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Component Specification

C05208

Kona
KA1 Series 8.5mm Pitch High Power Connectors

KONA

1. DESCRIPTION OF CONNECTOR SYSTEM

The Kona range consists of male and female high-reliability mating connectors, based on an 8.5mm pitch single row format – part numbers start with the series code KA1. These connectors are designed for higher power applications with a rugged or durable requirement. Each contact on both male and female connectors is individually shrouded and recessed. Polarization and contact 1 identification marks are also incorporated into the housing designs.

The male contact is designed to provide the spring force inside the female contact for positive engagement. Both contacts are plated with a hard acid gold finish at 98% purity for high performance and long life. Cable contacts are available in crimp or solder styles (compatible with 8AWG cable) and are removable & replaceable inside housings.

Connector housings are fitted with stainless steel screw-lock fixings, capable of mate-before-lock for easy connection and faster fixing. Options include thumbscrews for manual assembly, board or panel mount studs for connector retention, and reverse fix style for floating screw on the male. Metal backshells are available to provide mechanical, RF and EMC protection.

For detailed test results on the below specifications, please see **Test Summary Report HT076XX** (latest revision).

2. RATINGS

2.1. Materials

Contact	Beryllium Copper, Gold over Nickel
Contact latching collar	Cupro-Nickel, 100% Tin over Nickel
Housing	40% Glass-Filled Thermoplastic, UL94V-0
Pick and Place Cap	15% Glass-Filled Thermoplastic, UL94V-0
Screw fixings	Stainless Steel
Potting Compound	Stycast 2651MM with Catalyst 9
Backshell	Aluminium 6061-T6, High Phosphorus Nickel finish

2.2. Electrical Characteristics

Current Rating	60A max per contact
Dielectric Withstanding Voltage:	
Sea Level	3,000V AC for 1 minute
Altitude 70,000ft	500V AC for 1 minute
Voltage Rating	1,500V DC or AC peak
Contact Resistance	2mΩ max
Insulation Resistance	10GΩ min at 1,000V
Creepage Distance (see Appendix 3):	
Male PCB Vertical (Standard & Shielded)	5.50mm
Male PCB Horizontal (Standard & Shielded)	9.85mm
Female & Male Straight Cable Solder (Standard & Shielded)	15.41mm
Female & Male Straight Cable Crimp (Standard & Shielded)	15.35mm
Clearance Distance (see Appendix 3):	
Male PCB Vertical (Shielded in brackets)	4.75mm (3.00mm)
Male PCB Horizontal (Shielded in brackets)	4.75mm (3.88mm)
Female & Male Straight Cable Solder (Standard & Shielded)	2.70mm
Female & Male Straight Cable Crimp (Standard & Shielded)	2.70mm

2.3. Environmental Characteristics

Operating Temperature Range	-65°C to +150°C
Vibration ❖ (PCB-to-Cable)	10Hz to 2,000Hz, 1.52mm pk-pk displacement or 20gn pk (whichever is less), 198m/s² (20G), 12 cycles per axis, 20 minutes per cycle
Vibration (Cable-to-Cable)	10Hz to 500Hz, 1.52mm pk-pk displacement or 10gn pk (whichever is less), 98m/s² (10G), 12 cycles per axis, 15 minutes per cycle (without backpotting)
Mechanical Shock ❖ (PCB-to-Cable)	981m/s² (100G) for 6ms Half-sine in all axes
Mechanical Shock (Cable-to-Cable)	490m/s² (50G) for 11ms Half-sine in all axes (without backpotting)
Humidity	90-95% RH at +40°C, 96 hours
Salt Spray	48 hours at +35°C, concentration 5%

❖ *It is recommended that back-potting compound is applied to cable assemblies.*

2.4. Mechanical Characteristics

Durability	250 operations
Insertion Force (per contact*):	
Initial	35N max
Post Conditioning	40N max
Withdrawal Force (per contact*)	2N min

** per contact when fully assembled connector is being mated and un-mated.*

Contact Retention Force	35N min per contact
Screw-lock Torque	22-25cmN
Crimp Strength**	>100N

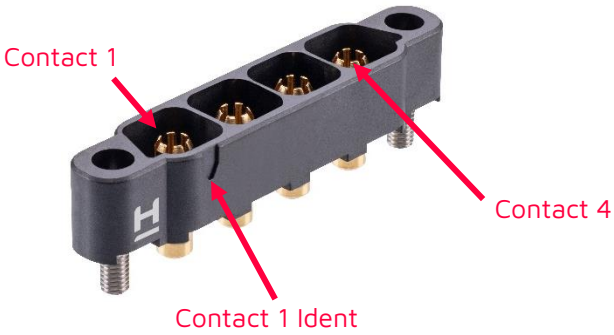
*** Using crimp setting outlined in Tooling Instruction Sheet IS-49.*

APPENDIX 1 – CONTACT NUMBERING

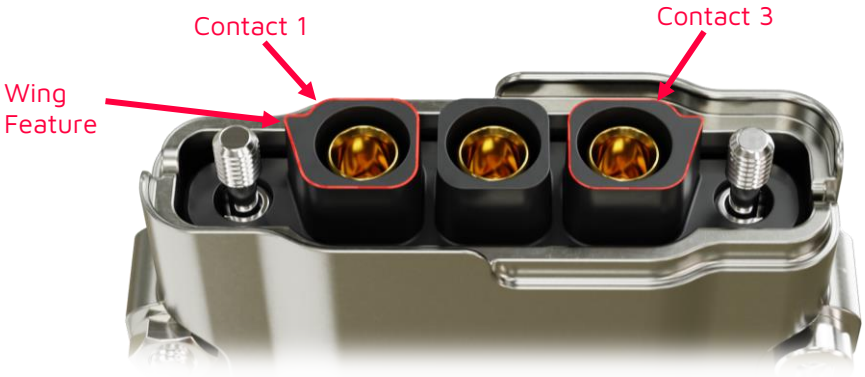
Note: The below numbering applies to all variants (Straight & Horizontal).

Female Connector

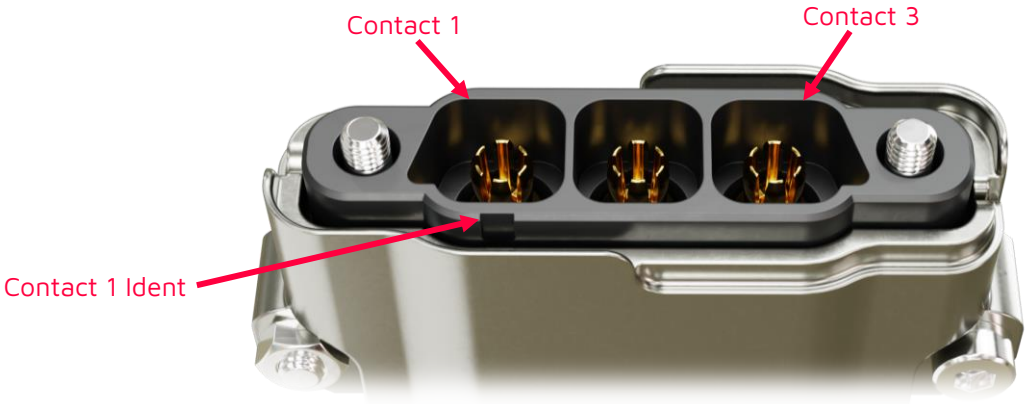
Male Connector



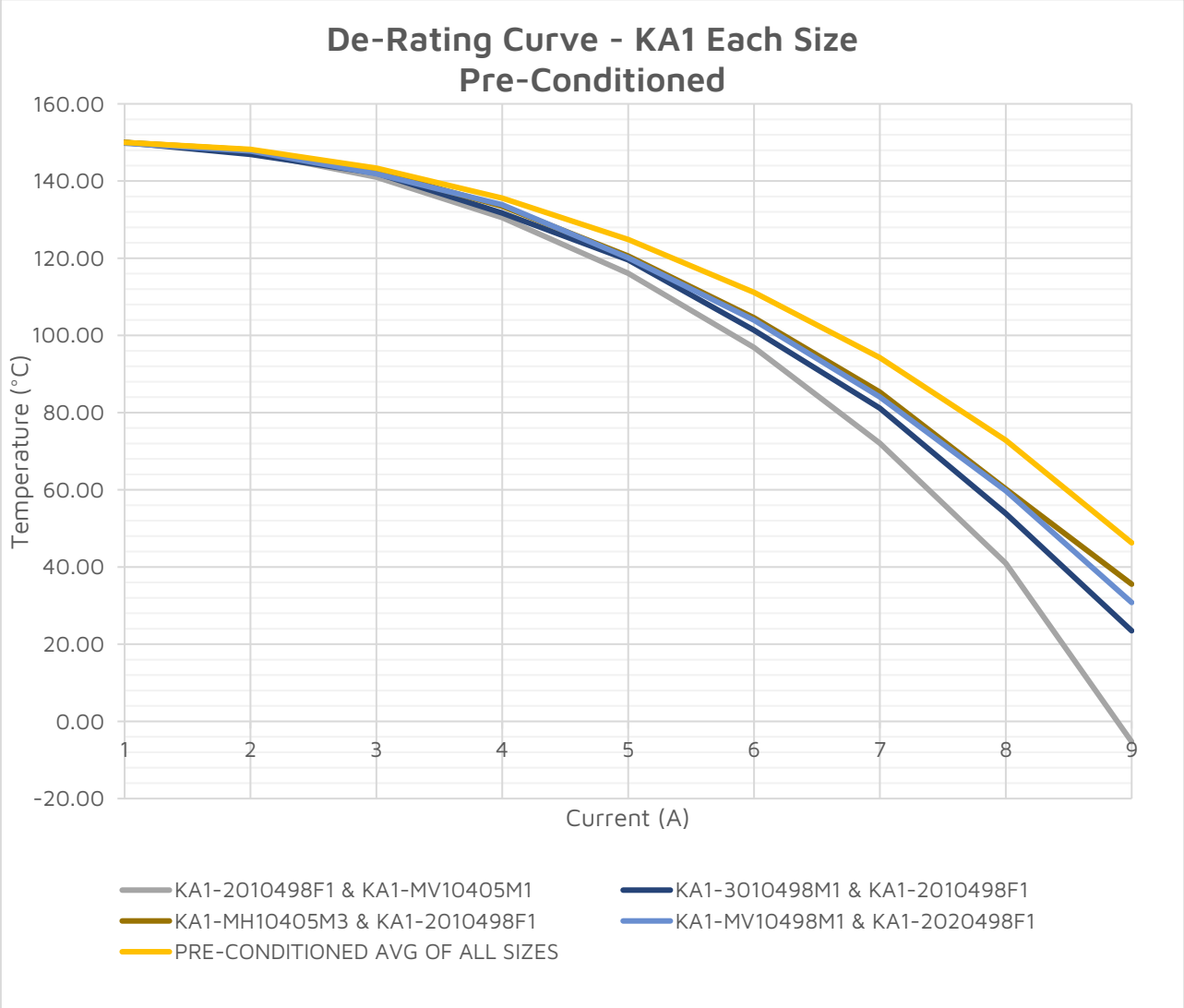
Female Shielded Connector



Male Shielded Connector



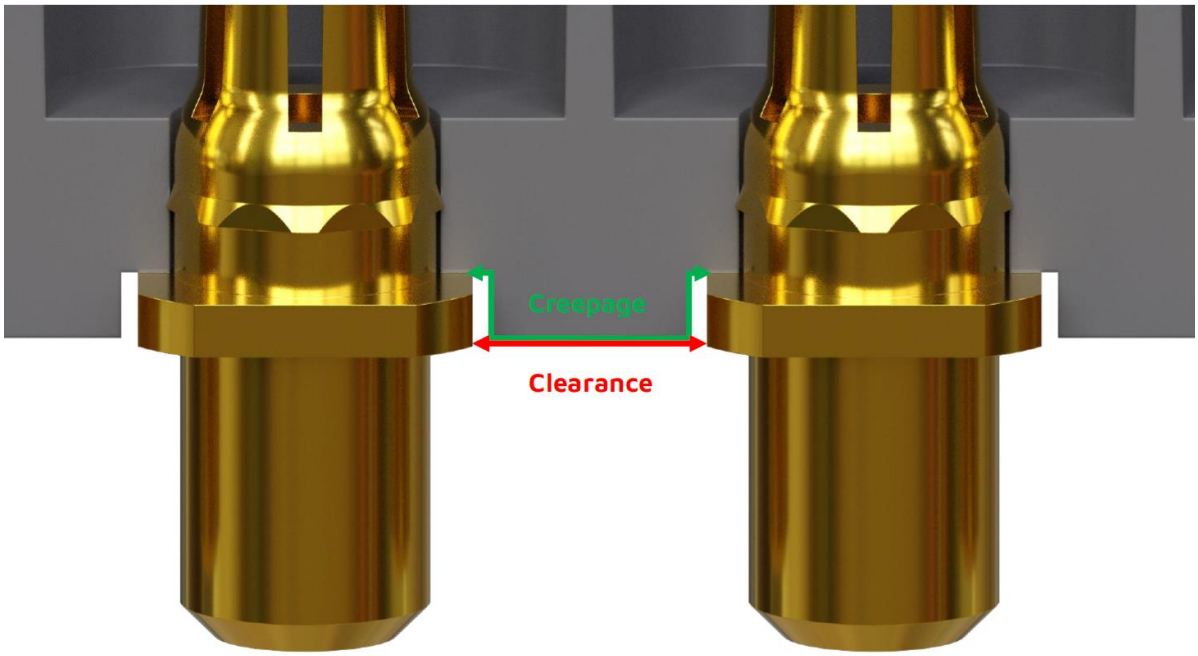
APPENDIX 2 – DE-RATING GRAPH



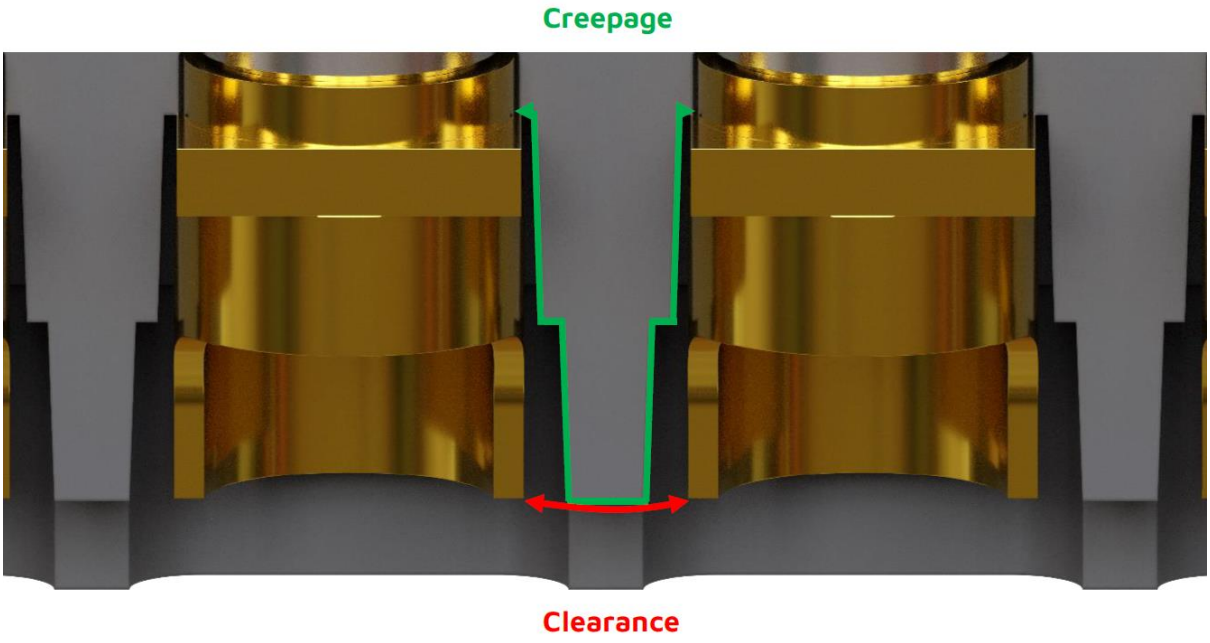
Note: Only 4 position connector curves have been provided above as they are the worst-case scenario for de-rating. 2 & 3 position connectors will have less de-rating against current, an average of all sizes has been provided.

APPENDIX 3 – CREEPAGE AND CLEARANCE LOCATIONS

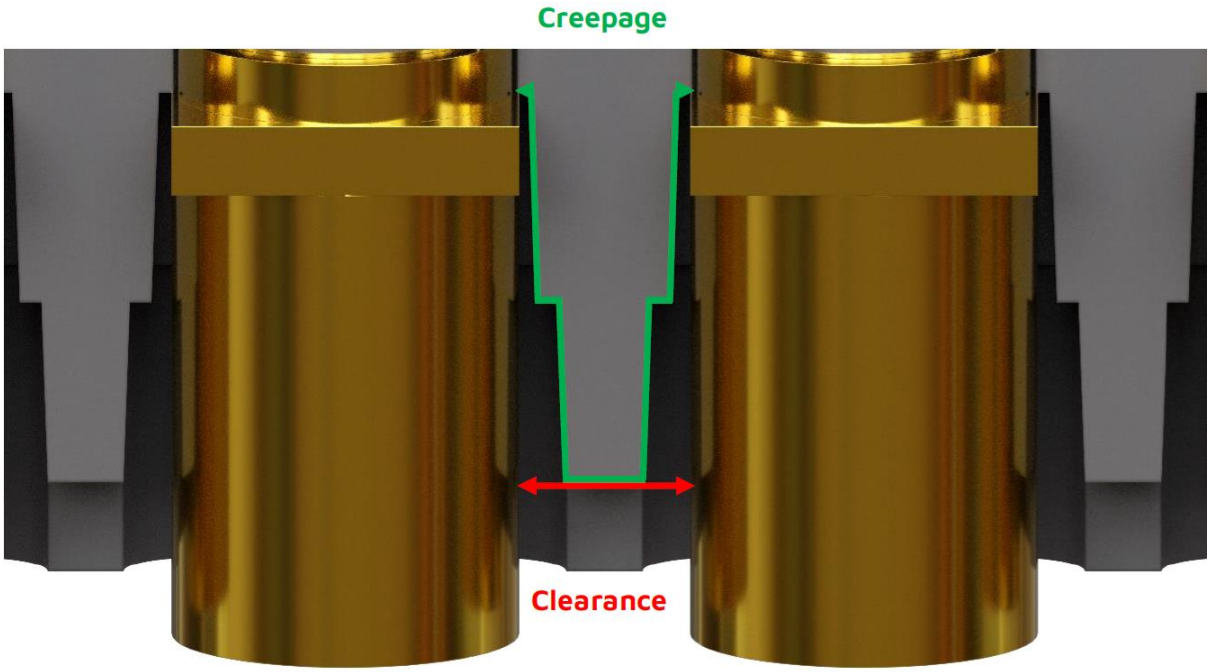
Vertical PCB Throughboard:



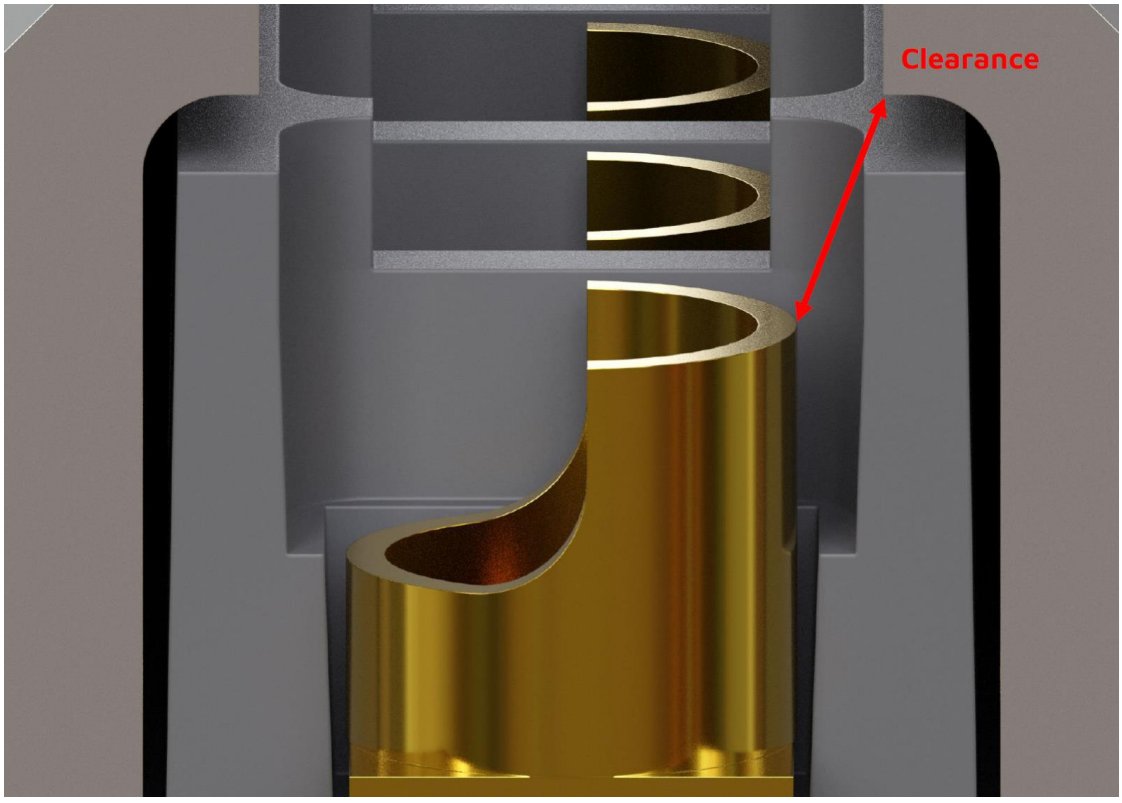
Cable Solder:



Cable Crimp:

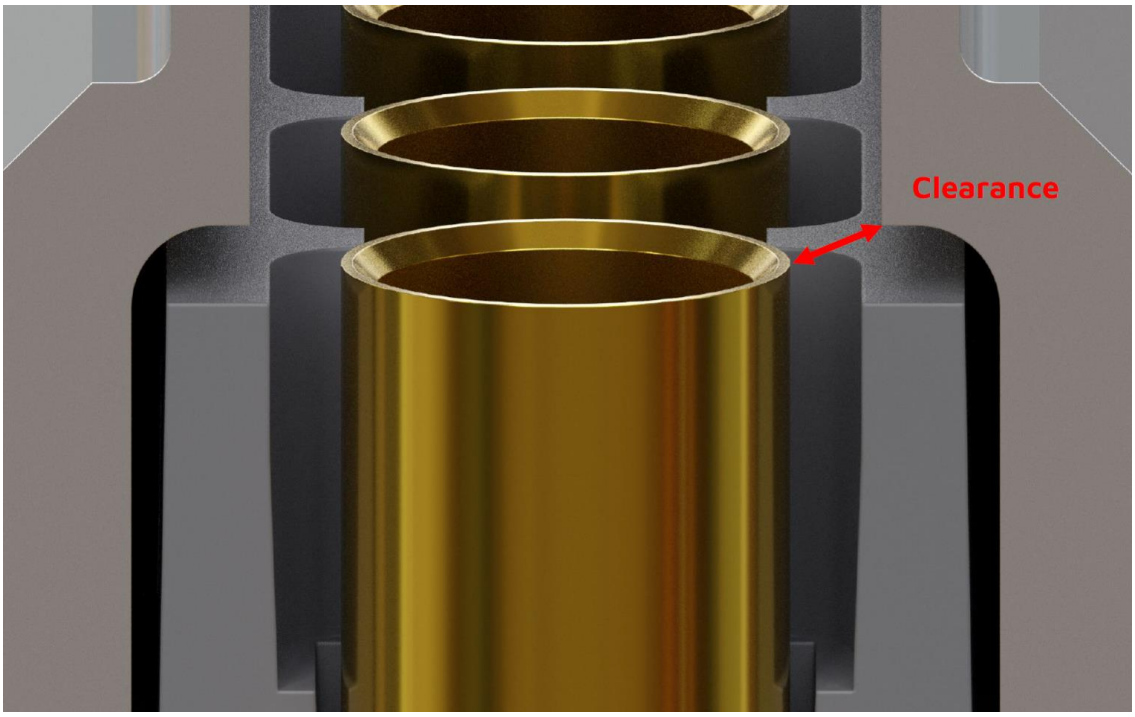


Cable Solder (Shielded)*:



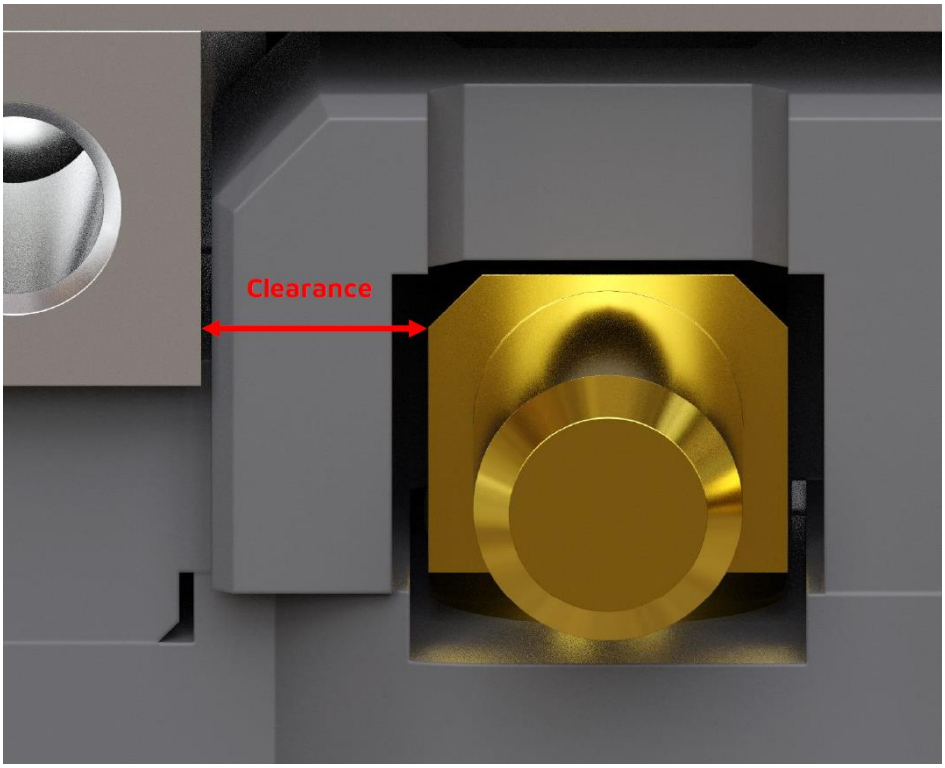
*Backshell & Housing sectioned for clarity

Cable Crimp (Shielded)*:



*Backshell & Housing sectioned for clarity

Horizontal PCB Throughboard (Shielded):



Vertical PCB Throughboard (Shielded):