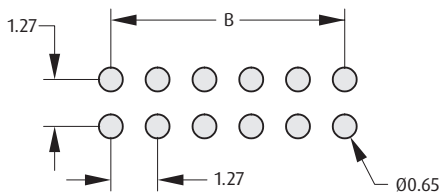
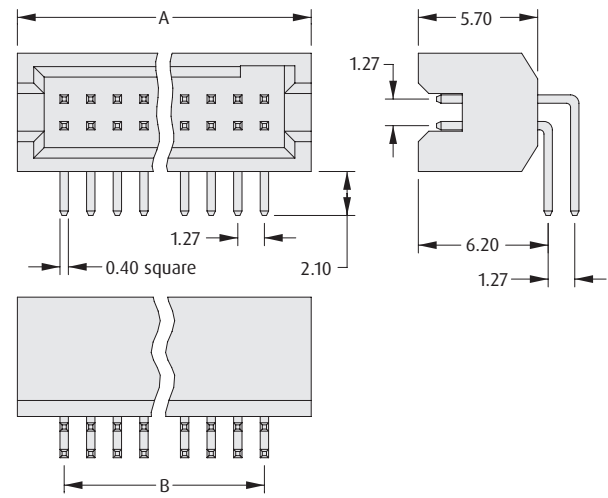


1.27mm (.050") PITCH

VERTICAL



HORIZONTAL



Recommended PC Board Pattern

CALCULATION

A	$B + 4.47$
B	$1.27 \times (\text{No. of contacts per row} - 1)$

HOW TO ORDER

M50 - 4 X 0 XX 45

SERIES CODE

TYPE

7	Vertical
8	Horizontal

FINISH

45 Gold

NO. OF CONTACTS PER ROW

03 to 15, 20, 25

All dimensions in mm.

Archer Connectors – M50 IDC Specification

❖ 1.27mm pitch cable-to-board connectors, with latching and polarisation.

❖ Materials

Mouldings	
PC Tail, SMT:	LCP, UL94V-0
IDC Cable Connectors:	PBT, UL94V-0
Contacts:	Copper Alloy
Finish	
M50-380:	Gold on contact area
Others:	Gold on contact area, Tin on tails

❖ Electrical

Current	
M50-330, 91X:	1A per contact
M50-355, 365:	1.75A per contact
M50-380, 90X:	0.5A per contact
Voltage proof	
M50-90X/91X:	300V DC for 1 minute
Others:	1,000V AC for 1 minute
Contact resistance:	30mΩ max
Insulation resistance	
M50-90X, 91X:	5MΩ min
Others:	1,000MΩ min

❖ Mechanical

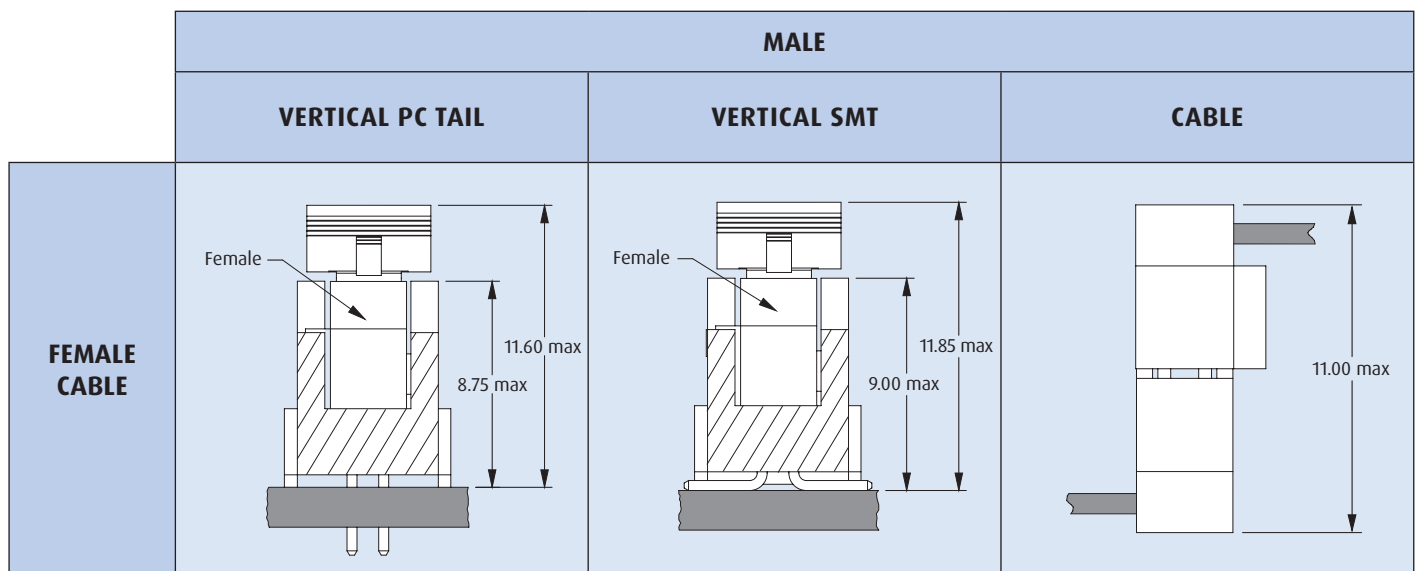
Durability:	100 operations
Insertion force (max):	1.0N per contact
Withdrawal force (min):	0.15N per contact

❖ Environmental

Operating temperature	
PC Tail, SMT:	-55°C to +125°C
IDC Cable Connectors:	-40°C to +105°C
Cable Assembly:	-20°C to +105°C
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

1.27mm (.050") PITCH

Mating Profiles

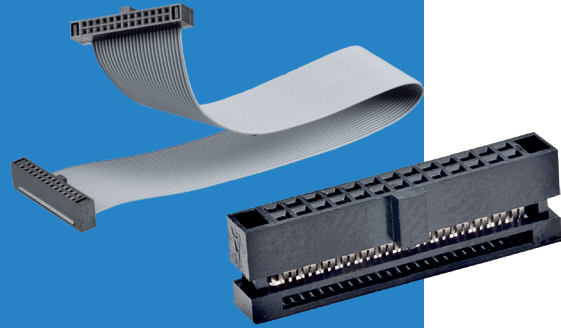


All dimensions in mm.

Archer Connectors – M50 IDC

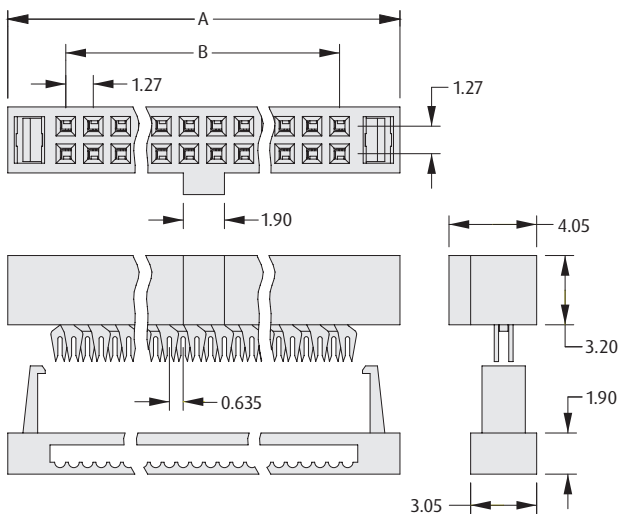
Female Cable Connector & Cable Assembly

- ❖ Suitable for use with male vertical latching connectors shown on the following page.
- ❖ IDC connection for fast termination of multiple contacts.
- ❖ Polarised to prevent mis-mating.
- ❖ Secure cable retention with positive latching to header.
- ❖ Standard cable assembly lengths from stock.
- ❖ Instruction sheet for Hand Tool is available at www.harwin.com/instructions.



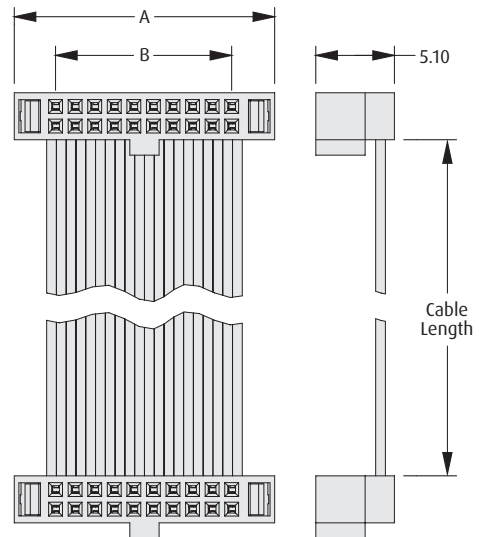
1.27mm (.050") PITCH

FEMALE IDC



FEMALE-TO-FEMALE CABLE

- ❖ Uses 0.635mm pitch 30 AWG Ribbon cable to UL2678.
- ❖ Constructed with Contact 1 attached to Contact 1, Contact 2 to Contact 2, etc.



HAND TOOL



ORDER CODE
Z50-020

CALCULATION

A	$B + 5.47$
B	$1.27 \times (\text{No. of contacts per row} - 1)$

HOW TO ORDER

M50 - XXX XX 42

SERIES CODE

FINISH

42 Gold + Tin

TYPE

330	Female IDC Connector
910	150mm Cable Assembly
911	300mm Cable Assembly

NO. OF CONTACTS PER ROW

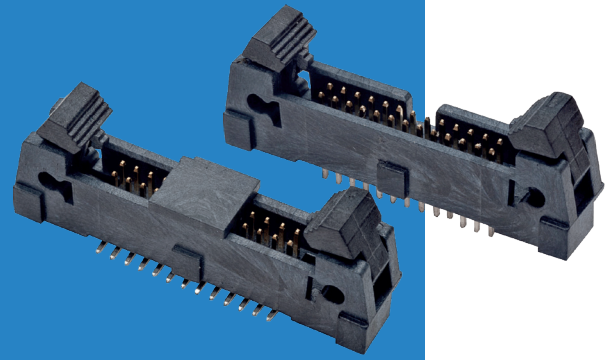
05, 10, 13, 17, 20, 25	All
06, 07, 08	M50-330 only

All dimensions in mm.

Archer Connectors – M50 IDC

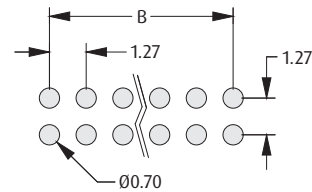
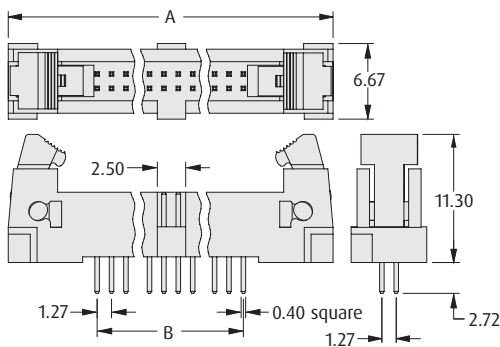
Male Vertical Latching Connectors

- Suitable for use with female cable connectors shown on previous page.
- Surface mount option has locking pegs for location and retention.
- Shrouded for robust pin protection.
- Polarised to prevent mis-mating.
- Secure, positive latch & ejection system.
- Tape and Reel packaging option includes Pick and Place cap for automated assembly.



1.27mm (.050") PITCH

PC TAIL

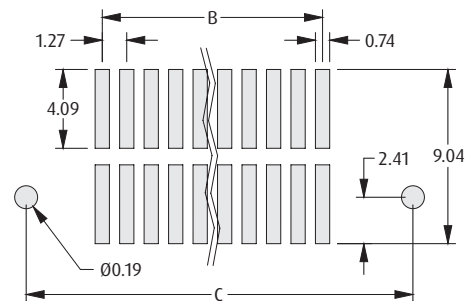
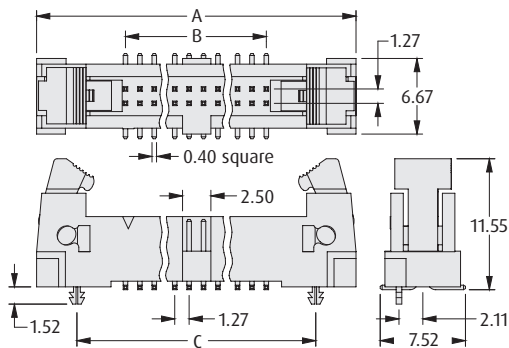


Recommended PC Board Pattern

CALCULATION

A	$B + 15.75$
B	$1.27 \times (\text{No. of contacts per row} - 1)$
C	$B + 8.64$

SURFACE MOUNT



Recommended PC Board Pattern

HOW TO ORDER

M50 - 3 X 5 XX 42 X

SERIES CODE

TYPE

5	PC Tail
6	Surface Mount

NO. OF CONTACTS PER ROW

05, 06, 07, 08, 10, 13, 17, 20, 25

PACKAGING

R	Tape & Reeled (M50-365)
Blank	Loose (M50-355)

FINISH

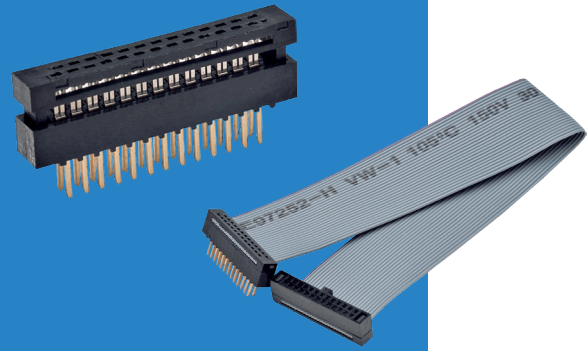
42 Gold + Tin

All dimensions in mm.

Archer Connectors – M50 IDC

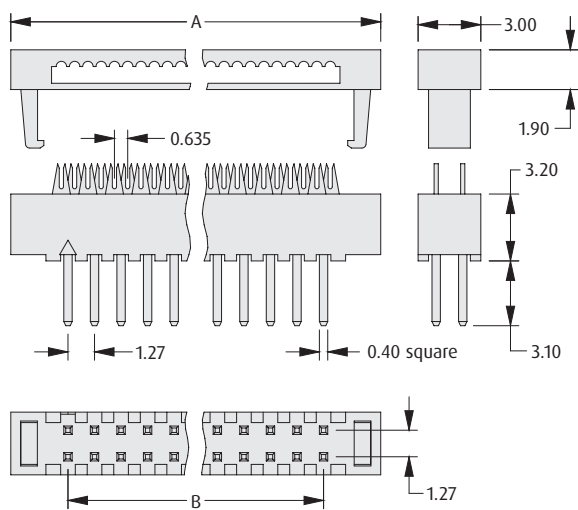
Male Cable Connectors & Cable Assembly

- Male transitional cable connector suitable for soldering directly to PCB, permits cost effective cable to PCB attachment.
- IDC connection for fast termination of multiple contacts.
- Suitable for mating with other sockets from the Archer range.
- Low profile, small footprint.
- Instruction sheet for Hand Tool is available at www.harwin.com/instructions.



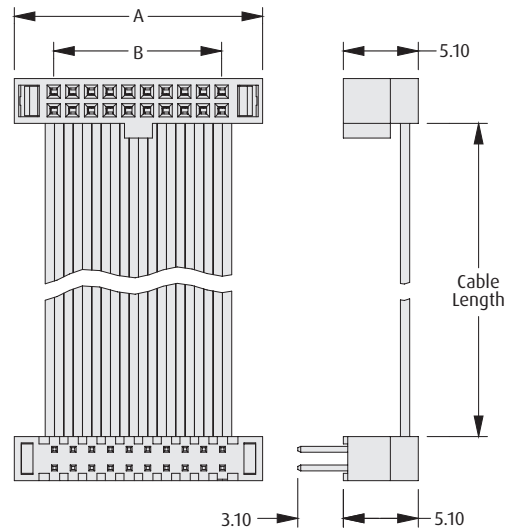
1.27mm (.050") PITCH

MALE IDC



MALE-TO-FEMALE CABLE

- Uses 0.635mm pitch 30 AWG Ribbon cable to UL2678.
- Constructed with Contact 1 attached to Contact 1, Contact 2 to Contact 2, etc.



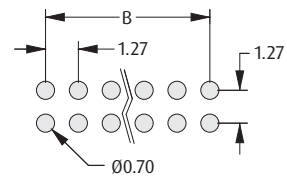
HAND TOOL



ORDER CODE
Z50-030

CALCULATION

A	$B + 5.47$
B	$1.27 \times (\text{No. of contacts per row} - 1)$



Recommended PC Board Pattern

HOW TO ORDER

M50 - XXX XX 42

SERIES CODE

TYPE

380	Male IDC Connector
901	150mm Cable Assembly
902	300mm Cable Assembly

FINISH

42	Gold + Tin
-----------	------------

NO. OF CONTACTS PER ROW

05, 10, 13, 17, 20, 25	All
06, 07, 08	M50-380 only

All dimensions in mm.

Archer Connectors – M52 Specification

➤ 1.27mm x 2.54mm pitch male pin headers (with 0.46mm square pins) and female sockets, for vertical board-to-board connection.

➤ Materials

Mouldings:	High Temperature Plastic UL94V-0
Contacts:	Copper Alloy
Finish:	Gold

➤ Electrical

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

➤ Mechanical

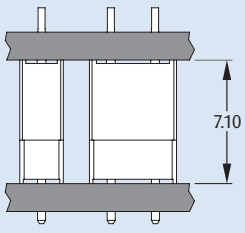
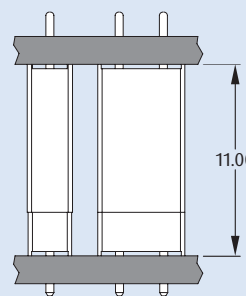
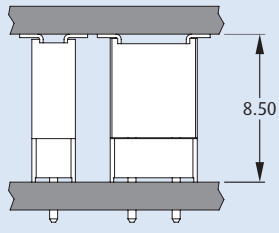
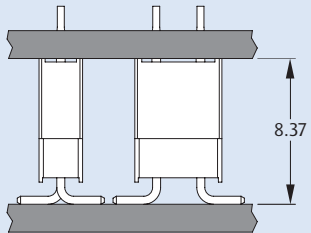
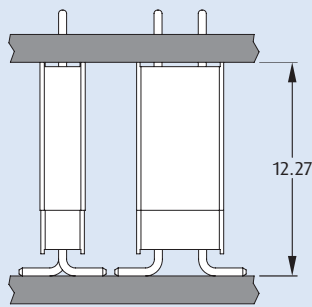
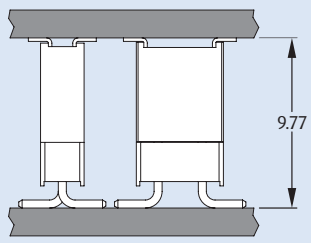
Durability:	300 operations
Insertion force (max)	
M52-500, 510:	1.0N per contact
Others:	1.5N per contact
Withdrawal force (min)	
M52-500, 510:	0.12N per contact
Others:	0.1N per contact
Vibration sensitivity:	50-2,000Hz, 3.13G, 45 minutes duration
Shock severity:	294m/s ² (30G) for 11ms

➤ Environmental

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

1.27mm (.050") PITCH

Mating Profiles

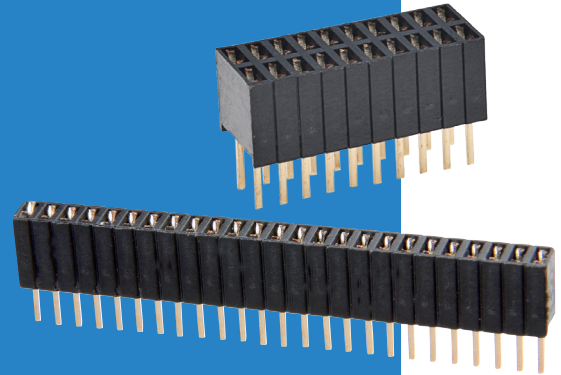
		FEMALE		
		VERTICAL PC TAIL (4.6mm Height)	VERTICAL PC TAIL (8.5mm Height)	VERTICAL SMT
MALE	VERTICAL PC TAIL			
	VERTICAL SMT			

All dimensions in mm.

Archer Connectors – M52

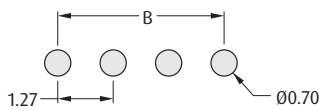
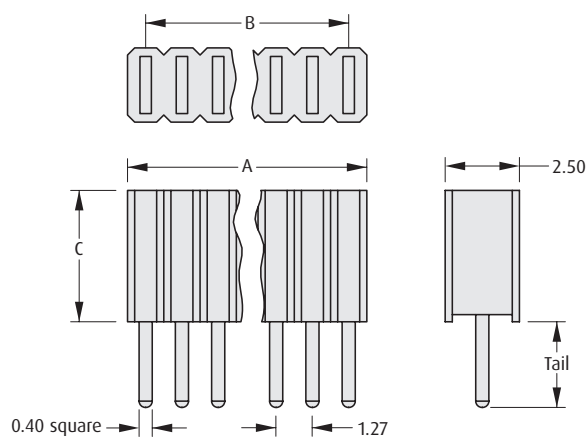
Female Vertical PC Tail

- Choice of connector height.
- Suitable for use with male connectors with 0.46mm square pins.



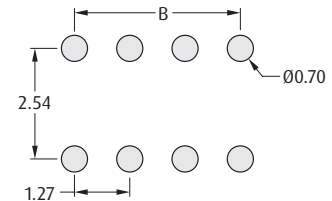
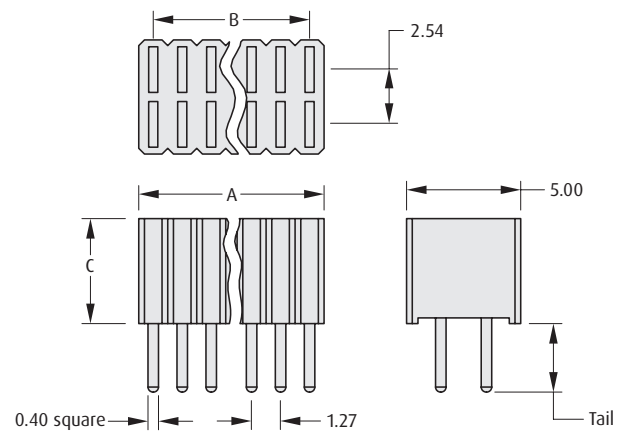
1.27mm (.050") PITCH

SINGLE ROW



Recommended PC Board Pattern

DOUBLE ROW



Recommended PC Board Pattern

CALCULATION

A	B + 1.67 (when C = 4.6mm) B + 1.27 (when C = 8.5mm)
B	1.27 x (No. of contacts per row - 1)

HOW TO ORDER

M52 - 5 X X XX 45

SERIES CODE

NO. OF ROWS

0	Single Row
1	Double Row

HEIGHT

0	C = 4.6mm, Tail = 3.00mm
1	C = 8.5mm, Tail = 2.80mm

FINISH

45 Gold

NO. OF CONTACTS PER ROW

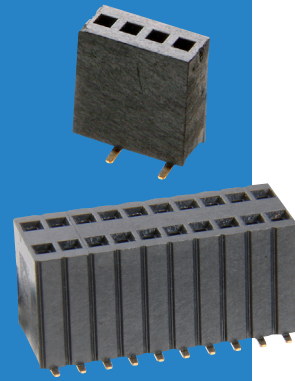
03 to 10, 12, 14 to 16, 20, 25, 40	Single, 4.6mm
03 to 10, 12, 15, 20, 23, 25	Single, 8.5mm
03 to 10, 12, 15, 20, 25, 30, 40	Double 4.6mm
03 to 10, 12, 15, 20, 23, 25	Double, 8.5mm

All dimensions in mm.

Archer Connectors – M52

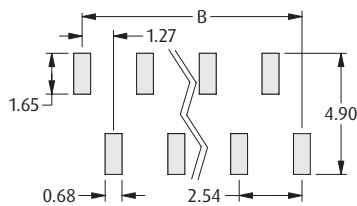
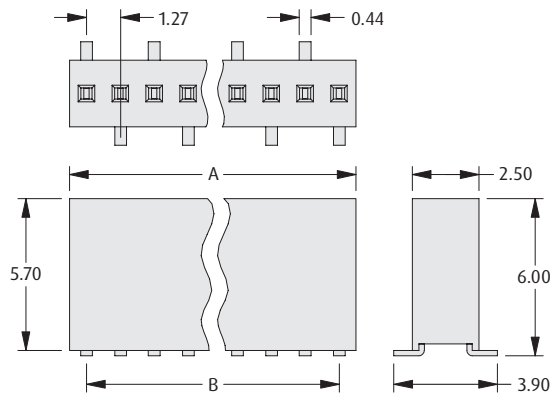
Female Vertical Surface Mount

- Suitable for use with male pin headers with 0.46mm square pins.
- Twin beam contact for cost-effective reliability.
- Contact technical@harwin.com for Tape and Reel options.



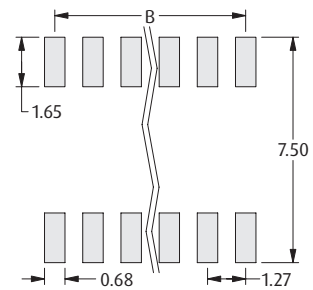
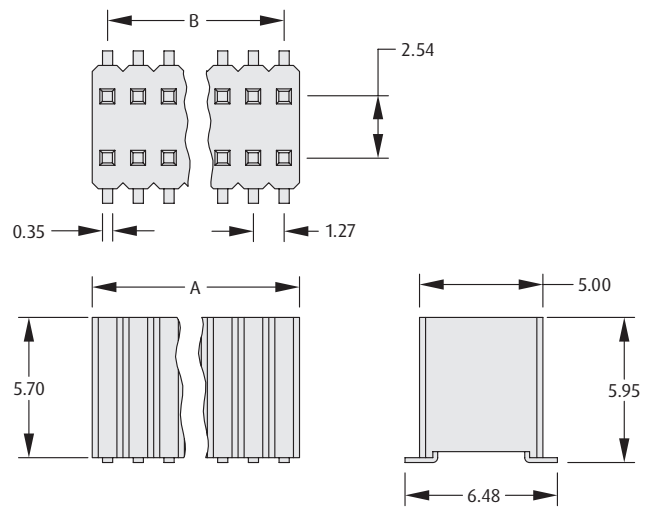
1.27mm (.050") PITCH

SINGLE ROW



Recommended PC Board Pattern

DOUBLE ROW



Recommended PC Board Pattern

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)

HOW TO ORDER

M52 - 5 X 5 XX 45

SERIES CODE

TYPE

0	Single Row
1	Double Row

FINISH

45 Gold

NO. OF CONTACTS PER ROW

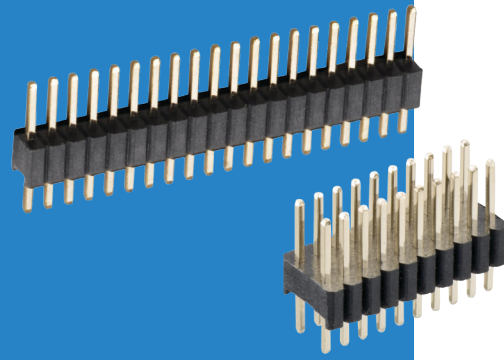
03 to 10, 12, 15, 20, 25

All dimensions in mm.

Archer Connectors – M52

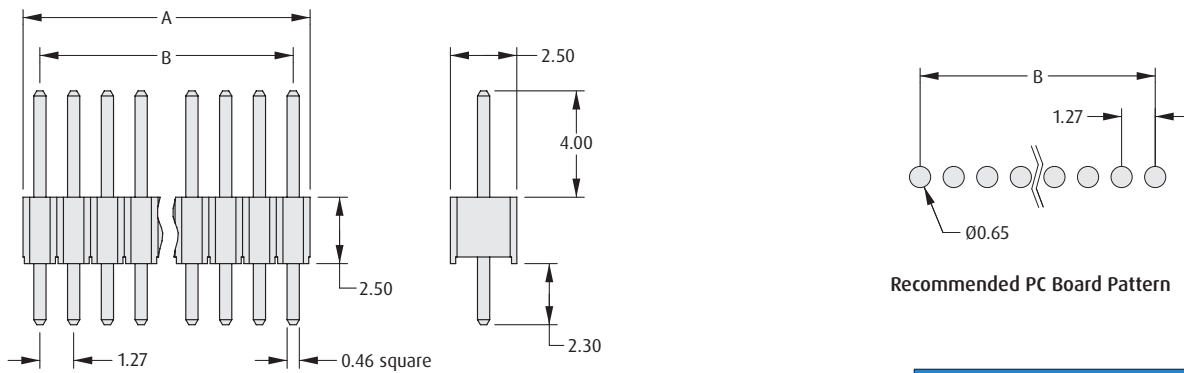
Male Vertical PC Tail

- ❖ Suitable for use with female connectors shown on previous page.
- ❖ For alternative pin lengths, see pin header variants on following pages.



1.27mm (.050") PITCH

SINGLE ROW

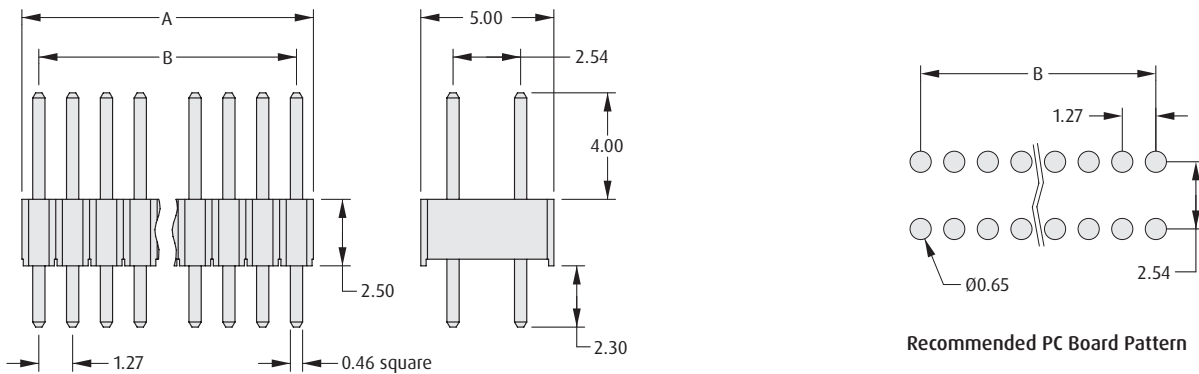


Recommended PC Board Pattern

CALCULATION

A	1.27 x No. of contacts per row
B	1.27 x (No. of contacts per row - 1)

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M52 - 040023 X XX 45

SERIES CODE

TYPE

V	Single Row
W	Double Row

FINISH

45	Gold
-----------	------

NO. OF CONTACTS PER ROW

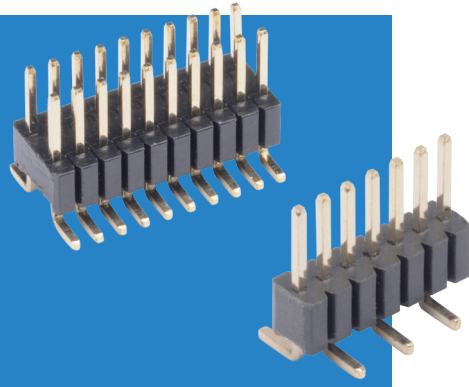
05, 10, 20, 25

All dimensions in mm.

Archer Connectors – M52

Male Vertical Surface Mount

- Suitable for use with female connectors shown on previous page.
- For alternative pin lengths, see pin header variants on following pages.
- Contact technical@harwin.com for Tape and Reel options.



1.27mm (.050") PITCH

SINGLE ROW	DOUBLE ROW						
<p style="text-align: center;">Recommended PC Board Pattern</p>	<p style="text-align: center;">Recommended PC Board Pattern</p>						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #0056b3; color: white;">CALCULATION</th> </tr> </thead> <tbody> <tr> <td style="background-color: #0056b3; color: white;">A</td> <td>1.27 x No. of contacts per row</td> </tr> <tr> <td style="background-color: #0056b3; color: white;">B</td> <td>1.27 x (No. of contacts per row - 1)</td> </tr> </tbody> </table>		CALCULATION		A	1.27 x No. of contacts per row	B	1.27 x (No. of contacts per row - 1)
CALCULATION							
A	1.27 x No. of contacts per row						
B	1.27 x (No. of contacts per row - 1)						

HOW TO ORDER

M52 - 040000 X XX 45

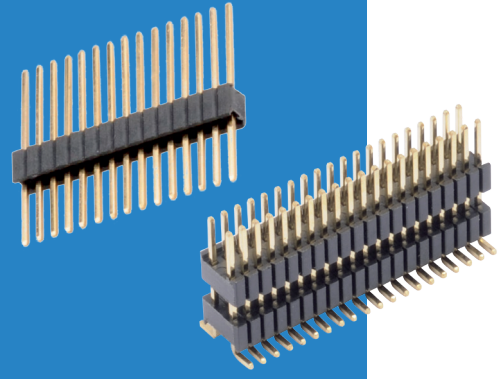
SERIES CODE		FINISH	45 Gold
TYPE		NO. OF CONTACTS PER ROW	05, 10, 20, 25
P Single Row			
S Double Row			

All dimensions in mm.

Archer Connectors – M52

Pin Header Variants

- ❖ If you are unable to specify the connector you require from our standard range of Archer M52 connectors, use the order code below to create an application-specific connector.
- ❖ Contact technical@harwin.com for further information, or search online for M52-XXX.
- ❖ Suitable for use with female connectors shown on previous pages.

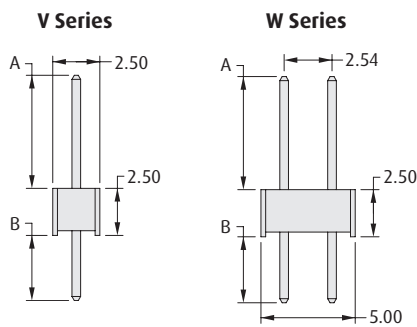


1.27mm (.050") PITCH

TERMINATION STYLES

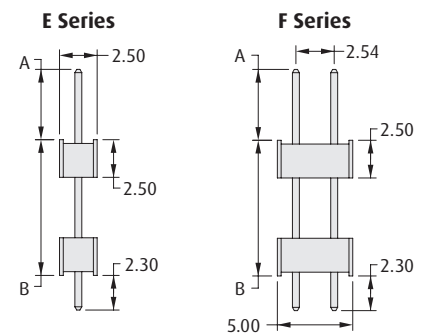
Vertical PC Tail

- ❖ Pin section is 0.46mm square.
- ❖ PCB mounting hole is $\varnothing 0.65\text{mm}$.



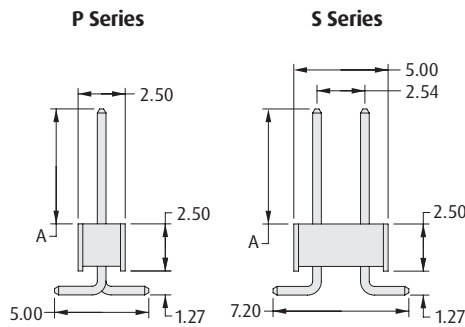
Extended PC Tail

- ❖ Pin section is 0.46mm square.
- ❖ PCB mounting hole is $\varnothing 0.65\text{mm}$.



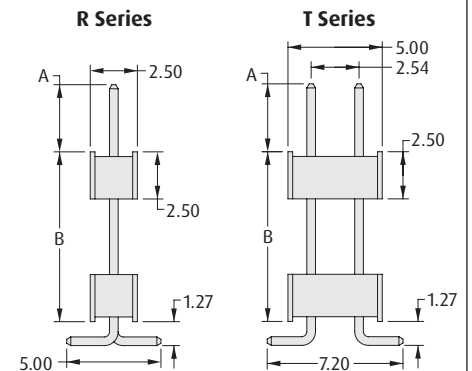
Vertical SMT

- ❖ Pin section is 0.46mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.
- ❖ B dimension is 000.



Extended SMT

- ❖ Pin section is 0.46mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.



HOW TO ORDER

M52 - XXX XXX X XX 45

SERIES CODE

DIMENSION A

Example: 7.8mm = 078

DIMENSION B

Example: 5.0mm = 050

FINISH

45 Gold

NO. OF CONTACTS PER ROW

02 to 50

SINGLE ROW	DOUBLE ROW	
V	W	Vertical
E	F	Extended
P	S	SMT
R	T	Extended SMT

All dimensions in mm.

M225 Connectors

2.00mm pitch high performance industrial connector range. Available in a selection of crimp sizes and pin counts, this cable-to-board system gives a more robust connection than the M22 series. The three points of contact on the female crimp contact enable resistance against industrial levels of vibration and shock. Added strain relief and vibration resistance is obtained with the use of the rubber locking collars and fixing pin system.

- ❖ Current rating of 3A per signal contact (all electrically loaded; 3.3A per individual contact)
- ❖ Female crimp contacts on continuous strip for automated crimping
- ❖ Polarized and fully shrouded housings to prevent accidental damage
- ❖ Increased operating temperature range: -55°C to +125°C
- ❖ Simple locking mechanism – push fixing pin fully home to expand and lock the rubber collar into the male connector
- ❖ Suitable for 22 to 28AWG PTFE equipment cables

M225 Series Connectors provide an excellent connection system for demanding industrial environments:

- ❖ Industrial: factory and mobile machinery, control panels and sus-systems, drives, robotics and other automation
- ❖ Site Control: remote control devices, ground and machinery monitoring
- ❖ Instrumentation: test equipment and portable hand-held devices

Specifications

❖ Materials

Mouldings, Pins:	High Temperature Plastic, UL94V-0
Contacts	
Female:	Beryllium Copper, Tin finish
Male:	Phosphor Bronze, Tin finish
Rubber Locking Collar:	Fluoroelastic Polymer

❖ Electrical

Current	
Individual contacts in isolation:	3.3A max (at 25°C) 2.6A max (at 85°C)
All contacts simultaneously:	3.0A max (at 25°C) 2.2A max (at 85°C)
Working voltage:	800V DC or AC peak
Voltage proof:	1,200V DC or AC peak
Contact resistance:	25mΩ max
Insulation resistance:	100MΩ min

❖ Mechanical

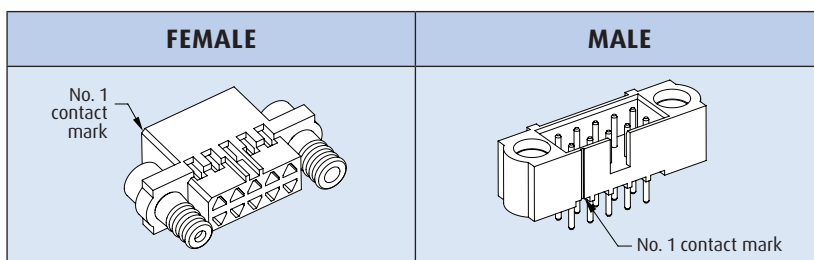
Durability:	50 operations
Insertion force (max):	2.8N per contact
Withdrawal force (min):	0.2N per contact

❖ Environmental

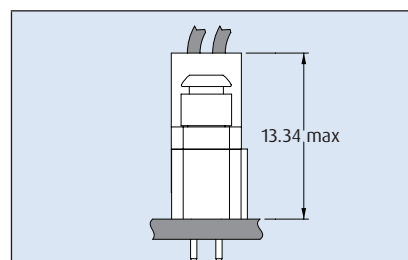
Environmental classification:	55/125/56 days at 95% RH
Operational temperature:	-55°C to +125°C
*Vibration sensitivity:	10Hz to 20000Hz, 0.75mm, 98m/s ² (10G), duration 6 hours
*Bump severity:	390m/s ² (40G), 4000 ±10 bumps
*Shock severity:	981m/s ² (100G), for 6ms
*Acceleration severity:	490m/s ² (50G)

* Tested with fixing pins fully engaged

Pin Numbering



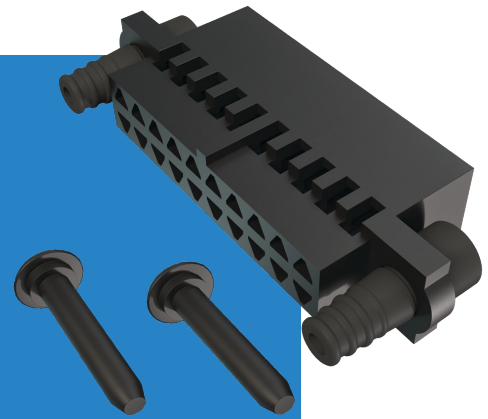
Mating Profile



M225 Connectors

Female Crimp Housings

- Female crimp housing kits - contacts are ordered separately (shown on following page).
- Housings are supplied fitted with the rubber locking collars, and supplied with loose fixing pins. Collars and pins only needed to be ordered separately if spares are required.



2mm (.079") PITCH

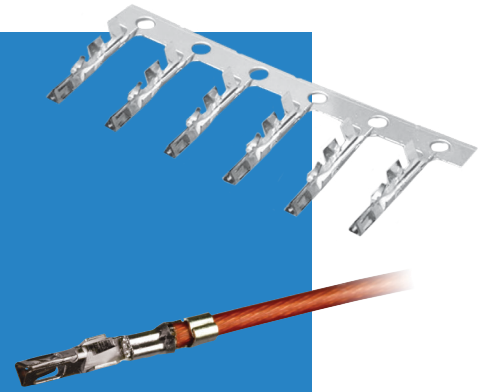
HOUSING	CALCULATION	SPARE RUBBER LOCKING COLLAR						
	<table border="1"> <tr> <td style="background-color: #0070C0; color: white;">A</td> <td>B + 12</td> </tr> <tr> <td style="background-color: #0070C0; color: white;">B</td> <td>Total no. of contacts - 2</td> </tr> <tr> <td style="background-color: #0070C0; color: white;">C</td> <td>B + 7</td> </tr> </table>	A	B + 12	B	Total no. of contacts - 2	C	B + 7	
	A	B + 12						
	B	Total no. of contacts - 2						
C	B + 7							
<p> <ul style="list-style-type: none"> Housing Kit includes 2 x Rubber Locking Collars (fitted) and 2 x Fixing Pins (loose). </p>		<table border="1"> <tr> <th style="background-color: #0070C0; color: white;">ORDER CODE</th> </tr> <tr> <td>M225-0500098</td> </tr> </table>	ORDER CODE	M225-0500098				
ORDER CODE								
M225-0500098								
		<table border="1"> <tr> <th style="background-color: #0070C0; color: white;">SPARE FIXING PIN</th> </tr> <tr> <td></td> </tr> <tr> <th style="background-color: #0070C0; color: white;">ORDER CODE</th> </tr> <tr> <td>M225-0600098</td> </tr> </table>	SPARE FIXING PIN		ORDER CODE	M225-0600098		
SPARE FIXING PIN								
ORDER CODE								
M225-0600098								
HOW TO ORDER								
<p>M225 - 455 XX 98</p>								
<table border="1"> <tr> <th style="background-color: #0070C0; color: white;">SERIES CODE</th> </tr> <tr> <td></td> </tr> </table>	SERIES CODE		<table border="1"> <tr> <th style="background-color: #0070C0; color: white;">NO. OF CONTACTS</th> </tr> <tr> <td>10, 20, 26, 34, 50</td> </tr> </table>	NO. OF CONTACTS	10, 20, 26, 34, 50			
SERIES CODE								
NO. OF CONTACTS								
10, 20, 26, 34, 50								

All dimensions in mm.

M225 Connectors

Female Crimp Contacts

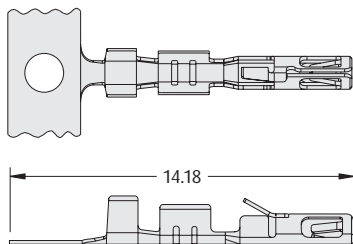
- ❖ Crimp contacts must be ordered separately, see previous pages for applicable housings.
- ❖ Crimp contacts are available loose, or in continuous reeled format for automated crimping.



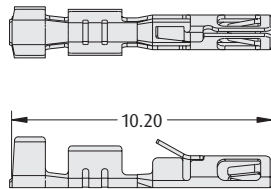
2mm (.079") PITCH

CRIMP CONTACTS

Reeled



Loose



HAND CRIMP TOOL



- ❖ Instruction sheet available at www.harwin.com/instructions.

ORDER CODE
Z80-255

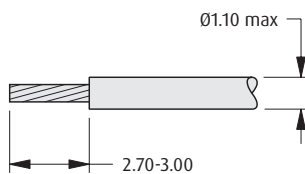
REMOVAL TOOL

- ❖ For removal of crimped contacts from mouldings.
- ❖ Instruction sheet available at www.harwin.com/instructions.



ORDER CODE
Z80-258

WIRE STRIPPING DETAIL



HOW TO ORDER

M225 - XXX 00 46

SERIES CODE

TYPE

253	Female Crimp 22-24 AWG, Reeled
254	Female Crimp 26-28 AWG, Reeled
283	Female Crimp 22-24 AWG, Loose
284	Female Crimp 26-28 AWG, Loose

FINISH

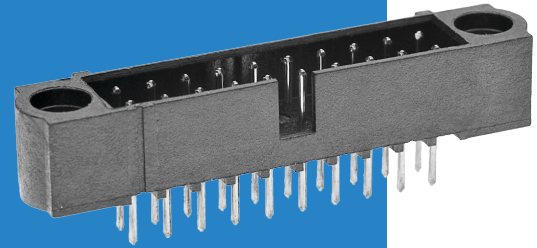
46 Tin

All dimensions in mm.

M225 Connectors

Male Vertical PC Tail

- Polarised mouldings.
- Fully shrouded contacts.

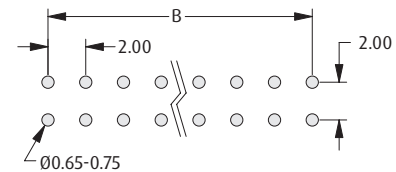
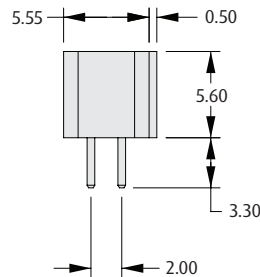
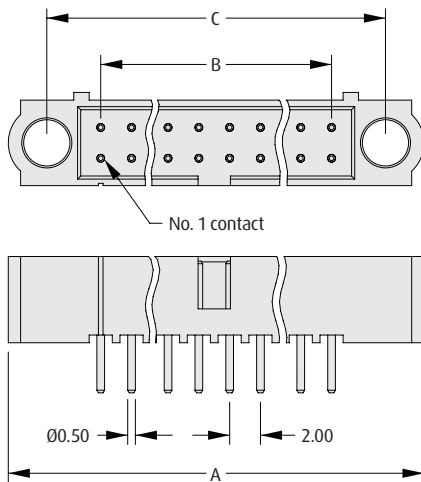


2mm (.079") PITCH

MALE

CALCULATION

A	B + 12
B	Total no. of contacts - 2
C	B + 7



Recommended PC Board Pattern

HOW TO ORDER

M225 - 520 XX 46

SERIES CODE

FINISH

46 Tin

TOTAL NO. OF CONTACTS

10, 20, 26, 34, 50

All dimensions in mm.

M22 Connectors Specification

- ❖ 2mm pitch, with 0.5mm square male pin connection system.
- ❖ Board-to-Board and Cable-to-Board application options.

❖ Materials

Mouldings:	Standard or High Temperature Plastic, UL94V-0
Contacts	
Female:	Phosphor Bronze
Jumper socket:	Beryllium Copper
Male:	Copper Alloy
Finish:	See individual pages

❖ Electrical

Current:	Up to 2A per contact (see individual drawings)
Voltage proof:	500V AC for 1 minute
Contact resistance:	30mΩ max
Insulation resistance:	500MΩ min

❖ Mechanical

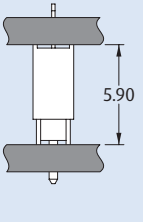
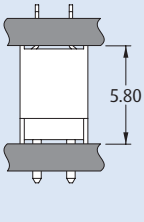
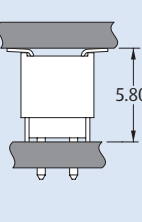
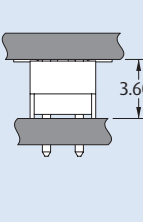
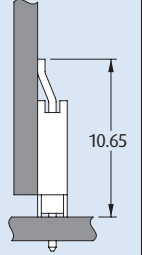
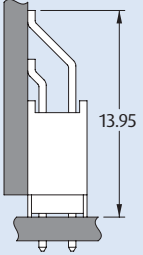
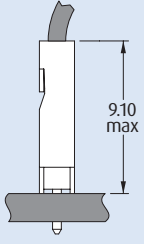
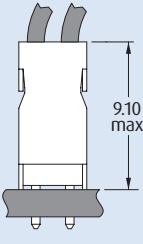
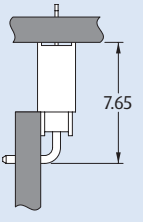
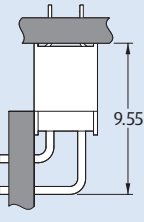
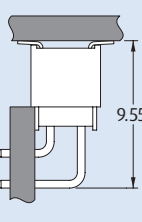
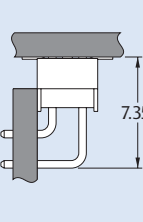
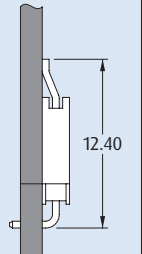
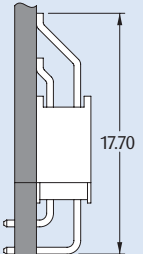
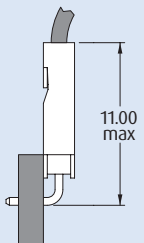
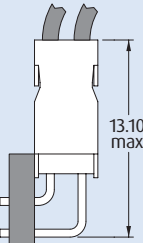
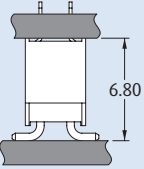
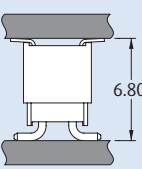
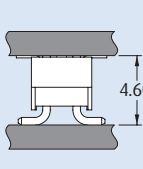
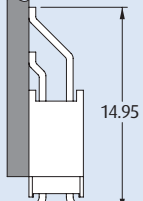
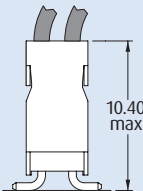
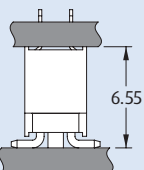
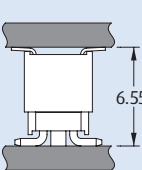
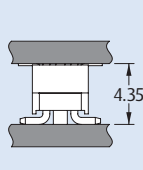
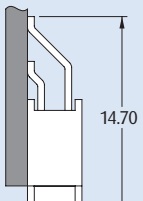
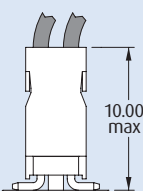
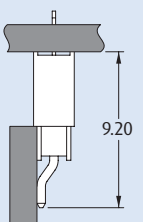
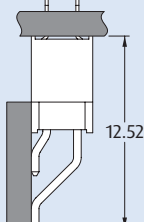
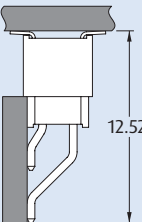
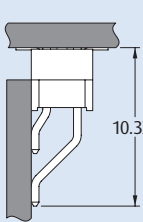
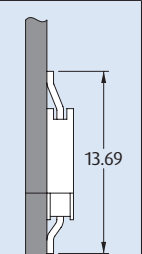
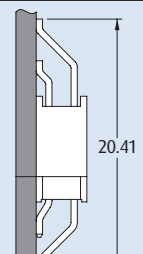
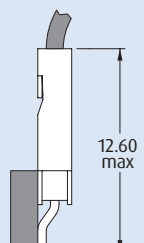
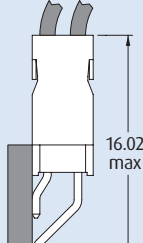
Durability	
M22-30X:	25 operations
Others:	300 operations
Insertion force (max)	
Jumper sockets:	10N total
M22-30X:	2.9N per contact
Others:	2.0N per contact
Withdrawal force (min)	
Jumper sockets:	1N total
M22-30X:	1.0N per contact
Others:	0.2N per contact
Vibration sensitivity	
M22-654, 655:	50 – 2,000Hz, 3.13G, 45 minutes duration
Others:	10 – 55Hz, 1.5mm, 6 hours duration
Shock severity:	294m/s ² (30G) for 11ms

❖ Environmental

Operating temperature	
M22-30X:	-25°C to +85°C
Others:	-40°C to +105°C
Solderability	
M22-636, 713, 714:	250°C for 3 seconds
Others:	245°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

M22 Connectors Mating Profiles

2mm (.079") PITCH

		FEMALE							
		VERTICAL PC TAIL		VERTICAL SMT	VERTICAL SMT Low Profile	HORIZONTAL SMT		CRIMP	
		SIL	DIL	DIL	DIL	SIL	DIL	SIL	DIL
MALE	VERTICAL PC TAIL	 5.90	 5.80	 5.80	 3.60	 10.65	 13.95	 9.10 max	 9.10 max
	HORIZONTAL PC TAIL	 7.65	 9.55	 9.55	 7.35	 12.40	 17.70	 11.00 max	 13.10 max
	VERTICAL SMT		 6.80	 6.80	 4.60		 14.95		 10.40 max
	VERTICAL SMT With Pegs		 6.55	 6.55	 4.35		 14.70		 10.00 max
	HORIZONTAL SMT	 9.20	 12.52	 12.52	 10.32	 13.69	 20.41	 12.60 max	 16.02 max

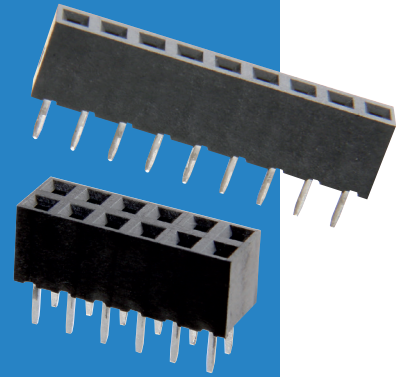
All dimensions in mm.

M22 Connectors

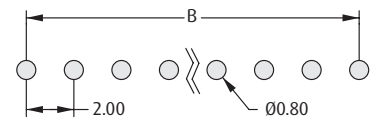
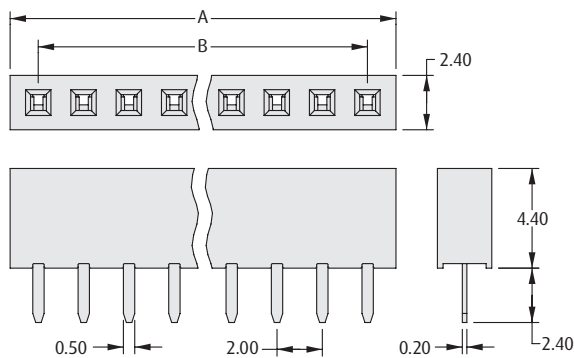
2mm (.079") PITCH

Female Vertical PC Tail

- Twin beam phosphor bronze contacts.
- Suitable for use with mating M22 male pin headers, with 0.5mm square pins.
- For polarising key use **order code M22-0340000**.



SINGLE ROW

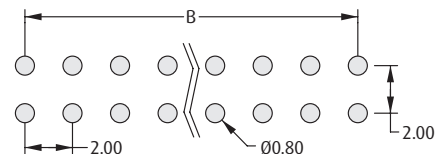
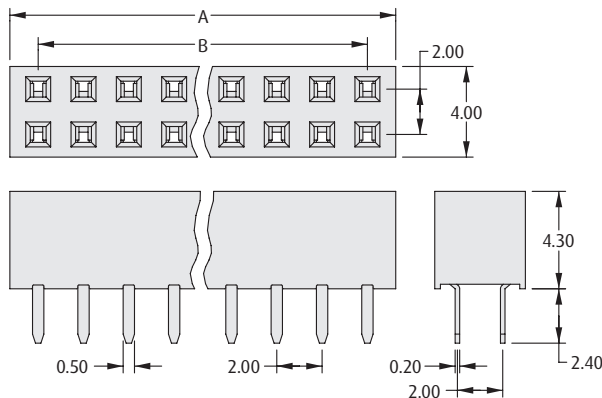


Recommended PC Board Pattern

CALCULATION

A	$B + 2.5$
B	$2 \times (\text{No. of contacts per row} - 1)$

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M22 - 71 X XX XX

SERIES CODE

NO. OF ROWS

3	Single Row
4	Double Row

FINISH

42	Gold + Tin
-----------	------------

NO. OF CONTACTS PER ROW

03 to 20, 25	Single Row
03 to 25	Double Row

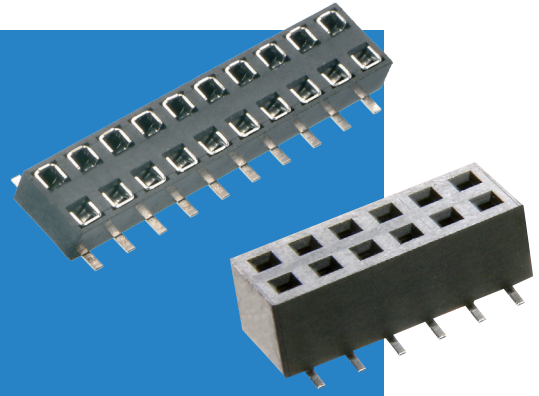
All dimensions in mm.

M22 Connectors

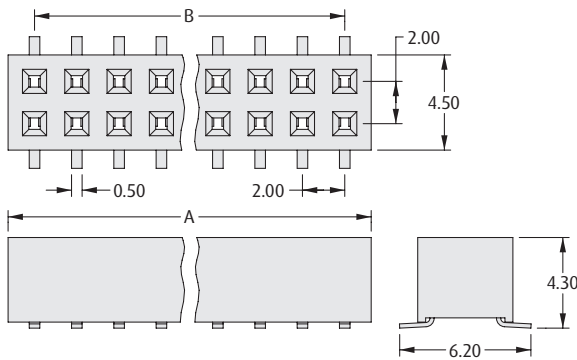
2mm (.079") PITCH

Female Vertical Surface Mount, Dual Entry

- ❖ Dual entry sockets - can be used as either a top entry or bottom entry configuration.
- ❖ The low profile socket has locating pegs, to assist with correct positioning and minimised movement during soldering.
- ❖ Twin beam contact for cost-effective reliability.
- ❖ Contact technical@harwin.com for Tape and Reel options.

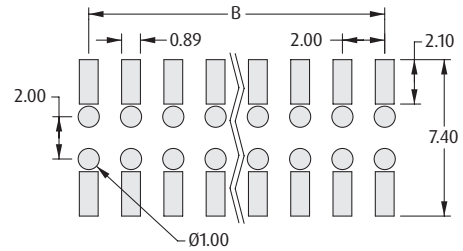


4.30mm HIGH



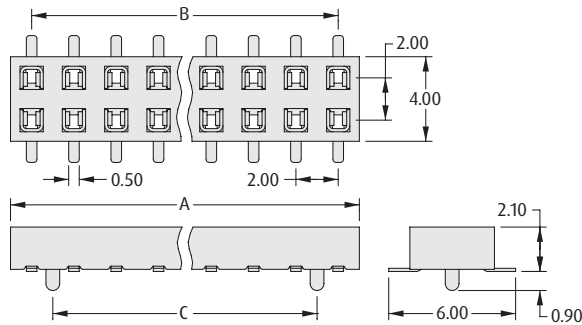
CALCULATION

A	$B + 2.5$
B	$2 \times (\text{No. of contacts per row} - 1)$



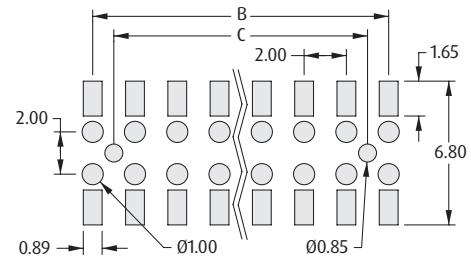
Recommended PC Board Pattern

2.10mm HIGH



CALCULATION

A	$2 \times \text{No. of contacts per row}$
B	$2 \times (\text{No. of contacts per row} - 1)$
C	$B - 2$



Recommended PC Board Pattern

HOW TO ORDER

M22 - 63 X XX XX

SERIES CODE

TYPE

4	4.30mm high
6	2.10mm high

FINISH

42	Gold + Tin
46	Tin (2.10mm high only)

NO. OF CONTACTS PER ROW

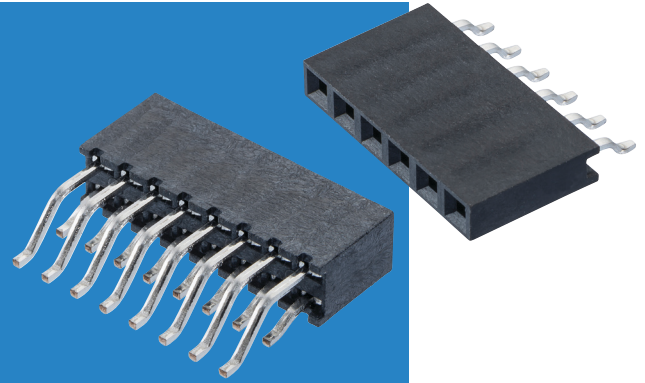
03 to 20	4.30mm high
02 to 20	2.10mm high

All dimensions in mm.

M22 Connectors

Female Horizontal Surface Mount

- Rear tail configuration, to allow mounting right up to the edge of the PCB.
- Supplied in Tape and Reel packaging as standard for use in automated assembly systems.



2mm (.079") PITCH

SINGLE ROW	CALCULATION	DOUBLE ROW	CALCULATION								
	<table border="1"> <tr> <td style="background-color: #0056b3; color: white;">A</td> <td>B + 2.3</td> </tr> <tr> <td style="background-color: #0056b3; color: white;">B</td> <td>2 x (No. of contacts per row - 1)</td> </tr> </table>	A	B + 2.3	B	2 x (No. of contacts per row - 1)		<table border="1"> <tr> <td style="background-color: #0056b3; color: white;">A</td> <td>B + 2.3</td> </tr> <tr> <td style="background-color: #0056b3; color: white;">B</td> <td>2 x (No. of contacts per row - 1)</td> </tr> </table>	A	B + 2.3	B	2 x (No. of contacts per row - 1)
A	B + 2.3										
B	2 x (No. of contacts per row - 1)										
A	B + 2.3										
B	2 x (No. of contacts per row - 1)										
<p style="text-align: center;">Recommended PC Board Pattern</p>		<p style="text-align: center;">Recommended PC Board Pattern</p>									

HOW TO ORDER

M22 - 65 X XX XX R

SERIES CODE

TYPE

4	Single Row
5	Double Row

PACKAGING

R Tape & Reeled

FINISH

42 Gold + Tin

NO. OF CONTACTS PER ROW

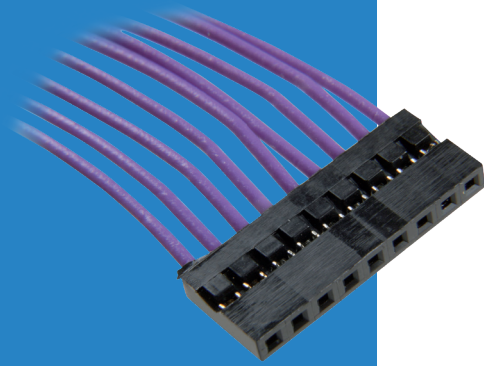
02 to 06, 08, 10

All dimensions in mm.

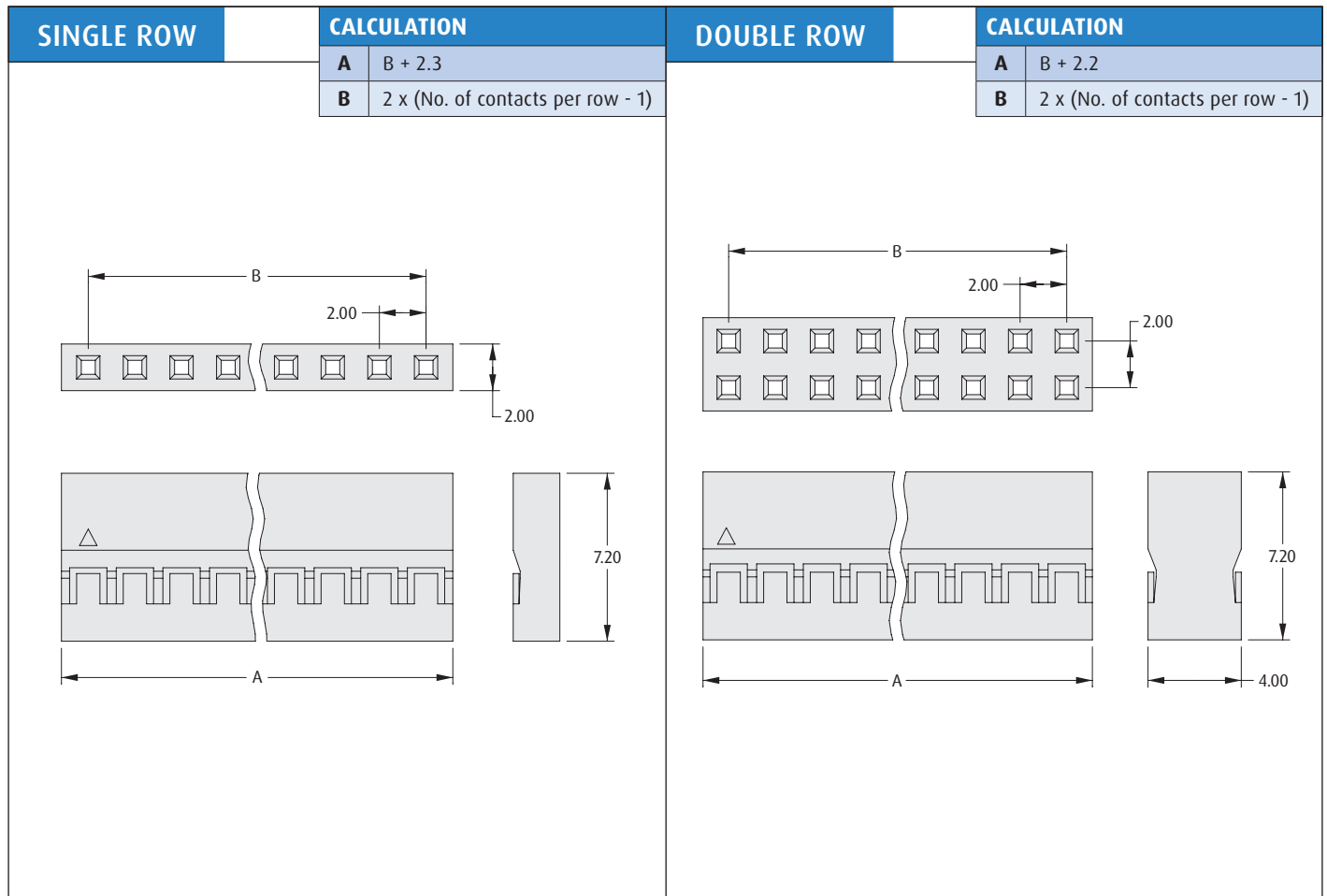
M22 Connectors

Female Crimp Housings

- Female crimp housing - contacts are ordered separately (shown on following page).
- For polarising key use **order code M22-0340000**.



2mm (.079") PITCH



HOW TO ORDER

M22 - 30 X XX 00

SERIES CODE

TYPE

1	Single Row
2	Double Row

NO. OF CONTACTS PER ROW

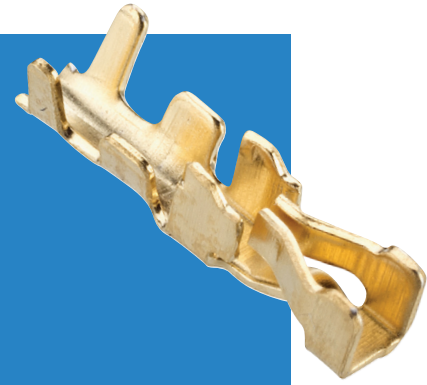
02 to 20

All dimensions in mm.

M22 Connectors

Female Crimp Contacts

- ❖ Loose or reeled contacts.
- ❖ Open crimp design, ideal for automation.
- ❖ Use with female crimp housings shown on previous page.
- ❖ Suitable for connection with male pin headers with a mating length of 4.00mm or longer.

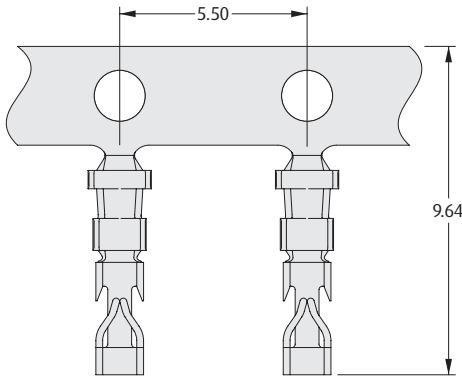


2mm (.079") PITCH

CONTACTS

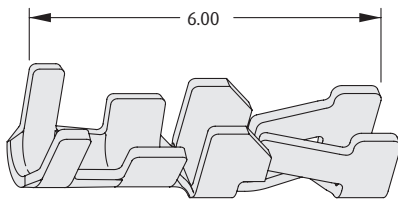
Reeled (continuous strip)

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



Loose (cropped)

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



HAND CRIMP TOOL

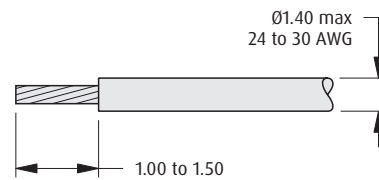
- ❖ Instruction sheet is available at www.harwin.com/instructions.
- ❖ For use with loose contacts.



ORDER CODE

Z22-020

WIRE STRIPPING DETAILS



HOW TO ORDER

M22 - 30 X 00 XX

SERIES CODE

TYPE

4	Reeled Contacts
5	Loose Contacts

FINISH

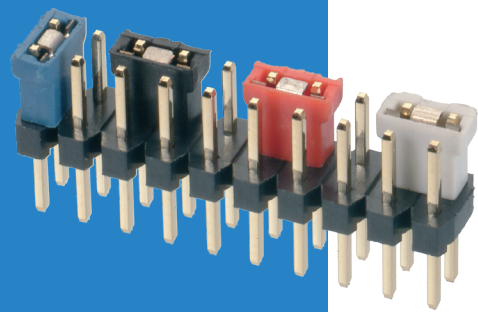
42	Gold
46	Tin

All dimensions in mm.

M22 Connectors

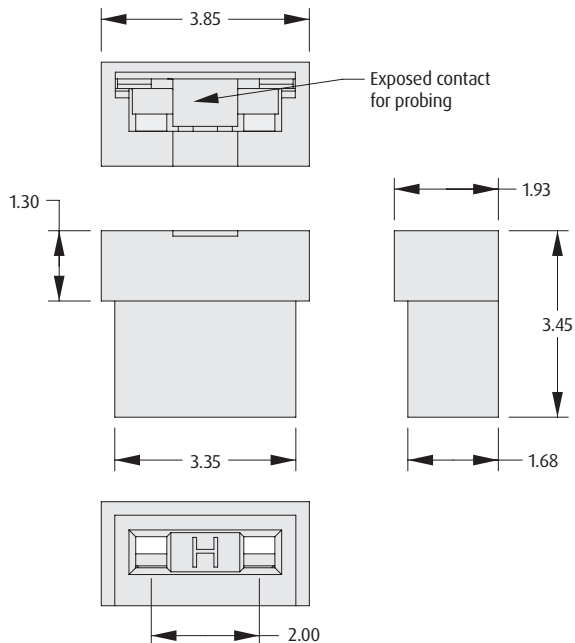
Jumper Sockets, Polarising Key

- Can be fitted and removed by hand.
- Used with male pin headers, Jumper Sockets give an alternative on-board programming method to DIP switches.
- Jumper Sockets have an open top for use with test probes.



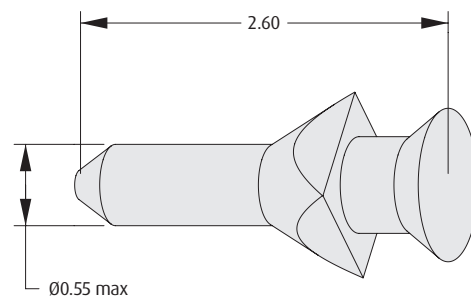
2mm (.079") PITCH

JUMPER SOCKET



POLARISING KEY

- For use with Female Vertical PC Tail connectors, M22-713 and M22-714 series.
- For use with Female Cable Housings, M22-301 and M22-302 series.



HOW TO ORDER

M22 - 19 X 00 XX

SERIES CODE

COLOUR

0	Black
1	Blue
2	Red
3	Grey

FINISH

05	Gold
46	Tin

ORDER CODE

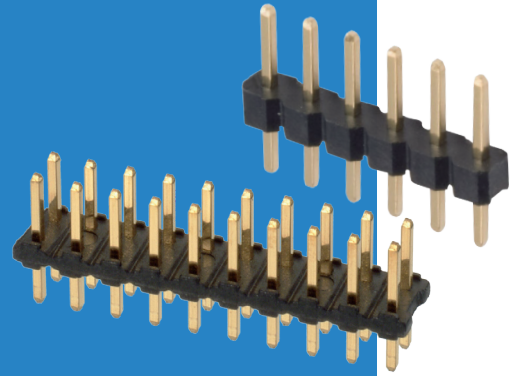
M22-0340000

All dimensions in mm.

M22 Connectors

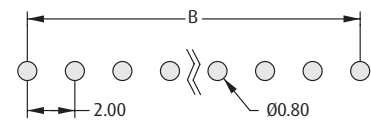
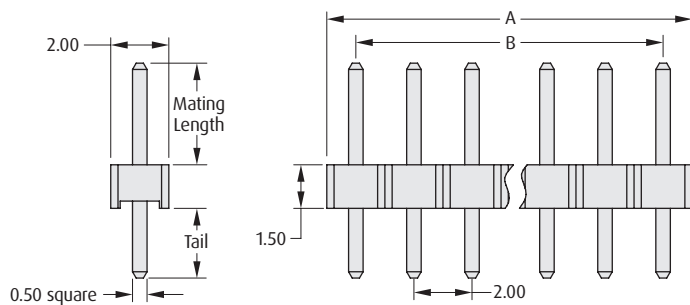
Male Vertical PC Tail

- ❖ Suitable for use with female PCB connectors and jumper sockets.
- ❖ 4.2mm mating pin length recommended for use with female cable connections.
- ❖ Pin headers can be cut into smaller sizes.
- ❖ Also available with variable dimensions.



2mm (.079") PITCH

SINGLE ROW

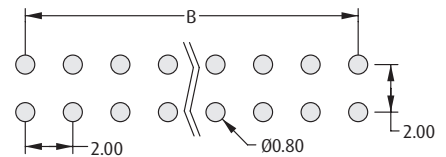
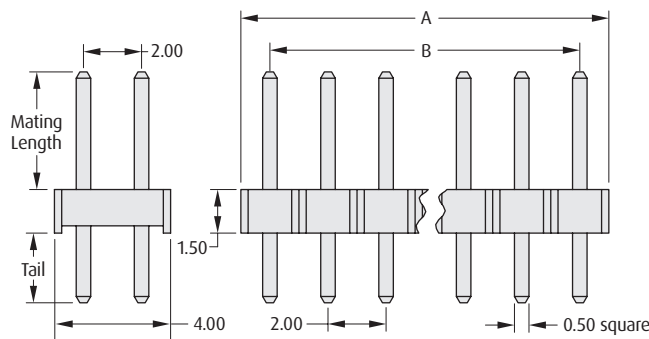


Recommended PC Board Pattern

CALCULATION

- A** 2 x No. of contacts per row
- B** 2 x (No. of contacts per row - 1)

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M22 - 2XX XX XX

SERIES CODE

TYPE			
SINGLE ROW	DOUBLE ROW	MATING LENGTH	TAIL
201	202	3.50mm	3.40mm
251	252	3.50mm	2.30mm
271	272	4.20mm	2.30mm

FINISH

05	Gold
46	Tin

NO. OF CONTACTS PER ROW

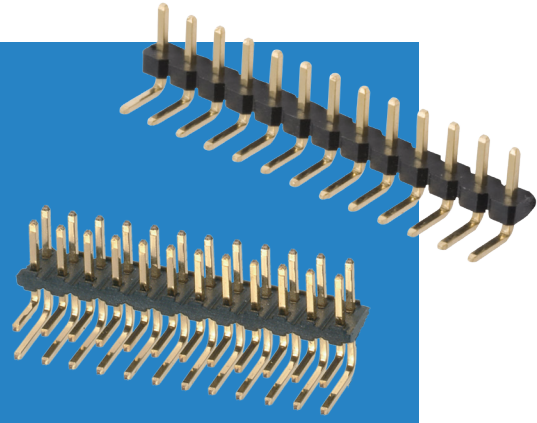
02 to 25, 50	M22-201, M22-202
02 to 20, 25, 40, 50	M22-251
02 to 20, 25, 40	M22-252
02 to 20	M22-271, M22-272

All dimensions in mm.

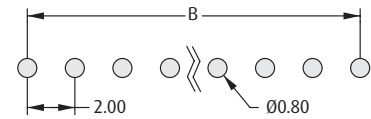
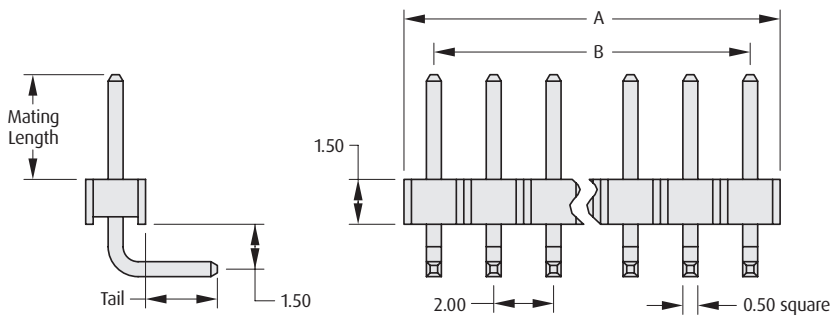
M22 Connectors

Male Horizontal PC Tail

- Suitable for use with female PCB connectors and jumper sockets.
- 4.2mm mating pin length recommended for use with female cable connectors.
- Pin headers can be cut into smaller sizes.
- Also available with variable dimensions.



SINGLE ROW

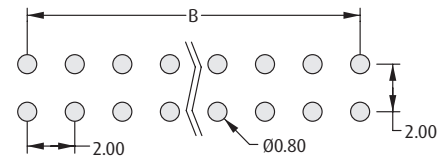
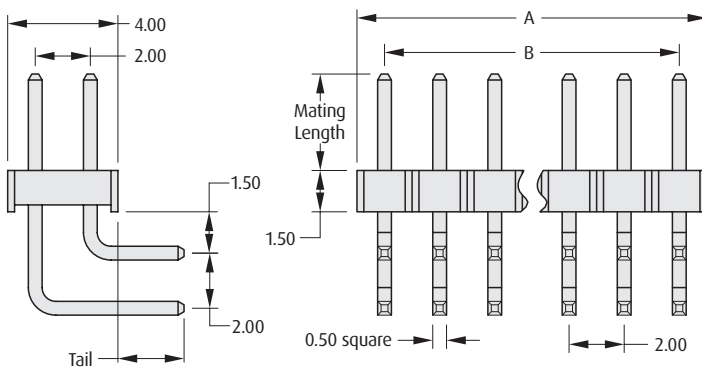


Recommended PC Board Pattern

CALCULATION

A	2 x No. of contacts per row
B	2 x (No. of contacts per row - 1)

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M22 - 2XX XX XX

SERIES CODE

TYPE			
SINGLE ROW	DOUBLE ROW	MATING LENGTH	TAIL
203	204	3.50mm	3.00mm
253	254	3.50mm	2.40mm
273	274	4.20mm	2.40mm

FINISH

05	Gold
46	Tin

NO. OF CONTACTS PER ROW

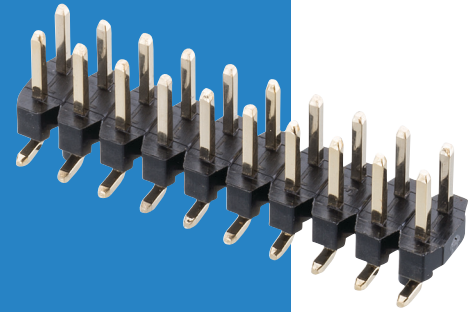
02 to 25, 50	M22-203, M22-204
02 to 20	Others

All dimensions in mm.

M22 Connectors

Male Vertical Surface Mount

- ❖ Suitable for use with female PCB connectors and jumper sockets.
- ❖ 4.2mm mating pin length recommended for use with female cable connectors.
- ❖ Pin headers can be cut into smaller sizes.
- ❖ Also available with variable dimensions.
- ❖ Tape and Reel option supplied fitted with Pick and Place cap, contact technical@harwin.com for availability.

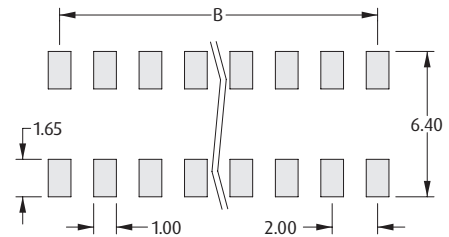
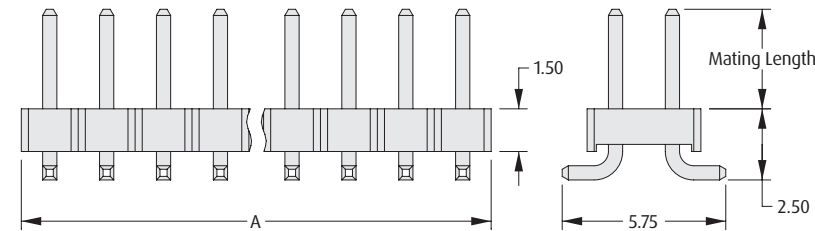
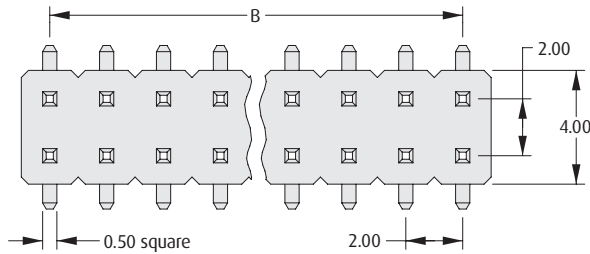


2mm (.079") PITCH

DOUBLE ROW

CALCULATION

A	2 x No. of contacts per row
B	2 x (No. of contacts per row - 1)



Recommended PC Board Pattern

HOW TO ORDER

M22 - 5 X 2 XX XX X

SERIES CODE

TYPE

3	3.50mm Mating Length
5	4.20mm Mating Length

NO. OF CONTACTS PER ROW

02 to 25	3.50mm Mating Length
02 to 20	4.20mm Mating Length

PACKAGING

Blank	Loose
P	Pick and Place cap, tube
R	Tape & Reeled

FINISH

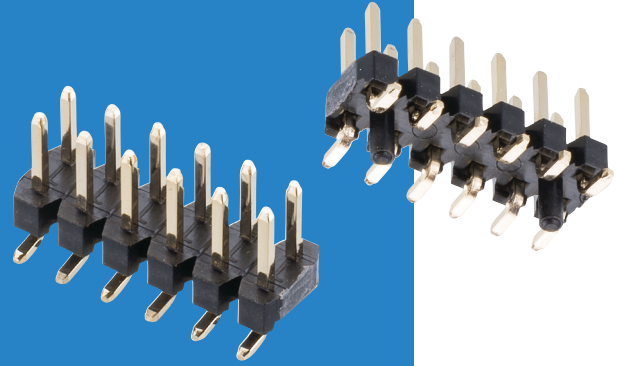
05	Gold
46	Tin

All dimensions in mm.

M22 Connectors

Male Vertical Surface Mount

- ❖ Suitable for use with female PCB connectors and jumper sockets.
- ❖ Supplied with location pegs for additional placement accuracy.
- ❖ Tape and Reel option supplied fitted with Pick and Place cap.

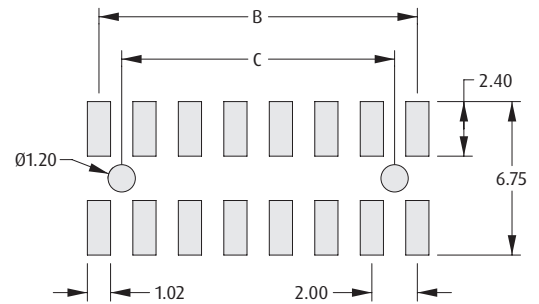
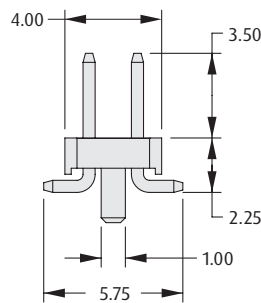
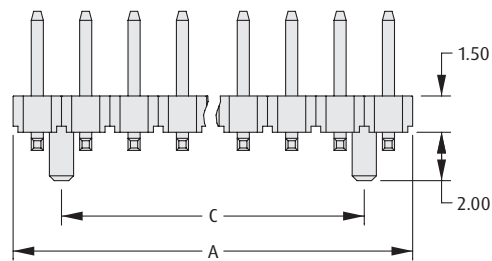
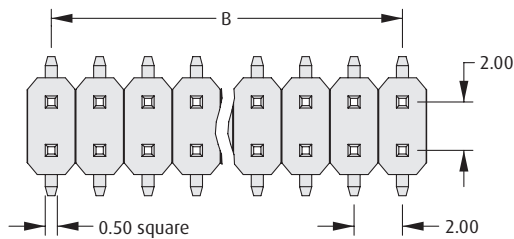


2mm (.079") PITCH

DOUBLE ROW

CALCULATION

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



Recommended PC Board Pattern

HOW TO ORDER

M22 - 530 XX 05 X

SERIES CODE

NO. OF CONTACTS PER ROW

02 to 06, 10	Loose
02, 03, 05	Tape & Reeled

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

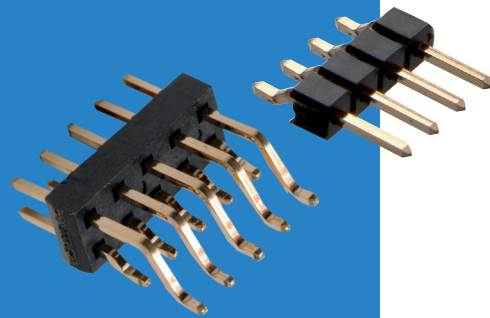
05	Gold
-----------	------

All dimensions in mm.

M22 Connectors

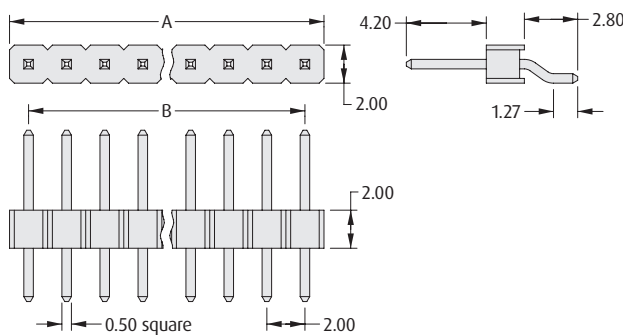
Male Horizontal Surface Mount

- Suitable for use with female PCB connectors and jumper sockets.
- 4.2mm mating pin length recommended for use with female cable connectors.
- Single row pin headers can be cut into smaller sizes.
- Locating pegs on double row, to assist with correct positioning and minimised movement during soldering.
- Contact technical@harwin.com for Tape and Reel options.



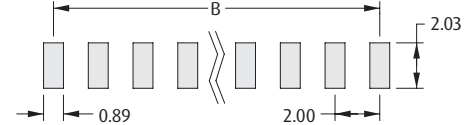
2mm (.079") PITCH

SINGLE ROW



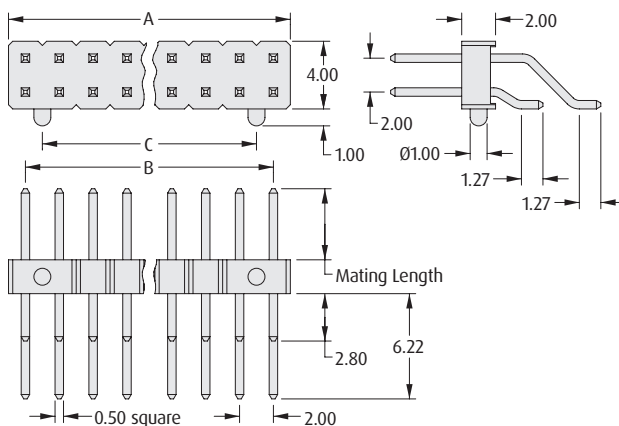
CALCULATION

A	2 x No. of contacts per row
B	2 x (No. of contacts per row - 1)



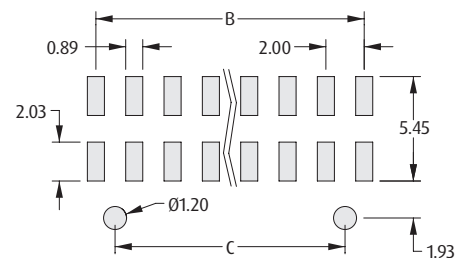
Recommended PC Board Pattern

DOUBLE ROW



CALCULATION

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



Recommended PC Board Pattern

HOW TO ORDER

M22 - 5 X 3 XX 05

SERIES CODE

FINISH

05 Gold

TYPE

3	Single Row
4	Double Row, 3.2mm Mating Length
6	Double Row, 4.2mm Mating Length

NO. OF CONTACTS PER ROW

02 to 15	M22-533
03 to 15, 20	M22-543
03 to 20	M22-563

All dimensions in mm.

M22 Connectors

Pin Header Variants

- ❖ If you are unable to specify the connector you require from our standard range of M22 connectors, use the order code below to create an application-specific connector.
- ❖ Contact technical@harwin.com for further information, or search online for M22-XXX.
- ❖ Suitable for use with female connectors shown on previous pages.

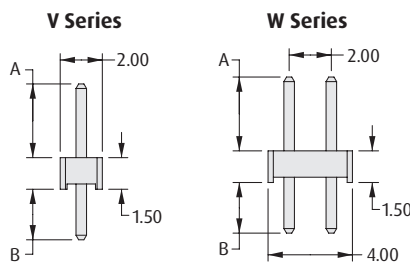


2mm (.079") PITCH

TERMINATION STYLES

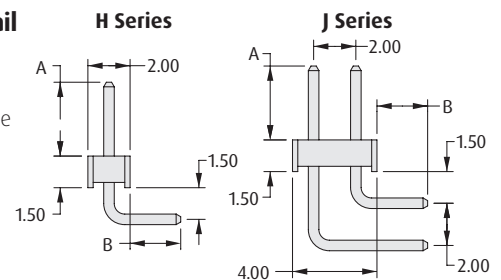
Vertical PC Tail

- ❖ Pin section is 0.50mm square.
- ❖ PCB mounting hole is $\varnothing 0.80\text{mm}$.



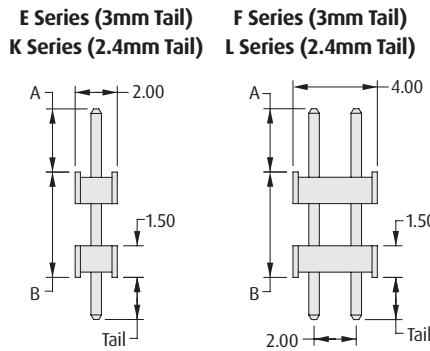
Horizontal PC Tail

- ❖ Pin section is 0.50mm square.
- ❖ PCB mounting hole is $\varnothing 0.80\text{mm}$.
- ❖ Maximum B dimension is 6.00mm.



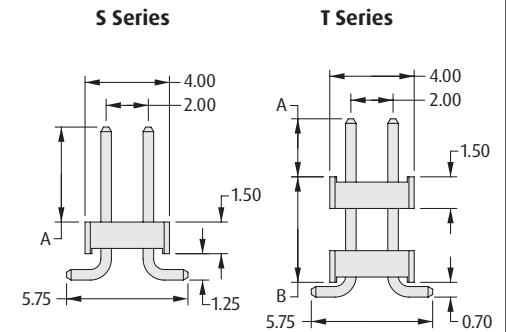
Extended PC Tail

- ❖ Pin section is 0.50mm square.
- ❖ PCB mounting hole is $\varnothing 0.80\text{mm}$.



Vertical SMT Extended SMT

- ❖ Pin section is 0.50mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.
- ❖ B dimension is 000 on S series.



HOW TO ORDER

M22 - XXX XXX X XX XX

SERIES CODE

DIMENSION A

Example: 7.8mm = 078

DIMENSION B

Example: 5.0mm = 050

FINISH

05	Gold
46	Tin

NO. OF CONTACTS PER ROW

02 to 50

SINGLE ROW	DOUBLE ROW	
V	W	Vertical
H	J	Horizontal
E	F	Extended
K	L	Extended (2.4mm Tail)
-	S	Surface Mount
-	T	Extended Surface Mount

All dimensions in mm.

M20 Connectors Specification

- ❖ 2.54mm pitch, with 0.64mm square male pin connection system.
- ❖ Board-to-Board and Cable-to-Board application options.

❖ Materials

Mouldings:	Standard or High Temperature Plastic, UL94V-0
Contacts	
Female:	Phosphor Bronze
Male:	Copper Alloy
Finish:	See individual pages

❖ Electrical

Current:	3A per contact
Voltage proof:	800V AC, 500V DC for 1 minute
Contact resistance:	30mΩ max
Insulation resistance:	1,000MΩ min

❖ Mechanical

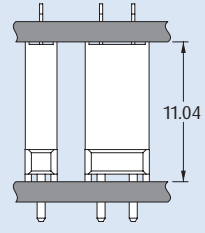
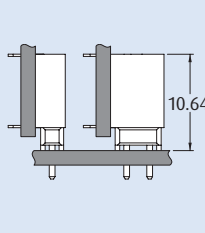
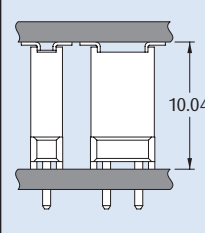
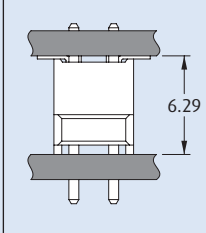
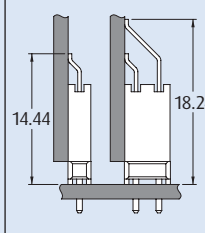
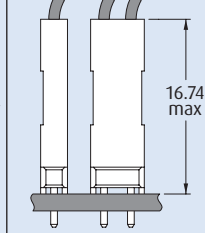
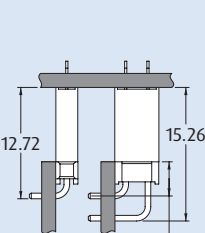
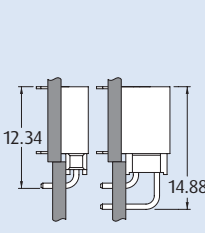
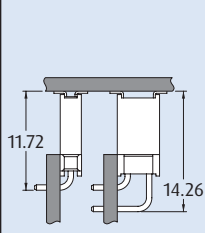
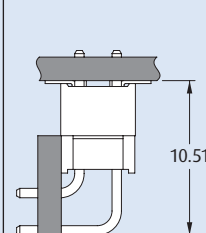
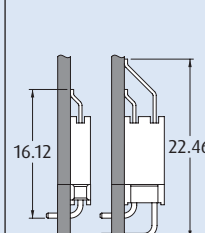
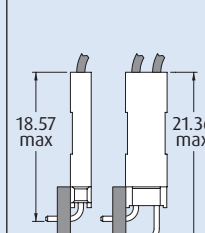
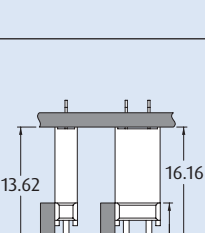
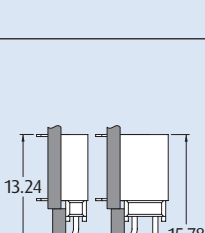
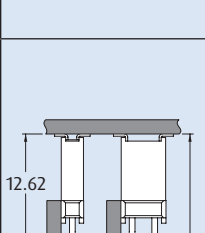
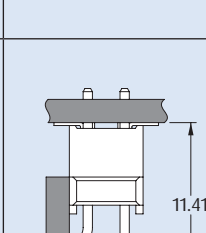
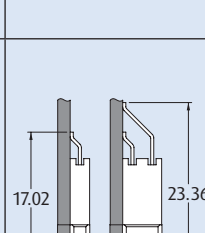
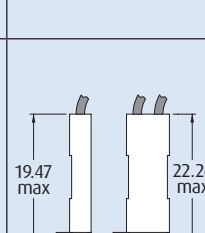
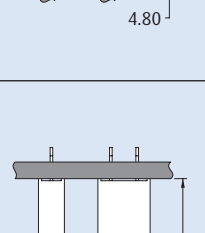
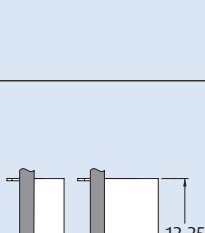
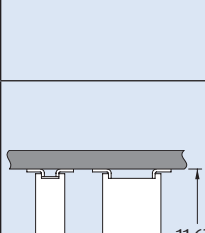
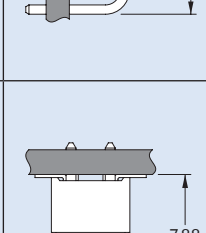
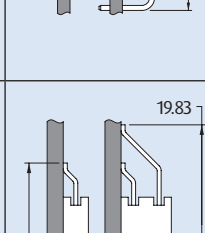
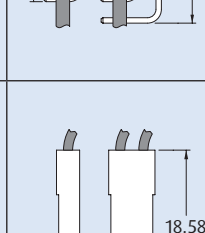
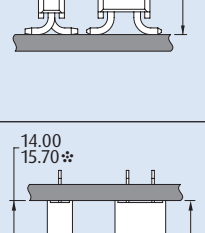
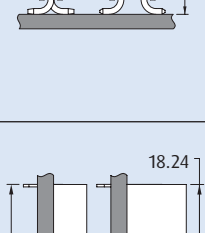
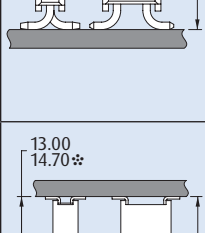
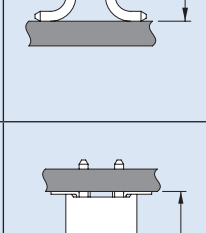
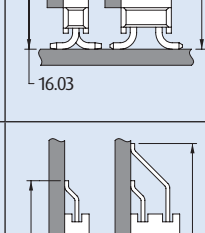
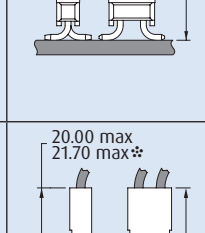
Durability	
Gold finish:	300 operations
Tin finish:	50 operations
Insertion force (max)	
Female:	2.0N per contact
Jumper sockets:	12.5N total
Withdrawal force (min)	
Female:	0.3N per contact
Jumper sockets:	1.0N total
Vibration sensitivity:	50 – 2,000Hz, 3.13G, 45 minutes duration
Shock severity:	294m/s 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

M20 Connectors Mating Profiles

2.54mm (.100") PITCH

		FEMALE					
		VERTICAL PC TAIL	HORIZONTAL PC TAIL	VERTICAL SMT	VERTICAL SMT Low Profile	HORIZONTAL SMT	CRIMP
MALE	VERTICAL PC TAIL	 11.04	 10.64	 10.04	 6.29	 14.44 / 18.24	 16.74 max
	HORIZONTAL PC TAIL 3.9mm Tail	 12.72 / 15.26 / 3.90	 12.34 / 14.88	 11.72 / 14.26	 10.51	 16.12 / 22.46	 18.57 max / 21.36 max
	HORIZONTAL PC TAIL 4.8mm Tail	 13.62 / 16.16 / 4.80	 13.24 / 15.78	 12.62 / 15.16	 11.41	 17.02 / 23.36	 19.47 max / 22.26 max
	VERTICAL SMT	 12.63	 12.25	 11.63	 7.88	 16.03 / 19.83	 18.58 max
	HORIZONTAL SMT *High Profile Single Row	 14.00 / 15.70** / 18.62	 13.62 / 15.32** / 18.24	 13.00 / 14.70** / 17.62	 13.87	 17.40 / 19.10** / 25.82	 20.00 max / 21.70 max** / 24.62 max

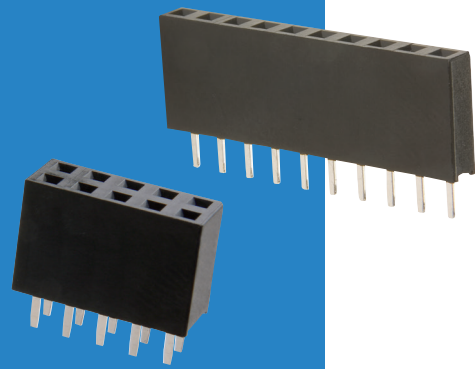
All dimensions in mm.

M20 Connectors

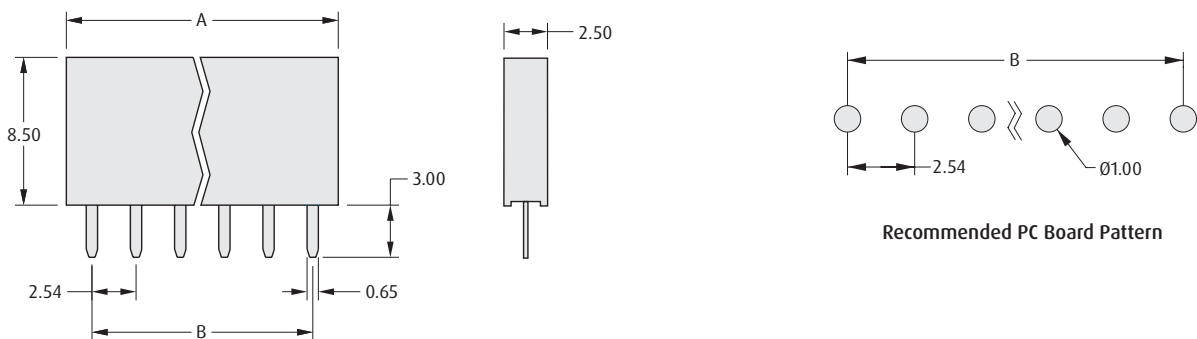
2.54mm (.100") PITCH

Female Vertical PC Tail

- Twin beam phosphor bronze contacts.
- Suitable for use with mating M20 male pin headers, with 0.64mm square pins.



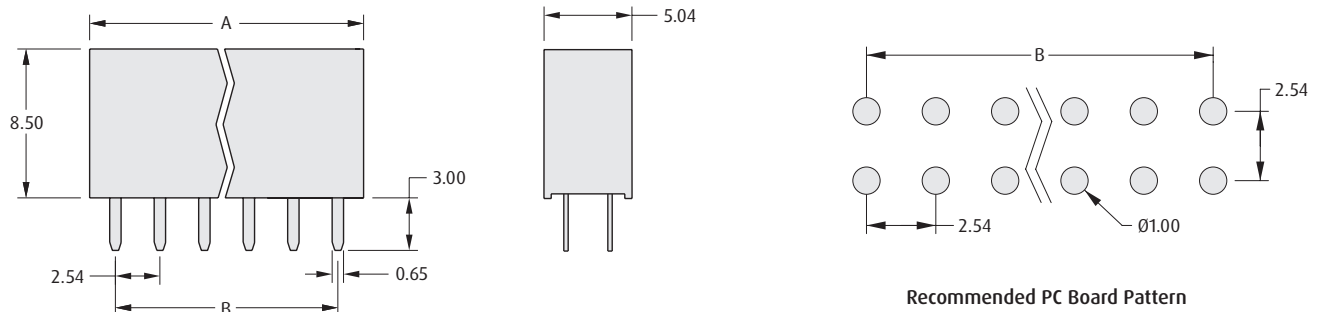
SINGLE ROW



CALCULATION

A	$B + 2.94$
B	$2.54 \times (\text{No. of contacts per row} - 1)$

DOUBLE ROW



HOW TO ORDER

M20 - 78 X XX XX

SERIES CODE

TYPE

2	Single Row
3	Double Row

FINISH

42	Gold + Tin
46	Tin

NO. OF CONTACTS PER ROW

02 to 20, 25, 32, 36

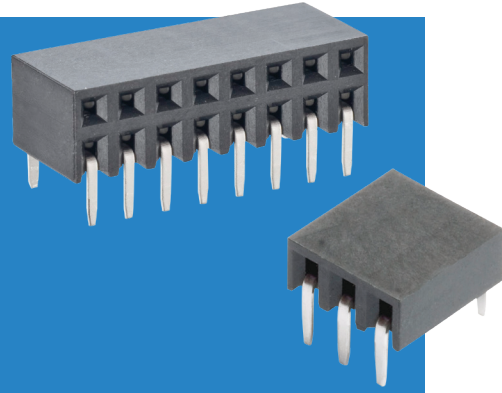
All dimensions in mm.

M20 Connectors

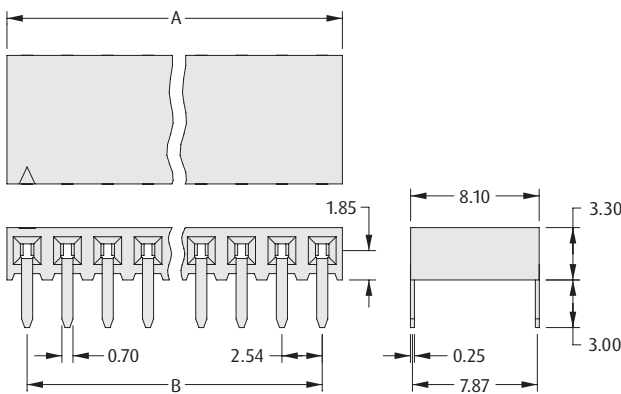
2.54mm (.100") PITCH

Female Horizontal PC Tail

- Two point solder fixing for connector rigidity.
- Twin beam contact for cost-effective reliability.
- Suitable for use with mating M20 male pin headers, with 0.64mm square pins.

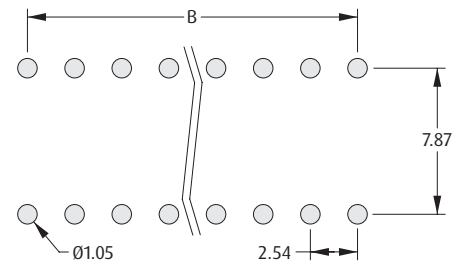


SINGLE ROW



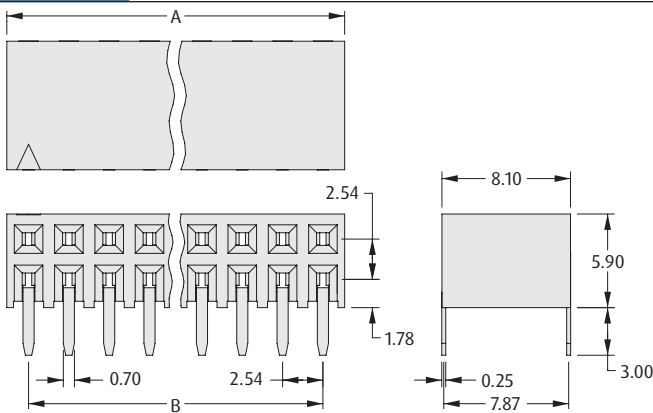
CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)



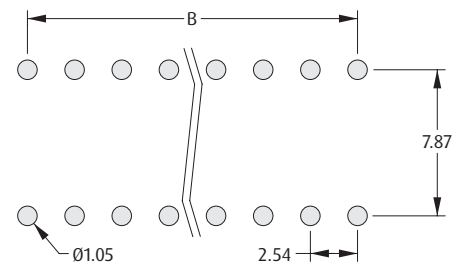
Recommended PC Board Pattern

DOUBLE ROW



CALCULATION

A	B + 2.74
B	2.54 x (No. of contacts per row - 1)



Recommended PC Board Pattern

HOW TO ORDER

M20 - 78 X XX XX

SERIES CODE

TYPE

8	Double Row
9	Single Row

FINISH

42	Gold + Tin
46	Tin

NO. OF CONTACTS PER ROW

02 to 20, 25, 35, 36	Double Row
02 to 20, 25, 36, 40	Single Row

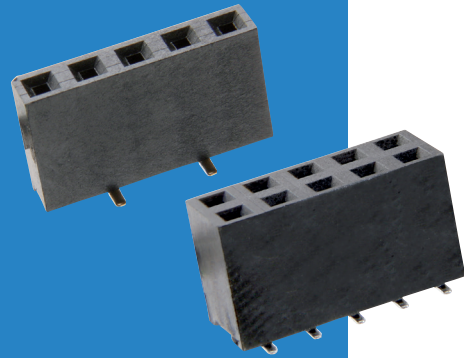
All dimensions in mm.

M20 Connectors

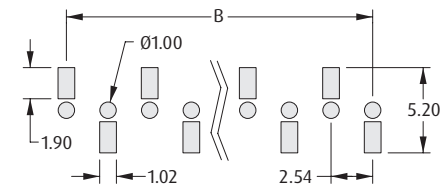
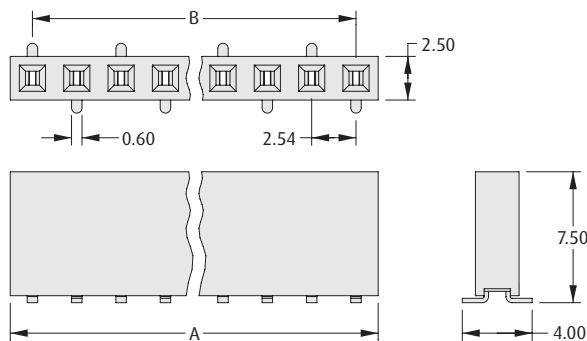
2.54mm (.100") PITCH

Female Vertical Surface Mount, Dual Entry

- Dual Entry sockets - can be used as either a top entry or bottom entry configuration.
- Twin beam contact for cost-effective reliability.
- Contact technical@harwin.com for Tape and Reel options.
- Suitable for use with mating M20 male pin headers, with 0.64mm square pins.



SINGLE ROW

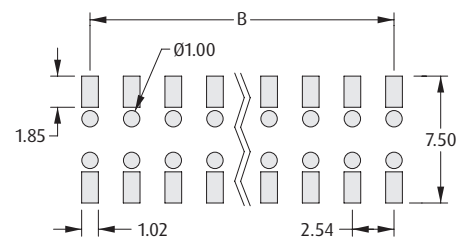
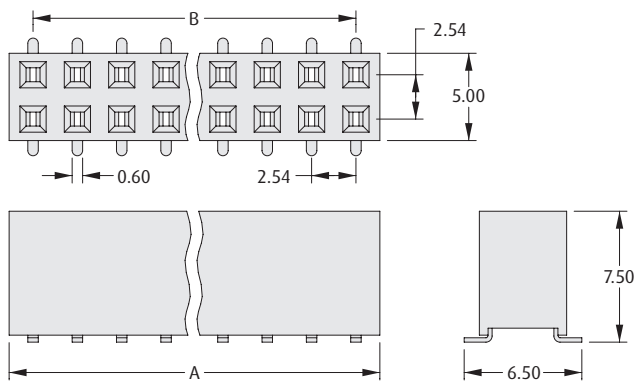


Recommended PC Board Pattern

CALCULATION

A	$B + 2.74$
B	$2.54 \times (\text{No. of contacts per row} - 1)$

DOUBLE ROW



Recommended PC Board Pattern

HOW TO ORDER

M20 - 78 X XX XX

SERIES CODE

TYPE

6	Single Row
7	Double Row

FINISH

42	Gold + Tin
46	Tin

NO. OF CONTACTS PER ROW

02 to 20

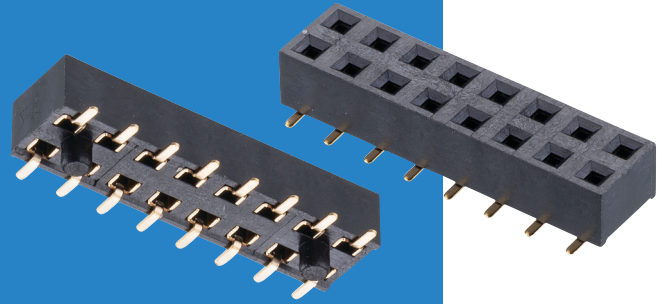
All dimensions in mm.

M20 Connectors

2.54mm (.100") PITCH

Female Vertical Surface Mount, Dual Entry

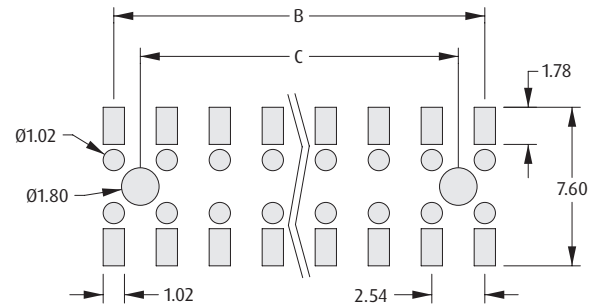
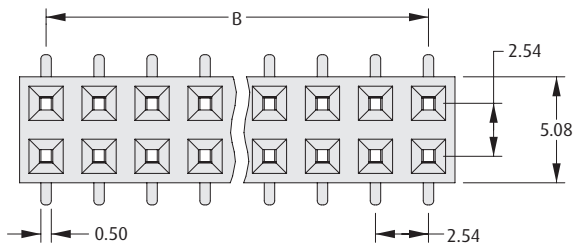
- ❏ Dual Entry socket - can be used as either a top entry or bottom entry configuration.
- ❏ Twin beam contact for cost-effective reliability.
- ❏ Tape and Reel option supplied fitted with Pick and Place cap.
- ❏ Suitable for use with mating M20 male pin headers, with 0.64mm square pins.



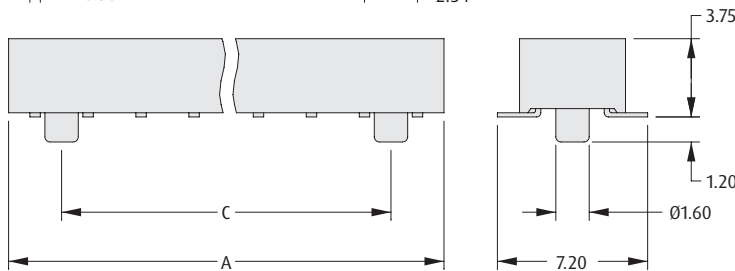
DOUBLE ROW

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)
C	B - 2.54



Recommended PC Board Pattern



HOW TO ORDER

M20 - 781 XX 45 X

SERIES CODE

NO. OF CONTACTS PER ROW

02 to 10, 12, 15, 20

PACKAGING

Blank	Loose
R	Tape & Reeled

FINISH

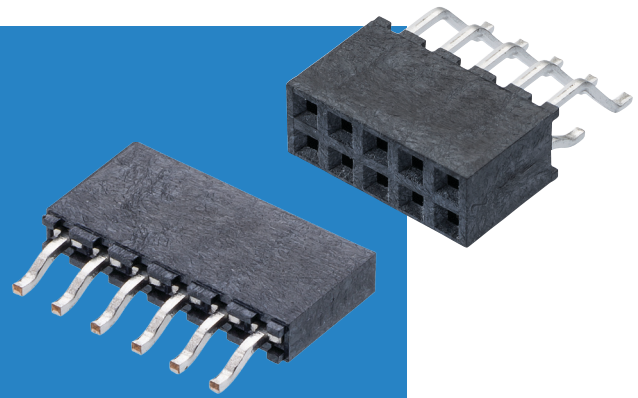
45	Gold
-----------	------

All dimensions in mm.

M20 Connectors

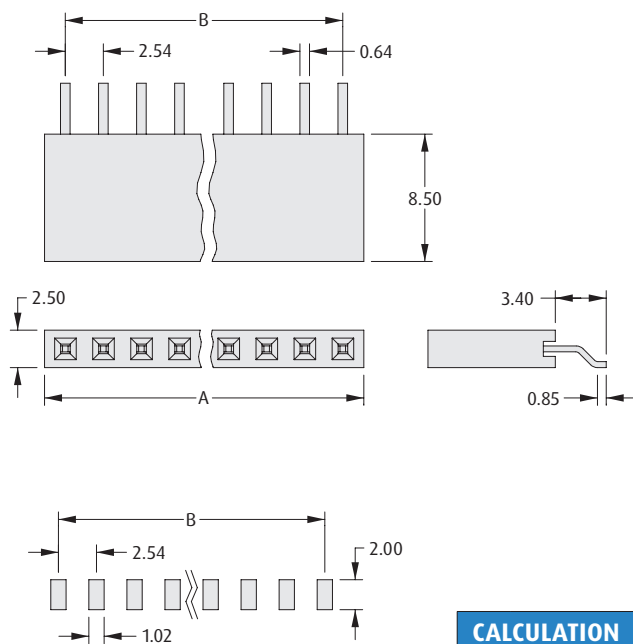
Female Horizontal Surface Mount

- Rear tail configuration, to allow mounting right up to the edge of the PCB.
- Supplied in Tape and Reel packaging as standard for use in automated assembly systems.



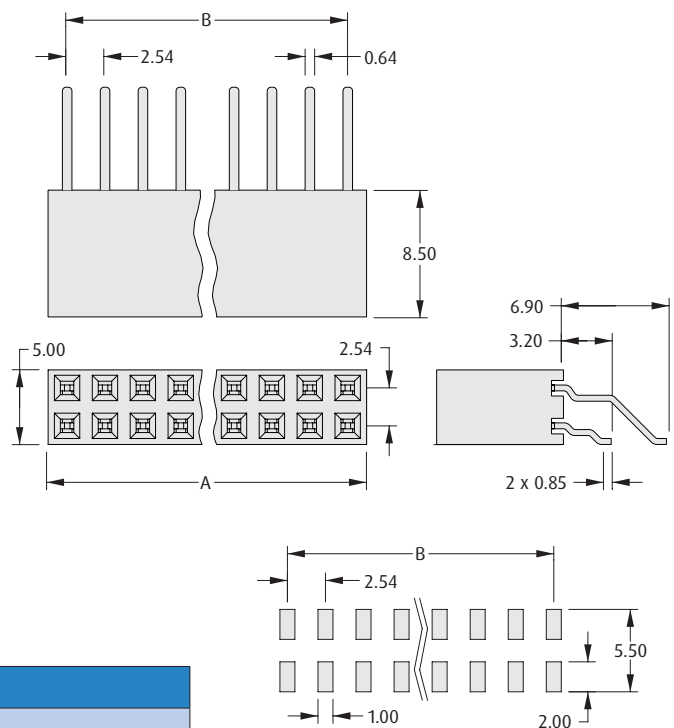
2.54mm (.100") PITCH

SINGLE ROW



Recommended PC Board Pattern

DOUBLE ROW



Recommended PC Board Pattern

CALCULATION

A	$B + 2.79$
B	$2.54 \times (\text{No. of contacts per row} - 1)$

HOW TO ORDER

M20 - 79 X XX 42 R

SERIES CODE

NO. OF ROWS

1	Single Row
2	Double Row

PACKAGING

R Tape & Reeled

FINISH

42 Gold + Tin

NO. OF CONTACTS PER ROW

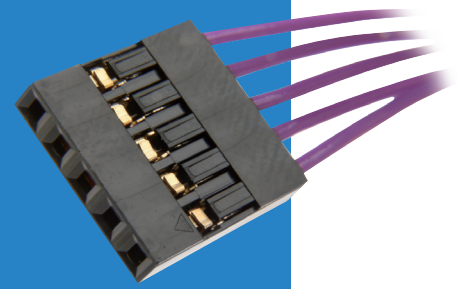
02 to 06, 08, 10

All dimensions in mm.

M20 Connectors

Female Crimp Housings

- Female crimp housing - contacts are ordered separately (shown on following page).
- For polarising key use **order code M20-003**



2.54mm (.100") PITCH

SINGLE ROW	CALCULATION	DOUBLE ROW	CALCULATION								
	<table border="1"> <tr> <td style="background-color: #0056b3; color: white;">A</td> <td>$B + 2.74$</td> </tr> <tr> <td style="background-color: #0056b3; color: white;">B</td> <td>$2.54 \times (\text{No. of contacts per row} - 1)$</td> </tr> </table>	A	$B + 2.74$	B	$2.54 \times (\text{No. of contacts per row} - 1)$		<table border="1"> <tr> <td style="background-color: #0056b3; color: white;">A</td> <td>$2.54 \times \text{No. of contacts per row}$</td> </tr> <tr> <td style="background-color: #0056b3; color: white;">B</td> <td>$2.54 \times (\text{No. of contacts per row} - 1)$</td> </tr> </table>	A	$2.54 \times \text{No. of contacts per row}$	B	$2.54 \times (\text{No. of contacts per row} - 1)$
A	$B + 2.74$										
B	$2.54 \times (\text{No. of contacts per row} - 1)$										
A	$2.54 \times \text{No. of contacts per row}$										
B	$2.54 \times (\text{No. of contacts per row} - 1)$										

HOW TO ORDER

M20 - 10 X XX 00

SERIES CODE

TYPE

6	Single Row
7	Double Row

NO. OF CONTACTS PER ROW

02 to 12

All dimensions in mm.

M20 Connectors

Female Crimp Contacts, Polarising Key

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

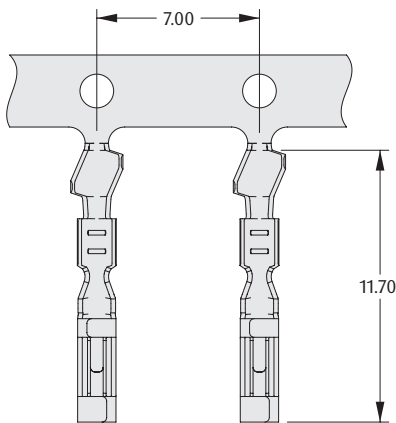


2.54mm (.100") PITCH

CONTACTS

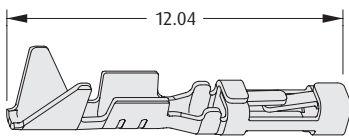
Reeled (continuous strip)

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



Loose (cropped)

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



HAND CRIMP TOOL

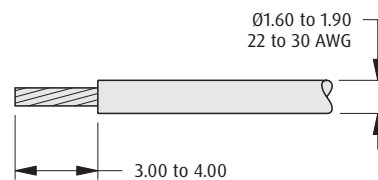
- ❖ Instruction sheet is available at www.harwin.com/instructions.
- ❖ For use with loose contacts.



ORDER CODE

Z20-320

WIRE STRIPPING DETAILS



HOW TO ORDER

M20 - 11 X 00 XX

SERIES CODE

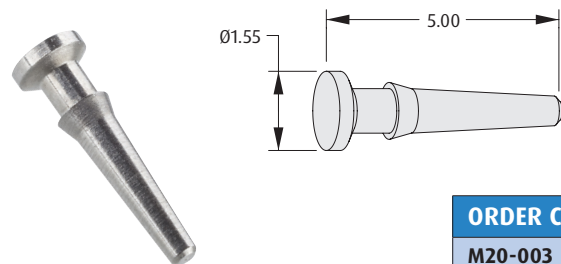
TYPE

6	Reeled Contacts
8	Loose Contacts

FINISH

42	Gold + Tin
46	Tin

POLARISING KEY



ORDER CODE

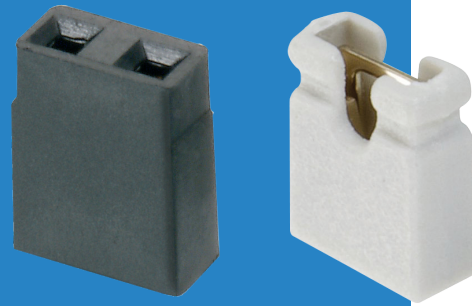
M20-003

All dimensions in mm.

M20 Connectors

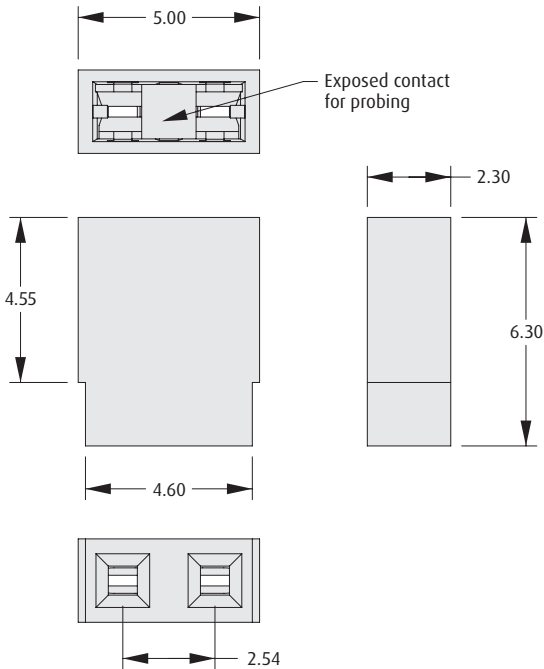
Jumper Sockets - Open Top

- ❖ Can be fitted by hand, giving an alternative on-board programming method to DIP switches.
- ❖ Open top for use with test probes.
- ❖ Choice of colours available.
- ❖ Multi-use socket provides up to 300 operations (Gold).
- ❖ Twin beam contact for cost-effective reliability.
- ❖ Suitable for use with mating M20 male pin headers, with 0.64mm square pins.

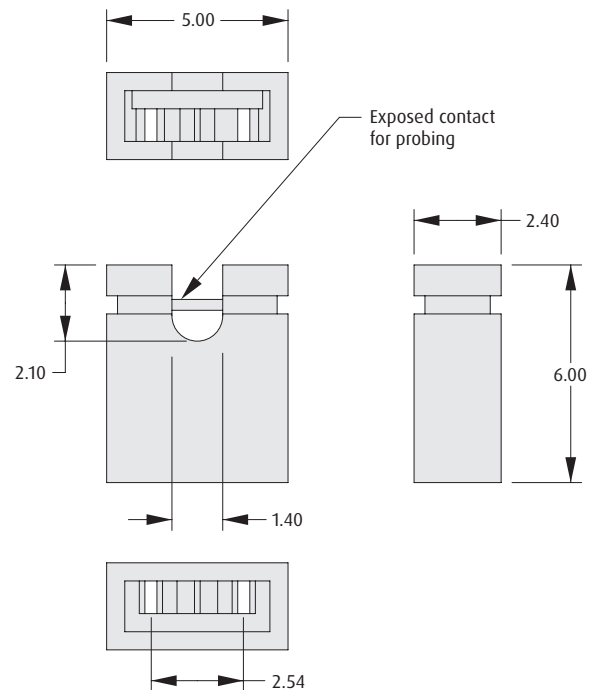


2.54mm (.100") PITCH

MULTI-USE



HIGH FORCE, SINGLE OPERATION



HOW TO ORDER

M75 XX - XX

SERIES CODE

MULTI-USE	SINGLE OPERATION	
65		Grey
66	81	Red
67	82	Black
71	83	Blue

FINISH

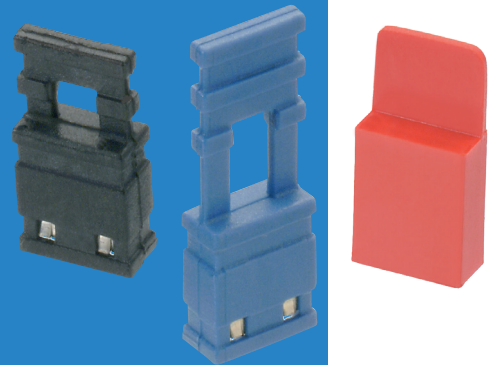
05	Gold
46	Tin

All dimensions in mm.

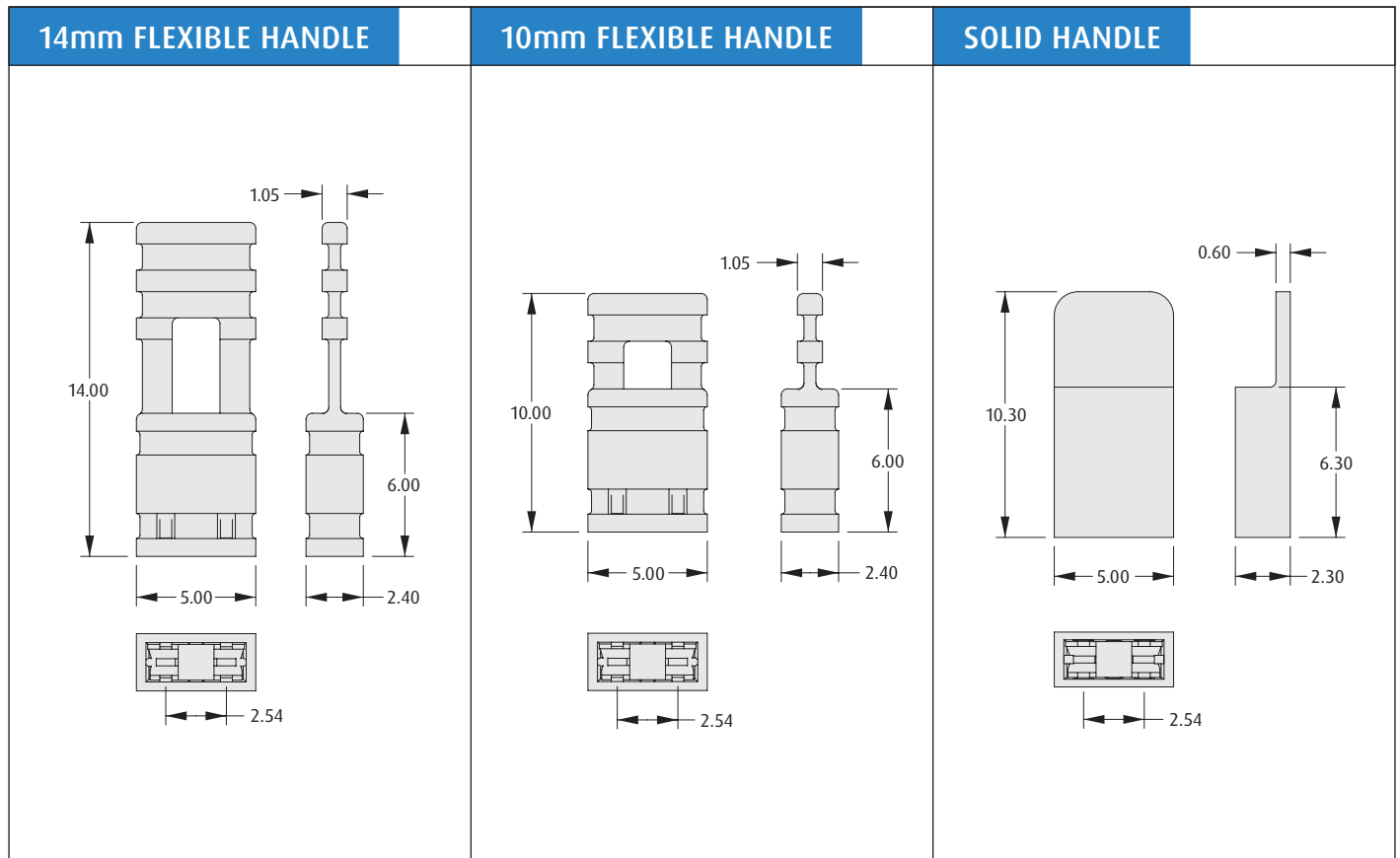
M20 Connectors

Jumper Sockets - Closed Top

- Can be fitted by hand, giving an alternative on-board programming method to DIP switches.
- Twin beam contact for cost-effective reliability.
- Suitable for use with mating M20 male pin headers, with 0.64mm square pins.
- Choice of colours available.
- Flexible handle for ease of location and withdrawal.



2.54mm (.100") PITCH



HOW TO ORDER

M7 XXX - XX

SERIES CODE

14mm HANDLE	10mm HANDLE	SOLID HANDLE	
680	684	965	Grey
681	685	966	Red
682	686	967	Black
683	687		Blue

FINISH

05	Gold
46	Tin

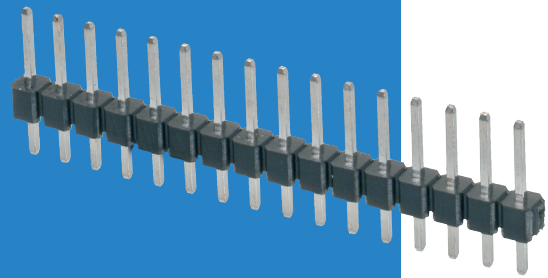
All dimensions in mm.

M20 Connectors

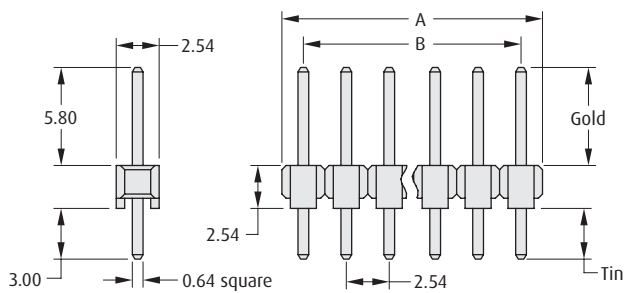
2.54mm (.100") PITCH

Male Vertical Single Row PC Tail

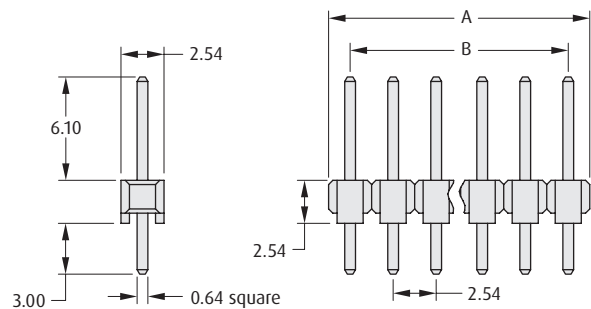
- ❖ Suitable for use with female connectors and jumper sockets shown on previous pages.
- ❖ Choice of mating pin lengths.
- ❖ Pin headers can be cut into smaller sizes.
- ❖ Also available with variable dimensions.



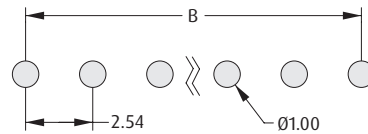
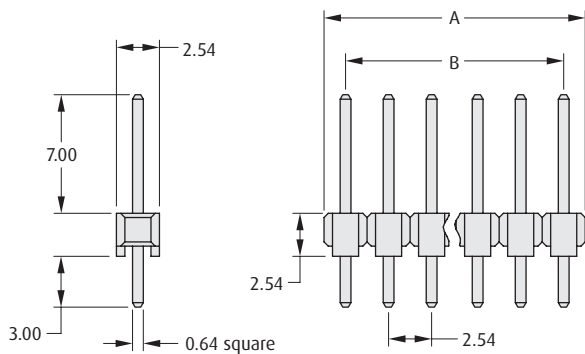
5.8mm



6.1mm



7.0mm



Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

TYPE

73	7.0mm Mating Height
77	5.8mm Mating Height
99	6.1mm Mating Height

FINISH

42	Gold + Tin (M20-977)
45	Gold (M20-973, 999)
46	Tin

NO. OF CONTACTS PER ROW

02 to 20, 25 to 28, 36, 40	7.0mm Mating Height
02 to 20, 25, 26, 32, 36, 40	5.8mm Mating Height
02 to 20, 23, 25, 30 to 33, 36, 40	6.1mm Mating Height

All dimensions in mm.

M20 Connectors

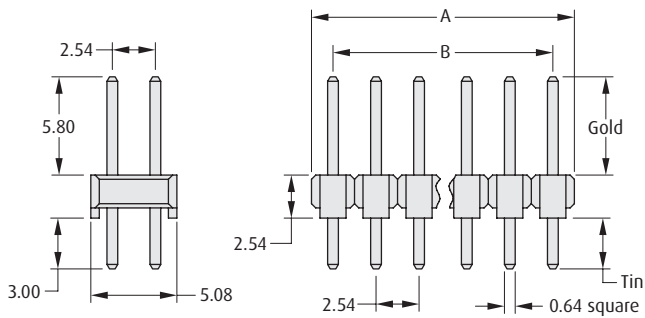
Male Vertical Double Row PC Tail

- Suitable for use with female connectors and jumper sockets shown on previous pages.
- Choice of mating pin lengths.
- Pin headers can be cut into smaller sizes.
- Also available with variable dimensions.

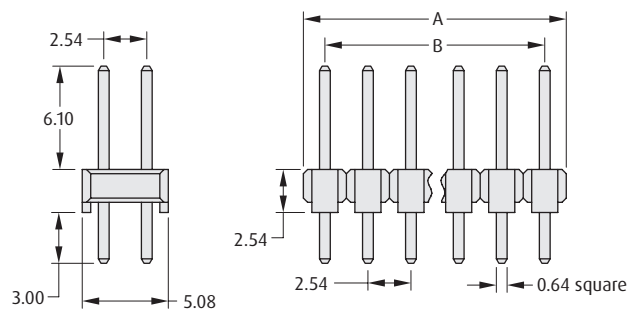


2.54mm (.100") PITCH

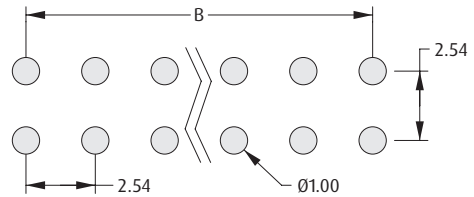
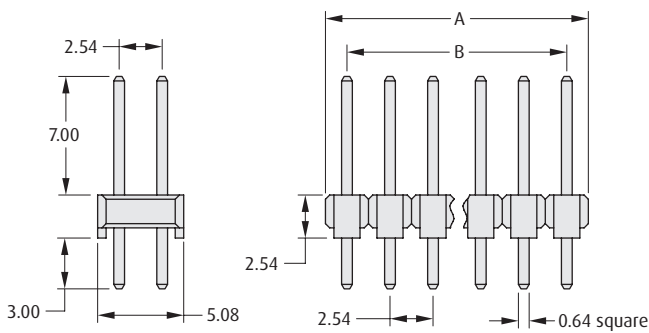
5.8mm



6.1mm



7.0mm



Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

TYPE	
72	7.0mm Mating Height
76	5.8mm Mating Height
98	6.1mm Mating Height

FINISH

42	Gold + Tin (M20-976)
45	Gold (M20-972, 998)
46	Tin

NO. OF CONTACTS PER ROW

02 to 20, 24, 25, 36, 40	7.0mm Mating Height
02 to 20, 25, 36, 40	5.8mm Mating Height
02 to 20, 23 to 25, 32, 36, 40	6.1mm Mating Height

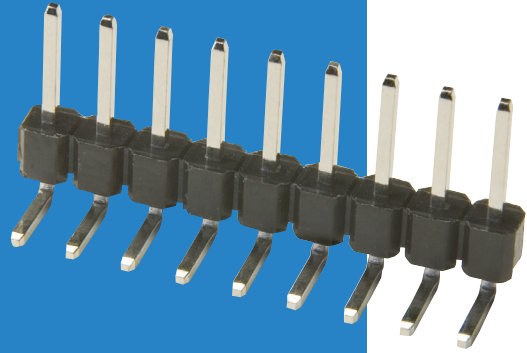
All dimensions in mm.

M20 Connectors

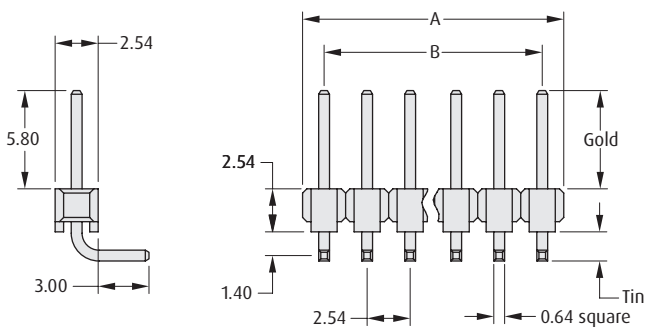
2.54mm (.100") PITCH

Male Horizontal Single Row PC Tail

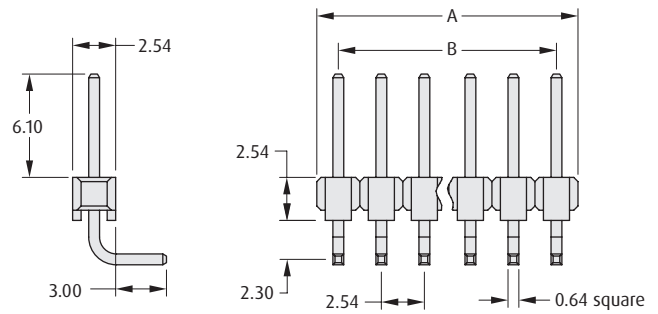
- ❖ Horizontal orientation for 90° board-to-board applications.
- ❖ Suitable for use with female connectors and jumper sockets shown on previous pages.
- ❖ Choice of mating pin lengths.
- ❖ Pin headers can be cut into smaller sizes.
- ❖ Also available with variable dimensions.



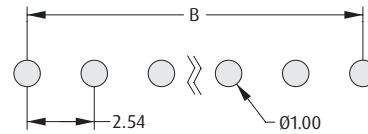
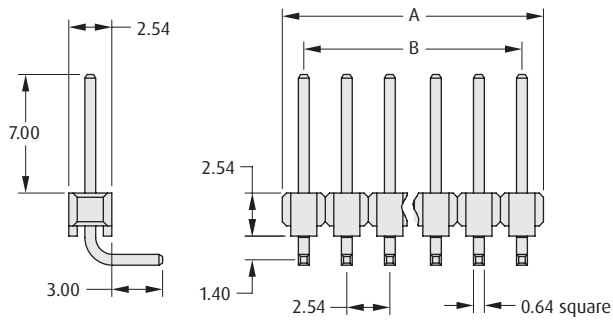
5.8mm



6.1mm



7.0mm



Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

TYPE

71	7.0mm Mating Height
75	5.8mm Mating Height
96	6.1mm Mating Height

FINISH

42	Gold + Tin (M20-975)
45	Gold (M20-971, 996)
46	Tin

NO. OF CONTACTS PER ROW

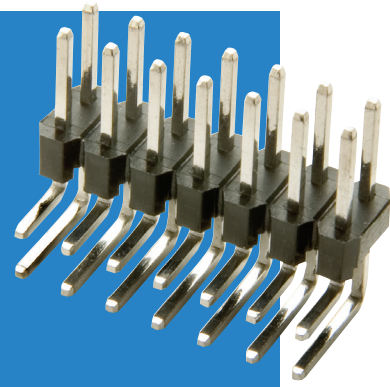
02 to 20, 22, 23, 26, 36, 40	7.0mm Mating Height
02 to 20, 25, 36, 40	5.8mm Mating Height
02 to 20, 24, 25, 36, 40	6.1mm Mating Height

All dimensions in mm.

M20 Connectors

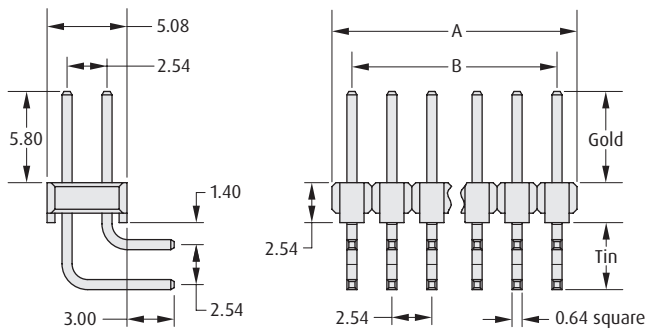
Male Horizontal Double Row PC Tail

- Horizontal orientation for 90° board-to-board applications.
- Suitable for use with female connectors and jumper sockets shown on previous pages.
- Choice of mating pin lengths.
- Pin headers can be cut into smaller sizes.
- Also available with variable dimensions.

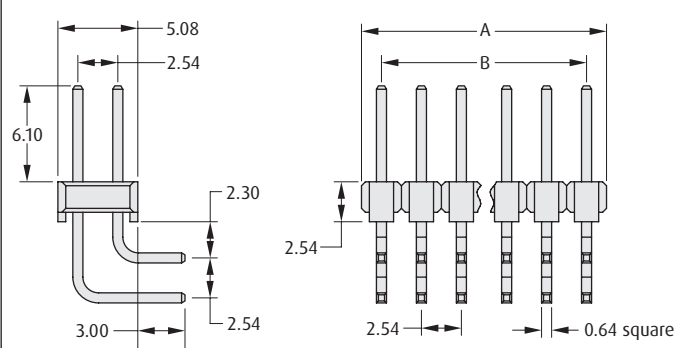


2.54mm (.100") PITCH

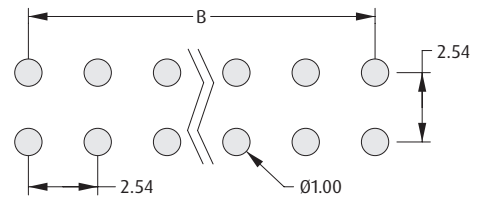
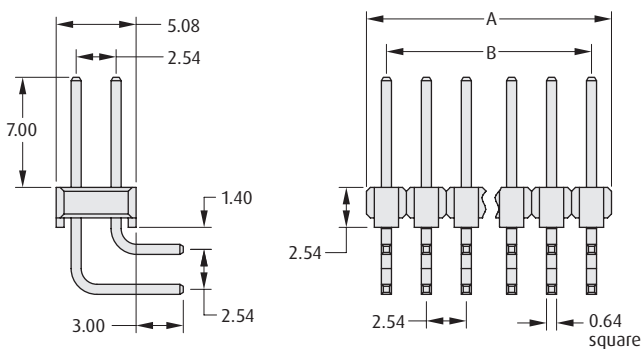
5.8mm



6.1mm



7.0mm



Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HOW TO ORDER

M20 - 9 XX XX XX

SERIES CODE

TYPE

70	7.0mm Mating Height
74	5.8mm Mating Height
95	6.1mm Mating Height

FINISH

42	Gold + Tin (M20-974)
45	Gold (M20-970, 995)
46	Tin

NO. OF CONTACTS PER ROW

02 to 20, 22, 25, 27, 36, 40	7.0mm Mating Height
02 to 20, 25, 36, 40	5.8mm Mating Height
02 to 20, 24, 25, 32, 36, 40	6.1mm Mating Height

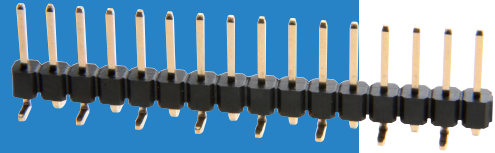
All dimensions in mm.

M20 Connectors

2.54mm (.100") PITCH

Male Vertical Surface Mount Single Row

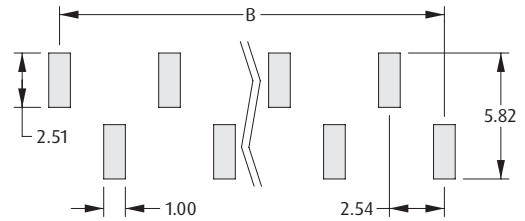
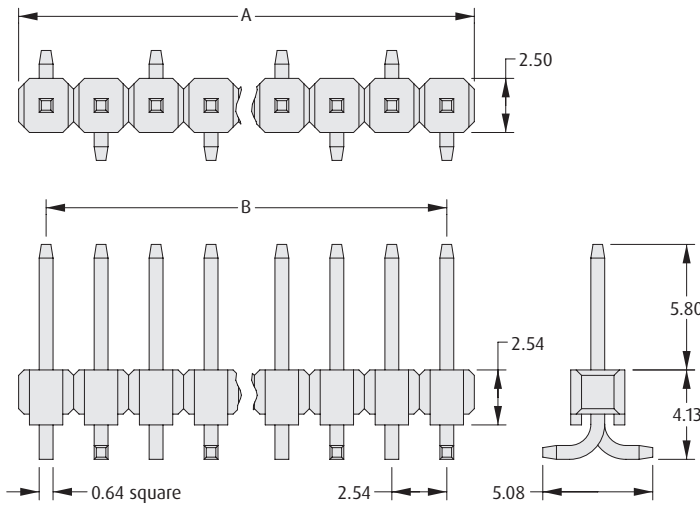
- Pin headers can be cut into smaller sizes.
- Also available with variable dimensions.
- Tape and Reel option supplied fitted with Pick and Place cap, contact technical@harwin.com for availability.
- Suitable for use with female connectors and jumper sockets shown on previous pages.



SINGLE ROW

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)



Recommended PC Board Pattern

HOW TO ORDER

M20 - 877 XX XX X

SERIES CODE

NO. OF CONTACTS PER ROW

02 to 20, 25, 36	Loose
02 to 20	Pick and Place cap, tube
02, 03, 04, 06, 08, 10, 15, 19	Tape & Reeled

PACKAGING

Blank	Loose
P	Pick and Place cap, tube
R	Tape & Reeled

FINISH

42	Gold + Tin
46	Tin

All dimensions in mm.

M20 Connectors

Male Vertical Surface Mount Double Row

- Pin headers without pegs can be cut into smaller sizes.
- Peg option to assist with location during surface mount process.
- Also available with variable dimensions.
- Tape and Reel option supplied fitted with Pick and Place cap, contact technical@harwin.com for availability.
- Suitable for use with female connectors and jumper sockets shown on previous pages.



2.54mm (.100") PITCH

WITHOUT PEGS	CALCULATION	WITH PEGS	CALCULATION
	A 2.54 x No. of contacts per row		A 2.54 x No. of contacts per row
	B 2.54 x (No. of contacts per row - 1)		B 2.54 x (No. of contacts per row - 1)
			C B - 2.54

Recommended PC Board Pattern

Recommended PC Board Pattern

HOW TO ORDER

M20 - 87 X XX XX X

SERIES CODE

TYPE

6	Without Pegs
5	With Pegs

NO. OF CONTACTS PER ROW

02 to 20, 25, 36	Without Pegs (Loose)
02 to 20, 23	Without Pegs (Tube)
02 to 08, 10	With Pegs (Loose)
02, 03, 05, 07, 08, 10	With Pegs (Reeled)

PACKAGING

Blank	Loose
P	Pick and Place cap, tube (Without Pegs)
R	Tape & Reeled

FINISH

42	Gold + Tin
46	Tin (Without Pegs)

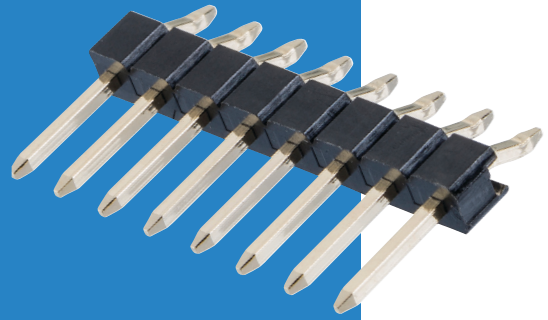
All dimensions in mm.

M20 Connectors

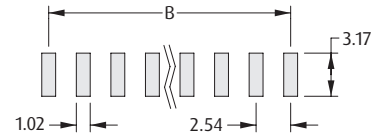
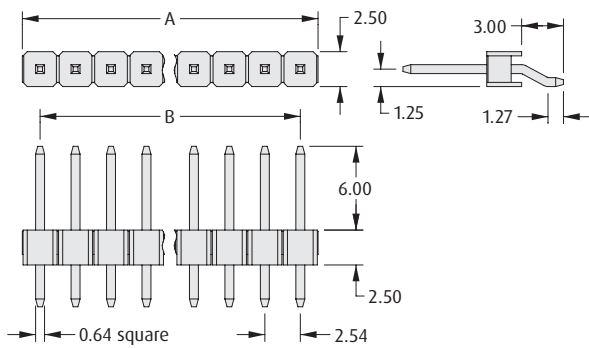
2.54mm (.100") PITCH

Male Horizontal Surface Mount Single Row

- Pin headers can be cut into smaller sizes.
- Contact technical@harwin.com for Tape and Reel options.
- Suitable for use with female connectors and jumper sockets shown on previous pages.
- Horizontal orientation for 90°C board-to-board applications.



STANDARD PROFILE

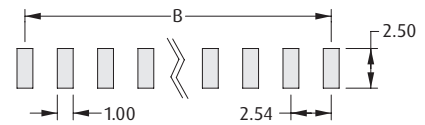
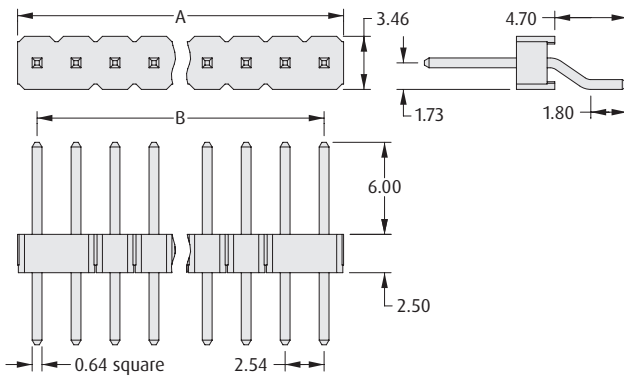


Recommended PC Board Pattern

CALCULATION

A	2.54 x No. of contacts per row
B	2.54 x (No. of contacts per row - 1)

HIGH PROFILE



Recommended PC Board Pattern

HOW TO ORDER

M20 - 8XX XX 05 X

SERIES CODE

TYPE

889	Standard Profile
890	High Profile

NO. OF CONTACTS PER ROW

02 to 06, 08, 10	Standard Profile
03 to 20	High Profile

PACKAGING

Blank	Loose
R	Tape & Reeled (Standard Profile)

FINISH

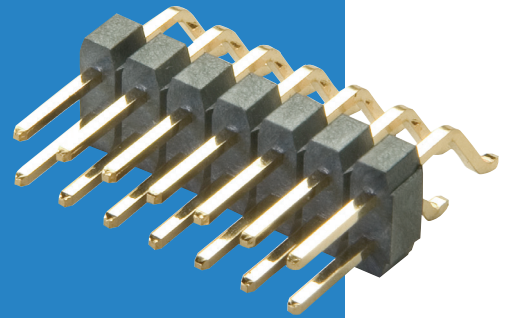
05	Gold (High Profile)
45	Gold (Standard Profile)

All dimensions in mm.

M20 Connectors

Male Horizontal Surface Mount Double Row

- Pin headers can be cut into smaller sizes.
- Contact technical@harwin.com for Tape and Reel options.
- Suitable for use with female connectors and jumper sockets shown on previous pages.
- Horizontal orientation for 90° board-to-board applications.

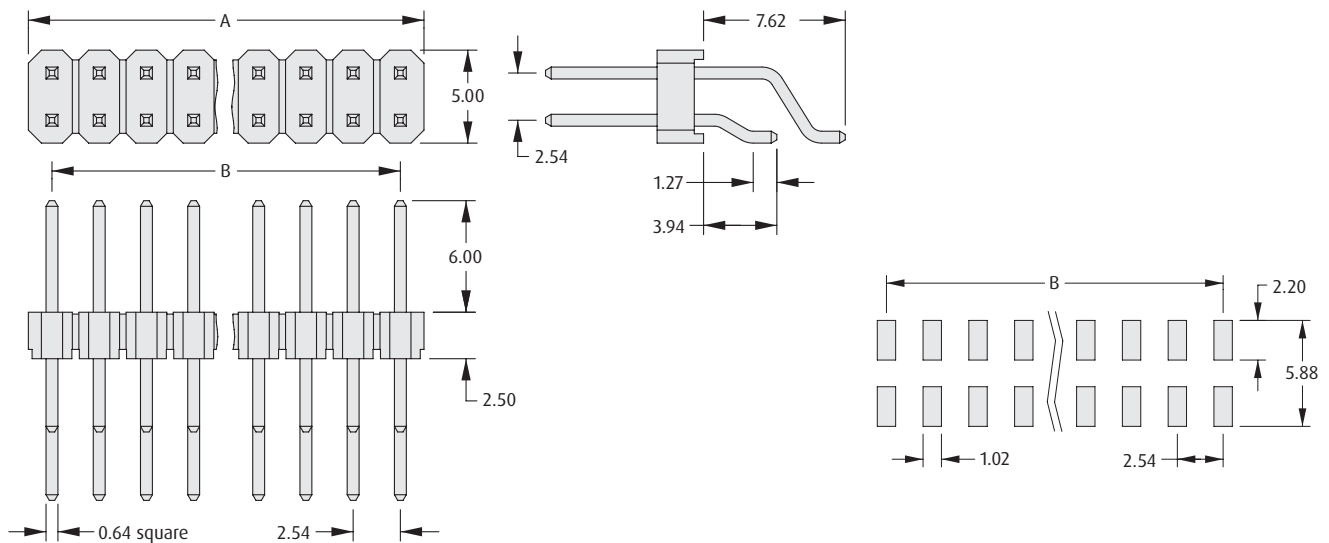


2.54mm (.100") PITCH

DOUBLE ROW

CALCULATION

A	$2.54 \times \text{No. of contacts per row}$
B	$2.54 \times (\text{No. of contacts per row} - 1)$



Recommended PC Board Pattern

HOW TO ORDER

M20 - 891 XX 05

SERIES CODE

FINISH

05 Gold

NO. OF CONTACTS PER ROW

02 to 20

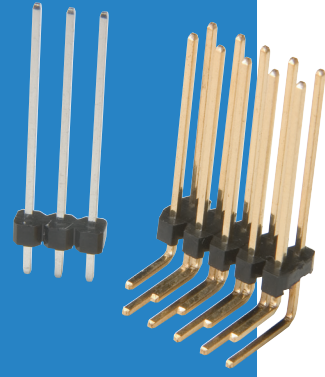
All dimensions in mm.

M20 Connectors

2.54mm (.100") PITCH

Pin Header Variants

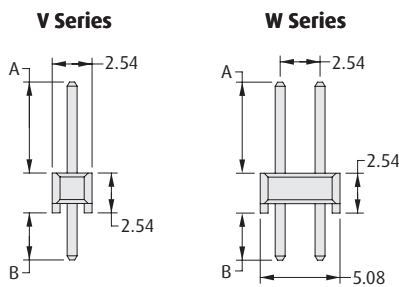
- ❖ If you are unable to specify the connector you require from our standard range of M20 connectors, use the order code below to create an application-specific connector.
- ❖ Contact technical@harwin.com for further information, or search online for M20-XXX.
- ❖ Suitable for use with female connectors shown on previous pages.



TERMINATION STYLES

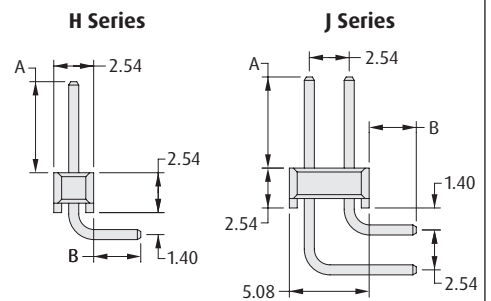
Vertical PC Tail

- ❖ Pin section is 0.64mm square.
- ❖ PCB mounting hole is $\varnothing 1.00\text{mm}$.



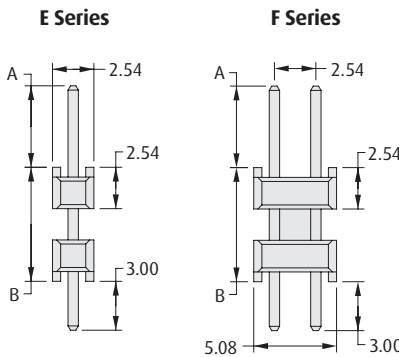
Horizontal PC Tail

- ❖ Pin section is 0.64mm square.
- ❖ PCB mounting hole is $\varnothing 1.00\text{mm}$.
- ❖ Maximum B dimension is 6.00mm.



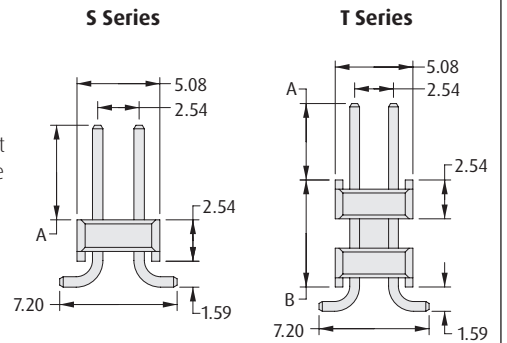
Extended PC Tail

- ❖ Pin section is 0.64mm square.
- ❖ PCB mounting hole is $\varnothing 1.00\text{mm}$.



Vertical SMT Extended SMT

- ❖ Pin section is 0.64mm square.
- ❖ For PCB pad layout see standard Male SMT pin header.
- ❖ B dimension is 000 on S series.



HOW TO ORDER

M20 - XXX XXX X XX XX

SERIES CODE

DIMENSION A

Example: 7.8mm = 078

DIMENSION B

Example: 5.0mm = 050

FINISH

45 Gold

46 Tin

NO. OF CONTACTS PER ROW

02 to 40

SINGLE ROW	DOUBLE ROW	
V	W	Vertical
H	J	Horizontal
E	F	Extended
-	S	Surface Mount
-	T	Extended Surface Mount

All dimensions in mm.

PC/104, PC/104 Plus Specification

- Industry Standard bus connection systems, typically used on embedded PC applications.
- Designed for Board-To-Board stacking with a common bus.

PC/104 Connectors – 2.54mm pitch (M20)

Materials

Mouldings:	High Temperature Plastic, UL94V-0
Contacts:	Phosphor Bronze
Finish:	Gold

Electrical

Current	
Solder Tail:	3A max
Press-Fit Tail:	1A max
Working voltage:	12V DC
Voltage proof:	1,000V AC
Contact resistance:	30mΩ max
Insulation resistance:	5,000MΩ min

Mechanical

Durability	
Mating:	10 operations
Press-fit:	3 operations
Insertion force (max):	2.0N per contact
Withdrawal force (min):	0.25N per contact
Insertion force to board (max)	
Press-Fit:	80N per contact

Environmental

Temperature range:	-55°C to +105°C
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PC/104 Plus – 2.00mm pitch (M22)

Materials

Mouldings:	High Temperature Plastic, UL94V-0
Contacts	
M22-602:	Brass
Others:	Phosphor Bronze
Finish:	See order code

Electrical

Current:	1A max
Working voltage:	12V DC
Voltage proof:	800V AC
Contact resistance:	30mΩ max
Insulation resistance:	5,000MΩ min

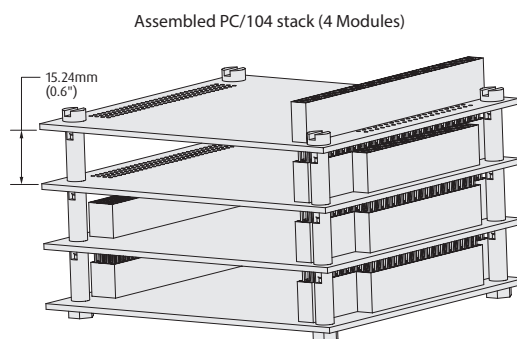
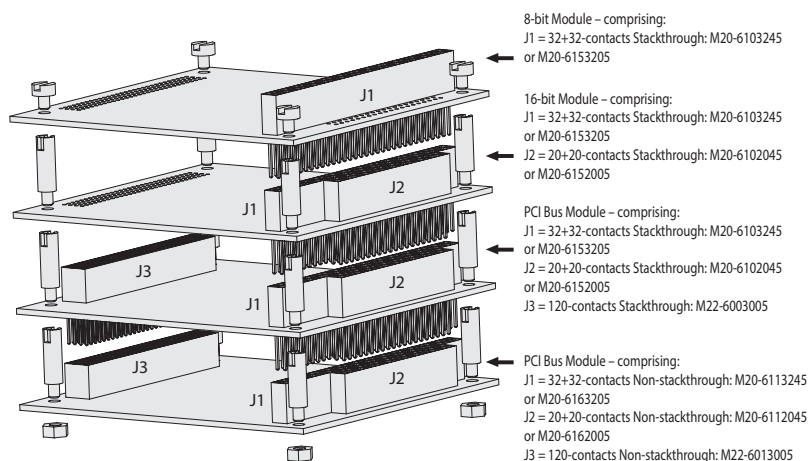
Mechanical

Durability:	10 operations
Insertion force (max):	2.0N per contact
Withdrawal force (min):	0.3N per contact

Environmental

Temperature range:	-55°C to +105°C
--------------------	-----------------

Typical PC/104 & PC/104-Plus Module Stack

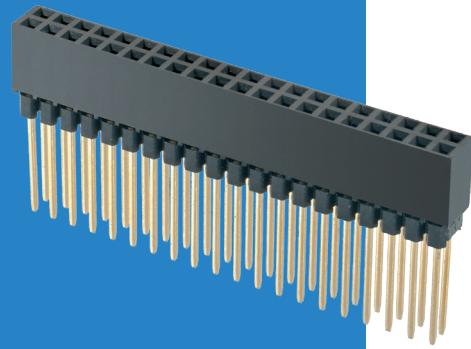


All dimensions in mm.

PC/104 Connectors

2.54mm Pitch Vertical Bus Connectors

- ❖ 32+32 contacts supports an 8-bit system.
- ❖ 20+20 contacts combined with 32+32 contacts supports a 16-bit system.
- ❖ Press-fit connectors can be assembled direct to the PCB without soldering, using plated-through holes.
- ❖ Stackthrough connectors act as both male and female connectors.



PC/104, PC/104 PLUS

SOLDER TAIL	CALCULATION	PRESS-FIT TAIL	CALCULATION
	A B + 3.2		A B + 3.56
	B 2.54 x (No. of contacts per row - 1)		B 2.54 x (No. of contacts per row - 1)
	C 2.54 x No. of contacts per row		C 2.54 x No. of contacts per row

Recommended PC Board Pattern

Recommended PC Board Pattern

Press-Fit connector M20-615 supplied with spacer moulding

HOW TO ORDER

M20 - 61 X XX XX

SERIES CODE

TYPE	
0	Stackthrough, 12.20mm Solder Tail
1	Non-Stackthrough, 2.30mm Solder Tail
5	Stackthrough, 12.10mm Press-Fit Tail
6	Non-Stackthrough, 3.40mm Press-Fit Tail

FINISH

05	Gold (M20-615, 616)
45	Gold (M20-610, 611)

NO. OF CONTACTS PER ROW

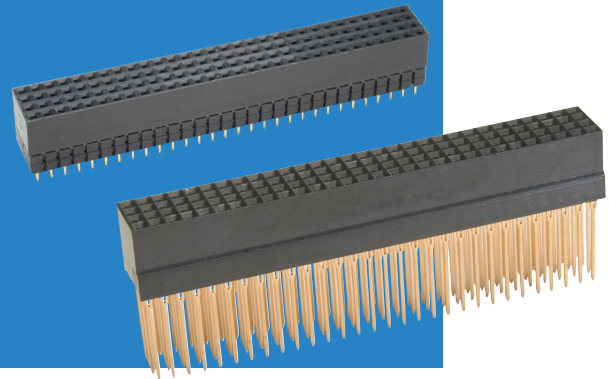
20, 32

All dimensions in mm.

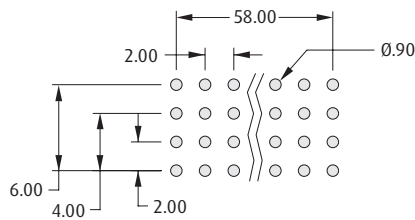
PC/104 Plus Connectors

2mm Pitch Vertical Bus Connectors

- Supports PCI bus.
- Stackthrough connectors act as both male and female connectors.
- Available in Solder tail configuration.

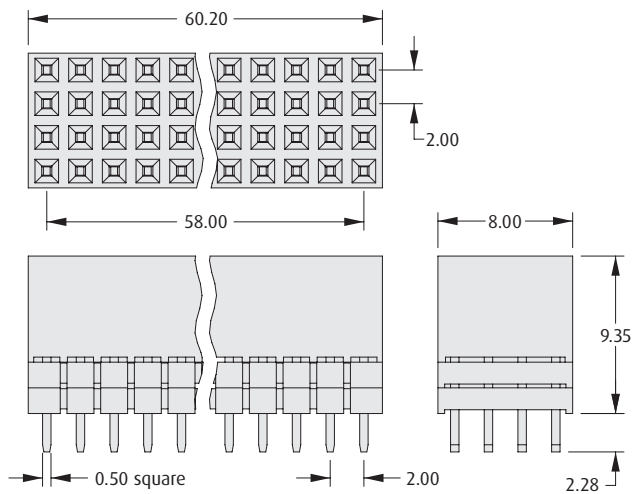


PC/104, PC/104 PLUS

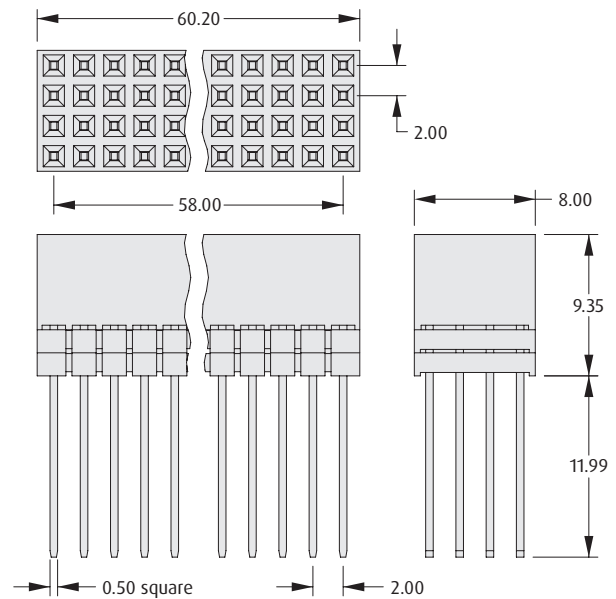


Recommended PC Board Pattern

NON-STACKTHROUGH



STACKTHROUGH



HOW TO ORDER

M22 - 60 X 30 05

SERIES CODE

TYPE

0	Stackthrough
1	Non-Stackthrough

FINISH

05 Gold

NO. OF CONTACTS PER ROW

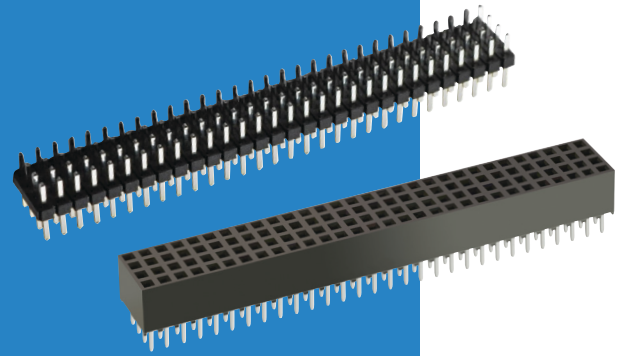
30

All dimensions in mm.

PC/104 Plus Connectors

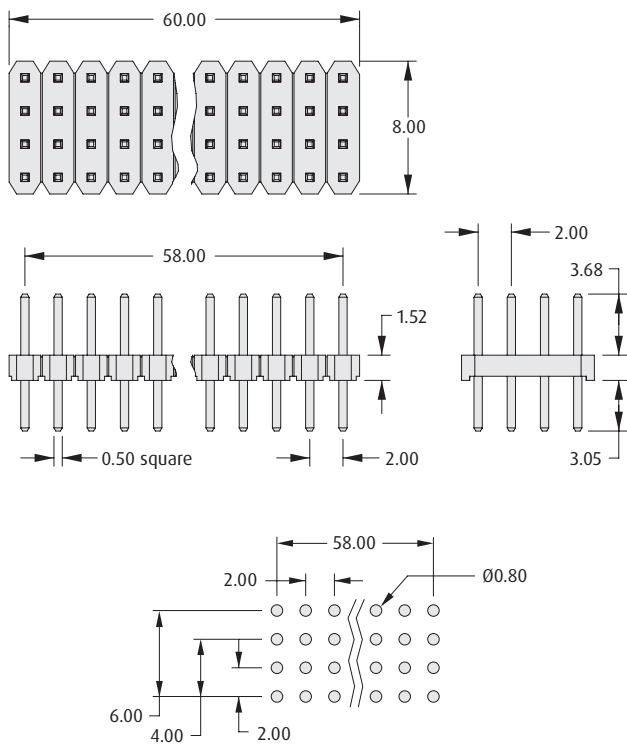
2mm Pitch Accessory Connectors

➤ Accessory connectors for use with the PC/104 Plus range.



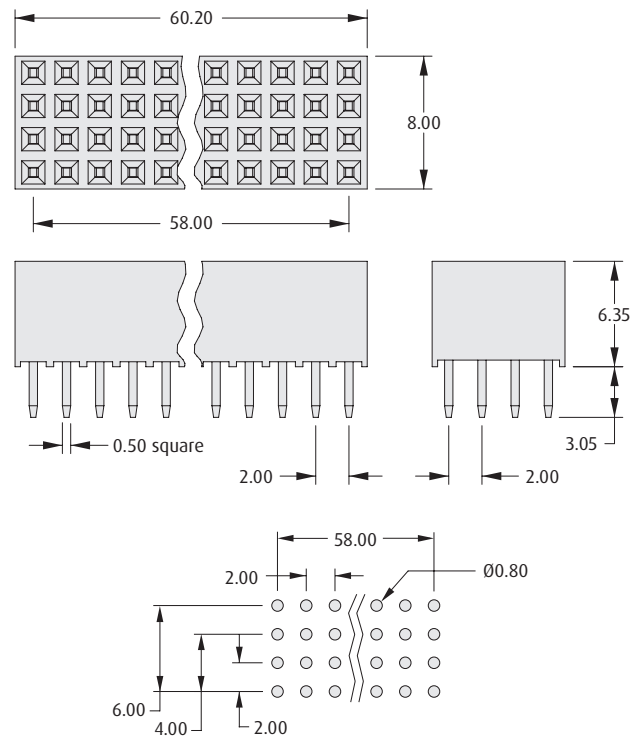
PC/104, PC/104 PLUS

PC/104 PLUS POST HEADER



Recommended PC Board Pattern

PC/104 PLUS POST HEADER RECEPTACLE



Recommended PC Board Pattern

HOW TO ORDER

M22 - 60 X 30 42

SERIES CODE

FINISH

42 Gold + Tin

TYPE

2 Post Header

3 Post Receptacle

NO. OF CONTACTS PER ROW

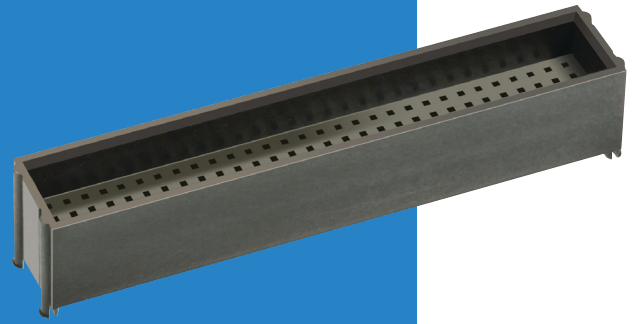
30

All dimensions in mm.

PC/104 Plus Connectors

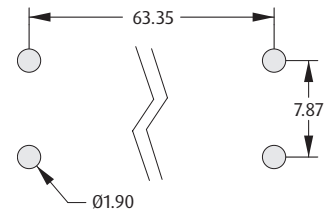
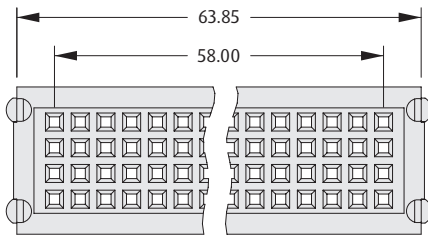
Accessories

- Accessory components for use with the PC/104 Plus range.
- The shroud is used to protect the long tails of the Stackthrough connector from the previous page, and ensures alignment with a mating connector. It self retains on the underside of the PCB after the Stackthrough connector has been soldered to the PCB, by latching into the four mounting holes.

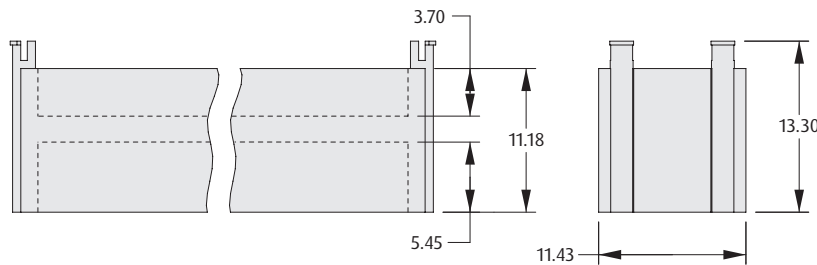


PC/104, PC/104 PLUS

PC/104 PLUS SHROUD



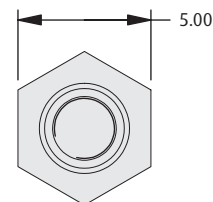
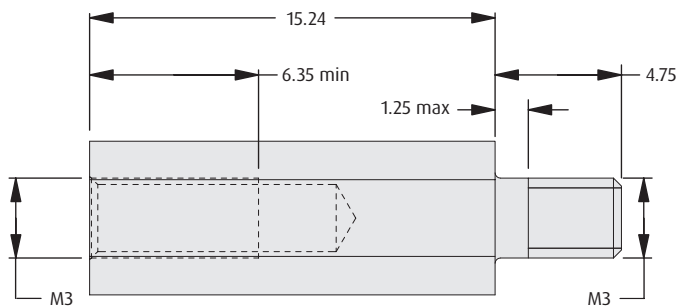
Recommended PC Board Pattern



ORDER CODE

M22-6043098

PC/104 SPACER



ORDER CODE

R6104-02

All dimensions in mm.