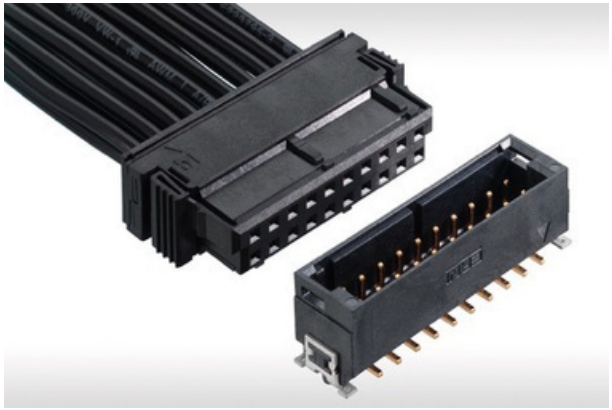
MAXIBRIDGE™

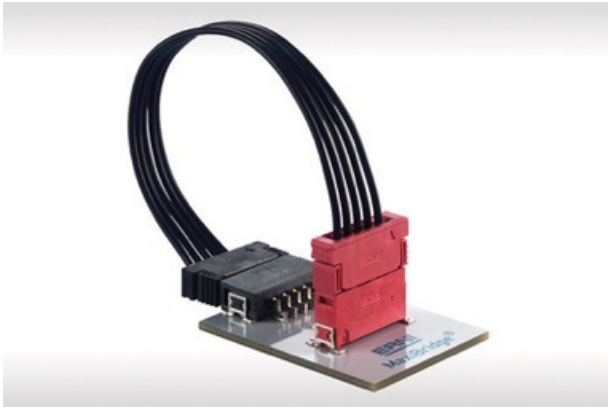
ICHI 宜技科技有限公司

Product Solution

- Meets the requirement for a high number of pins
- Diverse industry range (telecoms, automotive, industry, end user, medical technology)
- Board to Cable connection
- Straight and angled male connector, female connector with 180° cable outlet
- Standard 2.54 mm pitch with higher current carrying capacity of up to 12 A per contact at 20°C ambient temperature

Product Solution





- Single row and dual row
- Robust interlock option plus coding (female/male connector)
- Simple cable attachment, single-core connection across a wide range of cross sections
- Wide temperature range (-55/150˚C)
- Primary and secondary contact interlock (female contact in housing)

Brief Description of the Various Types

Female multipoint connector

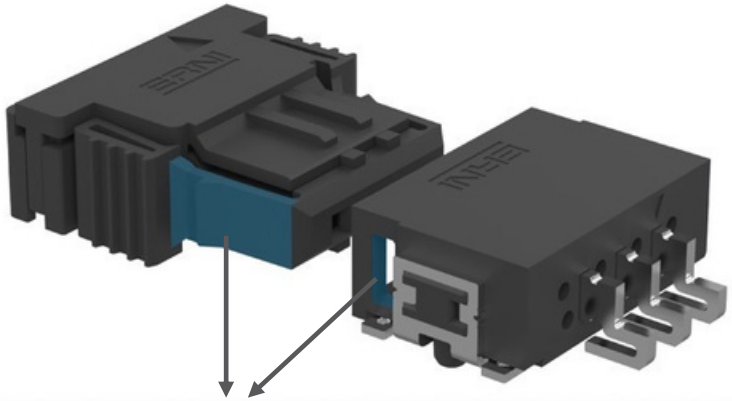
- The female multipoint connector accepts crimp contacts
- Material thickness of female contact 0.3 mm
- Crimp contacts for various cable cross sections (AWG 18, AWG 20/22, AWG 24/26)
- Possible number of pins:
  - -single row -2, 3, 4, 5, 6, 8, 10
  - -dual row -2x5, 2x10

Brief Description of the Various Types

Male multipoint connector, vertical and horizontal

- Contact cross section of pin 0.62 mm x 0.62 mm
- Solder clips ensure high retention and tensile forces and also serve as integrated strain relief
- Holes in the solder clips improve the solderability and increase the shearing forces
- Coplanarity < 0.1 mm (including solder clips)
- Stamped contacts without an additional bending process

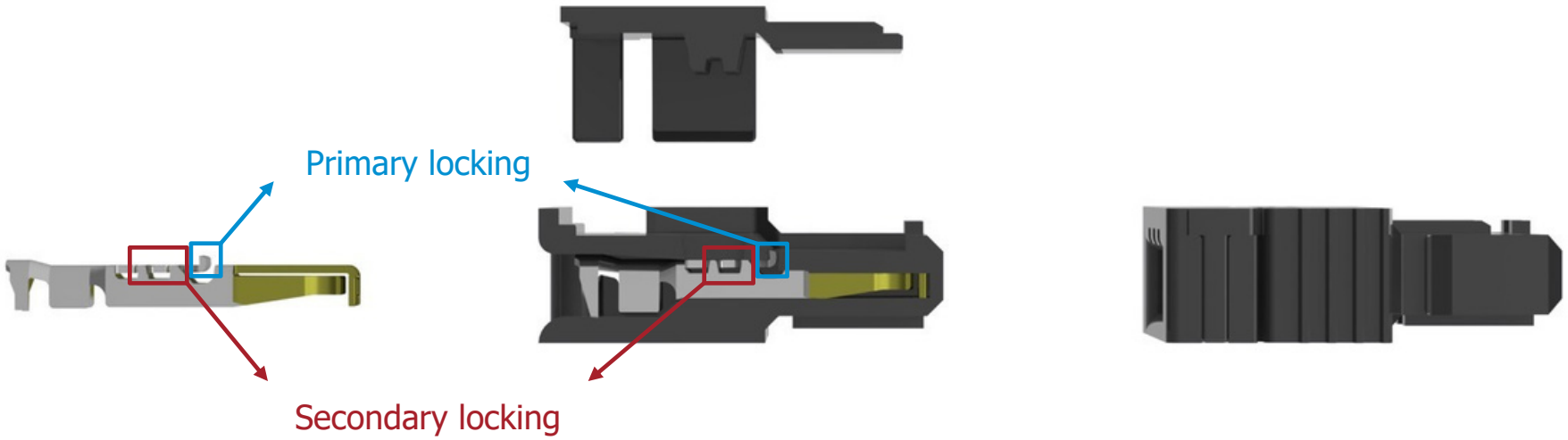
Female-Male Multipoint Connector Interlock



Interlock function

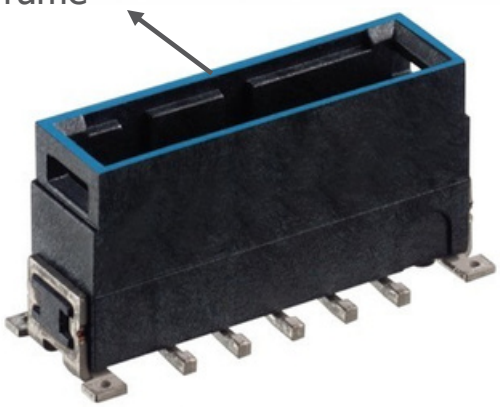
- Released by manual operation without tools, highly resistant to vibration and shock
- Tactile interlock function
- Audible latching function
- Protection against unintentional release

Contact Interlock, Female Multipoint Connector

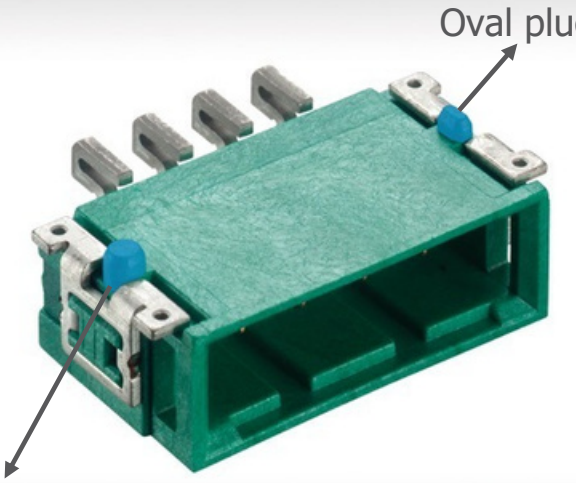


- The primary locking is engaged when the inserted crimp contact has audibly snapped-in
- Once the interlocking plate (secondary locking) is clicked into place, the contact is finalylatched

Guide Elements



- Robust, all-round frame
- Optimum guidance for cable connectors



- Round and oval plug for PCB with tolerance compensation
- Precise positioning on the PCB by 2 plastic plugs

Codings

Red coding

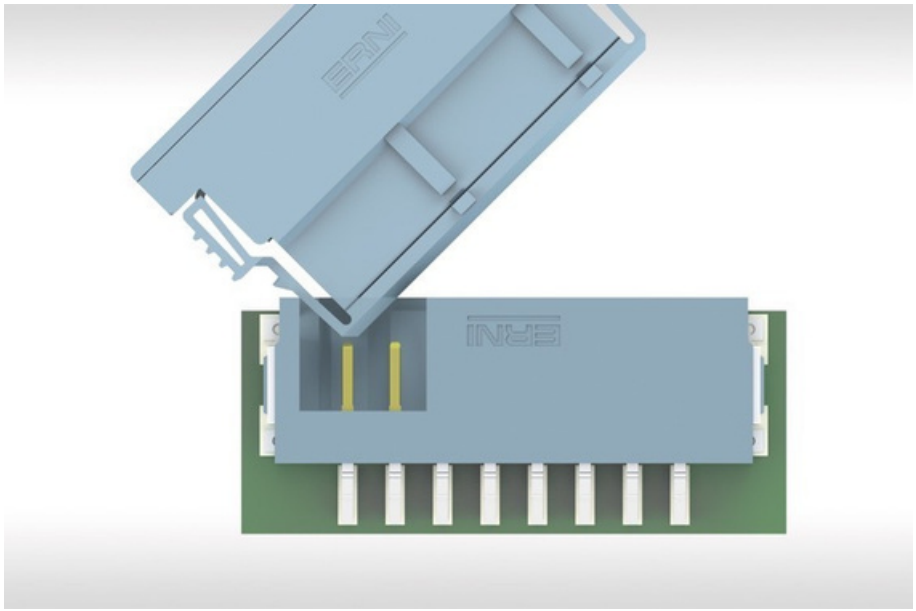
Green coding

Black coding

Blue coding

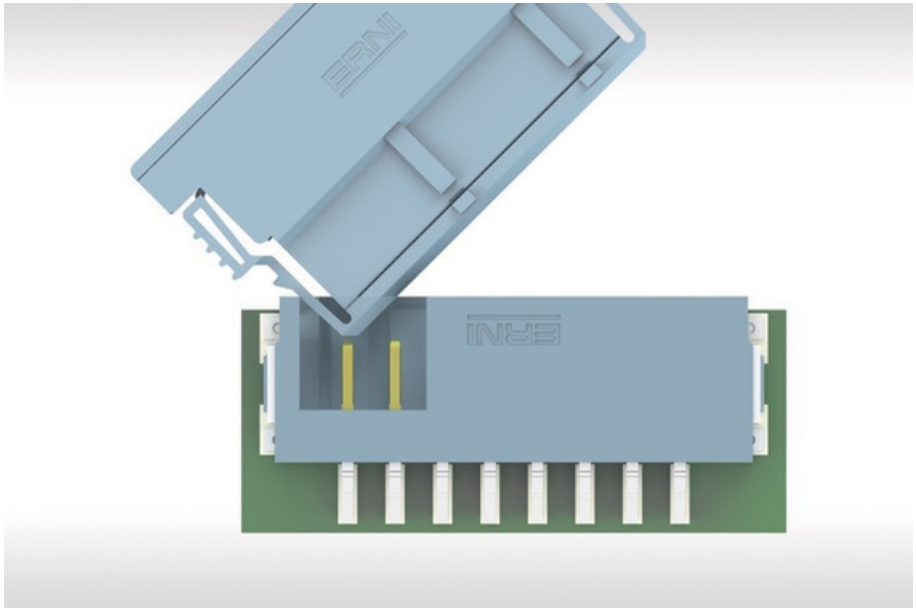
- 4 colors/codings available for each number of pins

MaxiBridge with Koshiri secure



- Summary of LV 214-1 (Test Specification for Motor Vehicle Connectors), Test Group 9 (insertion inclination):
  - Koshirisecure requirements:
    Koshirisecure is required; documentation must be provided. It must be possible to touch signal-and current-carrying components (contacts) during removal/installation only with their signal-and current carrying mating piece (and its guide cup). The design must preclude contact with housing parts.
- Contact pins are not damaged in case of improper mating
- Coding of the housings for a safe mating process

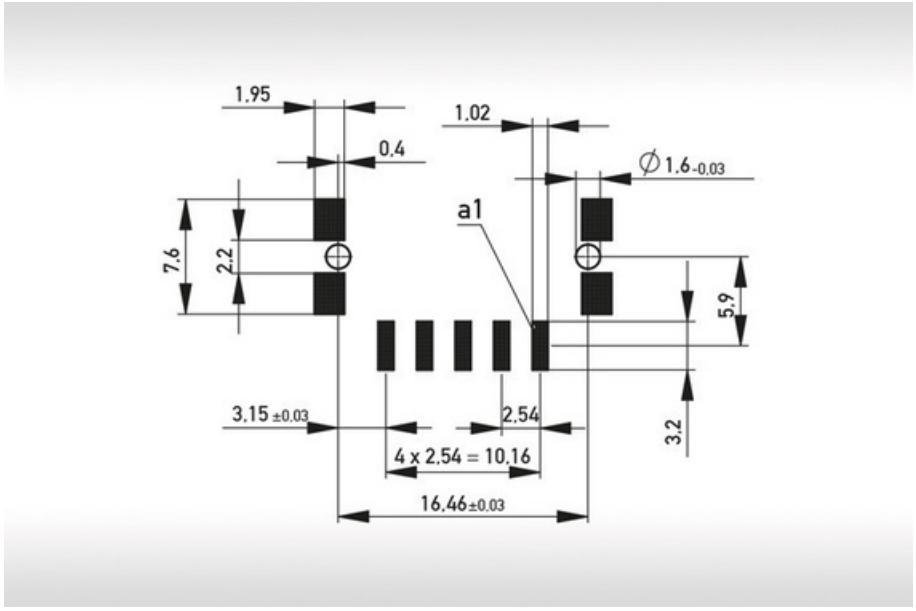
MaxiBridge with Koshiri security



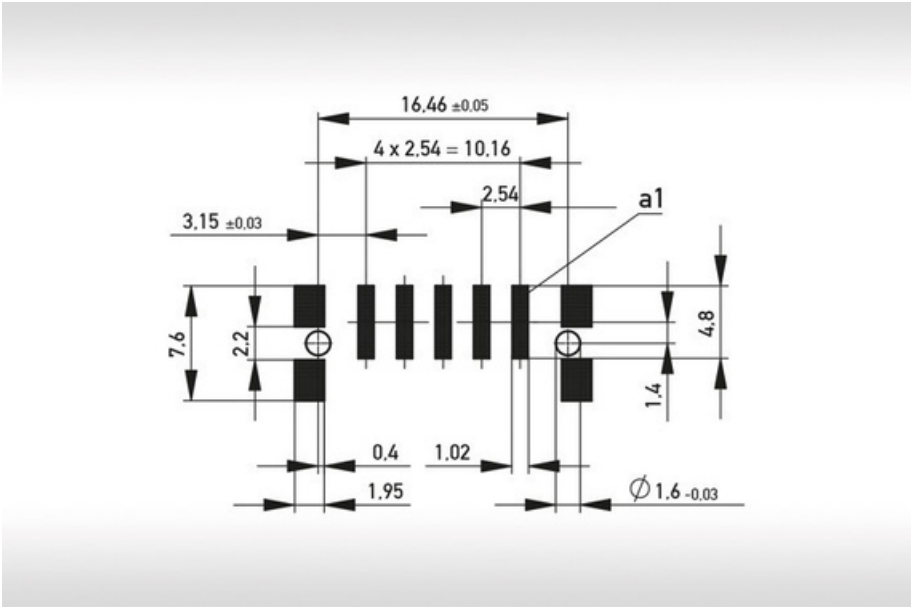
- Available for:
  - -2-pin, 90º & 180º black, green, red
  - -3-pin, 90º & 180º red
  - -4-pin, 90º black, blue, red
  - -4-pin, 180º black, red
  - -8-pin, 90º & 180º blue
  - -10-pin, 90º & 180º black

Air-and Creepage Distance

Layout single row



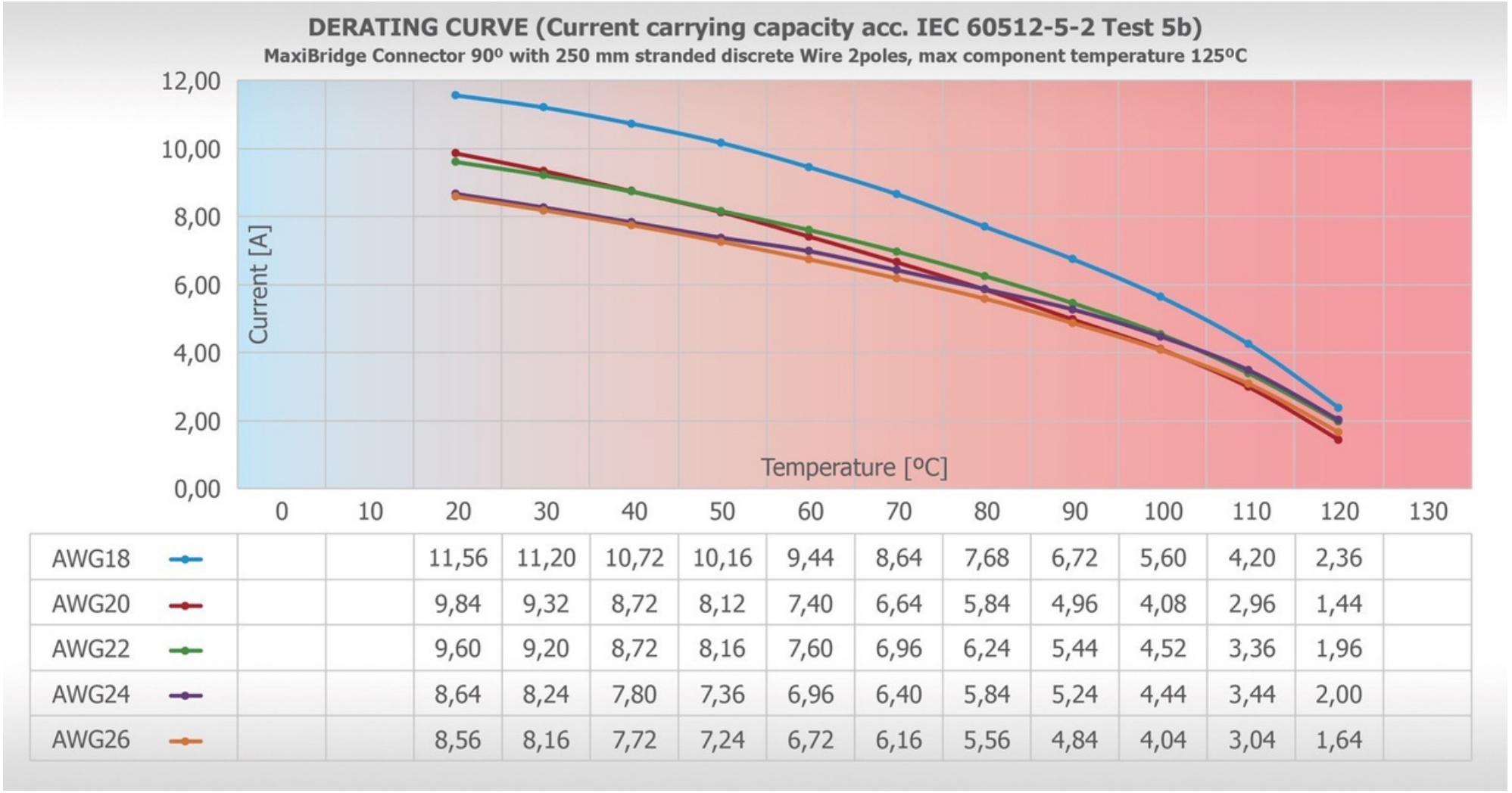
Angled version



Straight version

Current Carrying Capacity of Various Crimp Contacts

Derating Curve



AWG18			11,56	11,20	10,72	10,16	9,44	8,64	7,68	6,72	5,60	4,20	2,36
AWG20			9,84	9,32	8,72	8,12	7,40	6,64	5,84	4,96	4,08	2,96	1,44
AWG22			9,60	9,20	8,72	8,16	7,60	6,96	6,24	5,44	4,52	3,36	1,96
AWG24			8,64	8,24	7,80	7,36	6,96	6,40	5,84	5,24	4,44	3,44	2,00
AWG26			8,56	8,16	7,72	7,24	6,72	6,16	5,56	4,84	4,04	3,04	1,64

Current carrying capacity per contact

Derating

Additional Information

Available derating curves

- 2, 3, 4, 5, 6 and 8-pin, AWG 18, 20, 22, 24, 26, max. 125°C
- 10 and 20-pin, 0.35 mm², max. 150°C

With longer cables, please note the following:

- Voltage drop due to cable resistance

Partial load versus full load

- Higher values can be achieved with a partial load. However, these depend on the application and must be tested separately

Max. current carrying capacity of the plug-in connector

- On the 8-pin version, 96 A per plug-in connector can be achieved in theory (8-pin x 12 A = 96 A)

Crimp Contact

Processing

Fully automatic crimping and tin plating machine

Crimp Contact

Processing Options

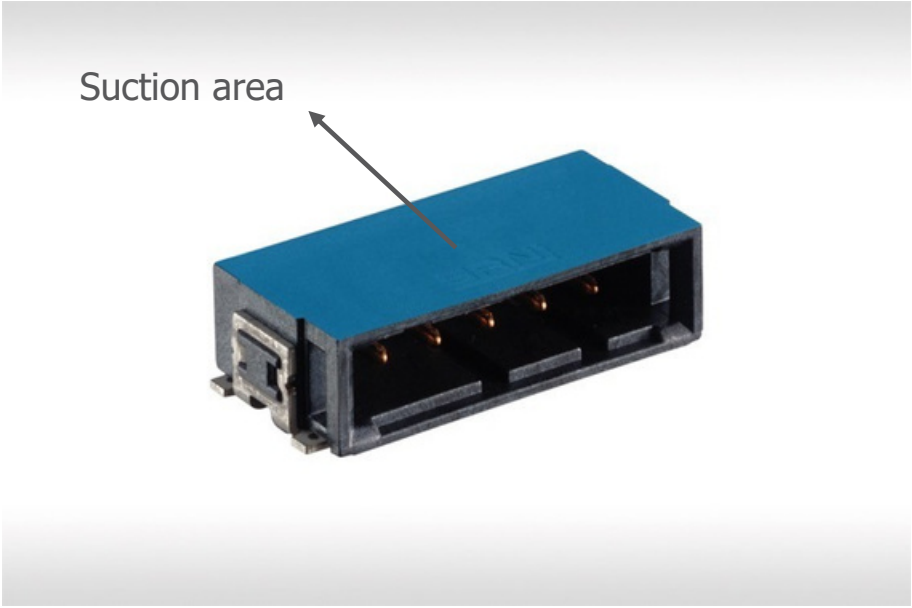
Variants

- Wire cross section AWG 18, 20/22, 24/26 stranded discrete wire
- Standard -individual strands or multi-core round cable

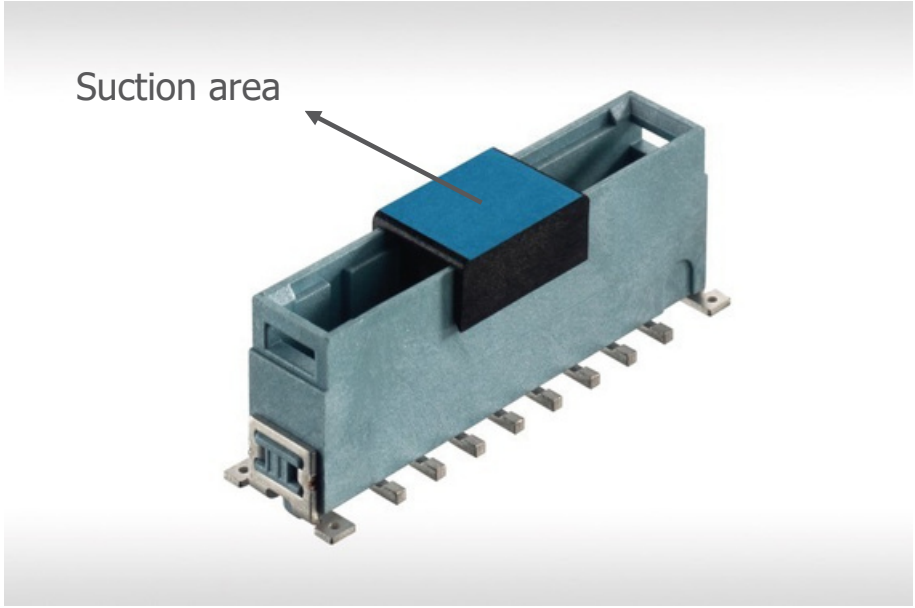
Tools

- Hand-held crimping tool for reels of 500 contacts
- Standard tool -Crimping machines

Automatic Assembly and Packaging



- Angled male multipoint connector can be gripped directly on the suction area using the vacuum suction cup
- Male connectors are packed in Tape on Reel
- Female connectors are packed in Trays



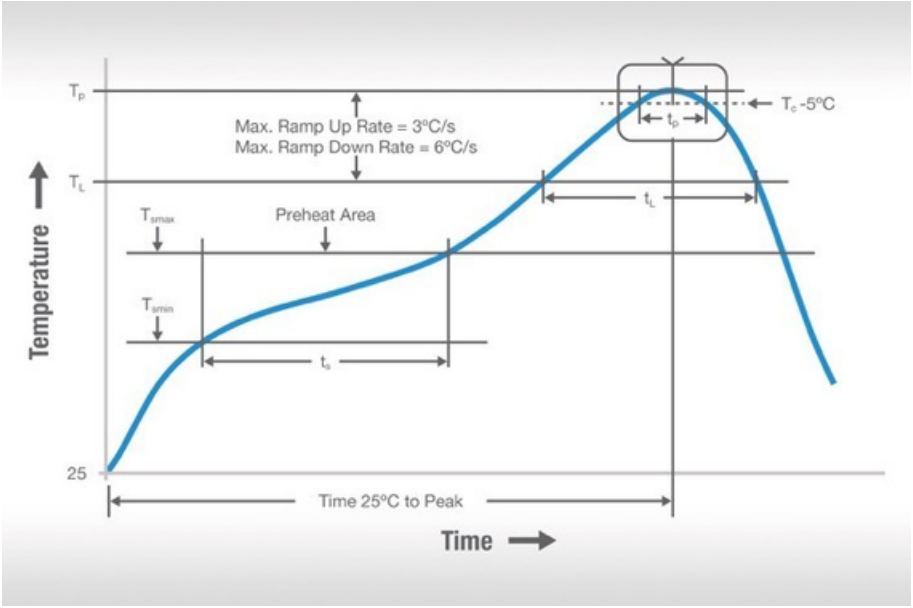
- Straight male connector is sucked up via a pick & place pad

Processing Temperature

Reflow Profile

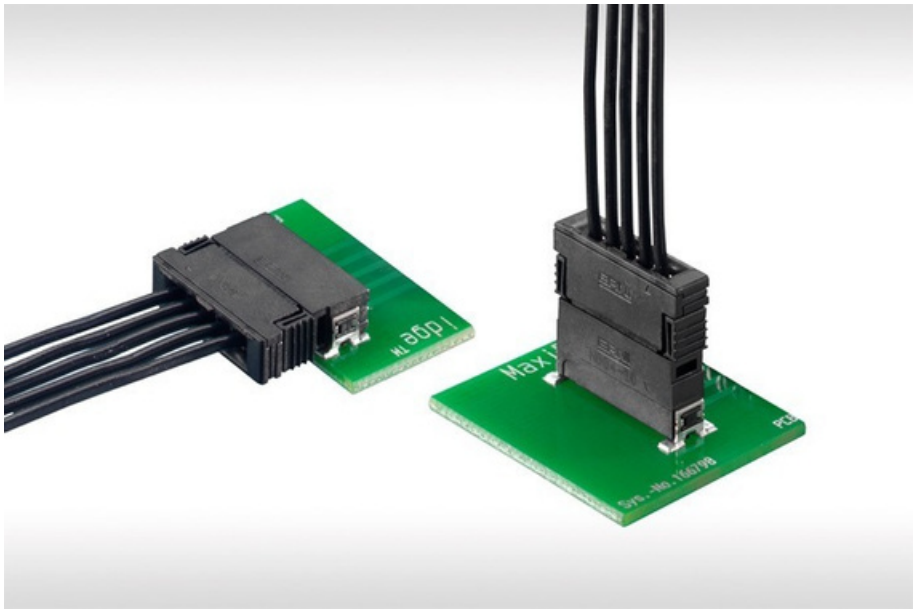
SMT/THR Reflow resistance to soldering heat IPC/ JEDEC J-STD-020D

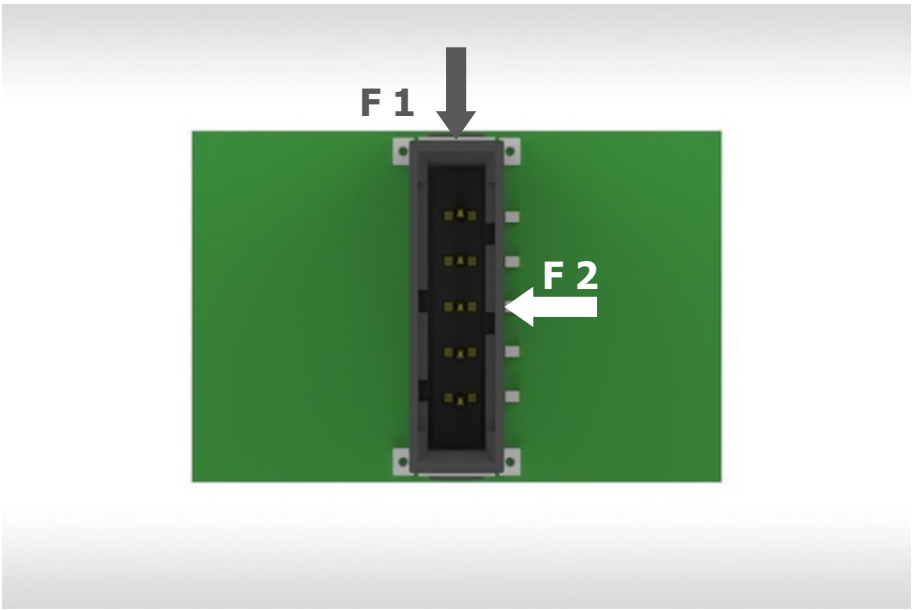
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3°C/ second max.
Preheat: ▪ Temperature Min (Ts_{min}) ▪ Temperature Max (Ts_{max}) ▪ Time (ts_{min} to ts_{max})	 150°C 200°C 60-120 seconds
Time maintained above: ▪ Temperature (T_L) ▪ Time (t_L)	 217°C 60-150 seconds
Peak/Classification Temperature (Tp)	260°C (+0/-5°C)
Time within 5°C of actual Peak Temperature (tp)	➢30 seconds
Ramp-Down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.



Shearing Forces with SMT Terminal

5-pin Vertical Version

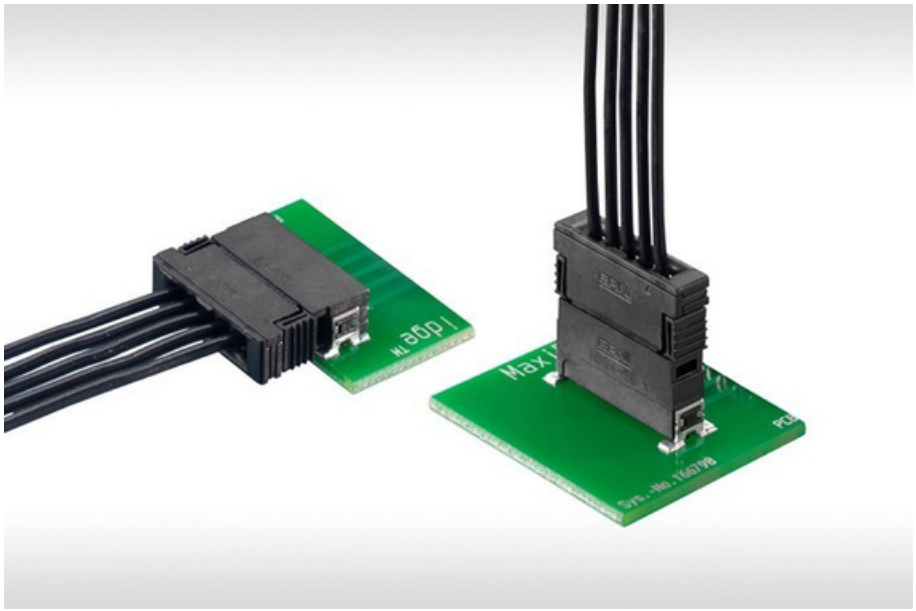


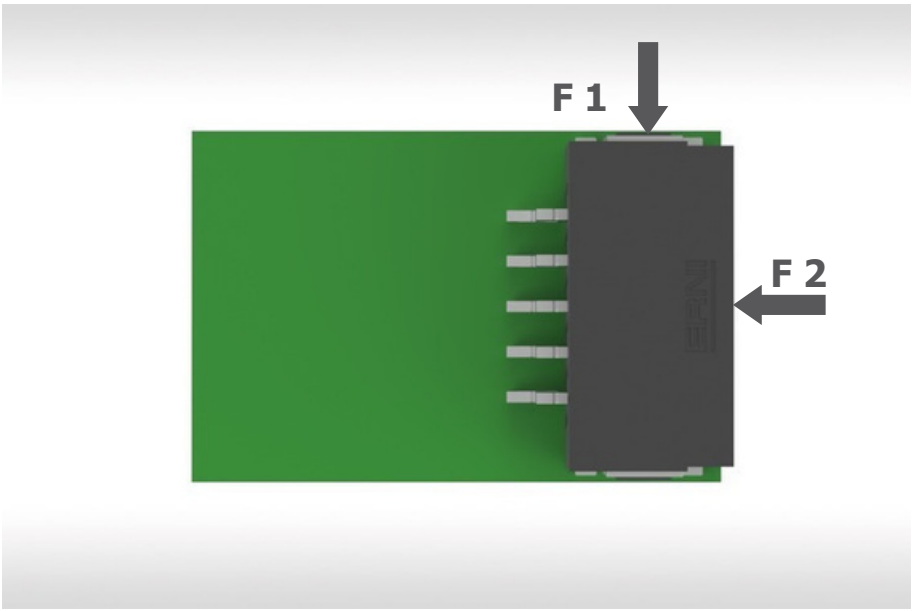


	F 1 Longitudinal shearing force	F 2 Lateral shearing force
min.	521.00 N (53.1 kg)	728.00 N (74.2 kg)
average	600.80 N (61.2 kg)	899.20 N (91.7 kg)
max.	670.00 N (68.3 kg)	978.00 N (99.7 kg)

Shearing Forces with SMT Terminal

5-pin Horizontal Version





	F 1 Lateral shearing force	F 2 Shearing force in mating direction
min.	422.00 N (43.0 kg)	363.00 N (37.0 kg)
average	433.70 N (44.2 kg)	378.70 N (38.6 kg)
max.	449.00 N (45.8 kg)	390.00 N (39.8 kg)

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Technical Data

Performance level 1		> 500 mating cycles
Flammability		UL94 V0
Contact resistance	[mΩ]	< 20
Insulation resistance	[MΩ]	> 10^4
Rated voltage	[V]	Depends on application, CTI value (insulator), degree of pollution and device-specific standards
Contact test voltage	[Veff]	1000 V
Current carrying capacity	A @ 20°C	Up to 12 A (at 150°C limit temperature) Note the temperature limit of the used contact and cable
Temperature range	°C	from -55 to +150
Insertion force	[N] typ.	< 5 N (5-pin)
Withdrawal force	[N] typ.	< 5 N (5-pin)
PCB thickness	min.	1.0 mm
PCB pitch	mm	2.54 (0.1″)

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Technical Data

Cable type		
Stranded wire		AWG 18, AWG 20/22, AWG
Insulation material		24/26 PVC, PTFE, TPE, etc.
Insulation diameter SRC	[mm]	max. 1.9
Insulation diameter DRC	[mm]	max. 1.55
Cable holding force within the housing	[N]	up to 90 N

Typical Applications

- **Automotive**
- LED rear lights and headlamps
- TFT displays
- Infrared distance sensors
- Head up display
- Instrument panel elements

Typical Applications

End user

- Fans, consoles, LCD, TFT, LED displays
- Power supply for hard drives, printers, etc.
- Domestic appliances
- Hobby sector

Typical Applications

Industry

- Sensors, actuators, valve technology
- Fans, consoles, LCDs, TFTs, LED displays
- Programming interfaces, handheld terminals
- Studio headphones
- Motors for window locking systems, alarm sensors
- Instrument panel elements

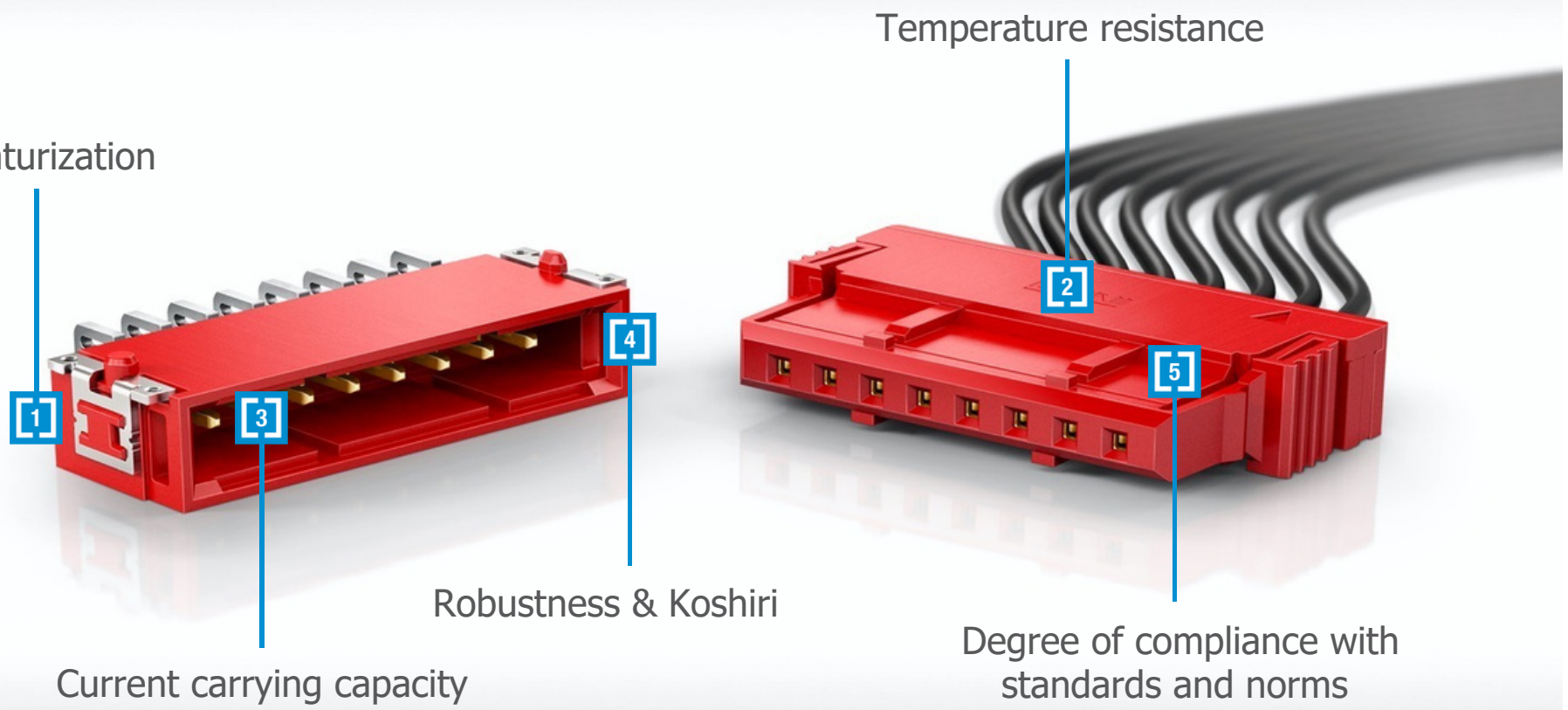
Medical technology

- Sensors for diagnostics
- Monitors and monitoring equipment

SUMMARY

MaxiBridge

Advantages and benefits



MaxiBridge

Advantages and benefits

Characteristic	Advantage	Benefit
1. Miniaturization	• Compact design with miniaturized height of 5.05mm (SRC)	• Enables implementation of miniaturized black box designs. This results in cost savings in the printed circuit board and black box material
2. Temperature resistance	• Extremely temperature-resistant and robust for demanding applications up to 150ºC	• Compact and space-saving in high-temperature applications with miniaturized PCB design

MaxiBridge

Advantages and benefits

Characteristic	Advantage	Benefit
3. Current carrying capacity	• Up to 12A current carrying capacity with small contact surface	• High electrical transmission of currents despite miniaturized installation space– for powerful and compact applications
4. Robustness & Koshiri	• Robust design for mechanical reliability and a safe mating process	• Minimizes the cost of the Design FMEA

MaxiBridge

Advantages and benefits

Characteristic	Advantage	Benefit
5. Degree of compliance with standards and norms	• Qualified according to internationally accepted standards	• Minimizes testing effort and time spent in the design phase and on the Design FMEA

Summary 1

- Compact, with highest current carrying capacity (up to 12 A per contact) at 2.54 mm pitch
- Available as 2, 3, 4, 5, 6, 8, 2x5 and 2x10 pin version
- Male contacts protected by all-round frame
- Robust lateral solder clips to absorb handling forces
- Selective gold plating in the contact area
- Coplanarity < 0.1 mm including solder clips
- Fully coated contacts, no uncoated punched edges, so corrosion product migration is impossible
- Reliable, double-sided female contact
- Minimum guaranteed contact forces at the same level of normal force

Summary 2

- Female multipoint connector CSI for single-core connection AWG 18, 20/22, 24/26 with insulation crimping
- Female multipoint connector CSI for 180° cable outlet
- Printed circuit board connector for fully automatic assembly
- Very good male-female latch interlock, easy to release without using tools
- 4 different codings/colors, high blocking force against mismating
- Two contact interlock types, e.g. primary and secondary interlock for automotive applications
- Cable is easy to crimp, pre-assembled cable from ERNI
- All cables pre-assembled at ERNI are 100% electrically tested
- Crimps are continuously monitored
- Materials UL94 -V0
- UL approval

Summary 3

- Very high current carrying capacity compared to the competition at a pitch of 2.54 mm
- Two interlock levels (secondary and primary) for the most demanding applications
- Interlocked crimp contacts achieve the highest withdrawal forces
- 4 codings, different in color and mechanically
- Interlocking the male and female multipoint connectors protects against unintentional release e.g. through vibration
- Economical SMT processing
- 3 crimp contacts for 3 different cross section ranges AWG 18, AWG 20/22, AWG 24/26
- Highest operating temperatures due to low self-heating (depending on cable quality)

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