

# PCB Connectors

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# M40-600/620 Connectors Specification

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

## ❖ Materials

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

## ❖ Electrical

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

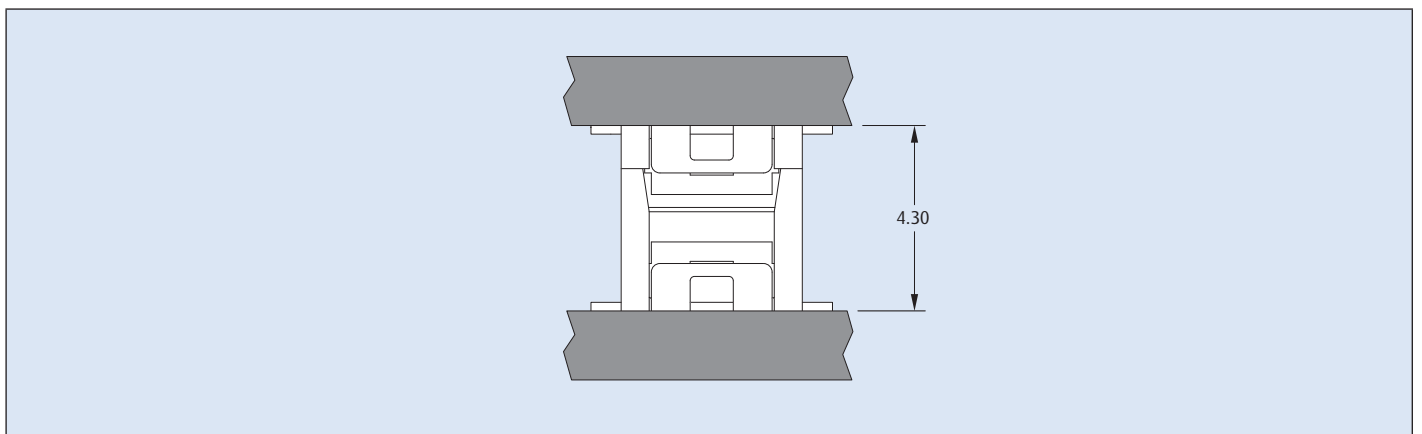
## ❖ Mechanical

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

## ❖ Environmental

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

## Mating Profile



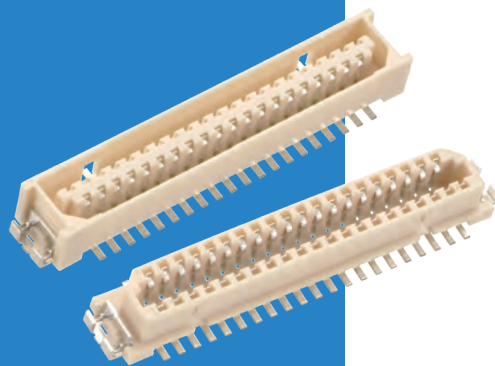
All dimensions in mm.

# M40-600/620 Connectors

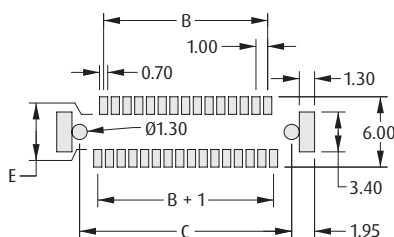
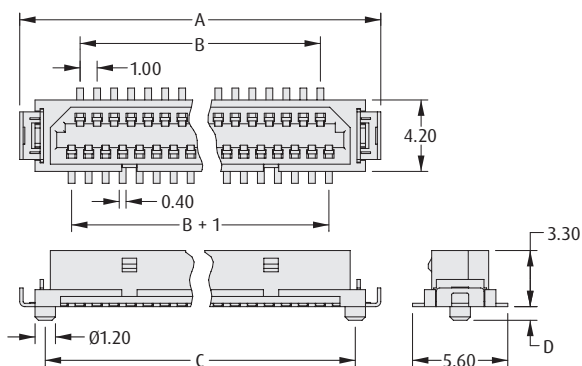
1mm (.039") PITCH

## Vertical Surface Mount

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



### FEMALE

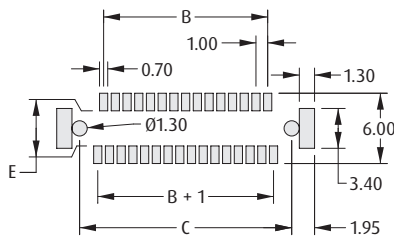
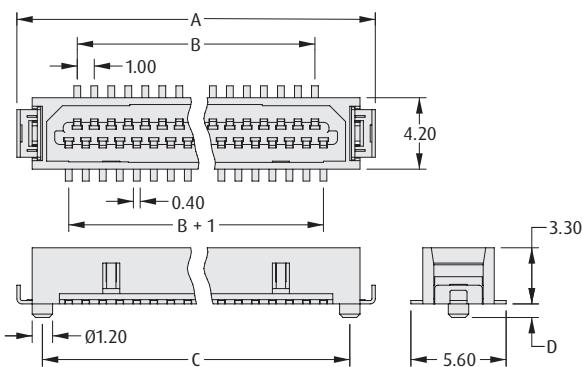


Recommended PC Board Pattern

#### CALCULATION

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

<b>0</b>	Male
<b>2</b>	Female

#### PACKAGING

<b>Blank</b>	Loose
<b>R</b>	Tape & Reeled

#### FINISH

<b>46</b>	Tin
-----------	-----

#### 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

Housings:	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

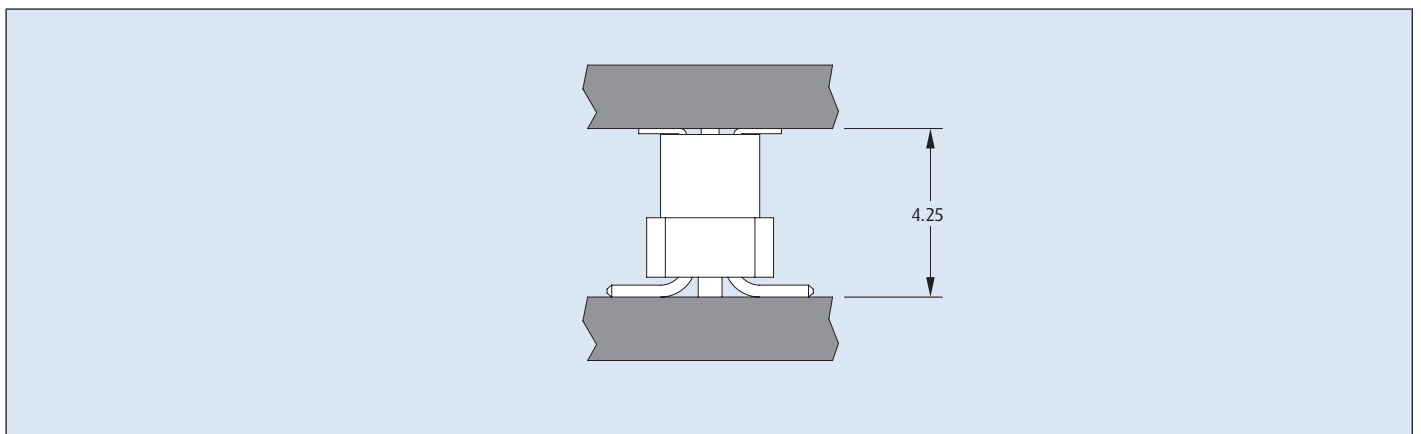
## ❖ Mechanical

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 <sup>2</sup> (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

## Mating Profile

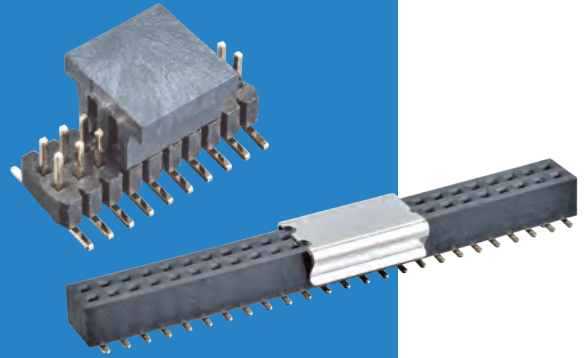


All dimensions in mm.

# M40-310/320 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	
		<b>A</b>	$B + 1.4$
		<b>B</b>	No. of contacts per row - 1
		<b>C</b>	No. of contacts per row - 2
		<p>Recommended PC Board Pattern</p>	
MALE		CALCULATION	
		<b>A</b>	No. of contacts per row
		<b>B</b>	No. of contacts per row - 1
		<b>C</b>	No. of contacts per row - 2
		<p>Recommended PC Board Pattern</p>	
HOW TO ORDER			
<b>M40 - 3 X 0 XX 45 R</b>			
<b>SERIES CODE</b>	M40 - 3 X 0		<b>TAPE &amp; REELED</b>
<b>GENDER</b>	XX		<b>FINISH</b>
1 Female			45 Gold
2 Male			
	45 R		<b>NO. OF CONTACTS PER ROW</b>
			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

Housings	
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

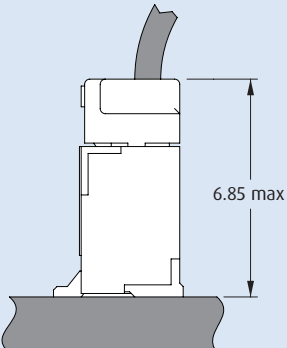
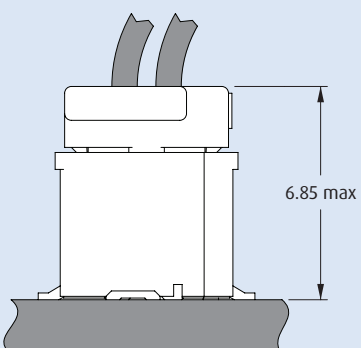
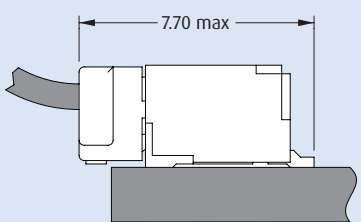
## Mechanical

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 <sup>2</sup> (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

## Mating Profiles

		FEMALE CRIMP	
		SINGLE ROW	DOUBLE ROW
MALE	VERTICAL SMT		
	HORIZONTAL SMT		

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
	<b>A</b> B + 4		<b>A</b> B + 4
	<b>B</b> No. of contacts per row - 1		<b>B</b> No. of contacts per row - 1

### HOW TO ORDER

**M40 - 1X0 XX 00**

**SERIES CODE**

**TYPE**

<b>110</b>	Single Row
<b>120</b>	Double Row

**NO. OF CONTACTS PER ROW**

<b>02 to 20</b>	Single Row
<b>05 to 10, 12, 15, 20, 25</b>	Double Row

All dimensions in mm.

# M40 Cable-to-Board Connectors

## Female Crimp Contacts

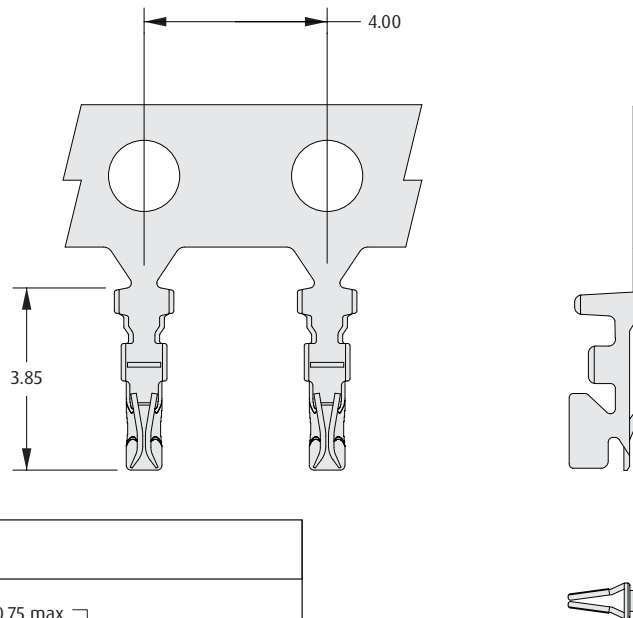
- ❖ Open crimp design, ideal for automation.
- ❖ Use with female crimp housings shown on previous page.
- ❖ Pre-crimped contacts with wire attached shown on following page.
- ❖ Requires crimp machine with applicable tooling for crimping to wires.



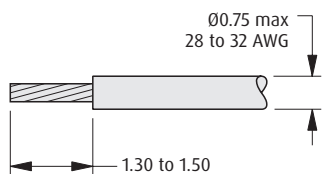
1mm (.039") PITCH

### 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

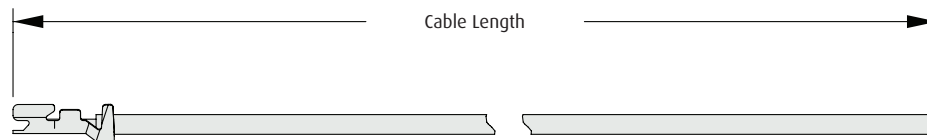
## Female Crimp Contacts - Pre-Crimped Wires

- 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.

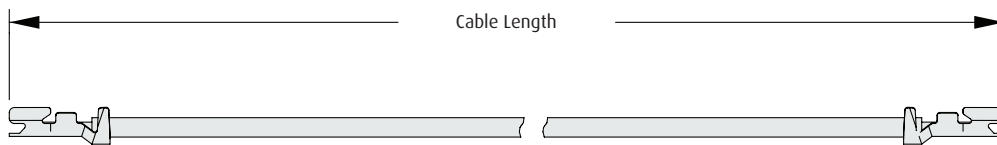


1mm (.039") PITCH

### FEMALE SINGLE ENDED



### FEMALE - FEMALE



### HOW TO ORDER

**M40 - 9XX 00 99**

**SERIES CODE**

**CABLE COLOR**

**99** | Red

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

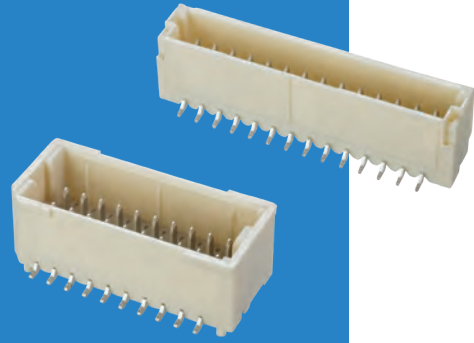
All dimensions in mm.

# M40 Cable-to-Board Connectors

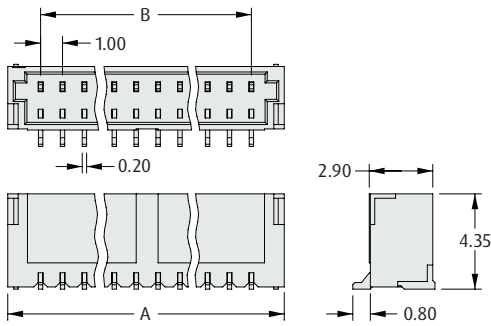
1mm (.039") PITCH

## Male Vertical Surface Mount

- ❖ Shrouded male connectors.
- ❖ Double row connector features locating pegs to ensure correct positioning onto the board.
- ❖ Tape and Reeled packaging is supplied fitted with pick and place cap.

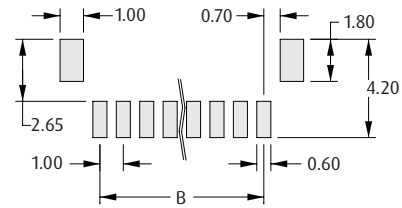


### SINGLE ROW



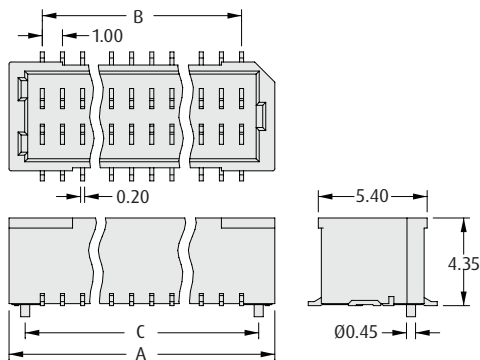
### CALCULATION

<b>A</b>	$B + 3$
<b>B</b>	No. of contacts per row - 1



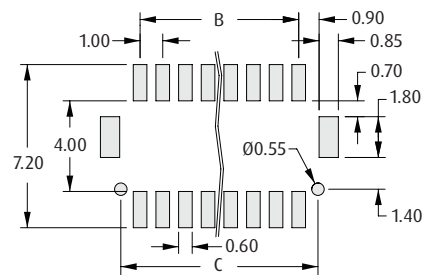
Recommended PC Board Pattern

### DOUBLE ROW



### CALCULATION

<b>A</b>	$B + 3$
<b>B</b>	No. of contacts per row - 1
<b>C</b>	$B + 1.7$



Recommended PC Board Pattern

### HOW TO ORDER

**M40 - 30 X XX 46 X**

#### SERIES CODE

#### TYPE

<b>1</b>	Single Row
<b>2</b>	Double Row

#### PACKAGING

<b>Blank</b>	Loose (double row only)
<b>R</b>	Tape & Reeled

#### FINISH

**46** Tin

#### NO. OF CONTACTS PER ROW

<b>02 to 20</b>	Single Row
<b>05 to 08, 10, 12, 15</b>	Double Row

All dimensions in mm.

# M40 Cable-to-Board Connectors

## Male Horizontal Surface Mount

- Shrouded male connectors.
- Tape and Reeled packaging - does not require pick and place cap.

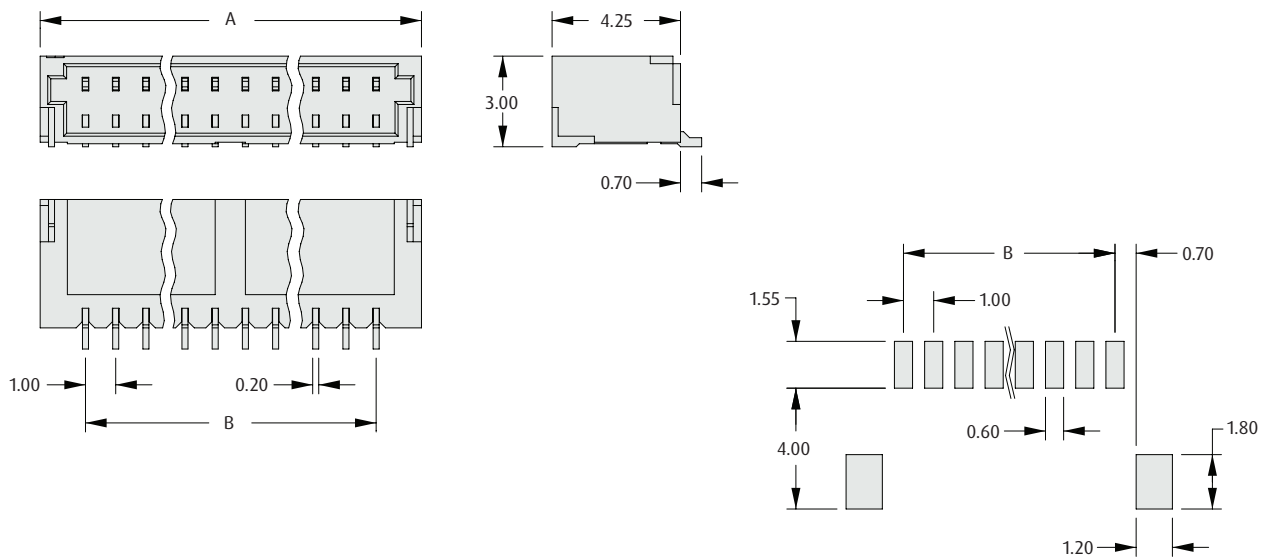


1mm (.039") PITCH

### SINGLE ROW

### CALCULATION

<b>A</b>	$B + 3$
<b>B</b>	No. of contacts per row - 1



Recommended PC Board Pattern

### HOW TO ORDER

**M40 - 401 XX 46 R**

**SERIES CODE**

**NO. OF CONTACTS PER ROW**

02 to 20

**PACKAGING**

**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

Housings	
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

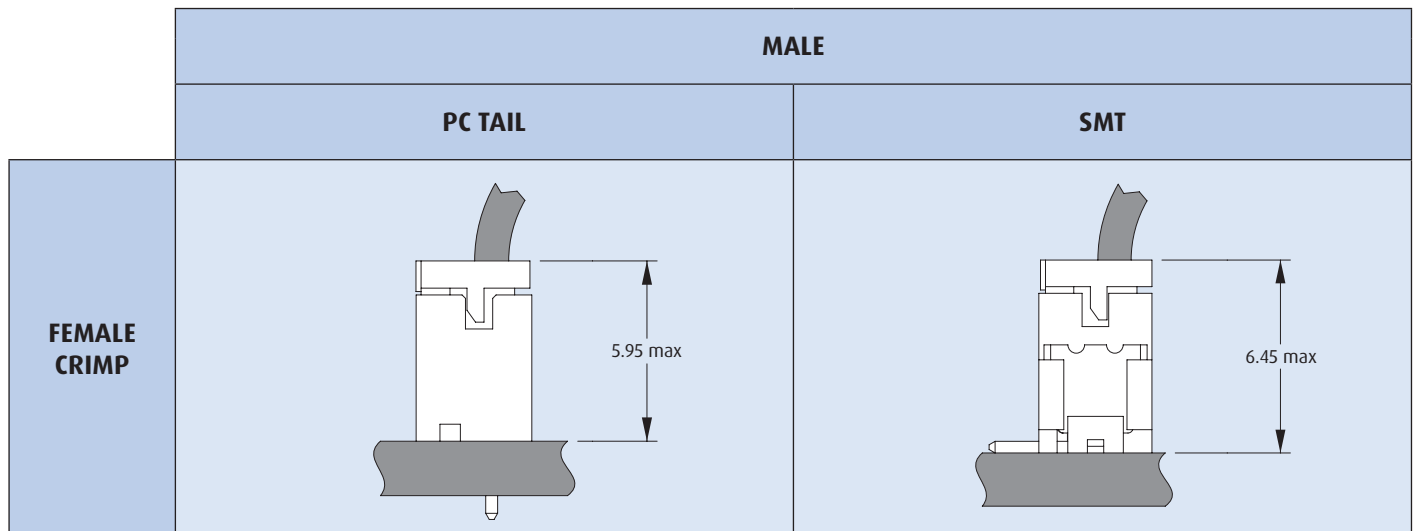
## ❖ Mechanical

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 <sup>2</sup> (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

## Mating Profiles

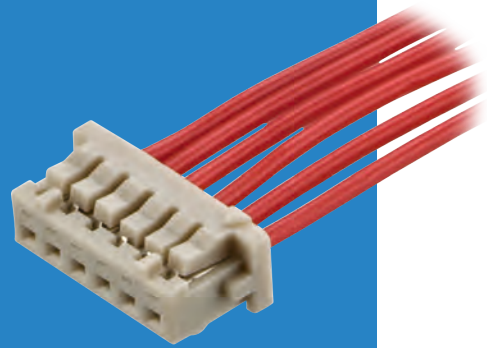


All dimensions in mm.

# M30 Connectors

## Female Crimp Housing

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

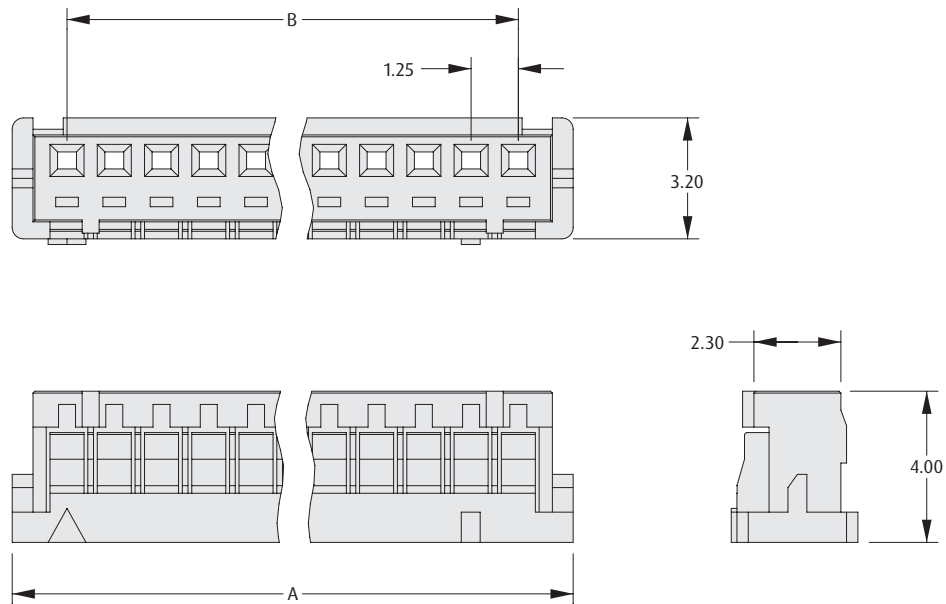


1.25mm (.049") PITCH

### HOUSING

### CALCULATION

<b>A</b>	$B + 2.9$
<b>B</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

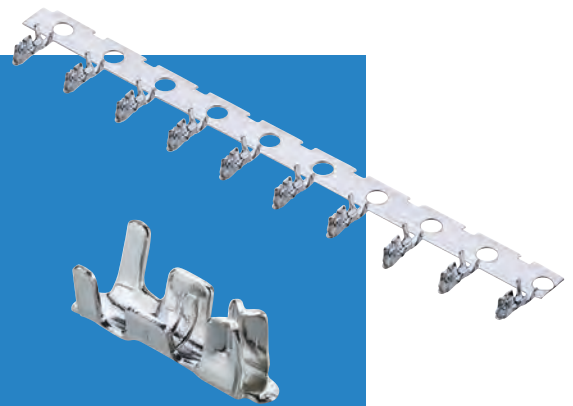
02 to 15

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.

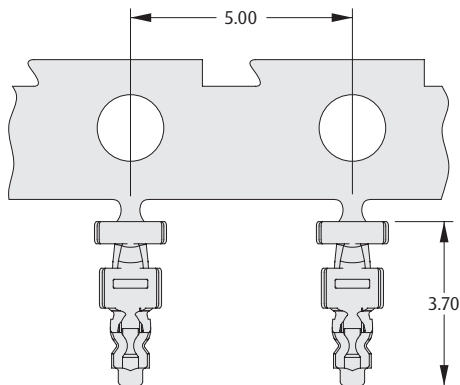


1.25mm (.049") PITCH

### CONTACTS

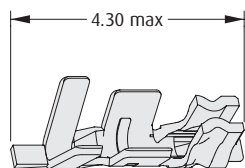
#### Reeled (continuous strip)

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



#### Loose (cropped)

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



### HAND CRIMP TOOL

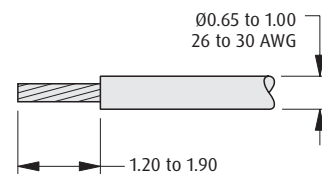
- ❖ Instruction sheet is available at [www.harwin.com/instructions](http://www.harwin.com/instructions).
- ❖ For use with loose contacts.



#### ORDER CODE

Z30-021

### WIRE STRIPPING DETAILS



### HOW TO ORDER

**M30 - 10 X 00 46**

#### SERIES CODE

#### TYPE

5	Reeled contact
6	Loose contact

#### FINISH

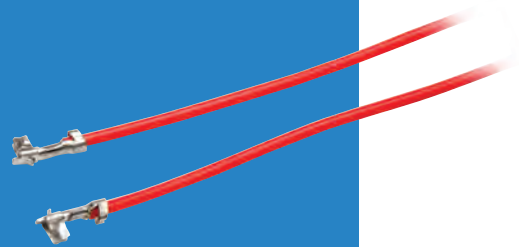
46 Tin

All dimensions in mm.

# M30 Connectors

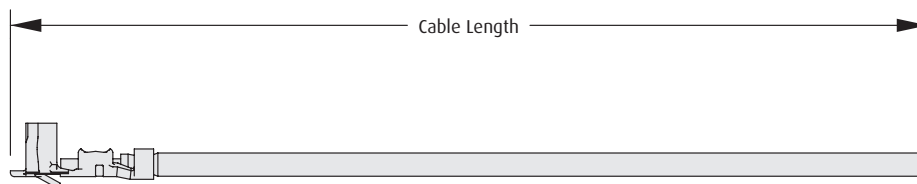
## Female Crimp Contacts – Pre-Crimped Wires

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

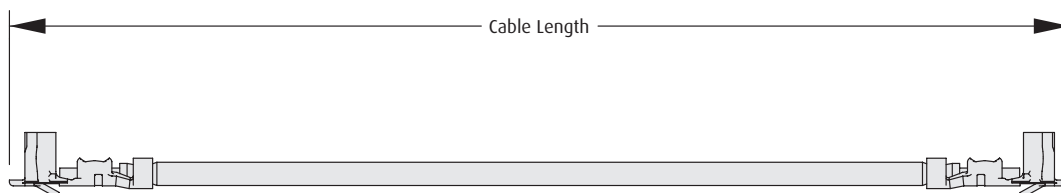


1.25mm (.049") PITCH

### FEMALE SINGLE ENDED



### FEMALE - FEMALE



### HOW TO ORDER

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

SERIES CODE

CABLE COLOR

99 Red

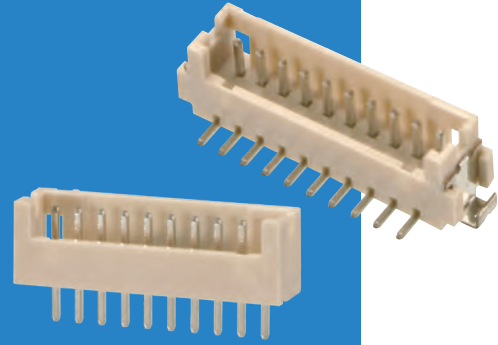
SINGLE ENDED	FEMALE - FEMALE	
900	904	26 AWG cable, 150mm length
901	905	30 AWG cable, 150mm length
902	906	26 AWG cable, 300mm length
903	907	30 AWG cable, 300mm length

All dimensions in mm.

# M30 Connectors

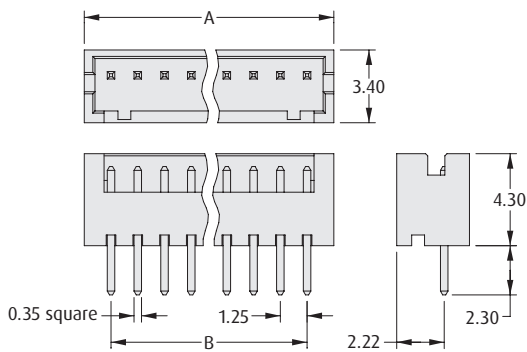
## Male Vertical

- ❖ 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.



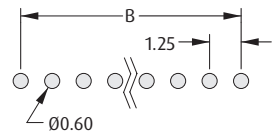
1.25mm (.049") PITCH

### THROUGHBOARD



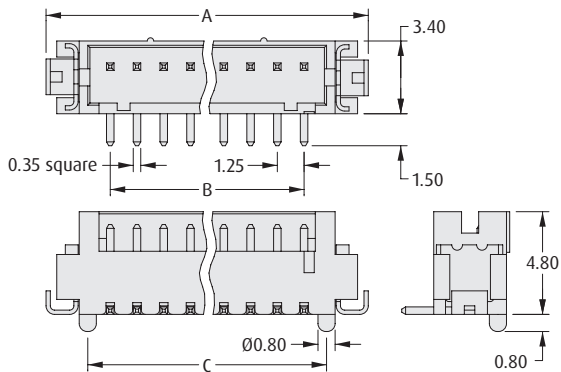
### CALCULATION

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



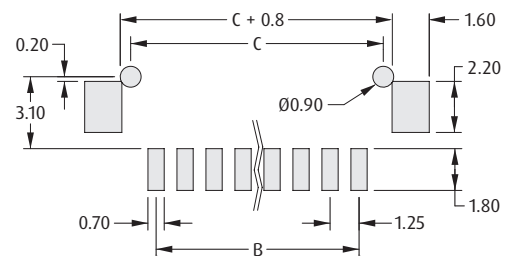
Recommended PC Board Pattern

### SURFACE MOUNT



### CALCULATION

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



Recommended PC Board Pattern

### HOW TO ORDER

**M30 - 6 X 0 XX XX X**

#### SERIES CODE

#### TYPE

<b>0</b>	Surface Mount
<b>1</b>	PC Tail

#### PACKAGING

<b>Blank</b>	Loose
<b>R</b>	Tape & Reeled (M30-600)

#### FINISH

<b>46</b>	Tin
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#### NO. OF CONTACTS PER ROW

**02 to 15**

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

Housings:	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

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

## ❖ Environmental

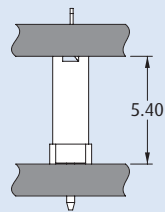
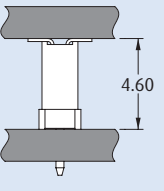
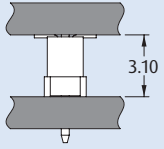
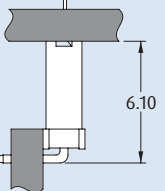
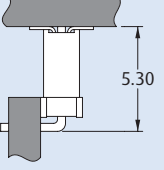
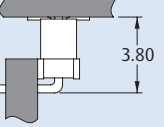
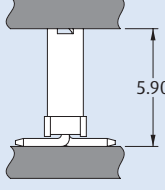
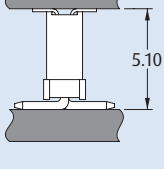
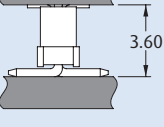
Operating temperature:	-40°C to +105°C
Solderability:	245°C for 5 seconds
Soldering heat resistance:	260°C for 5 seconds

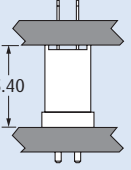
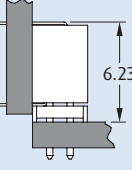
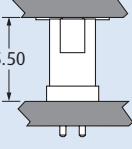
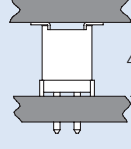
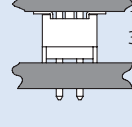
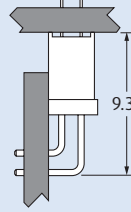
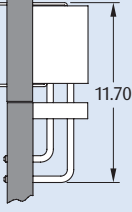
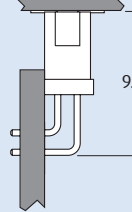
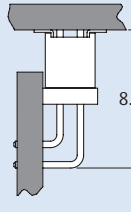
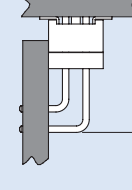
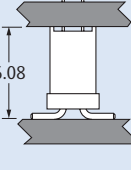
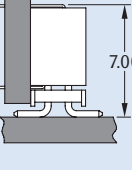
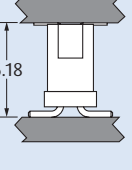
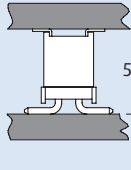
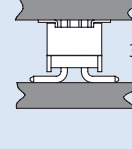
1.27mm (.050") PITCH

All dimensions in mm.

# 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			
	HORIZONTAL PC TAIL			
	VERTICAL SMT			

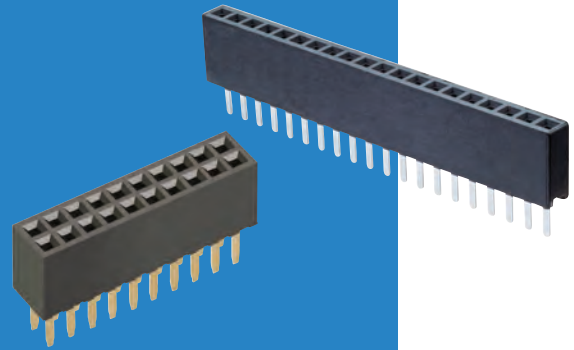
DOUBLE ROW		FEMALE				
		VERTICAL PC TAIL	HORIZONTAL PC TAIL	VERTICAL SMT	VERTICAL SMT Low Profile	
MALE	VERTICAL PC TAIL					
	HORIZONTAL PC TAIL					
	VERTICAL SMT					

All dimensions in mm.

# Archer Connectors – M50

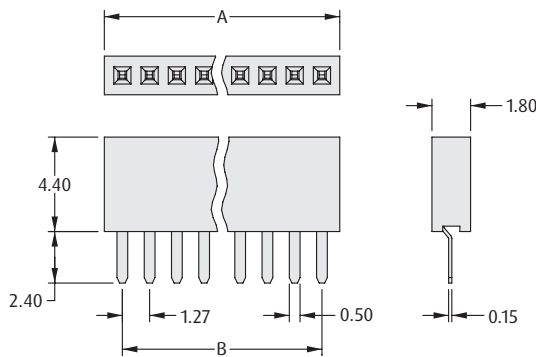
## Female Vertical Throughboard

▸ Twin beam connector for higher durability.



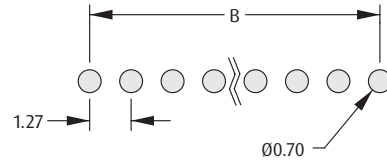
1.27mm (.050") PITCH

### SINGLE ROW



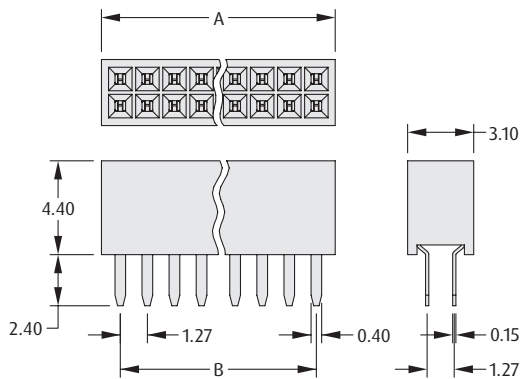
### CALCULATION

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



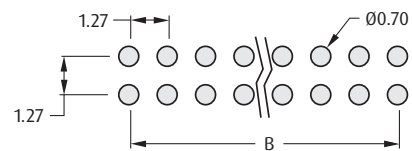
Recommended PC Board Pattern

### DOUBLE ROW



### CALCULATION

<b>A</b>	$B + 1.77$
<b>B</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

<b>0</b>	Double Row
<b>3</b>	Single Row

#### FINISH

<b>42</b>	Gold + Tin (Single Row)
<b>45</b>	Gold (Double Row)

#### NO. OF CONTACTS PER ROW

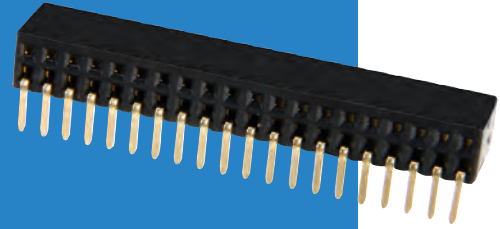
<b>02 to 06, 08, 10, 20</b>	Single Row
<b>03 to 15, 20, 25, 50</b>	Double Row

All dimensions in mm.

# Archer Connectors – M50

## Female Horizontal Throughboard

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

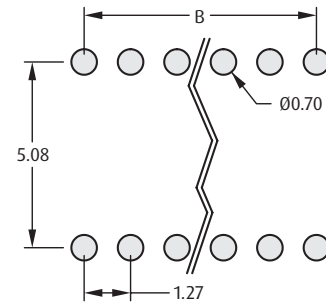
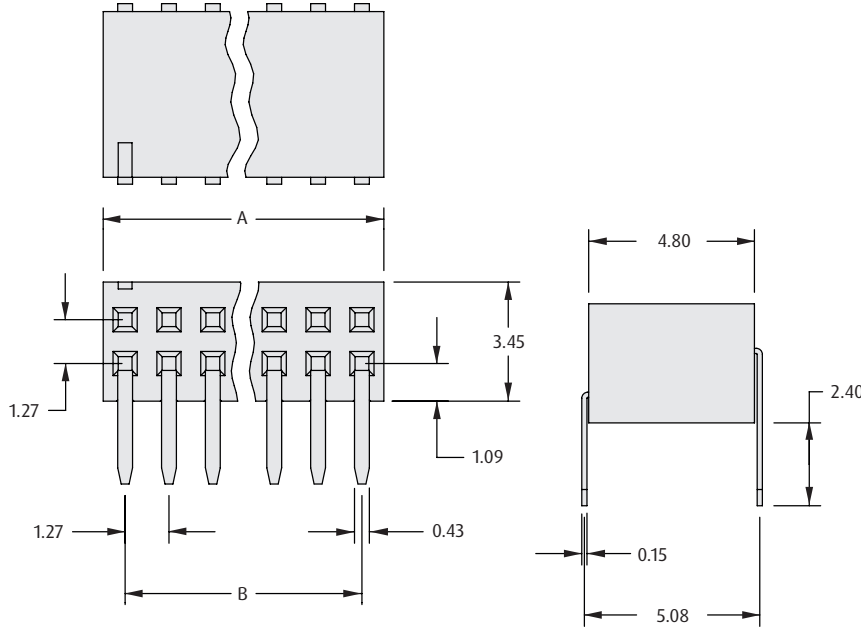


1.27mm (.050") PITCH

### HORIZONTAL

### CALCULATION

<b>A</b>	$B + 1.67$
<b>B</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

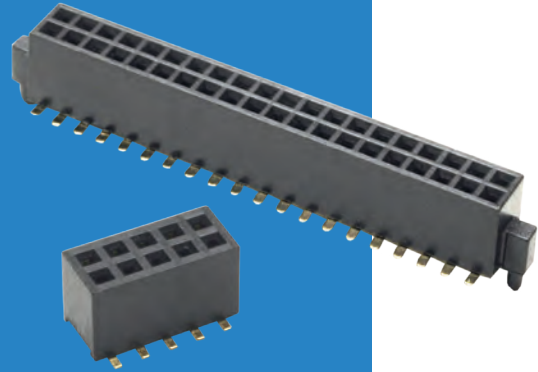
03 to 06, 08 to 10, 12, 15, 20

All dimensions in mm.

# Archer Connectors – M50

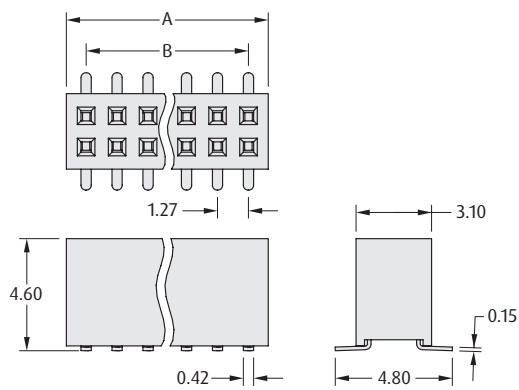
## Female Vertical Surface Mount

- ❖ Locating pegs (posts) available to ensure correct positioning on the board.
- ❖ Alternative height connectors available on the following page.
- ❖ Dual entry connector can be used as either top or bottom entry.



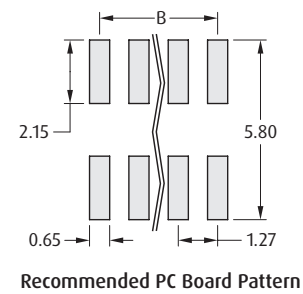
1.27mm (.050") PITCH

### WITHOUT POST

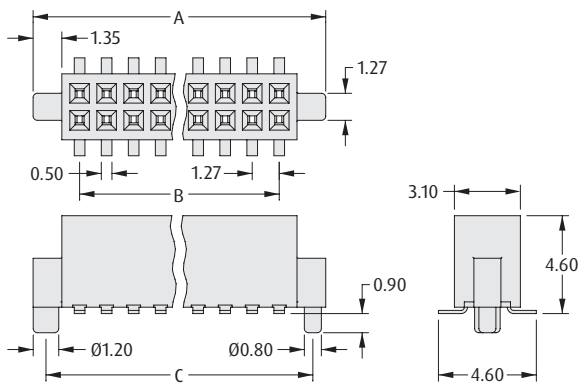


### CALCULATION

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

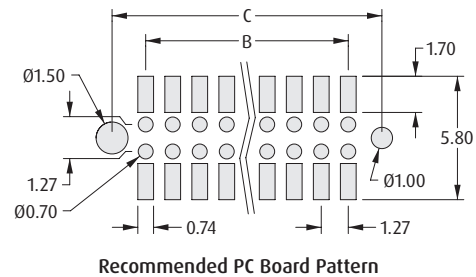


### WITH POST, DUAL ENTRY



### CALCULATION

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



### HOW TO ORDER

**M50 - 31 X XX XX**

#### SERIES CODE

#### TYPE

<b>0</b>	Without Posts
<b>1</b>	With Posts

#### FINISH

<b>42</b>	Gold + Tin (With Posts)
<b>45</b>	Gold (Without Posts)

#### NO. OF CONTACTS PER ROW

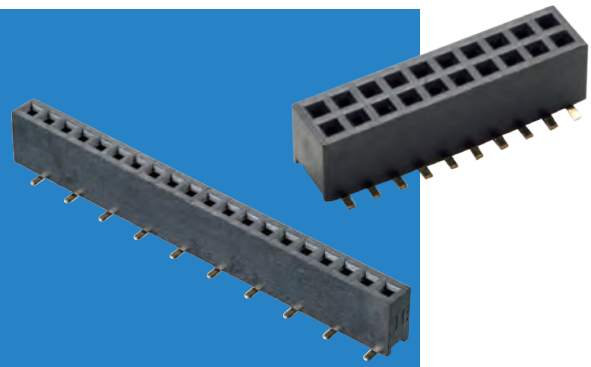
<b>03 to 10, 12, 14, 20, 25, 30</b>	Without Posts
<b>05, 10, 25, 30</b>	With Posts

All dimensions in mm.

# Archer Connectors – M50

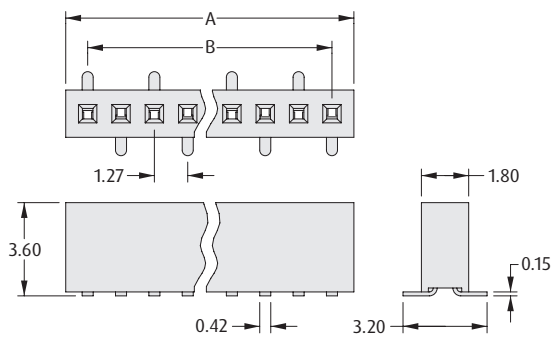
## Female Vertical Surface Mount, Low Profile

- Lower profile surface mount connector with twin beam contacts for additional board-to-board height options.



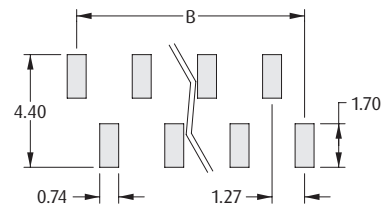
1.27mm (.050") PITCH

### SINGLE ROW



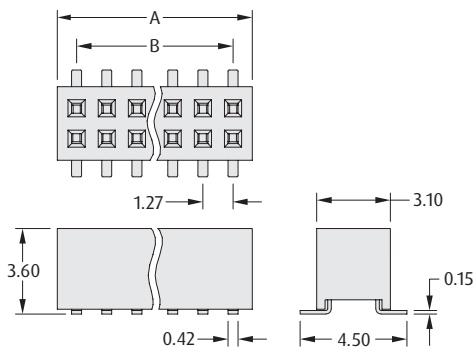
### CALCULATION

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



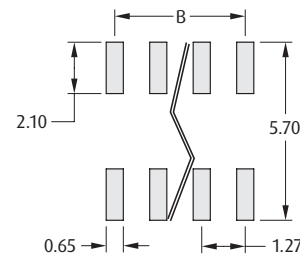
Recommended PC Board Pattern

### DOUBLE ROW



### CALCULATION

<b>A</b>	$B + 1.73$
<b>B</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

<b>2</b>	Double Row
<b>4</b>	Single Row

#### PACKAGING

<b>R</b>	Tape & Reeled (Single Row)
<b>Blank</b>	Loose

#### FINISH

<b>45</b>	Gold
-----------	------

#### NO. OF CONTACTS PER ROW

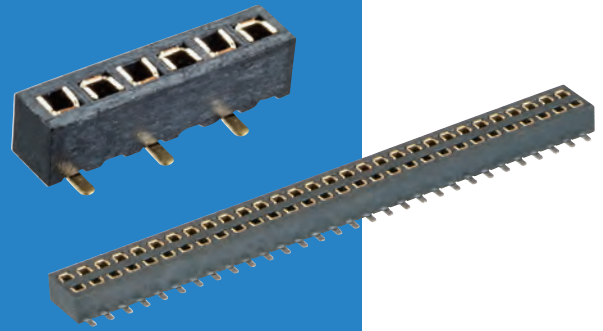
<b>03 to 15, 20, 25, 30, 50</b>	Double Row
<b>02 to 06, 08, 10, 20</b>	Single Row

All dimensions in mm.

# Archer Connectors – M50

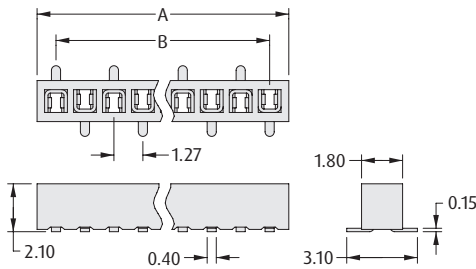
## Female Vertical Surface Mount, Low Profile

- 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.



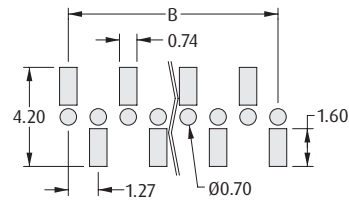
1.27mm (.050") PITCH

### SINGLE ROW



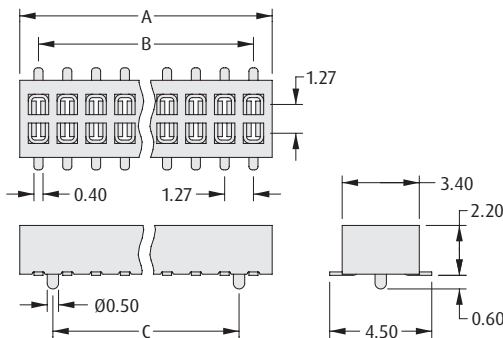
### CALCULATION

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



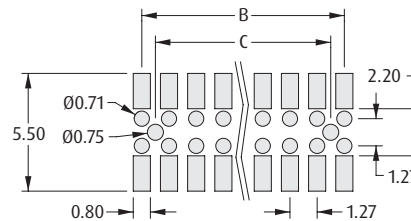
Recommended PC Board Pattern

### DOUBLE ROW WITH POSTS



### CALCULATION

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



Recommended PC Board Pattern

### HOW TO ORDER

**M50 - 31 X XX XX X**

#### SERIES CODE

#### TYPE

<b>3</b>	Single Row (without posts)
<b>5</b>	Double Row with posts

#### PACKAGING

<b>R</b>	Tape & Reeled (Single Row)
<b>Blank</b>	Loose

#### FINISH

<b>42</b>	Gold + Tin (Double Row)
<b>45</b>	Gold (Single Row)

#### NO. OF CONTACTS PER ROW

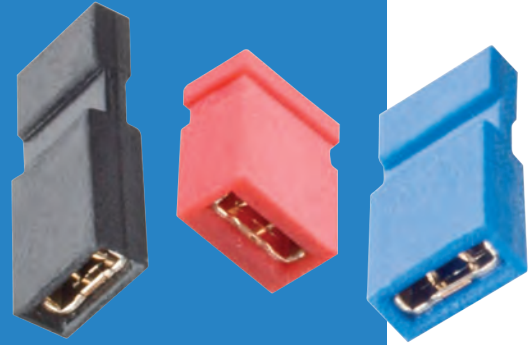
<b>02 to 06, 08, 10, 20</b>	Single Row
<b>03, 05, 06, 08, 10, 12, 15, 20, 25</b>	Double Row

All dimensions in mm.

# Archer Connectors – M50

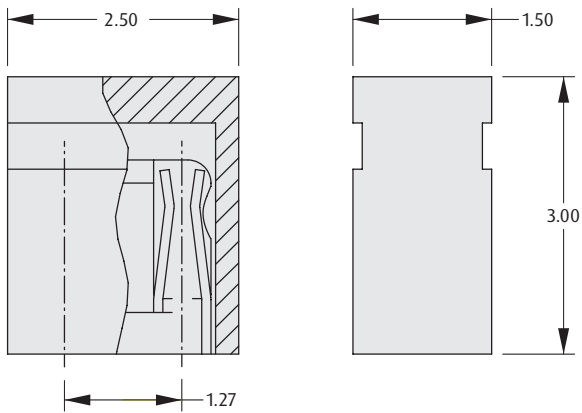
## Jumper Sockets

- ❖ 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 colors available.
- ❖ Closed top with handle available for easier handling, placing and removing.

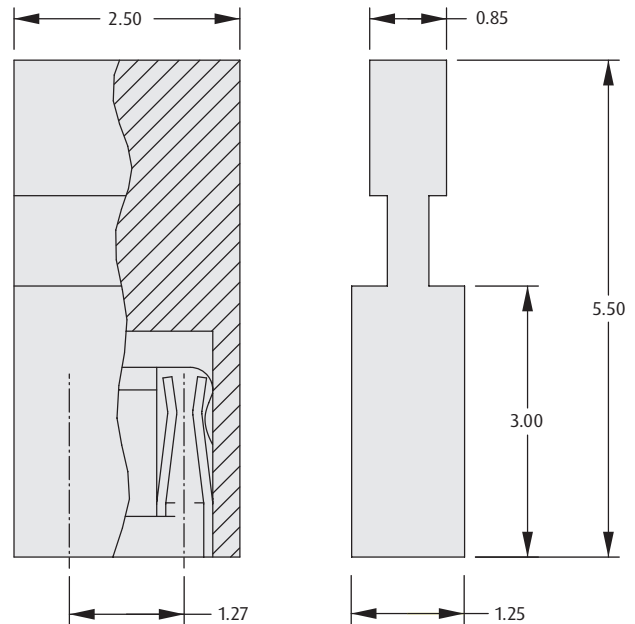


1.27mm (.050") PITCH

### 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

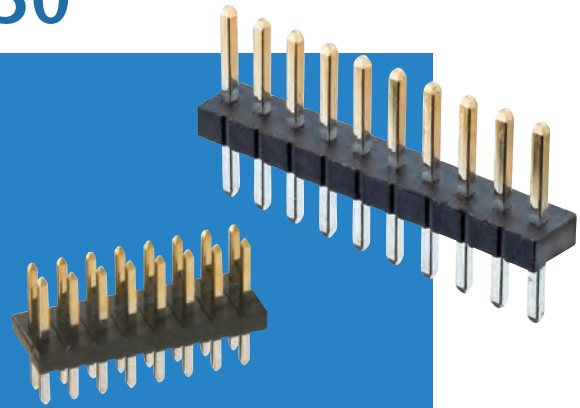
All dimensions in mm.



# Archer Connectors – M50

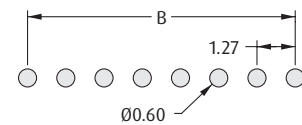
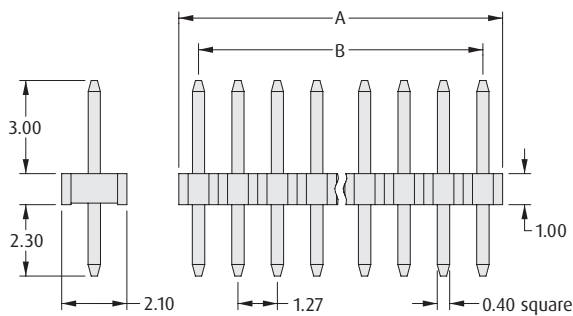
## Male Vertical Throughboard

- Suitable for use with female connectors and jumper sockets.



1.27mm (.050") PITCH

### SINGLE ROW

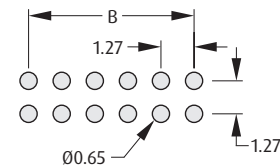
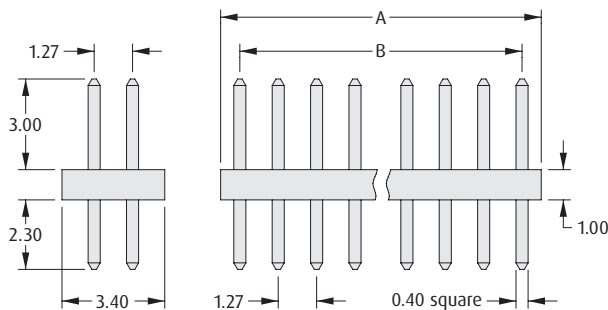


Recommended PC Board Pattern

### CALCULATION

<b>A</b>	1.27 x No. of contacts per row
<b>B</b>	1.27 x (No. of contacts per row - 1)

### DOUBLE ROW



Recommended PC Board Pattern

### HOW TO ORDER

**M50 - 35 X XX 42**

**SERIES CODE**

**TYPE**

<b>0</b>	Double Row
<b>3</b>	Single Row

**FINISH**

**42** Gold + Tin

**NO. OF CONTACTS PER ROW**

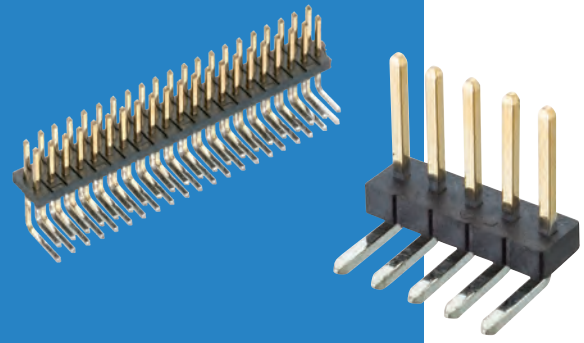
<b>05 to 08, 10, 12, 14, 15, 20, 25, 50</b>	Double Row
<b>02 to 06, 08, 10, 20</b>	Single Row

All dimensions in mm.

# Archer Connectors – M50

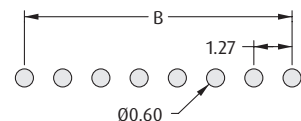
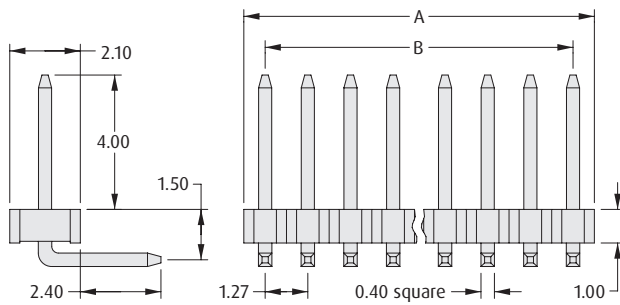
## Male Horizontal Throughboard

- Suitable for use with female connectors and jumper sockets.



1.27mm (.050") PITCH

### SINGLE ROW

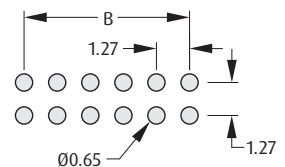
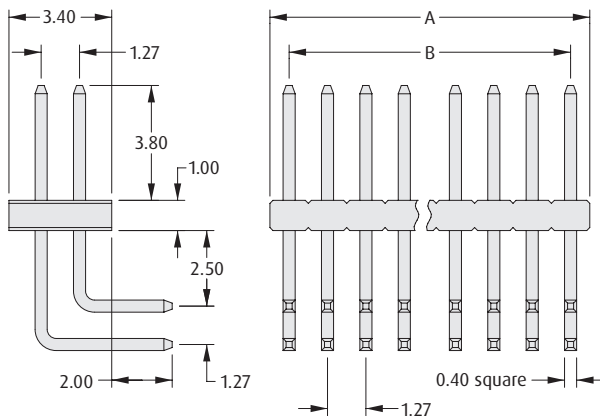


Recommended PC Board Pattern

### CALCULATION

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

### DOUBLE ROW



Recommended PC Board Pattern

### HOW TO ORDER

**M50 - 39 X XX 42**

**SERIES CODE**

**TYPE**

<b>0</b>	Double Row
<b>3</b>	Single Row

**FINISH**

**42** Gold + Tin

**NO. OF CONTACTS PER ROW**

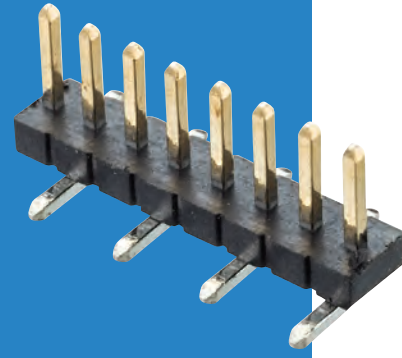
<b>02, 05, 06, 08, 10, 12, 15, 20, 25, 50</b>	Double Row
<b>02 to 06, 08, 10, 20</b>	Single Row

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.

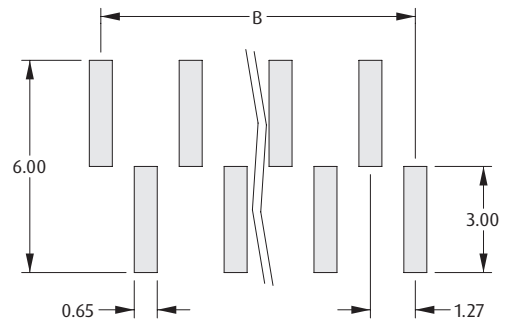
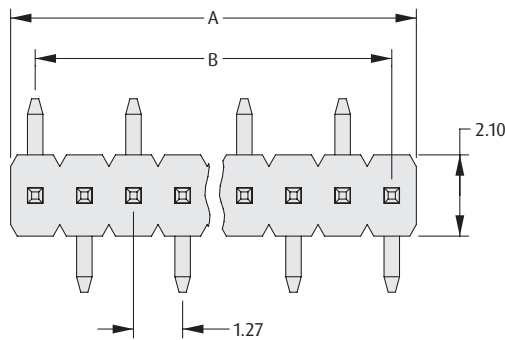


1.27mm (.050") PITCH

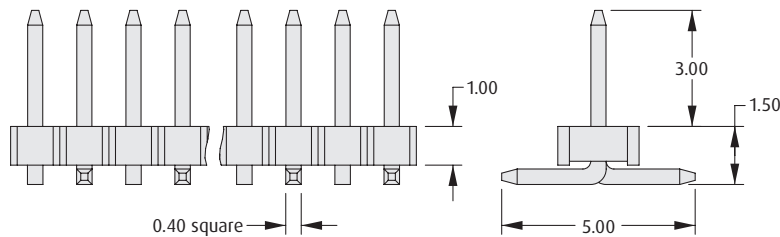
### SINGLE ROW

### CALCULATION

<b>A</b>	1.27 x No. of contacts per row
<b>B</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

<b>Blank</b>	Loose
<b>R</b>	Tape & Reeled

### FINISH

<b>42</b>	Gold + Tin
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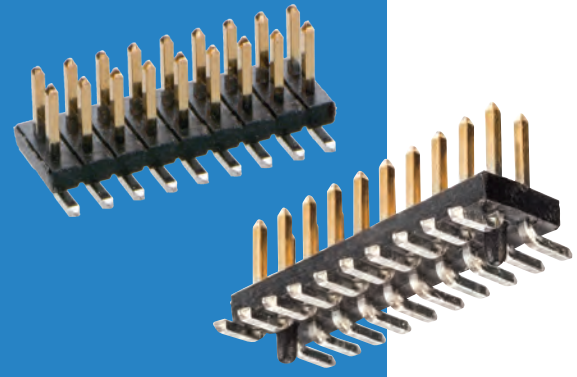
All dimensions in mm.

# Archer Connectors – M50

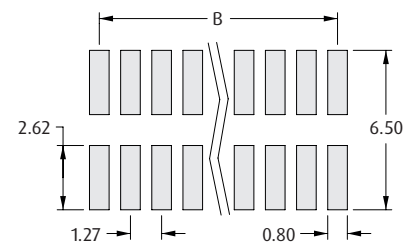
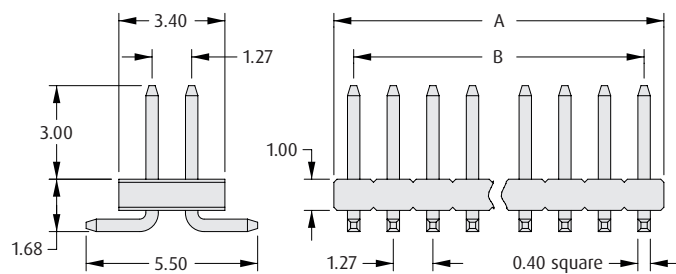
1.27mm (.050") PITCH

## Male Vertical Surface Mount Double Row

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



### WITHOUT POSTS

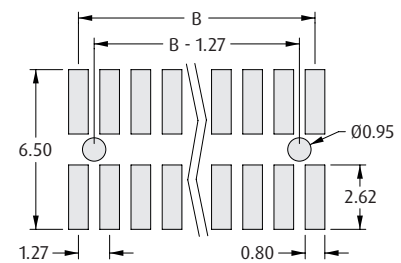
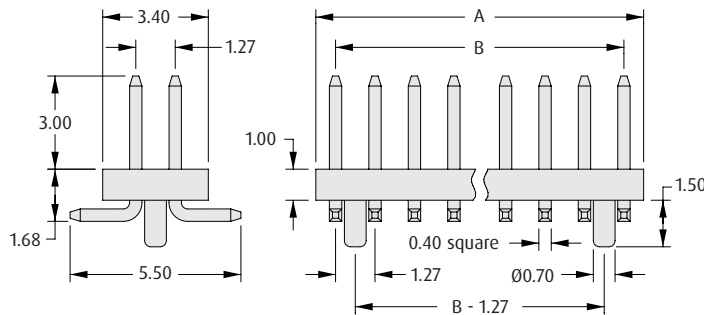


Recommended PC Board Pattern

### CALCULATION

<b>A</b>	1.27 x No. of contacts per row
<b>B</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

<b>0</b>	Without Posts
<b>1</b>	With Posts

#### NO. OF CONTACTS PER ROW

<b>02, 03, 05 to 10, 12, 15, 20, 25, 30, 50</b>	Without Posts
<b>05 to 08, 10, 12, 15, 20, 25</b>	With Posts

#### PACKAGING

<b>Blank</b>	Loose
<b>R</b>	Tape & Reeled (check website for available sizes)

#### FINISH

<b>42</b>	Gold + Tin
-----------	------------

All dimensions in mm.

# Archer Connectors – Polarized Specification

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

## ❖ Materials

Housings:	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

1.27mm (.050") PITCH

## Mating Profiles

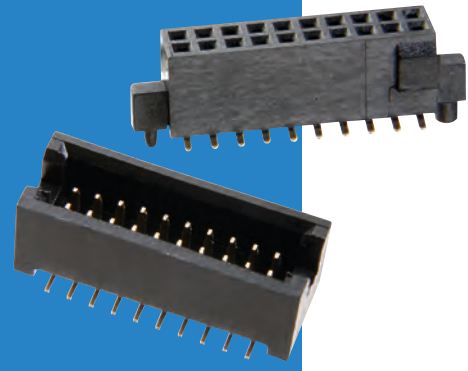
		MALE			
		VERTICAL THROUGHBOARD	HORIZONTAL THROUGHBOARD	VERTICAL SMT	
FEMALE VERTICAL SMT					
		6.00	8.20	6.50	

All dimensions in mm.

# Archer Connectors – Polarized

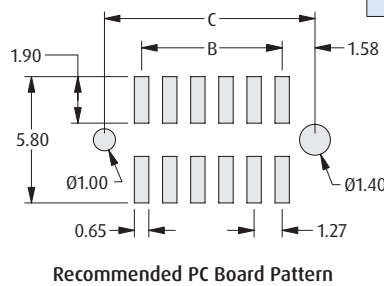
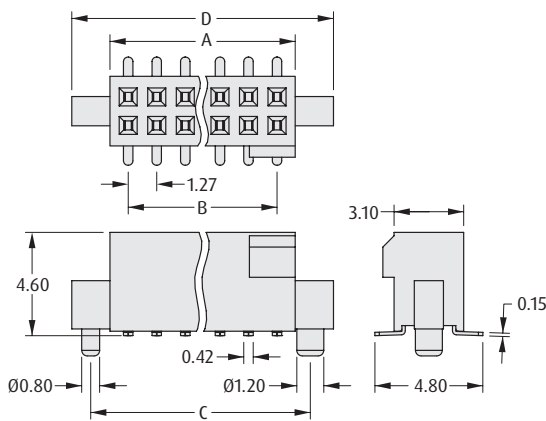
## Vertical Surface Mount

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



1.27mm (.050") PITCH

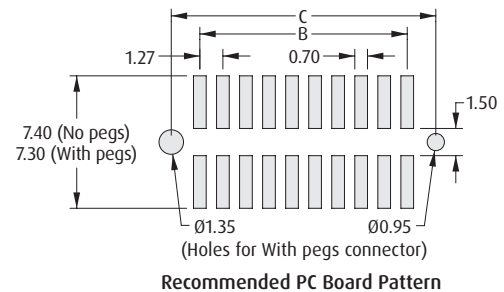
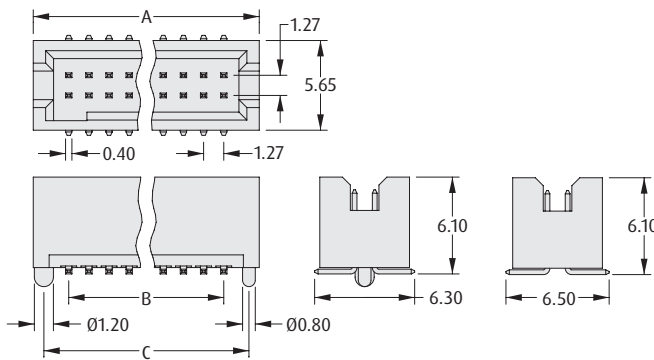
### FEMALE



### CALCULATION

<b>A</b>	$B + 1.62$
<b>B</b>	$1.27 \times (\text{No. of contacts per row} - 1)$
<b>C</b>	$B + 3.15$
<b>D</b>	$B + 5.02$

### MALE



### CALCULATION

<b>A</b>	$B + 4.47$
<b>B</b>	$1.27 \times (\text{No. of contacts per row} - 1)$
<b>C</b>	$B + 3.15$

## HOW TO ORDER

**M50 - 4XX XX 45 X**

### SERIES CODE

#### TYPE

<b>430</b>	Female
<b>490</b>	Male without pegs
<b>491</b>	Male with pegs

#### NO. OF CONTACTS PER ROW

<b>05 to 08, 10, 12, 15, 19, 20, 25</b>	Female
<b>05, 07, 08, 10, 12, 14, 15, 20, 25</b>	Male without pegs
<b>05 to 08, 10, 12, 15, 20, 25</b>	Male with pegs

### PACKAGING

<b>Blank</b>	Loose
<b>R</b>	Tape & Reeled (check website for available sizes)

### FINISH

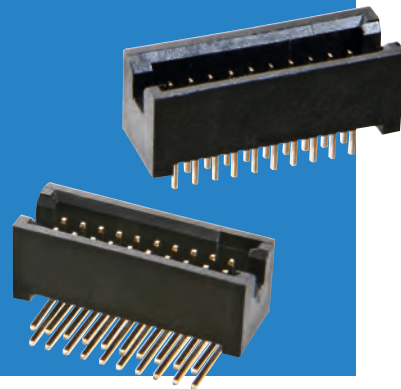
**45** Gold

All dimensions in mm.

# Archer Connectors – Polarized

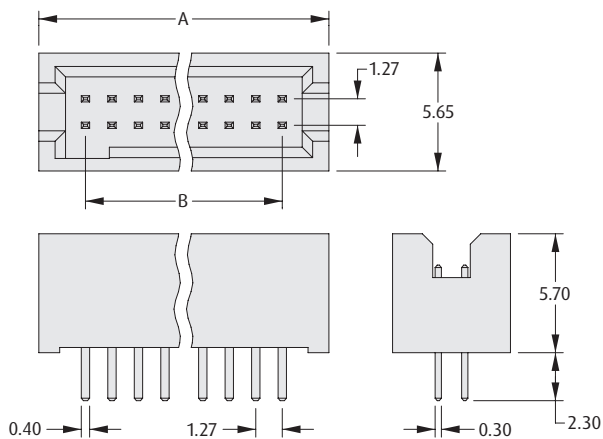
## Male Throughboard

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

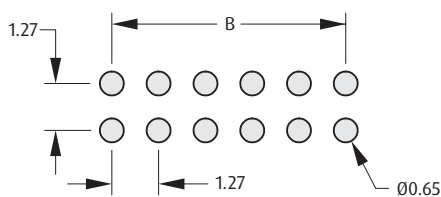
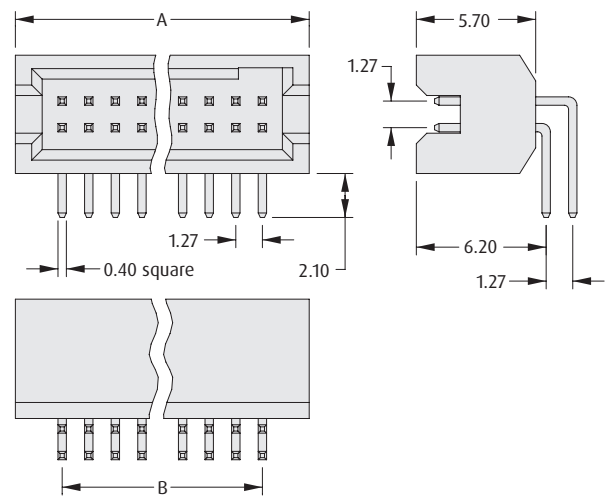


1.27mm (.050") PITCH

### VERTICAL



### HORIZONTAL



Recommended PC Board Pattern

### CALCULATION

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

### HOW TO ORDER

**M50 - 4 X 0 XX 45**

**SERIES CODE**

**FINISH**

45 Gold

**TYPE**

7	Vertical
8	Horizontal

**NO. OF CONTACTS PER ROW**

05, 08, 10, 15, 17, 20	Vertical
05 to 07, 10, 12, 15, 25	Horizontal

All dimensions in mm.

# Archer Connectors – M50 IDC Specification

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

## ❖ Materials

<b>Housings</b>	
PCB Connectors:	LCP, UL94V-0
IDC Cable Connectors:	PBT, UL94V-0
<b>Contacts:</b>	
	Copper Alloy
<b>Finish</b>	
M50-380:	Gold on contact area
Others:	Gold on contact area, Tin on tails

## ❖ Electrical

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

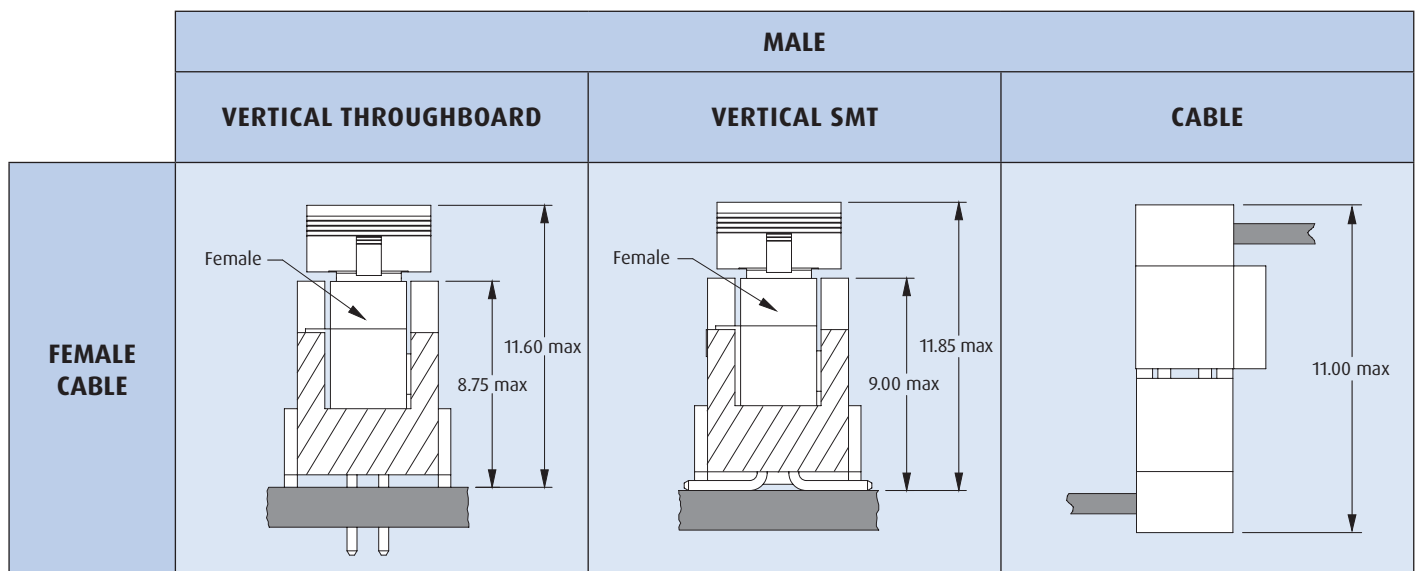
## ❖ Mechanical

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

## ❖ Environmental

<b>Operating temperature</b>	
PCB Connectors:	-55°C to +125°C
IDC Cable Connectors:	-40°C to +105°C
Cable Assembly:	-20°C to +105°C
<b>Solderability:</b>	245°C for 5 seconds
<b>Soldering heat resistance:</b>	260°C for 10 seconds

## Mating Profiles



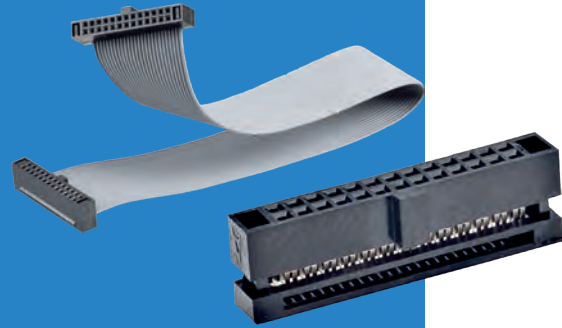
All dimensions in mm.



# Archer Connectors – M50 IDC

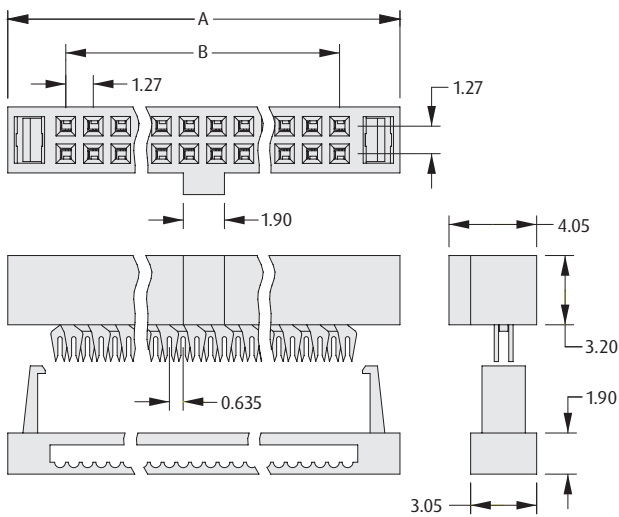
## Female Cable Connector & Cable Assembly

- ❖ Suitable for use with male vertical latching connectors shown on the following page.
- ❖ IDC connection for fast termination of multiple contacts.
- ❖ Polarized 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](http://www.harwin.com/instructions).



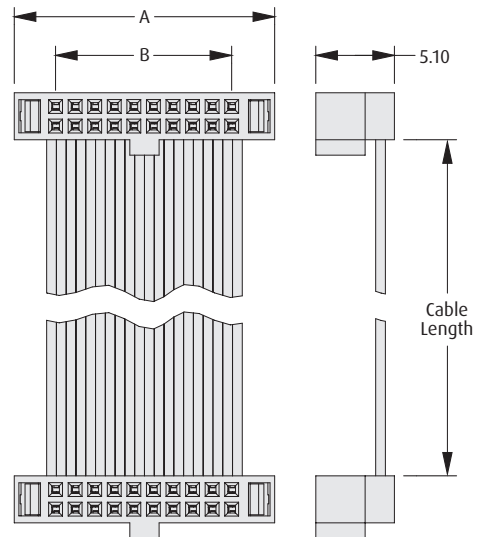
1.27mm (.050") PITCH

### 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

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

### HOW TO ORDER

**M50 - XXX XX 42**

**SERIES CODE**

#### TYPE

<b>330</b>	Female IDC Connector
<b>910</b>	150mm Cable Assembly
<b>911</b>	300mm Cable Assembly

**FINISH**

<b>42</b>	Gold + Tin
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#### NO. OF CONTACTS PER ROW

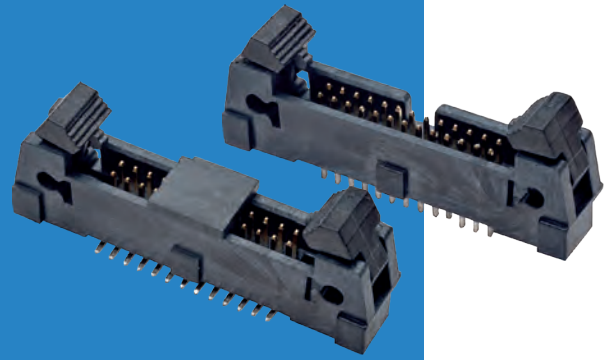
<b>05, 10, 13, 17, 20, 25</b>	All
<b>06, 07, 08</b>	M50-330 only

All dimensions in mm.

# Archer Connectors – M50 IDC

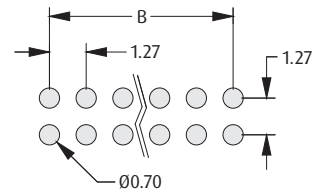
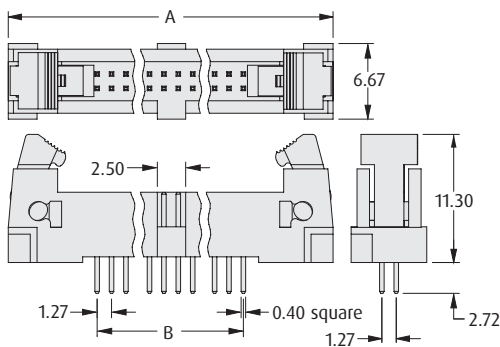
## Male Vertical Latching Connectors

- 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.
- Polarized 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

### THROUGHBOARD

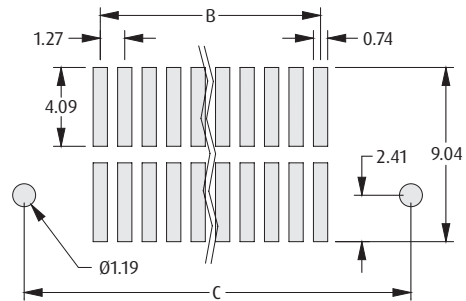
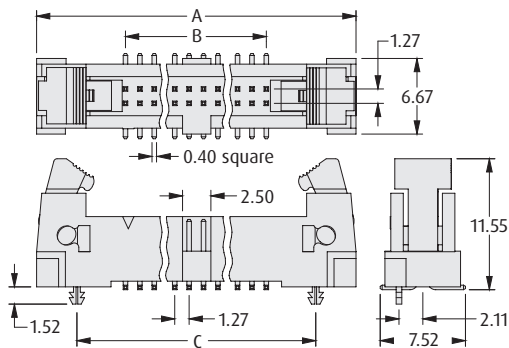


Recommended PC Board Pattern

#### CALCULATION

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

### SURFACE MOUNT



Recommended PC Board Pattern

### HOW TO ORDER

**M50 - 3 X 5 XX 42 X**

#### SERIES CODE

#### TYPE

<b>5</b>	Throughboard
<b>6</b>	Surface Mount

#### NO. OF CONTACTS PER ROW

<b>05, 06, 08, 10, 13, 17, 20, 25</b>	Throughboard
<b>05 to 08, 10, 13, 17, 20, 25</b>	Surface Mount

#### PACKAGING

<b>R</b>	Tape & Reeled (M50-365)
<b>Blank</b>	Loose (M50-355)

#### FINISH

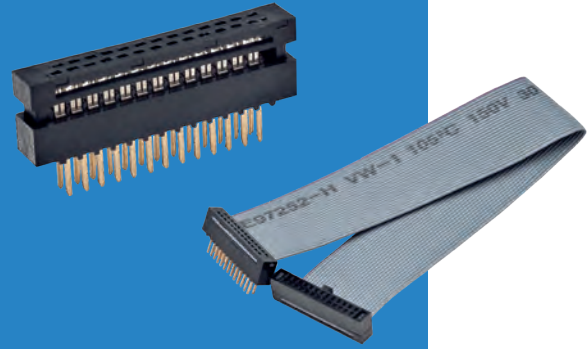
<b>42</b>	Gold + Tin
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All dimensions in mm.

# Archer Connectors – M50 IDC

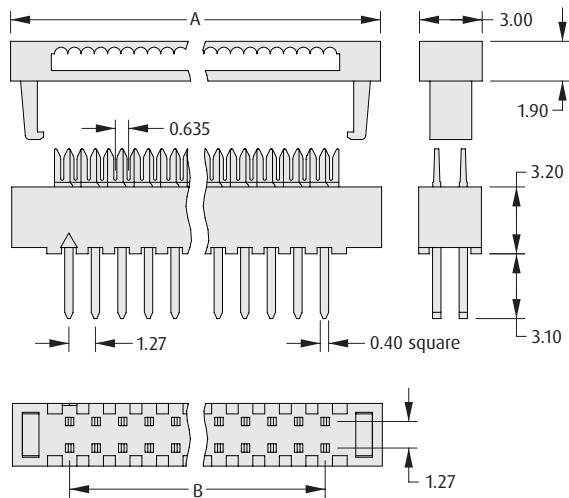
## Male Cable Connector & Cable Assembly

- 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](http://www.harwin.com/instructions).



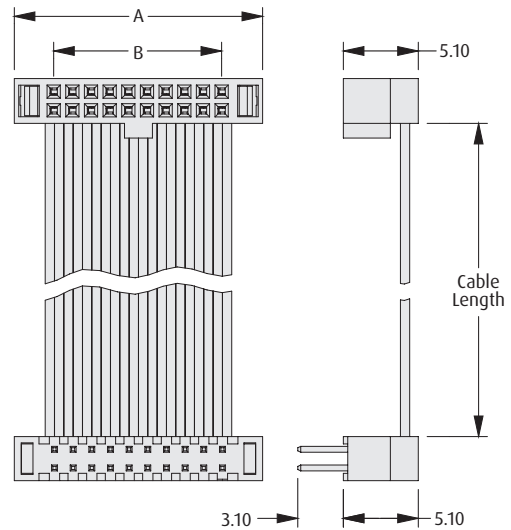
1.27mm (.050") PITCH

### 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.



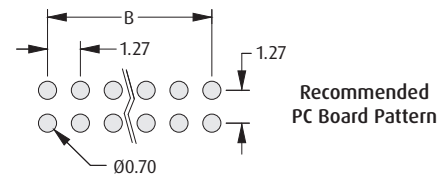
### HAND TOOL



**ORDER CODE**  
Z50-030

### CALCULATION

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



### HOW TO ORDER

**M50 - XXX XX 42**

#### SERIES CODE

#### TYPE

<b>380</b>	Male IDC Connector
<b>901</b>	150mm Cable Assembly
<b>902</b>	300mm Cable Assembly

#### FINISH

<b>42</b>	Gold + Tin
-----------	------------

#### NO. OF CONTACTS PER ROW

<b>05, 10, 13, 17, 20, 25</b>	All
<b>06, 07, 08</b>	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

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

## Electrical

Current:	1A per contact
Voltage proof	
M52-500, 510:	500V AC, 1,000V DC for 1 minute
Others:	1,000V AC/DC for 1 minute
Contact resistance:	30mΩ max
Insulation resistance	1,000MΩ min

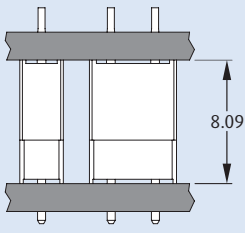
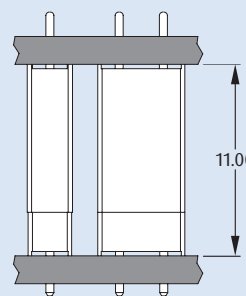
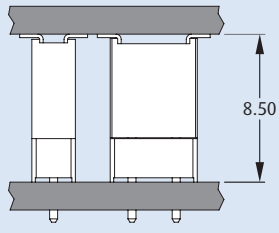
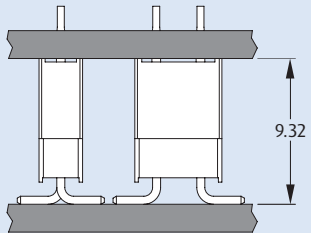
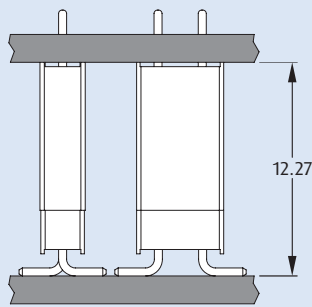
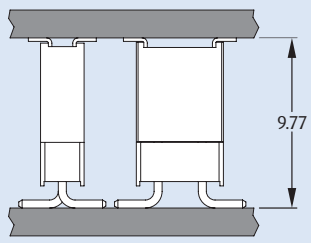
## Mechanical

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 <sup>2</sup> (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

## Mating Profiles

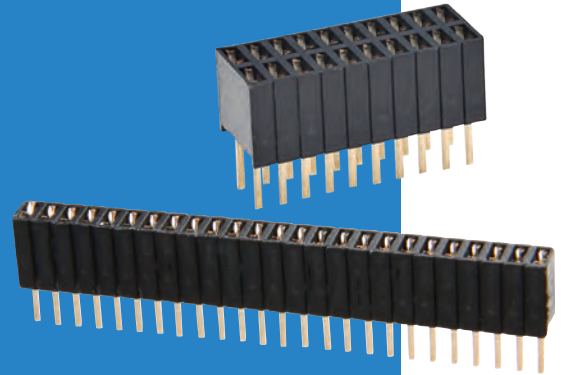
		FEMALE		
		VERTICAL THROUGHBOARD (4.6mm Height)	VERTICAL THROUGHBOARD (8.5mm Height)	VERTICAL SMT
MALE	VERTICAL THROUGHBOARD			
	VERTICAL SMT			

All dimensions in mm.

# Archer Connectors – M52

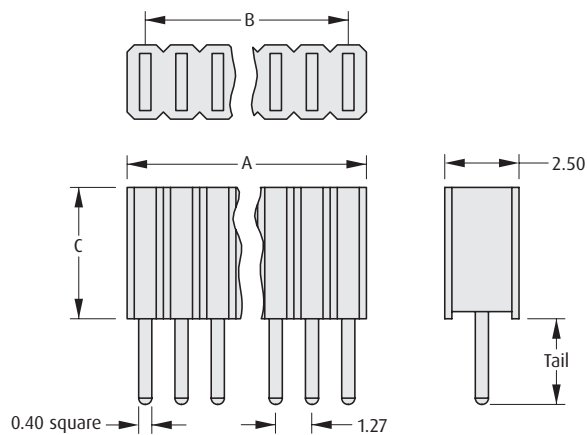
## Female Vertical Throughboard

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



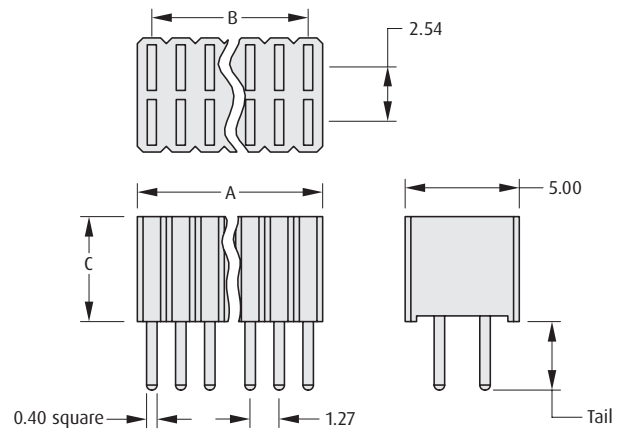
1.27mm (.050") PITCH

### SINGLE ROW



Recommended PC Board Pattern

### DOUBLE ROW



Recommended PC Board Pattern

#### CALCULATION

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

### HOW TO ORDER

**M52 - 5 X X XX 45**

#### SERIES CODE

#### NO. OF ROWS

<b>0</b>	Single Row
<b>1</b>	Double Row

#### HEIGHT

<b>0</b>	C = 4.6mm, Tail = 3.00mm
<b>1</b>	C = 8.5mm, Tail = 2.80mm

#### FINISH

**45** Gold

#### NO. OF CONTACTS PER ROW

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

All dimensions in mm.

# Archer Connectors – M52

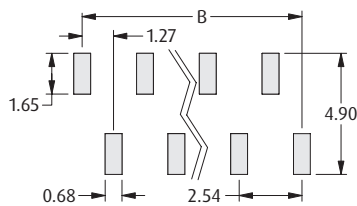
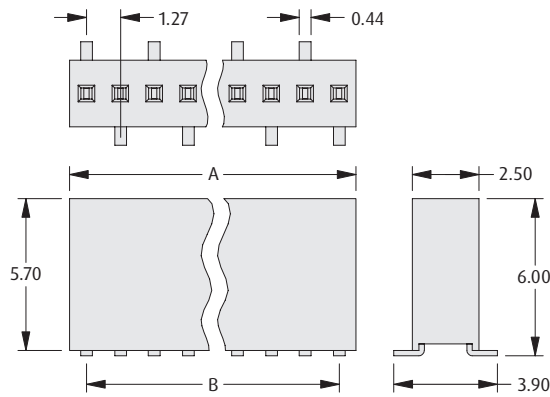
## Female Vertical Surface Mount

- Suitable for use with male pin headers with 0.46mm square pins.
- Twin beam contact for cost-effective reliability.



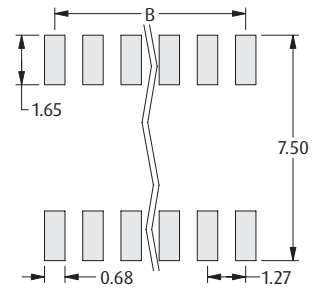
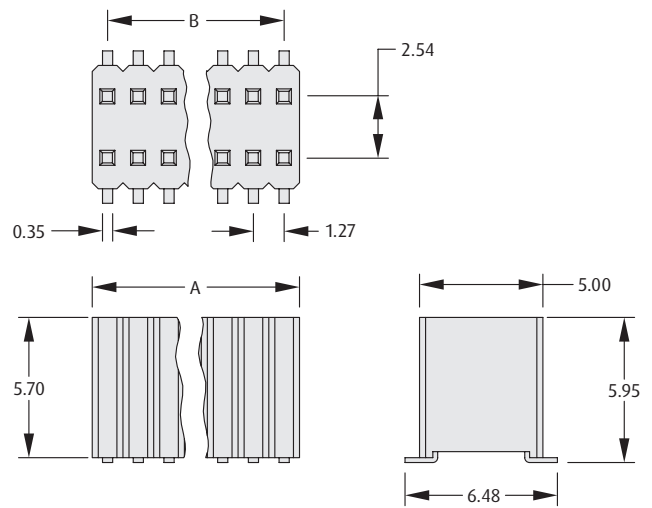
1.27mm (.050") PITCH

### SINGLE ROW



Recommended PC Board Pattern

### DOUBLE ROW



Recommended PC Board Pattern

#### CALCULATION

<b>A</b>	1.27 x No. of contacts per row
<b>B</b>	1.27 x (No. of contacts per row - 1)

### HOW TO ORDER

**M52 - 5 X 5 XX 45**

**SERIES CODE**

**TYPE**

<b>0</b>	Single Row
<b>1</b>	Double Row

**FINISH**

**45** Gold

**NO. OF CONTACTS PER ROW**

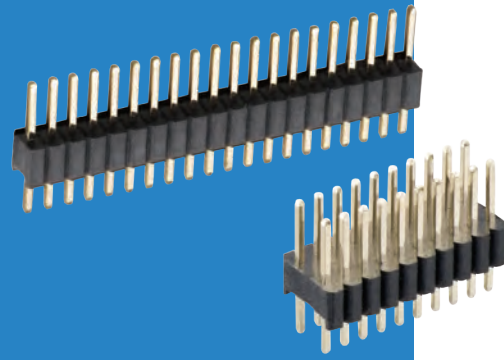
**03 to 10, 12, 15, 20, 25**

All dimensions in mm.

# Archer Connectors – M52

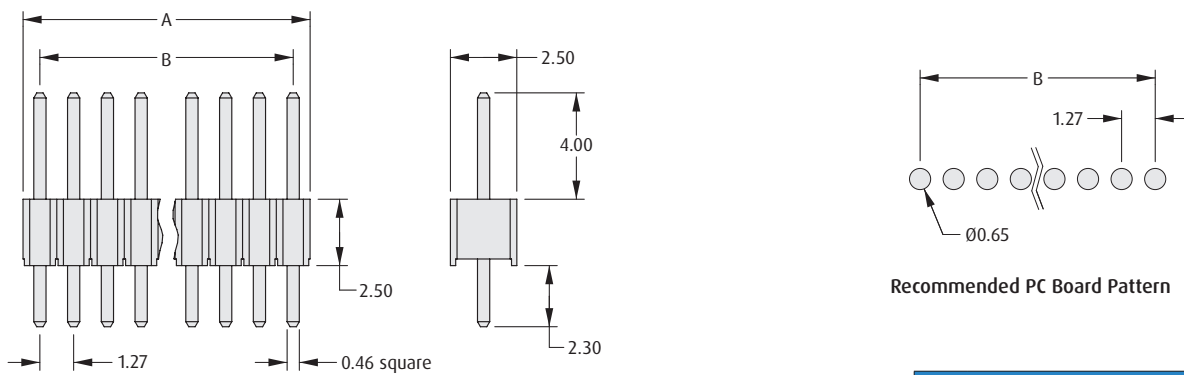
## Male Vertical Throughboard

- Suitable for use with female connectors shown on previous page.



1.27mm (.050") PITCH

### SINGLE ROW

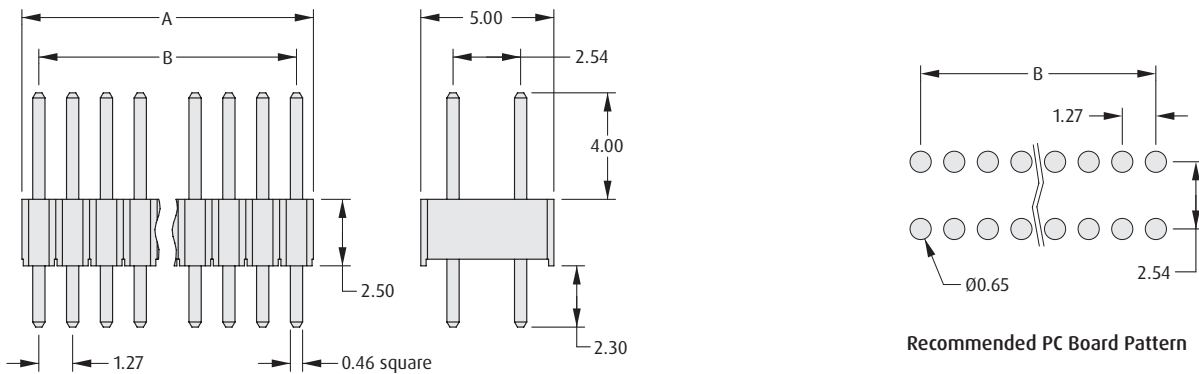


Recommended PC Board Pattern

#### CALCULATION

<b>A</b>	1.27 x No. of contacts per row
<b>B</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**

**FINISH**

45 Gold

**TYPE**

<b>V</b>	Single Row
<b>W</b>	Double Row

**NO. OF CONTACTS PER ROW**

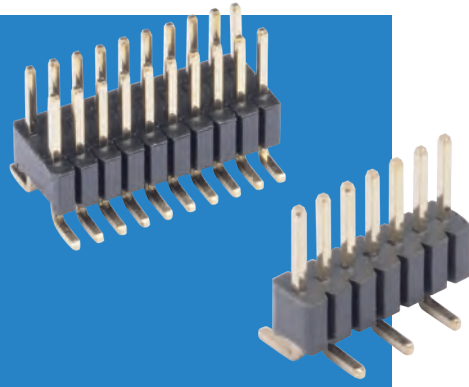
05, 10, 20, 25

All dimensions in mm.

# Archer Connectors – M52

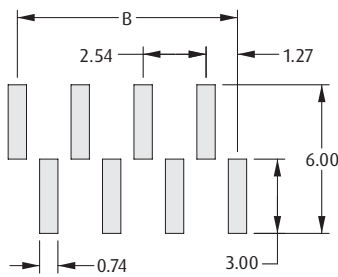
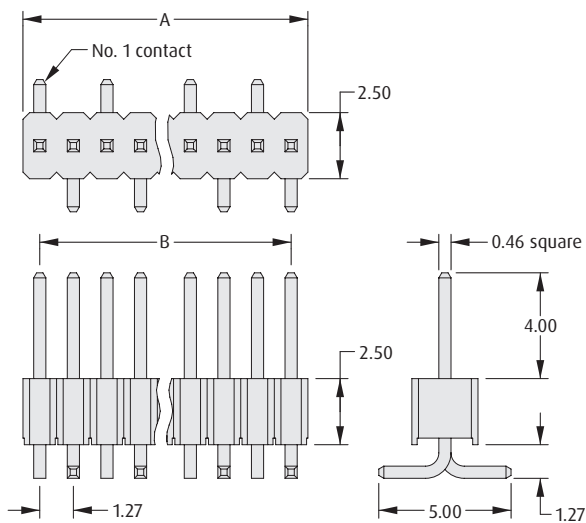
## Male Vertical Surface Mount

- Suitable for use with female connectors shown on previous page.



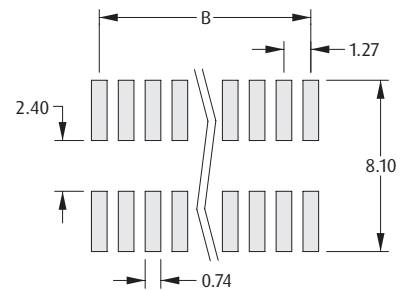
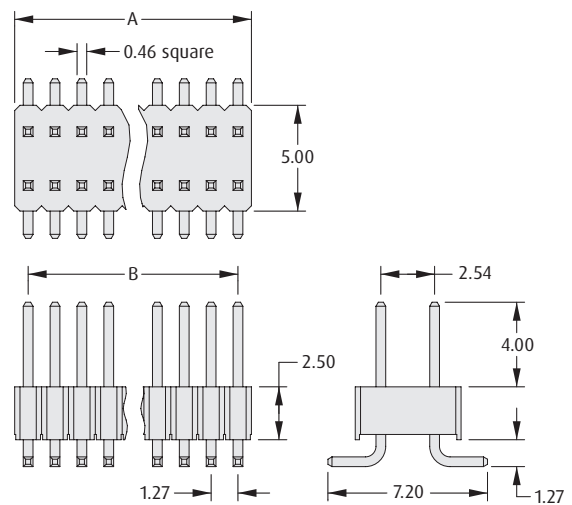
1.27mm (.050") PITCH

### SINGLE ROW



Recommended PC Board Pattern

### DOUBLE ROW



Recommended PC Board Pattern

#### CALCULATION

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

### HOW TO ORDER

**M52 - 040000 X XX 45**

**SERIES CODE**

**TYPE**

<b>P</b>	Single Row
<b>S</b>	Double Row

**FINISH**

45 Gold

**NO. OF CONTACTS PER ROW**

05, 10, 20, 25

All dimensions in mm.