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TITLE HVLock Series HV Connectors		PAGE 1 of 12	REVISION B
		AUTHORIZED BY Daisy Wu	DATE 05/17/2023
CLASSIFICATION UNRESTRICTED			

1.0 OBJECTIVE

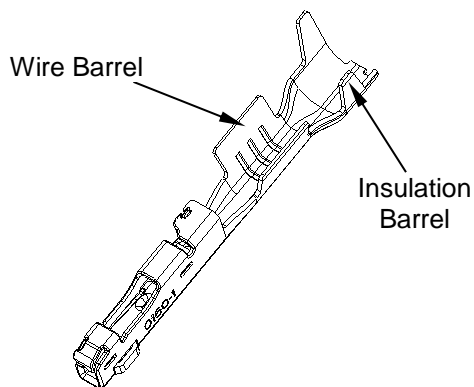
This specification provides information and requirements regarding customer application of Hvlock 4.5mm Series High Voltage Connector. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer scenarios and that customers will develop their own application processes to meet their needs. However, if these application processes differ greatly from the one recommended, AFCI cannot guarantee results.

2.0 SCOPE

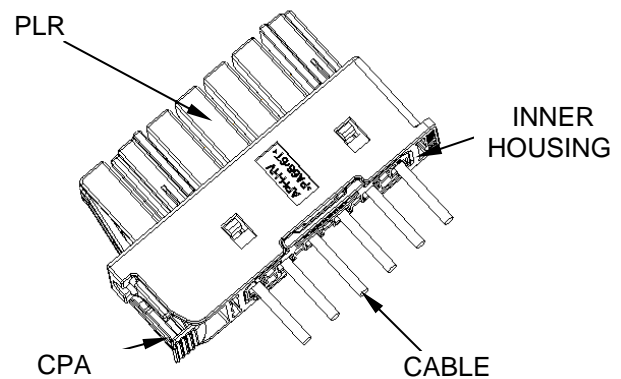
This specification provides information and requirements regarding customer application of Hvlock 4.5mm Series High Voltage Connector.

3.0 GENERAL

This document is meant to be an application guide. If there is a conflict between the product drawings and specifications, the drawings take precedence.



Receptacle Terminal 10170160 series




Receptacle Assembly

4.0 DRAWINGS AND APPLICABLE DOCUMENTS

- AFCI PRODUCT SPECIFICATION GS-12-1831
- AFCI PRODUCT DRAWINGS
- APPLICATION MANUALS/INSTRUCTION SHEETS (IF NOT INCLUDED IN THIS DOCUMENT)

Product drawings and **AFCI's GS-12-1831** Product Specification are available at www.amphenol-icc.com. In the event of a conflict between this application specification and the drawing, the drawing will take precedence. Customers are advised to refer to the latest revision level of AFCI product drawings for appropriate details.

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5.0 APPLICATION REQUIREMENTS

The wires in Table (1) are qualified for use with Receptacle Terminal 10170160 series.

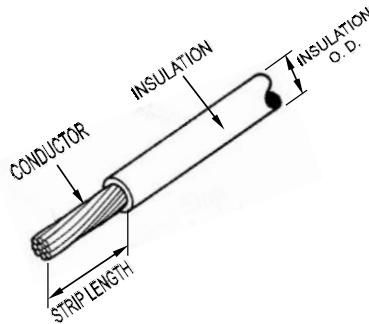


Table (1)

Strip Length	#of Conductors	AWG	Solid-or-Stranded	Insulation Material	Insulation Diameter
3.5mm	19	UL1331_AWG20	Stranded	-	2.0±0.1mm
3.5mm	17	UL1061_AWG22	Stranded	-	1.3±0.1mm

6.0 APPLICATION TOOLING

Application Tooling needed for installation of Receptacle Terminal 10170160 is defined in Table (2):

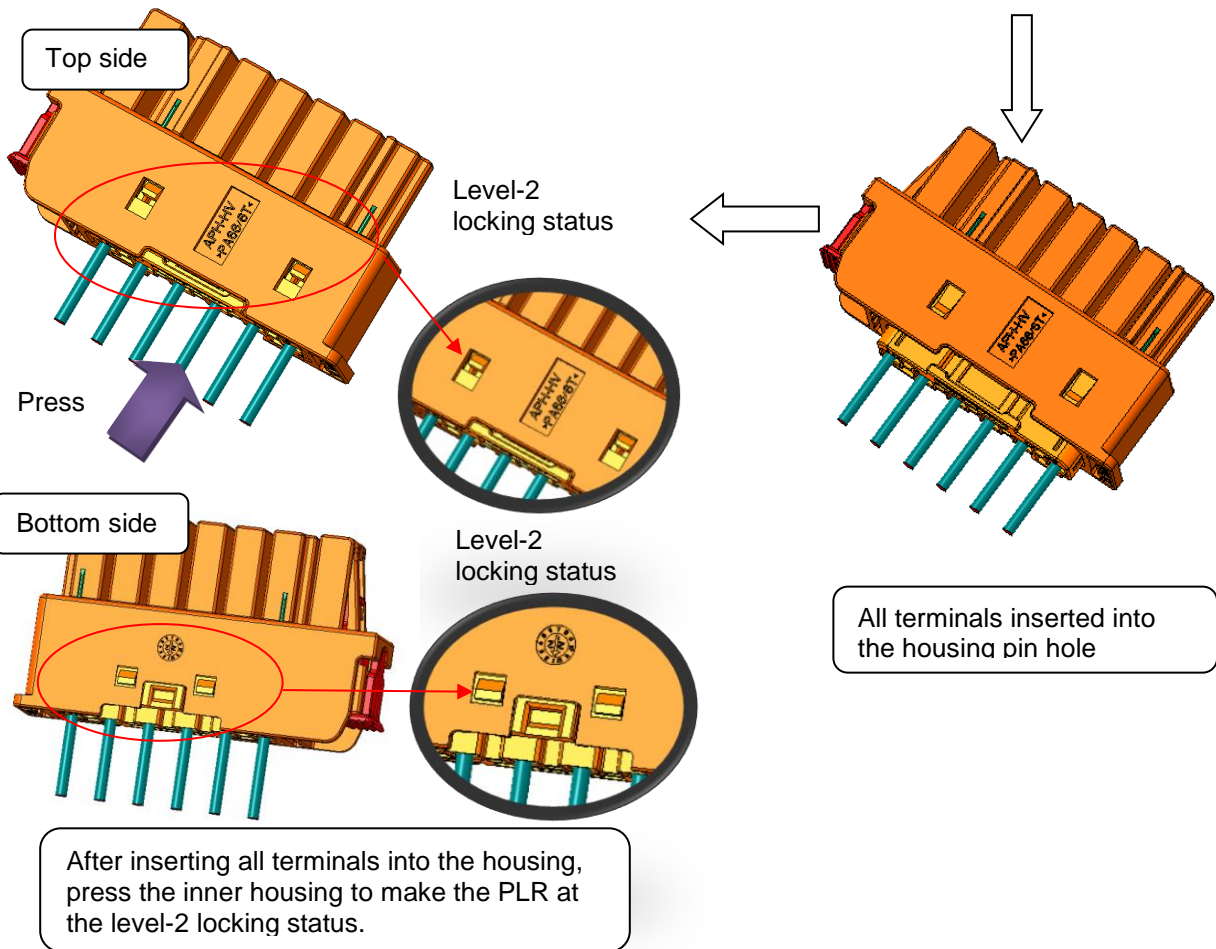
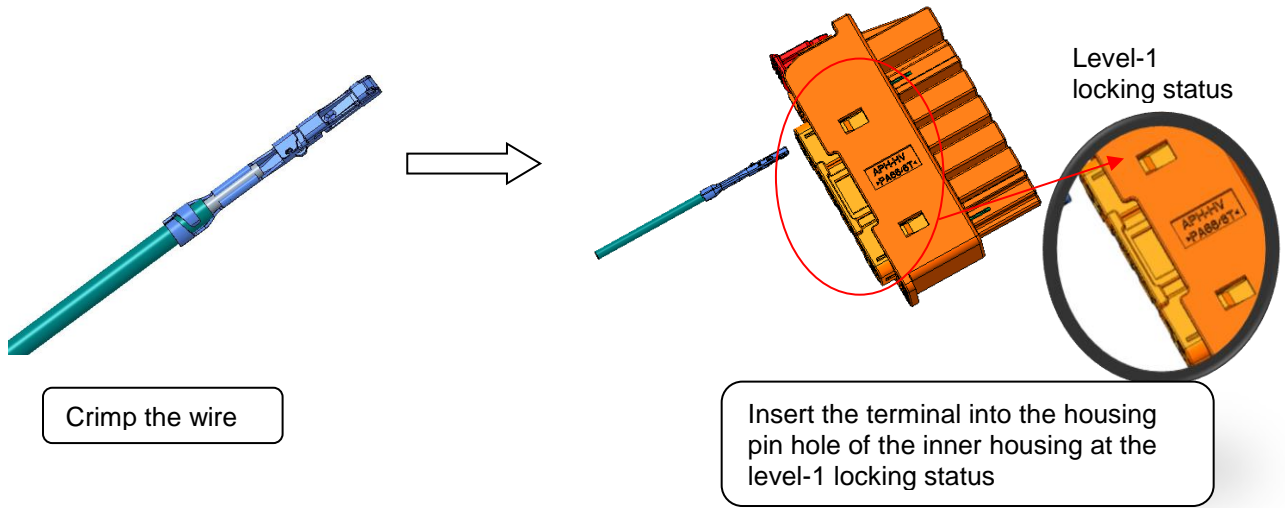
Table (2)


Tool PN	Tool Description	Receptacle Terminal PN	Receptacle Terminal Description
JL-A24249	Semi auto crimping machine	10170160-XY2LF	Terminal for AWG20
-	Set for crimping hand tool		
JL-A24249	Semi auto crimping machine	10170160-XY1LF	Terminal for AWG22
-	Set for crimping hand tool		

7.0 APPLICATION PROCEDURE

- 7.1 Strip the wire (Table 1)
- 7.2 Crimp the wire (Table 2, 3, 4)
- 7.3 Insert the wire into the receptacle inner housing when PLR and inner housing is at level-1 locking status.
- 7.4 Close the PLR and inner housing to make it at level-2 locking status.

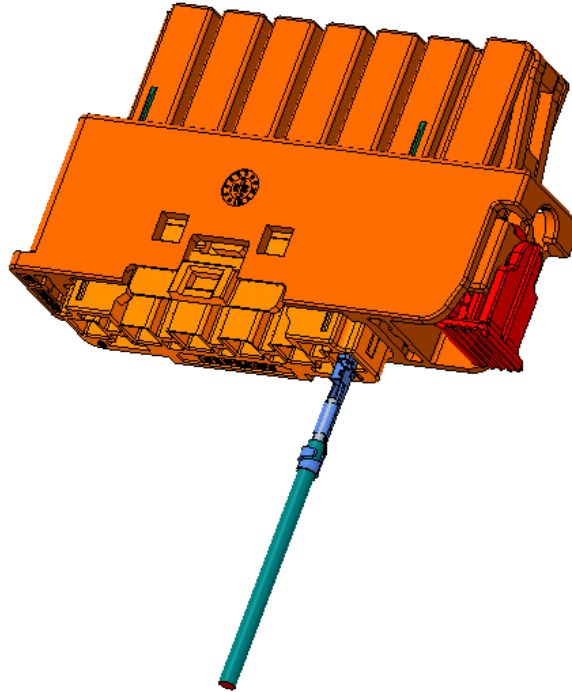
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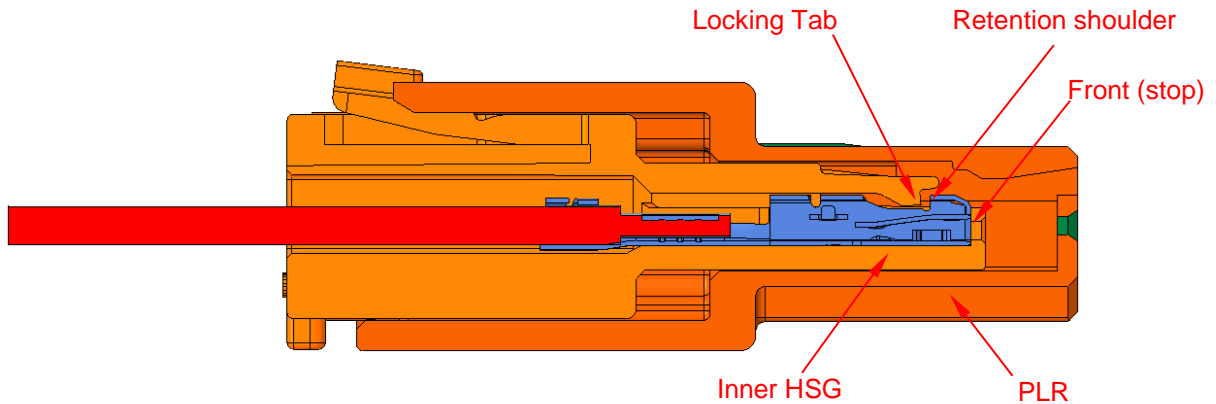
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Please be attention to the notes below:

- 1) Make sure the receptacle terminal is well oriented for the insertion to the housing.



- 2) Insert the terminal into housing until hearing the sound of the locker and the front is stopped by housing. Then the terminal retention shoulder will be engaged with the housing locking tab and prevent back out during mating. Pull back on the wire lightly and ensure the terminal is fully seated.

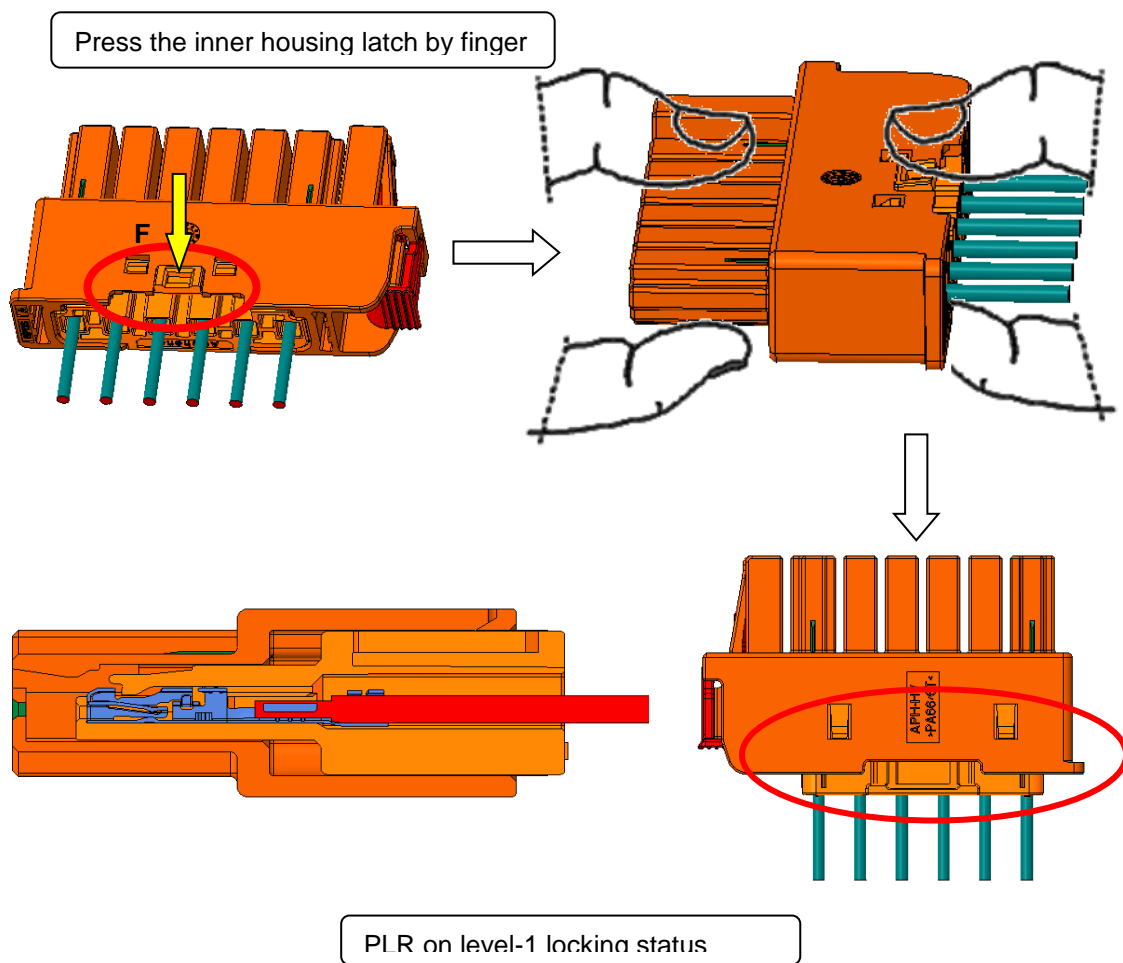


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8.0 REPAIRING PROCEDURE

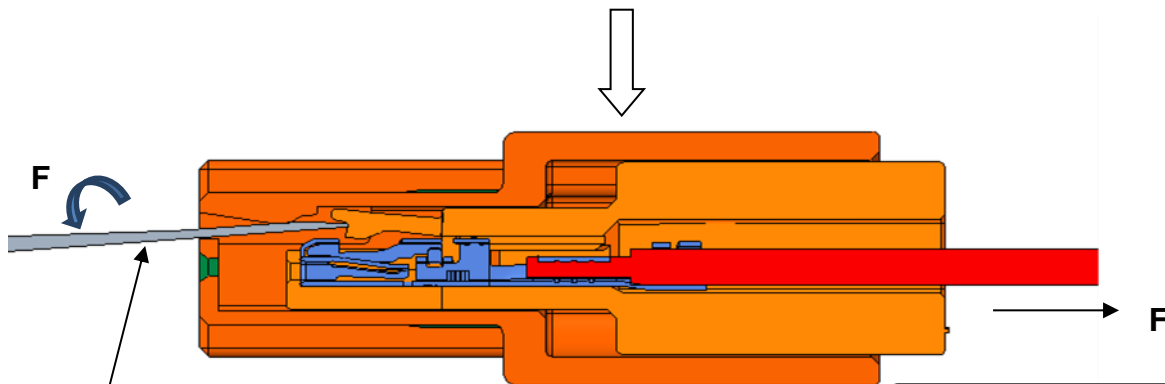
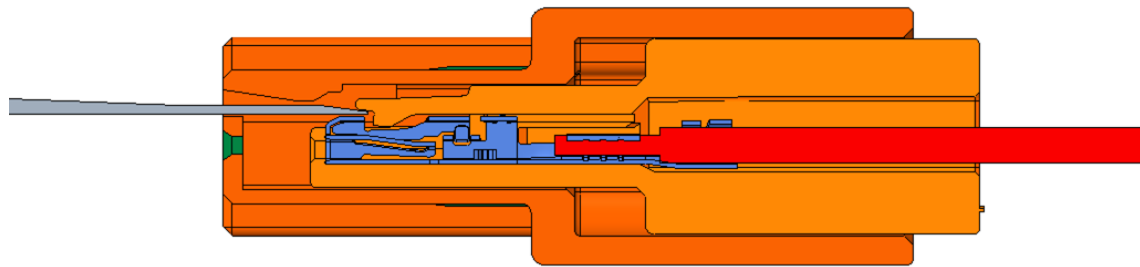
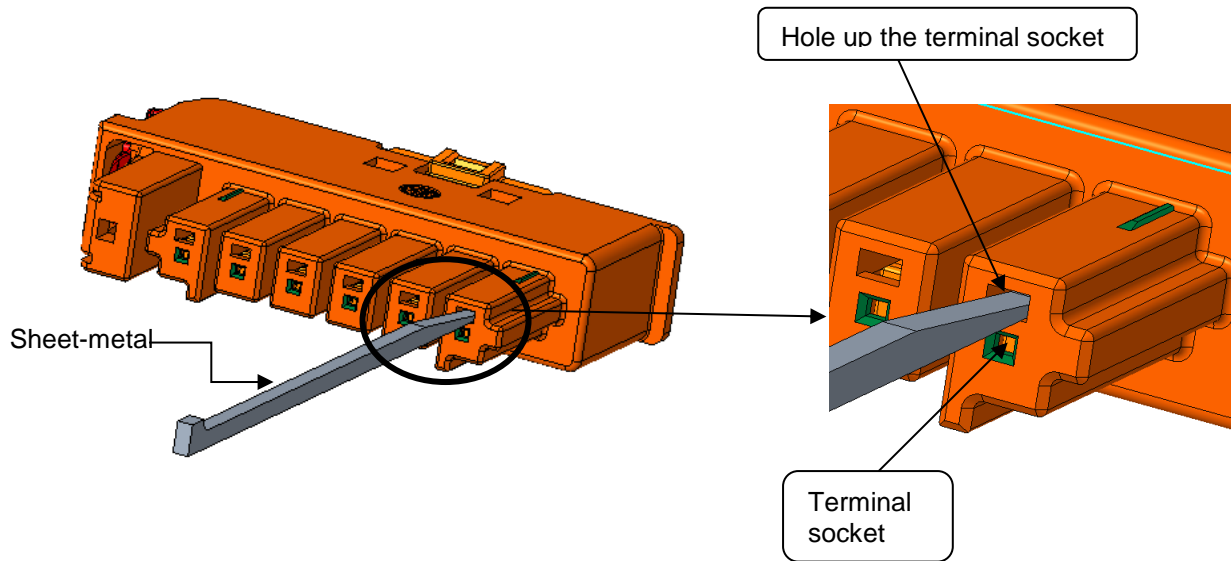
IF needing to take out the terminal which is inserted into the housing wrongly, take steps as bellow:


- 8.1 Press the inner housing latch to unlock the level-2 lock by finger to make the PLR and inner housing on level-1 locking status.



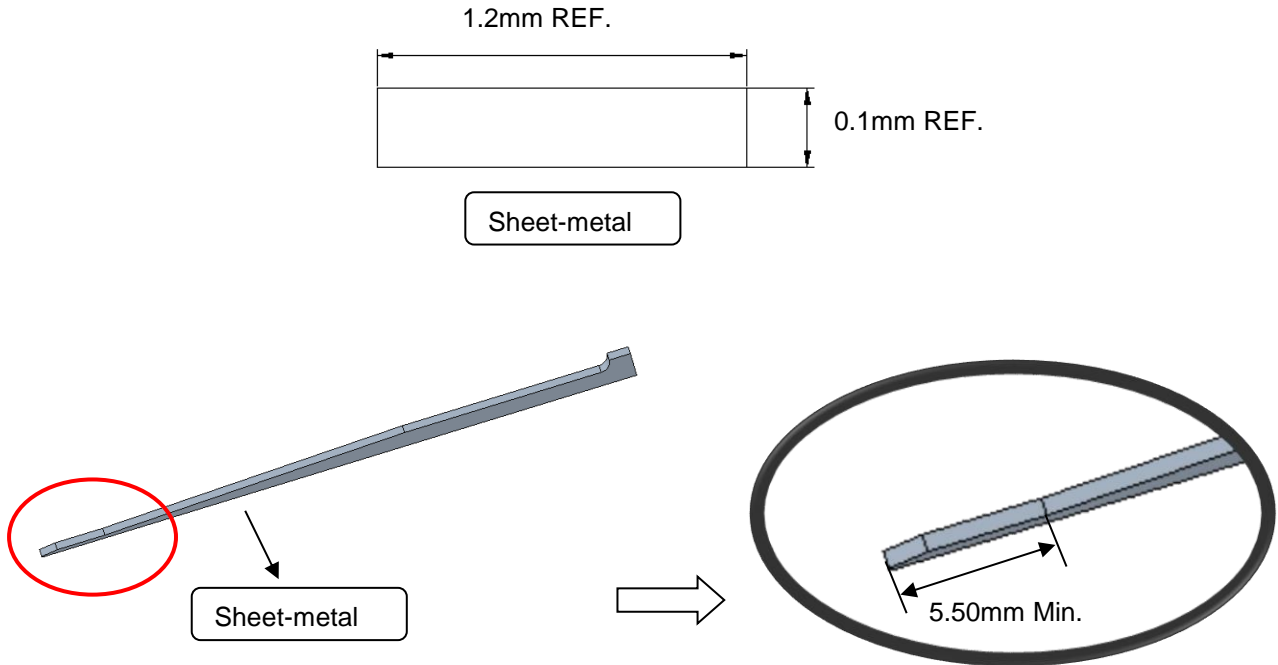
- 8.2 When the PLR and inner housing are on the status of level-1 locking status, insert sheet-metal into the hole up the terminal socket in which terminal is wrongly inserted, make the sheet-metal pry up the locking tab and make it up the retention shoulder of the terminal. At the same time, pull back the terminal.

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Remark: Recommended dimensions for the header of sheet-metal, and the length of the header of sheet-metal should be not less than 5.50mm.



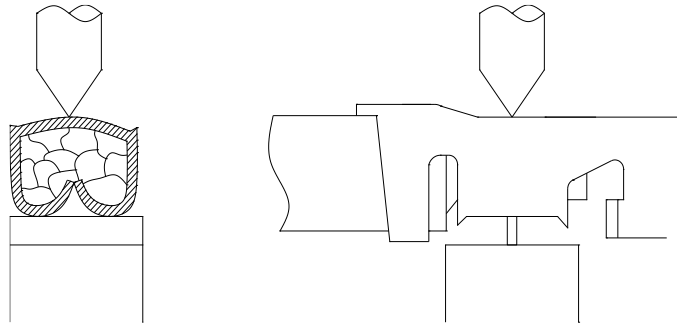
9.0 POST-APPLICATION INSPECTION PROCEDURES

9.1 Crimp height and width measurement:

9.1.1 Use Crimp Height Type Micrometers to measure crimping height.



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9.2 Required crimping dimensions, crimp height and width for different wire AWG are defined in Table 3 & Table 4.
(For different wire section, crimping parameters must be corrected to keep crimp area ratio to optimum)

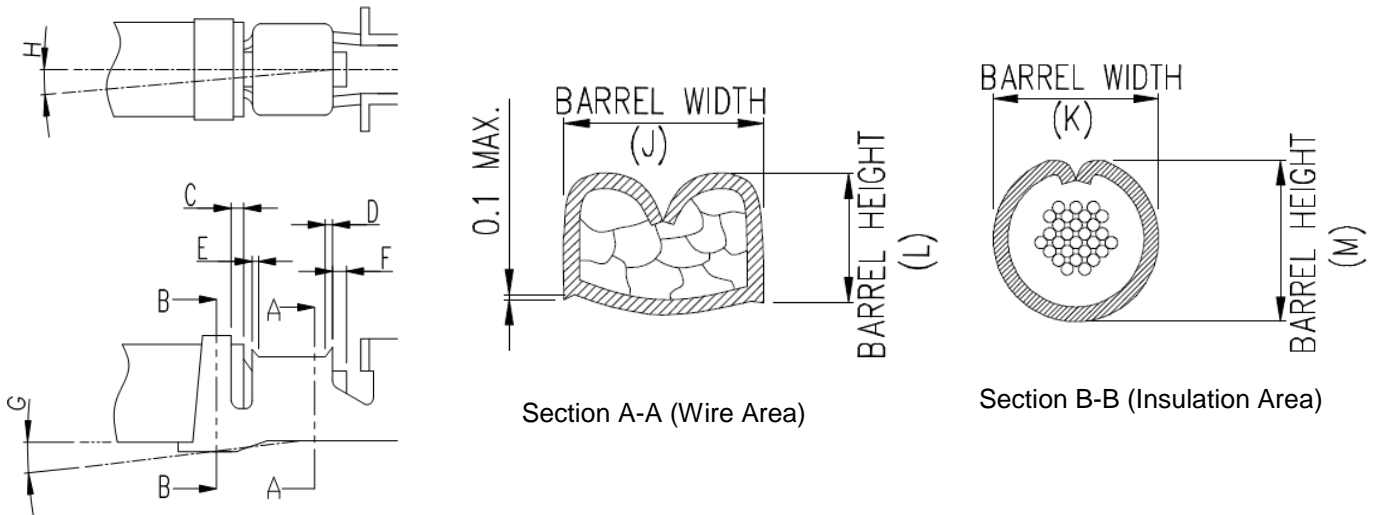



Table 3 (unit: mm)

Item	Requirement	Note
Insulation position	C	0.5 mm max.
Front bell mouth	D	-
Rear bell mouth	E	0.2 - 0.5mm
Extruded wire length	F	0.2 – 1.0mm
Bend up / down	G	±3° max.

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Bend right / left	H	$\pm 3^\circ$ max.	
Wire Crimp Compression (%)		75%~85%	

Table 4 (unit: mm)

Crimping Width & Height (mm)		AWG 20	AWG 22
Crimping Width (Wire barrel)	J	1.45 ± 0.05	1.24 ± 0.04
Crimping Width (Insulation barrel)	K	2.25 Max	
Crimping Height (Wire barrel)	L	0.85 ± 0.05	0.73 ± 0.03
Crimping Height (Insulation barrel)	M	2.25 Max	

9.3 Pullout force measurement


- 9.3.1 After crimping, pullout force measurement should be applied to ensure the performance.
- 9.3.2 Apply an axial pullout force on the wire at a rate of 25 ± 6 mm.
- 9.3.3 Pullout force should not be less than those listed in Table 5.

Table 5 (unit: N)

Wire AWG	AWG 20	AWG 22
Wire Pullout Force	75N min.	50N min.

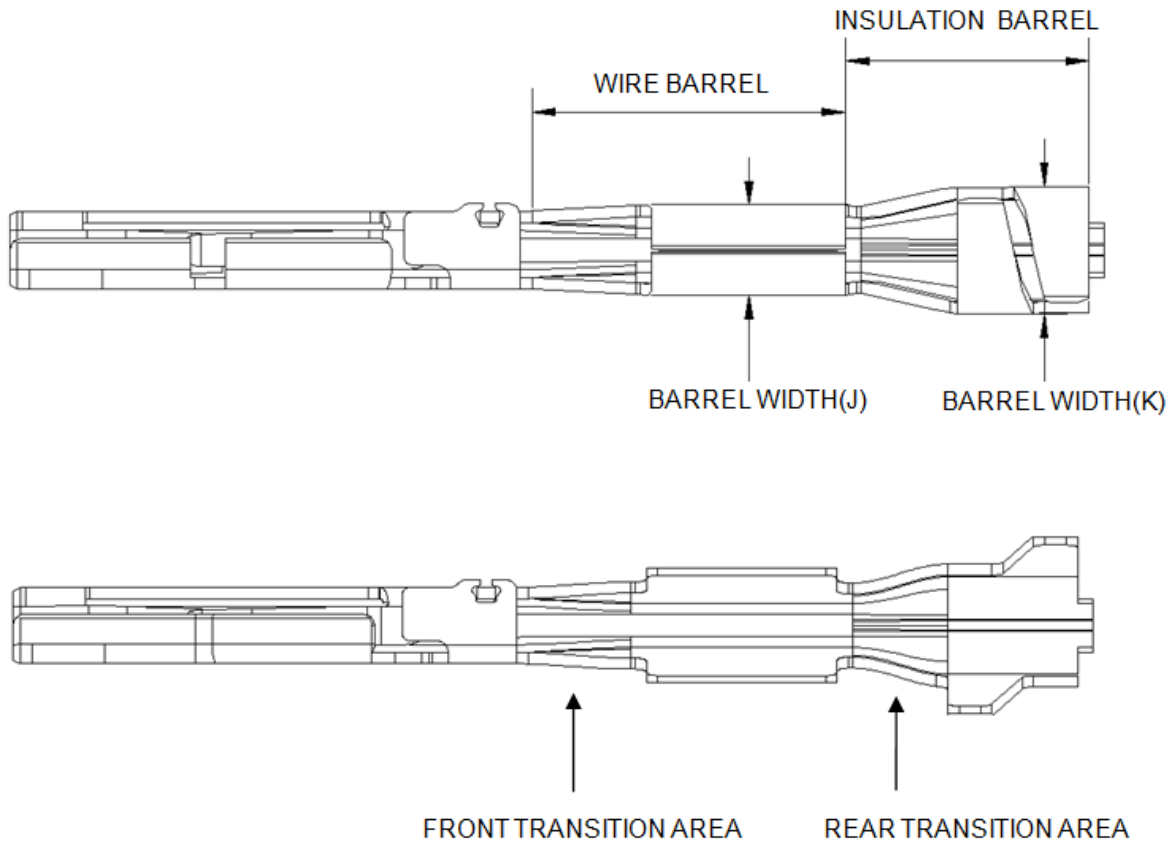
9.4 Visual Inspection:


- 9.4.1 No damage, deformation on locking tabs, contact area or other portion of the terminals.
- 9.4.2 Insulation should not be crimped into wire barrel.
- 9.4.3 Wire should not be cut-off and insulation should not be broken after crimping process.

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9.5 Required width dimensions:

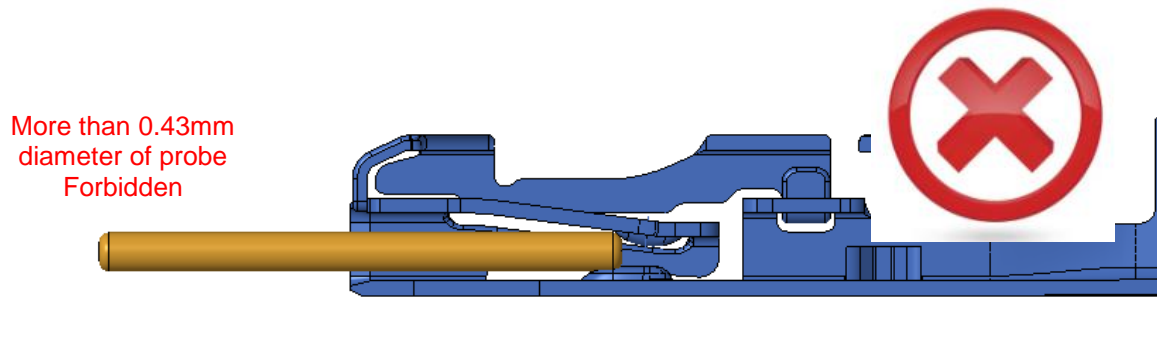
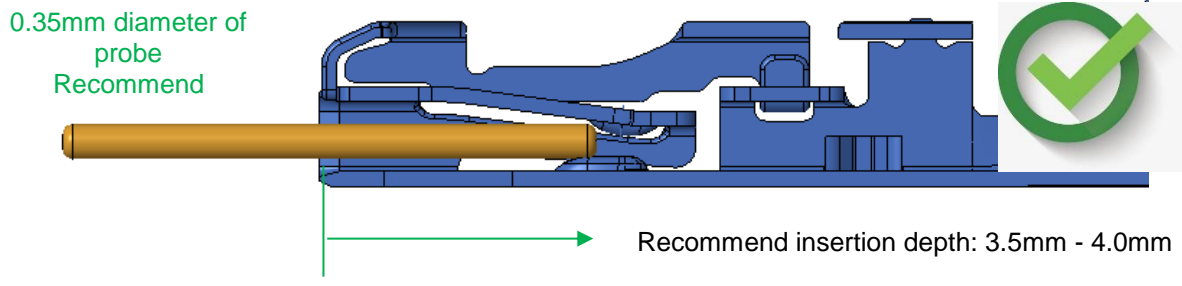
- 9.5.1 Width dimensions should be applied to ensure the good insertion of the terminal into the housing.
- 9.5.2 During the crimp operation, the front transition area should be managed to respect the crimping widths (J) all along the wire barrel area
- 9.5.3 During the crimp operation, the rear transition area should be managed to respect the crimping widths (K) all along the insulation barrel area




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10.0 Detection Considerations :

Recommend detect probe diameter size less than 0.43mm in any scenario.



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REVISION RECORD

<u>REV</u>	<u>PAGE</u>	<u>DESCRIPTION</u>	<u>EC#</u>	<u>DATE</u>
A	ALL	RELEASE	-	05/17/2023
B	ALL	CHANGE DimK, DimM ; ADD ITEM 10	ELX-N-51708	06/04/2024