# **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

2.54mm (.100") PITCH

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 maxInsulation 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/s² (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



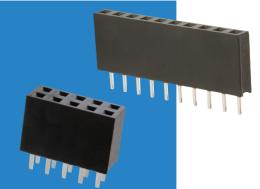
# **M20 Connectors Mating Profiles**

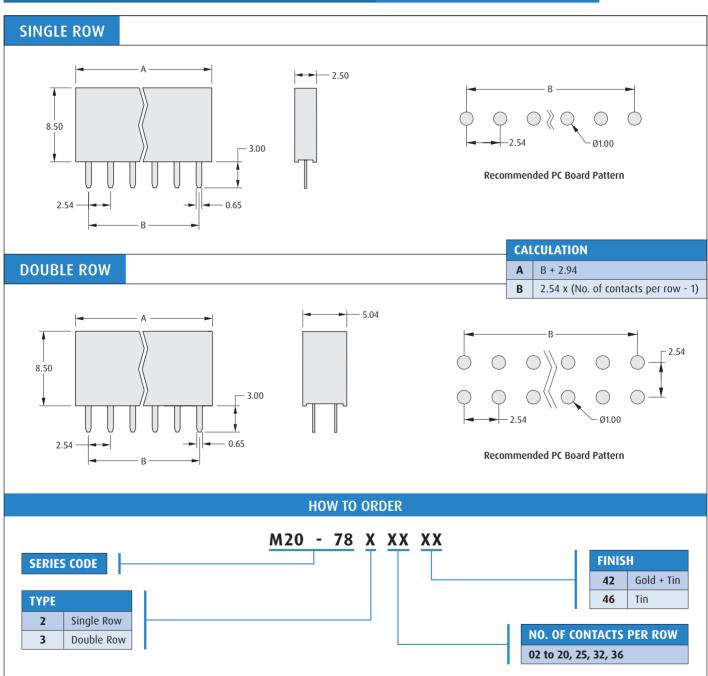
		FEMALE					
		VERTICAL PC TAIL	HORIZONTAL PC TAIL	VERTICAL SMT	VERTICAL SMT Low Profile	HORIZONTAL SMT	CRIMP
MALE	VERTICAL PC TAIL	11.04	10.64	10.04	6.29	14.44	16.74 max
	HORIZONTAL PC TAIL 3.9mm Tail	12.72 15.26	12.34	11.72	10.51	16.12	18.57 21.36 max
	HORIZONTAL PC TAIL 4.8mm Tail	13.62	13.24	12.62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



## Female Vertical PC Tail

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

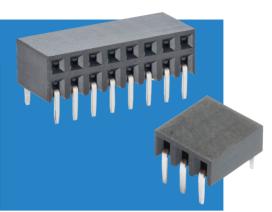


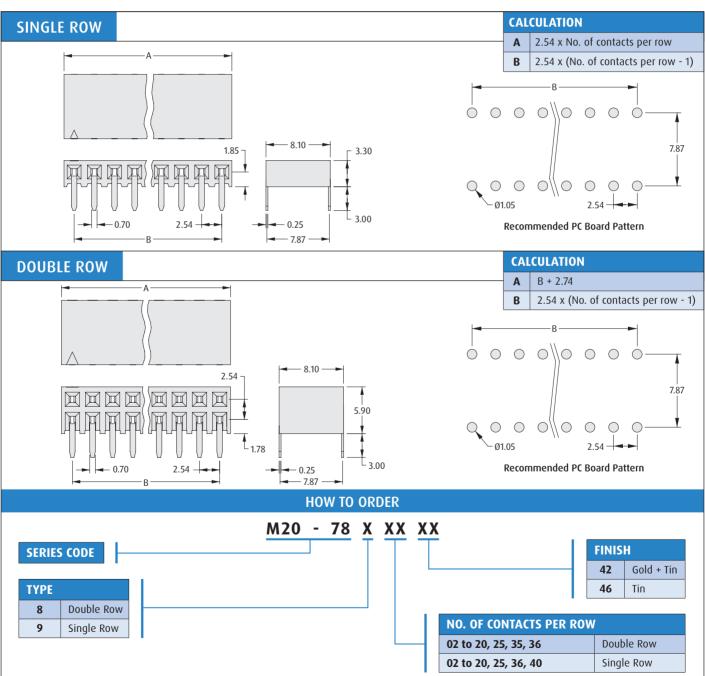




## Female Horizontal PC Tail

- > 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.



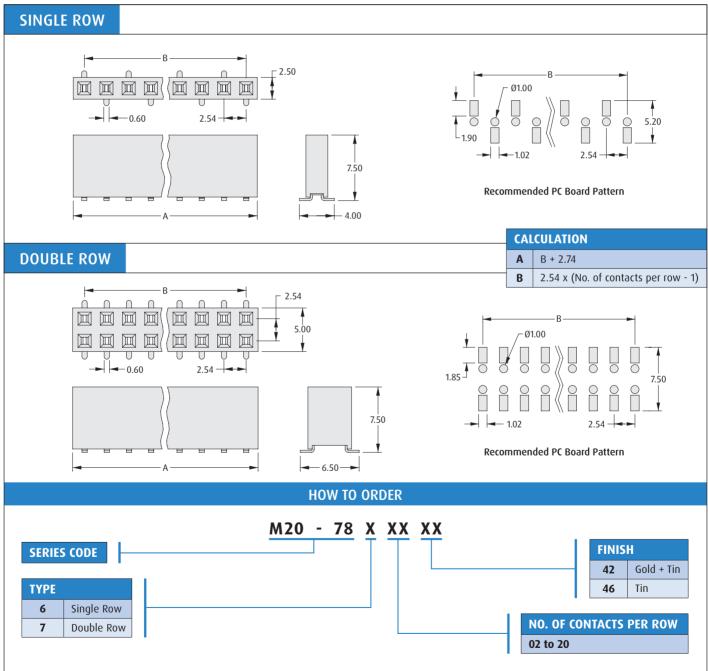




## Female Vertical Surface Mount, Dual Entry

- 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.

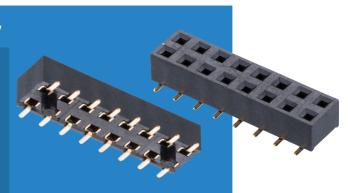


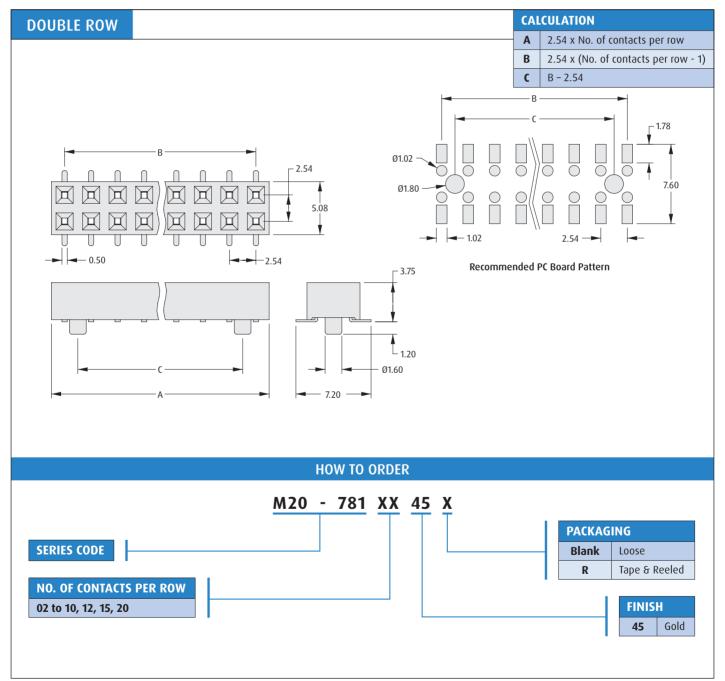




## Female Vertical Surface Mount, Dual Entry

- 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.

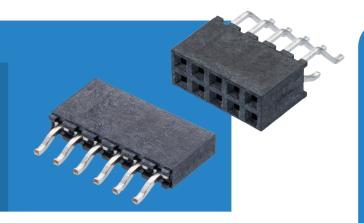


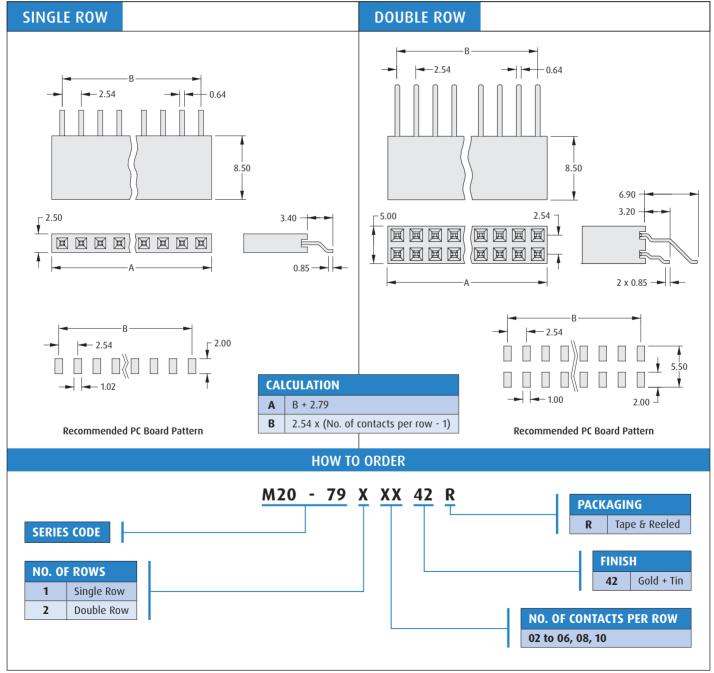




## Female Horizontal Surface Mount

- ➤ 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.

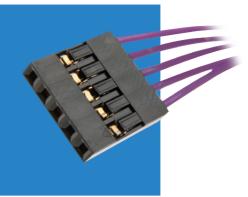


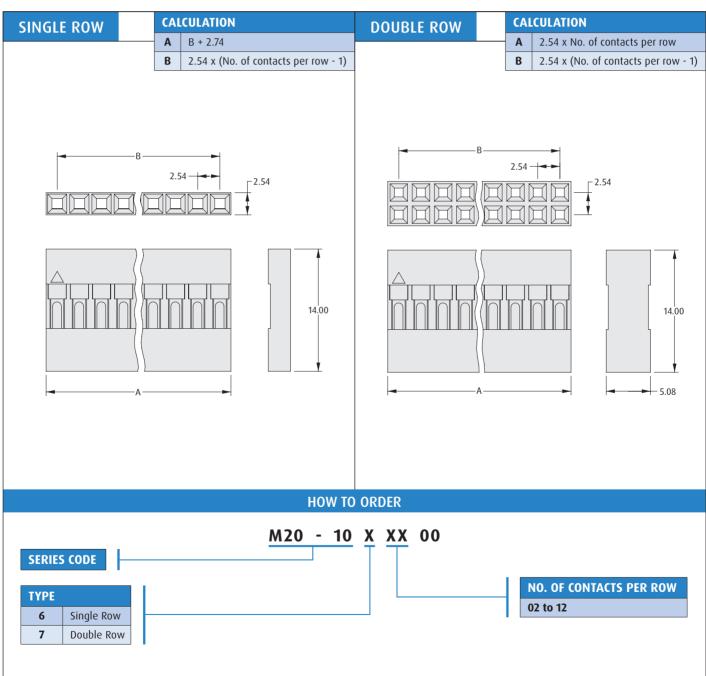




## **Female Crimp Housings**

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







## Female Crimp Contacts, Polarising Key

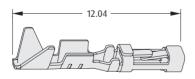
- Loose or reeled contacts.
- ▶ Open crimp design, ideal for automation.
- **▶** Use with female crimp housings shown on previous page.



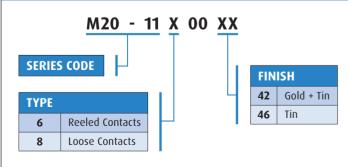
# Reeled (continuous strip) • Order code is for one reel of 10,000 contacts. • For use with loose contacts.

#### Loose (cropped)

• Order code is for one pack of 100 contacts.

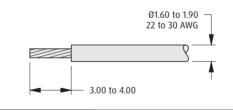


#### **HOW TO ORDER**

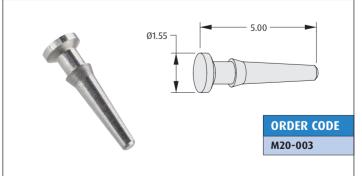




#### WIRE STRIPPING DETAILS



### **POLARISING KEY**

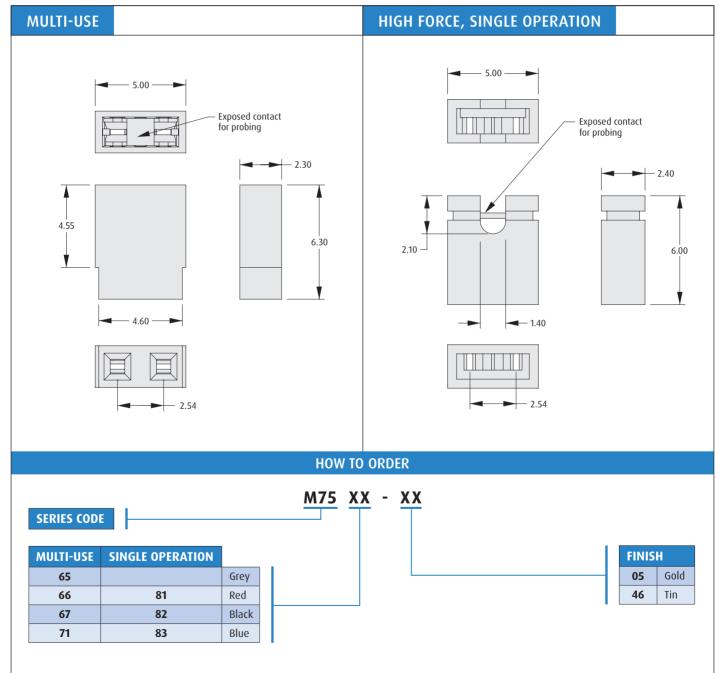




## Jumper Sockets - Open Top

- ➤ 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.





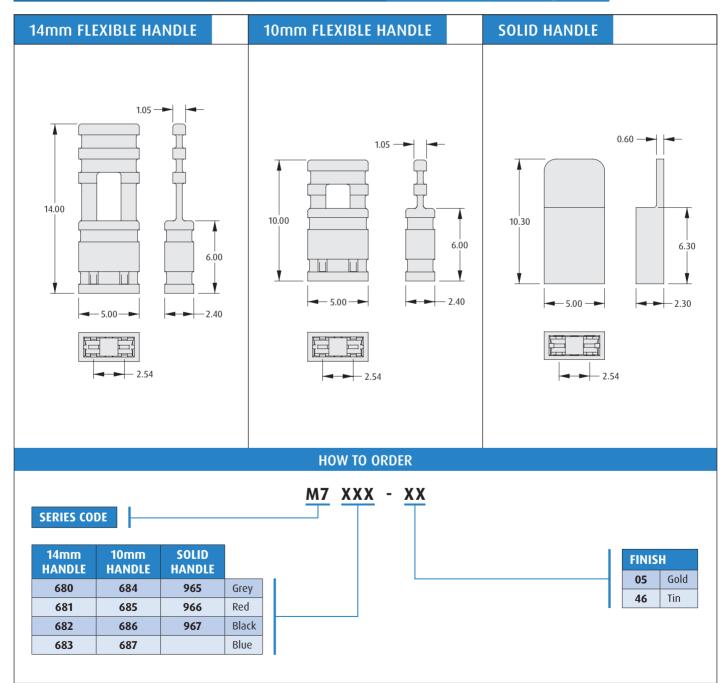


## Jumper Sockets - Closed Top

- ➤ 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.



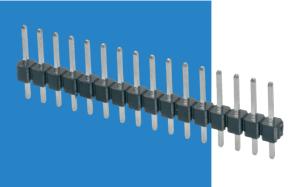


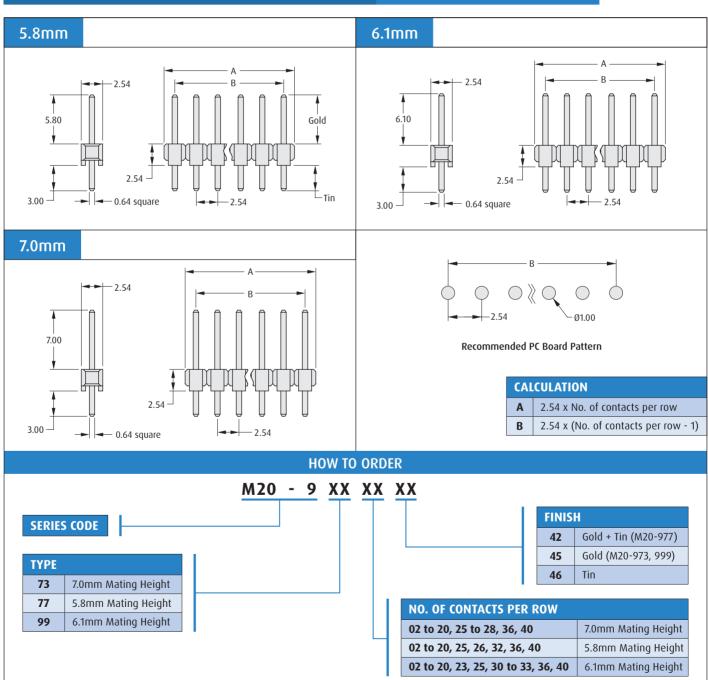




## Male Vertical Single Row PC Tail

- ► 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.



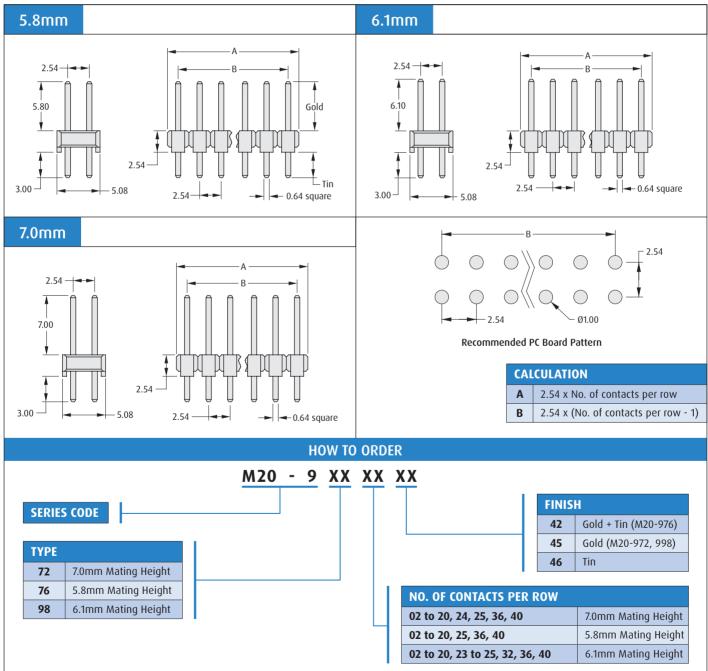




## Male Vertical Double Row PC Tail

- Suitable for use with female connectors and jumper sockets shown on previous pages.
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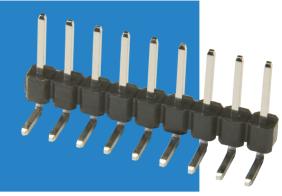


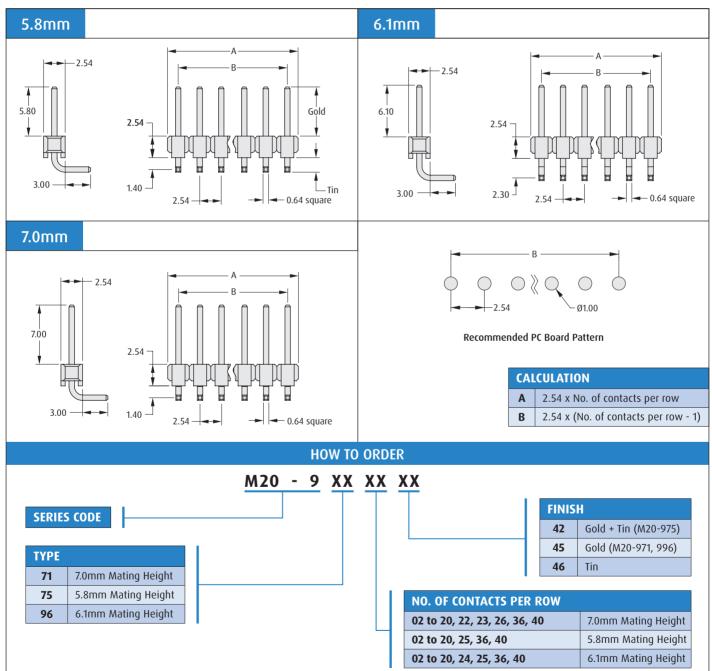




## Male Horizontal Single Row PC Tail

- ▶ 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.

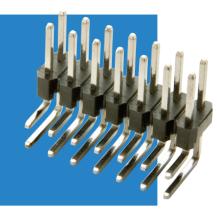


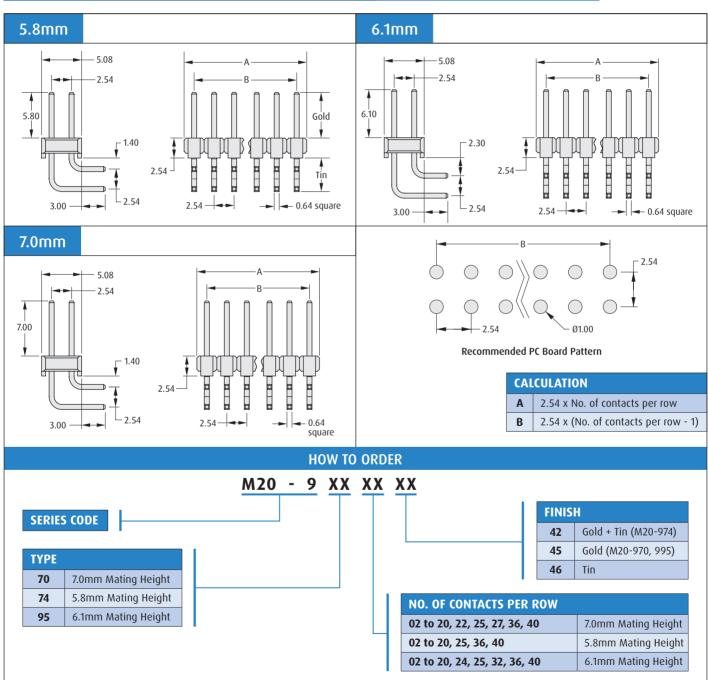




### Male Horizontal Double Row PC Tail

- ▶ 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.



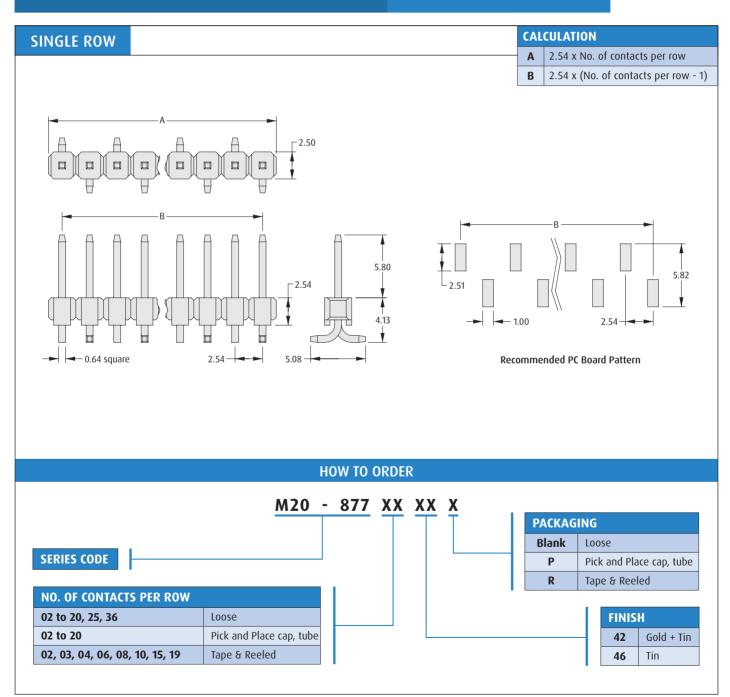




## Male Vertical Surface Mount Single Row

- ▶ 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.

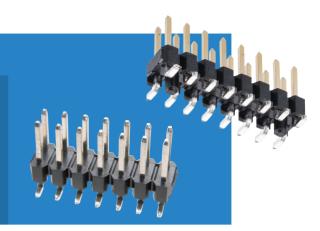


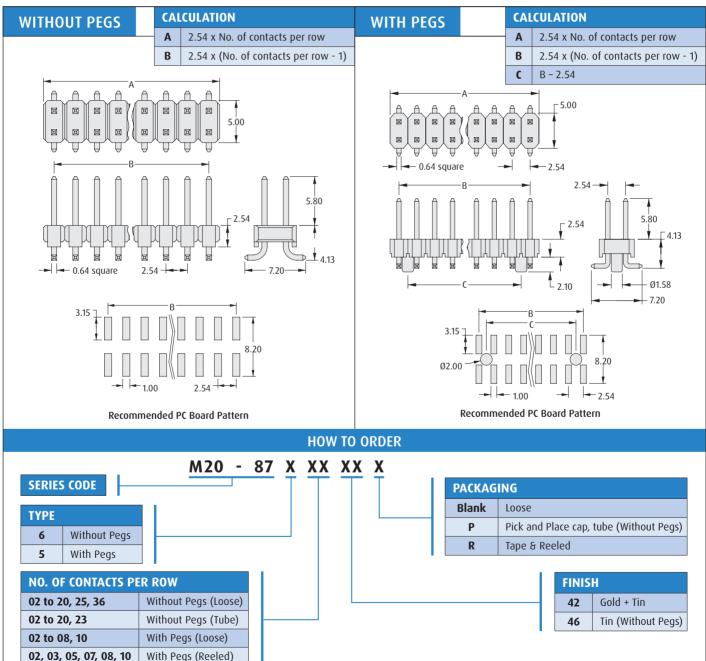




## Male Vertical Surface Mount Double Row

- ▶ 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.

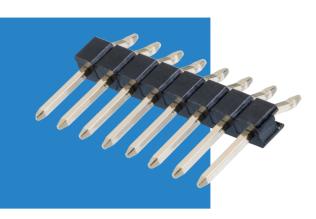


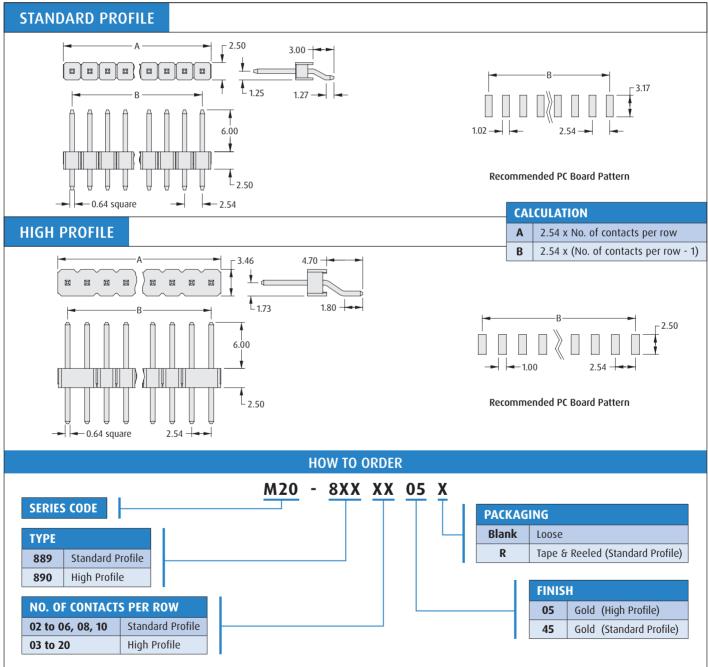




## Male Horizontal Surface Mount Single Row

- ▶ 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.

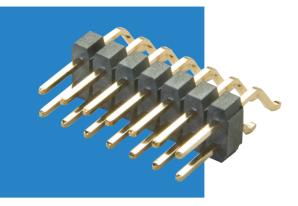


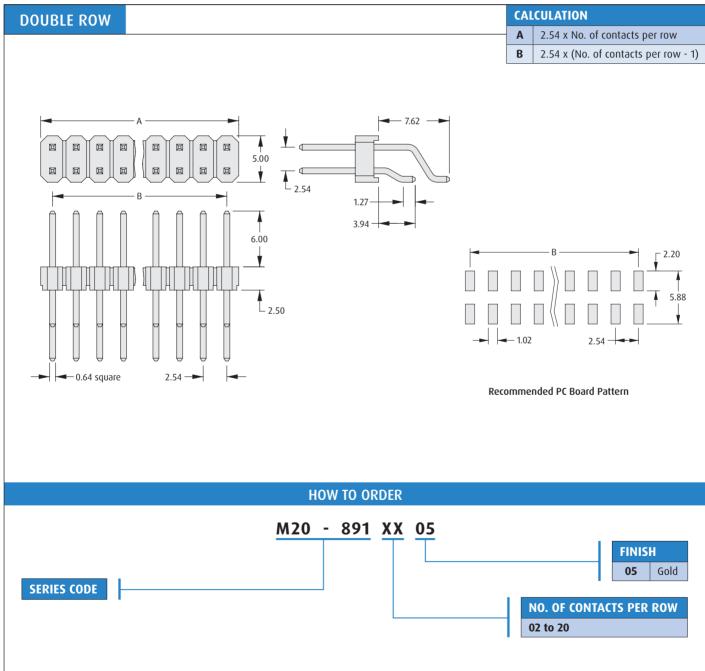




## Male Horizontal Surface Mount Double Row

- ▶ 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.







#### 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 V** Series **W** Series **Horizontal PC Tail H** Series J Series Pin section is Pin section is --- 2 54 0.64mm square. 0.64mm square ▶ PCB mounting hole PCB mounting hole is Ø1.00mm. is Ø1.00mm. Maximum B dimension is 6.00mm 5.08 **Extended Vertical SMT** T Series **E Series F Series S** Series **PC Tail Extended SMT** -5.08Pin section is Pin section is -5.08 0.64mm square. 0.64mm square. 2.54 For PCB pad layout PCB mounting hole is Ø1.00mm. see standard Male SMT pin header. **B** dimension is 000 on S series. -300 7 20 5.08 **HOW TO ORDER** M20 - XXX XXX X XX XX **FINISH** Gold 46 Tin **SERIES CODE** NO. OF CONTACTS PER ROW 02 to 40 **DIMENSION A DOUBLE ROW SINGLE ROW** Example: 7.8mm = 078 w Vertical **DIMENSION B** Horizontal Example: 5.0mm = 050 Extended S Surface Mount **Extended Surface Mount**

