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1.0 OBJECTIVE

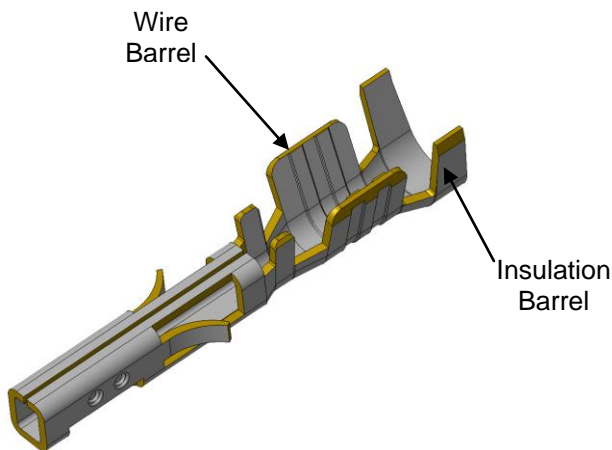
This specification provides information and requirements regarding customer application of Minitek Pwr3.0 crimp to wire connectors. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer 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, Amphenol FCI cannot guarantee results.

2.0 SCOPE

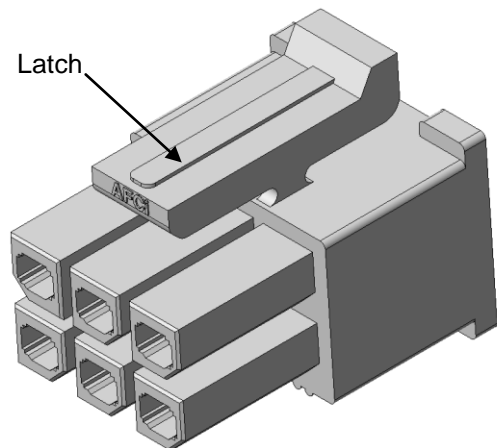
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3.0 GENERAL

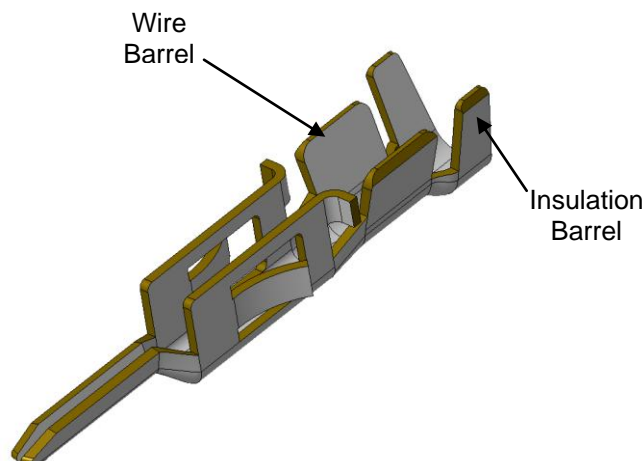
This document is meant to be an application guide. If there is a conflict between the product drawings and specifications, the drawings take precedence.



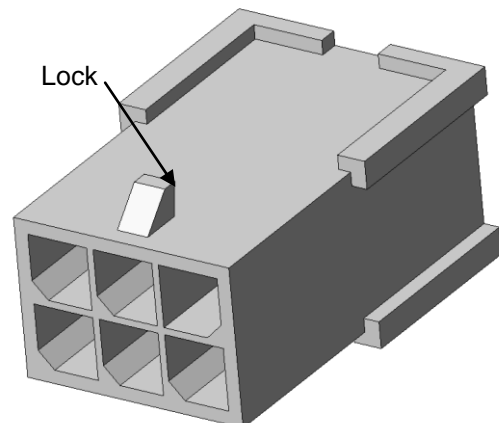
Receptacle Terminal 10127718 and 10132447 Series



Receptacle HSG 10127716 and 10132445 Series

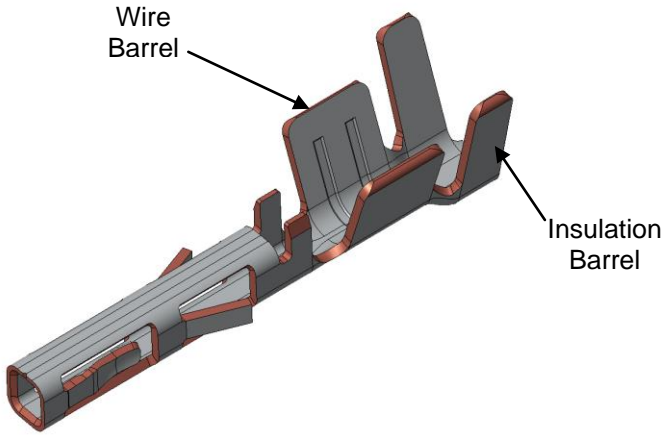


Plug Terminal 10127719, 10132448 & 10161703 Series

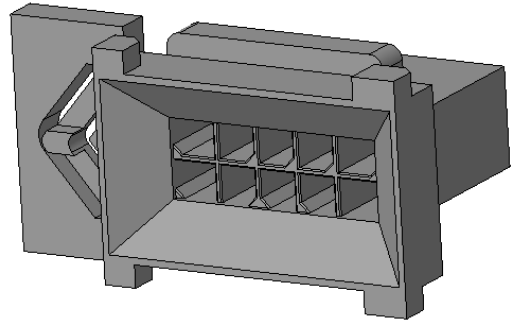


Plug HSG 10127717 and 10132446 Series

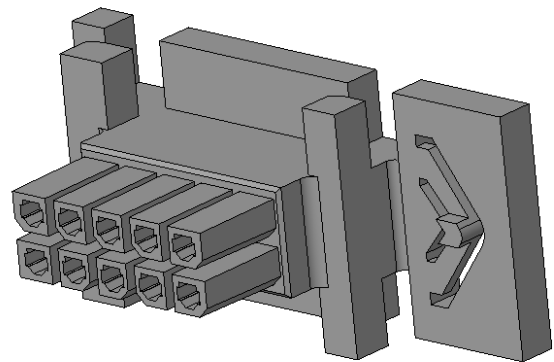
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Receptacle Terminal 10134160 Series



BMI Plug housing 10160855 Series



BMI Receptacle housing 10159684 Series

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4.0 DRAWINGS AND APPLICABLE DOCUMENTS

- 4.1 Amphenol FCI Product Specification: GS-12-1177, GS-12-1374 and GS-12-1291.
- 4.2 Amphenol FCI Product Drawing: Latest version of: 10127716 (Receptacle housing), 10127717 (Plug housing), 10132446 (Plug housing), 10160855 (BMI Plug Hsg), 10159684(BMI Receptacle Hsg) 10132445 (Receptacle housing), 10127718 (Receptacle crimp terminal), 10134160 (Receptacle crimp terminal), 10132447 (Receptacle HCC crimp terminal), 10127719 (Plug crimp terminal), 10161703 (Plug crimp terminal) and 10132448 (Plug HCC crimp terminal).

Product drawings and **Amphenol FCI's GS-XX-XXX** 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 Amphenol FCI product drawings for appropriate details.

5.0 APPLICATION REQUIREMENTS

The wires in Table 1 are the wiring information for use with crimp terminals 10127718, 10127719, 10132448, 10132447, 10161703 and 10134160.

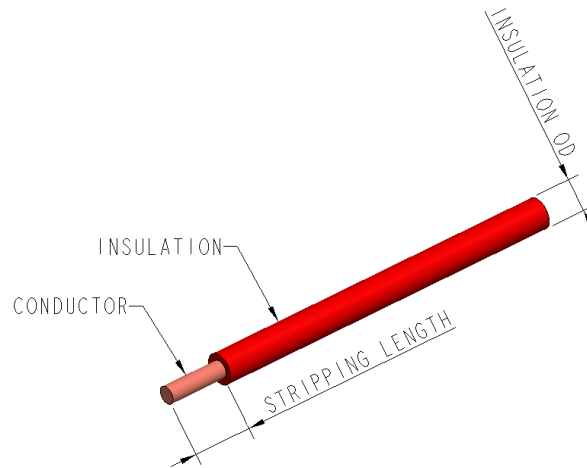


Table 1

Crimp Terminal Part Number	Applicable Wire Gauge (AWG)	Insulation Outside Diameter (mm)	Strip Length (mm)
10127718-00XLF 10127719-00XLF	20-24 AWG	1.85 Max.	2.50 – 3.00
10132447-00XLF 10132448-00XLF	16-20AWG	2.20 Max.	2.50 – 3.00
10134160-YX10LF 10161703-YX1XXLF	16-20AWG	2.20 Max.	2.50 – 3.00
10134160-YX20LF 10161703-YX2XXLF	20-24AWG	1.85 Max.	2.50 – 3.00
10134160-YX30LF 10161703-YX3XXLF 10127718-10XLF	26-30AWG	1.27 Max	2.50 – 3.00

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6.0 APPLICATION TOOLING

There are some commercial crimping tools available for crimping terminals. Select the models listed in Table 2:

Table 2: Crimping Tooling List

Crimping Applicator

Semi-Auto crimping machine	Fully-Auto Pneumatic Crimping Applicator	Fully-Auto Mechanical Crimping Applicator	Applicable Terminal P/N
Press P/N			
10157923-001			
Applicator P/N	Applicator P/N	Applicator P/N	
10159974-001	10159975-001	10159976-001	10127718-00XXLF
10159974-002	10159975-002	10159976-002	10132447-00XXLF
10159974-003	10159975-003	10159976-003	10134160-YX10LF
10159974-004	10159975-004	10159976-004	10134160-YX20LF
10159974-005	10159975-005	10159976-005	10134160-YX30LF
10159974-006	10159975-006	10159976-006	10127719-00XXLF
10159974-007	10159975-007	10159976-007	10132448-00XXLF
10159974-008	10159975-008	10159976-008	10127718-10XXLF
10159974-009	10159975-009	10159976-009	10161703-YX1XXLF
10159974-010	10159975-010	10159976-010	10161703-YX2XXLF
10159974-011	10159975-011	10159976-011	10161703-YX3XXLF

(*) Fully-Auto Pneumatic and mechanical applicators are suitable in Semi-auto Crimping machines.

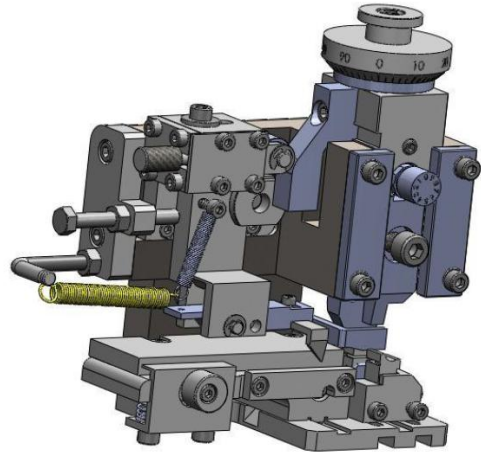
Hand crimping tool

Hand Crimping Tool P/N	Applicable Terminal P/N
10159387-001	10127719-00XXLF 10127718-00XXLF
10159387-002	10132447-00XXLF 10132448-00XXLF
10159387-003	10134160-YX10LF 10161703-YX1XXLF
10159387-004	10134160-YX20LF 10161703-YX2XXLF
10159387-005	10134160-YX30LF 10161703-YX3XXLF 10127718-10XXLF

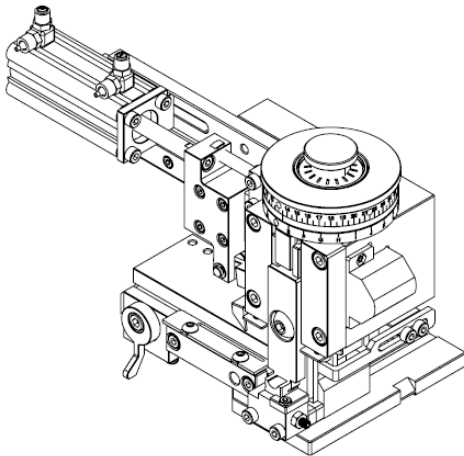
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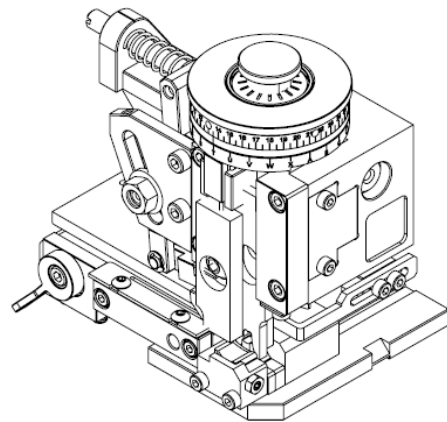
10157923-001



10159974



10159975



10159976

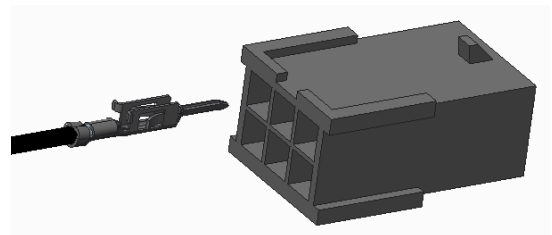
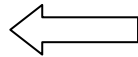
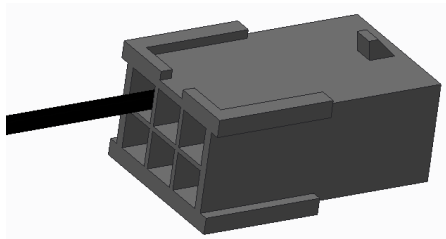
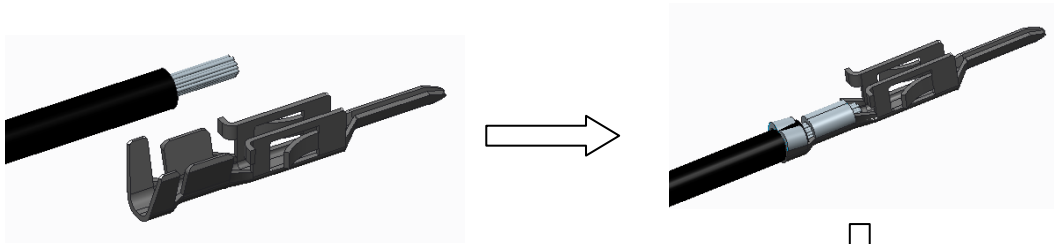


10159387

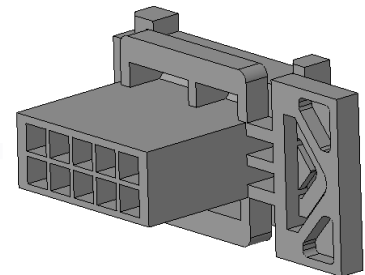
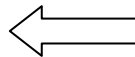
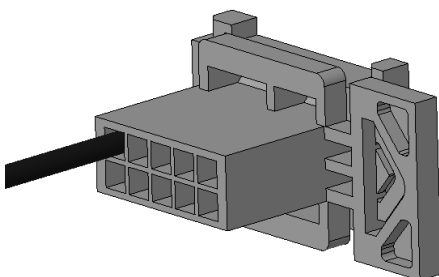
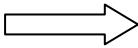
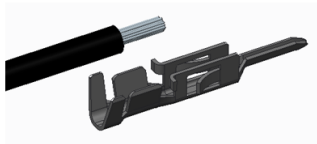
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7.0 APPLICATION PROCEDURE

- 7.1 Strip the wire (Table 1) Crimp wire and inserting to housing. No insertion tool is required.
 (Same for 10127718-X0XXLF, 10127719-00XXLF, 10132448-00XXLF, 10132447-00XXLF, 10134160-YXXXLF & 10161703-YXXXLF)



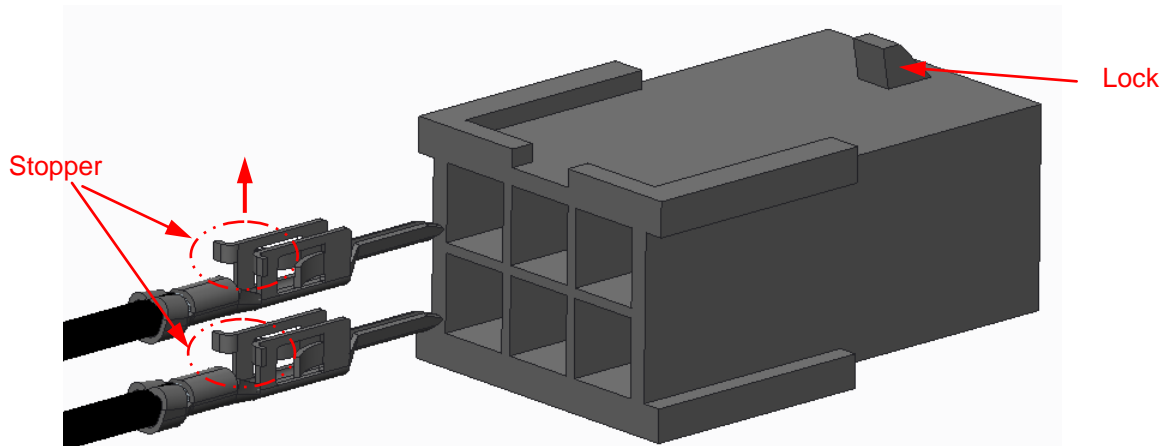
For Standard & HCC



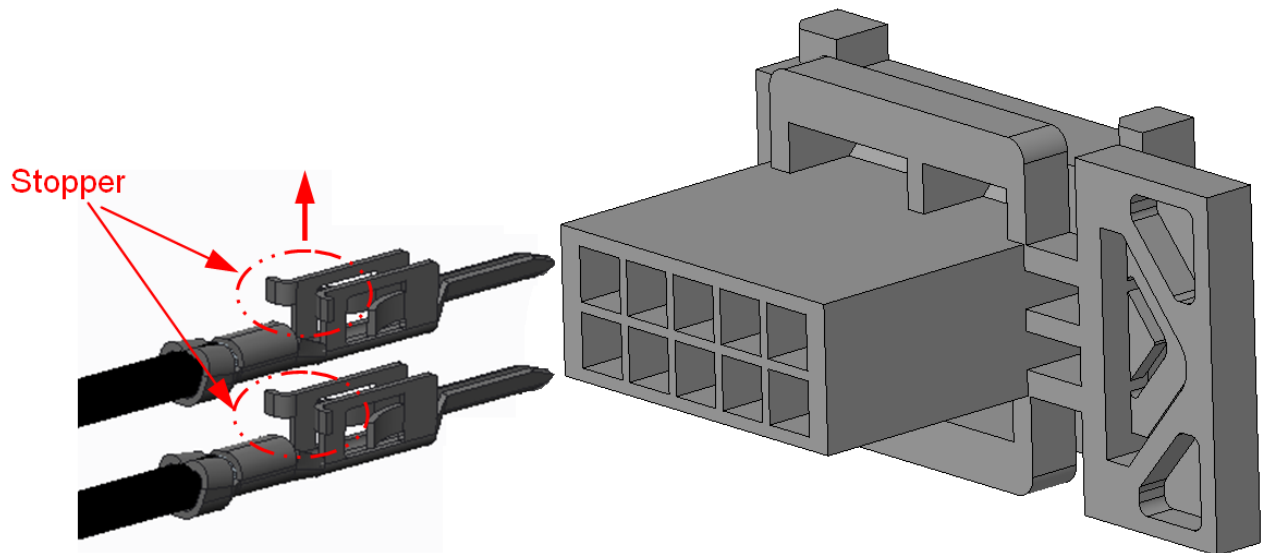
For BMI plug housing

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7.2 Make sure the stoppers on the terminals are always upwards for both rows: towards the lock (latch) of Housing. (Same for 10127718-X0XXLF, 10127719-00XXLF, 10132448-00XXLF, 10132447-00XXLF, 10134160-YXXLF & 10161703-YXXXXLF)

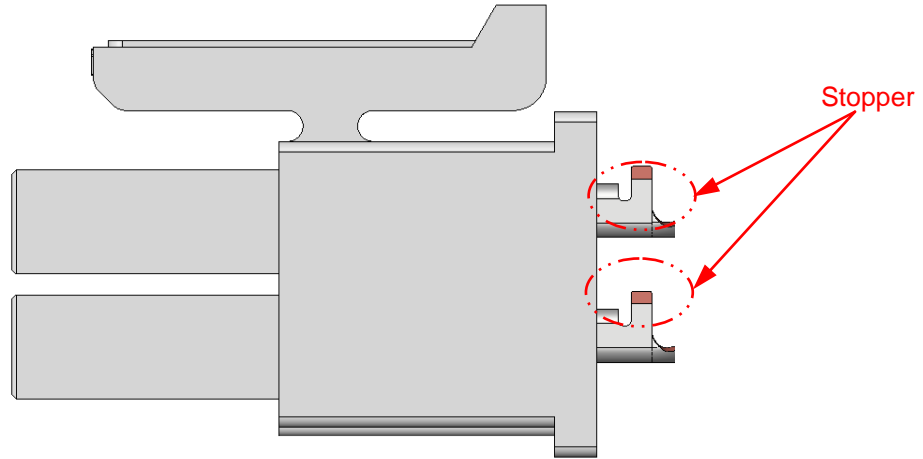


10127719 & 10161703 inserted to 10127717
10132448 inserted to 10132446

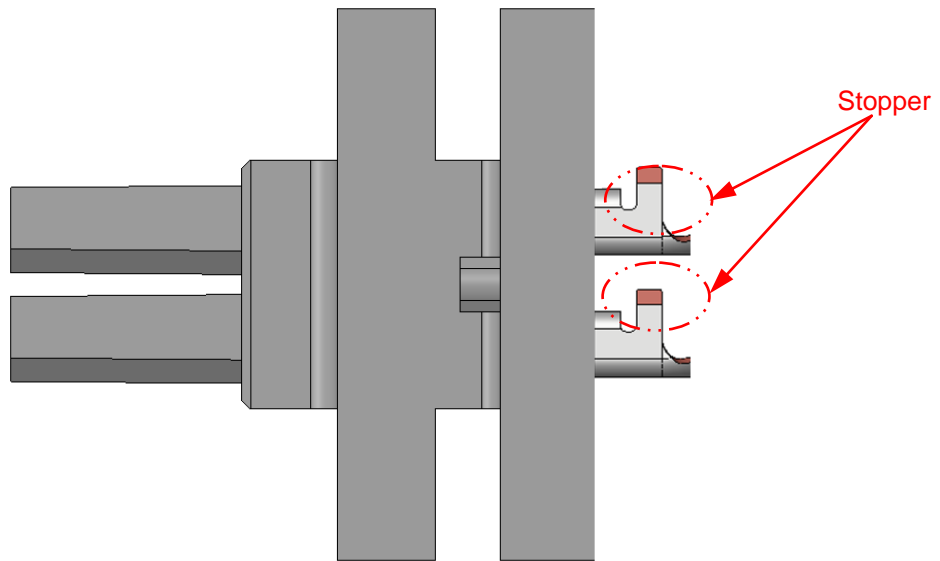


10127719, 10132448 & 10161703 inserted to 10160855

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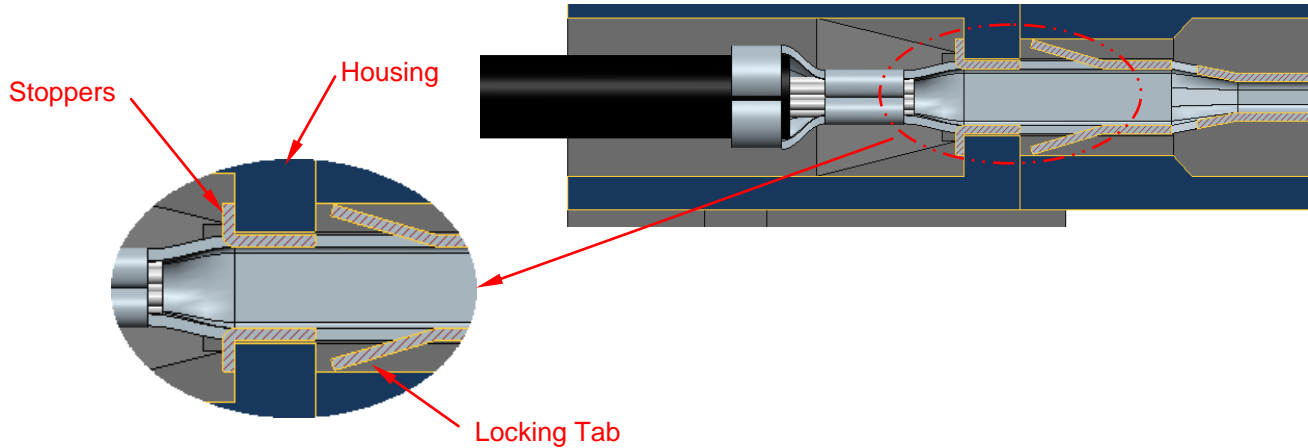
10134160 & 10127718 Inserted to 10127716
10132447 Inserted to 10132445



10134160, 10127718 & 10132447 Inserted to 10159684

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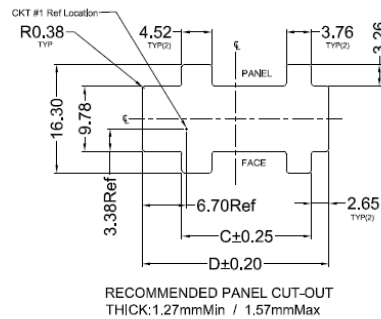
7.3 Insert the terminal into Housing until stopped by Housing. Then locking tabs will be engaged the retention shoulder and prevent back out during mating. Pull back the wire slightly and ensure the terminal is fully seated on the Housing.



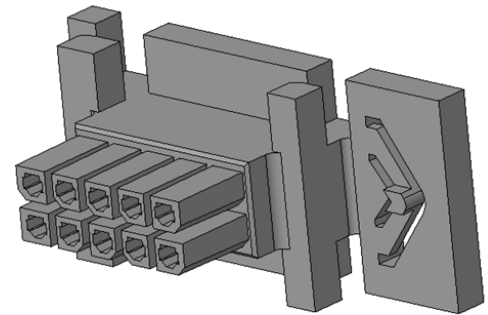
7.4 Insert the BMI Receptacle & plug housing into the Panel.

Poles	Dimensions(mm)	
	C	D
10159684-04 Pos	13.46	22.10
10159684-06 Pos	16.46	25.10
10159684-08 Pos	19.46	28.10
10159684-10 Pos	22.46	31.10
10159684-12 Pos	25.46	34.10
10159684-14 Pos	28.46	37.10
10159684-16 Pos	31.46	40.10
10159684-18 Pos	34.46	43.10
10159684-20 Pos	37.46	46.10
10159684-22 Pos	40.46	49.10
10159684-24 Pos	43.46	52.10

Panel dimensions



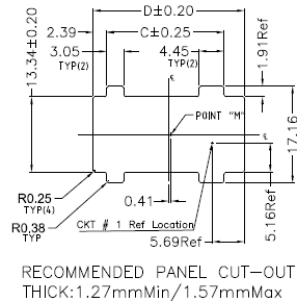
Receptacle Panel Cutout



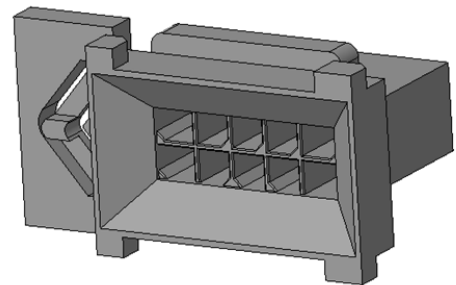
BMI Receptacle Housing (10159684)

POSITIONS	Dimensions(mm)	
	C	D
10160855-04	14.85	20.85
10160855-06	17.85	23.85
10160855-08	20.85	26.85
10160855-10	23.85	29.85
10160855-12	26.85	32.85
10160855-14	29.85	35.85
10160855-16	32.85	38.85
10160855-18	35.85	41.85
10160855-20	38.85	44.85
10160855-22	41.85	47.85
10160855-24	44.85	50.85

Panel dimensions



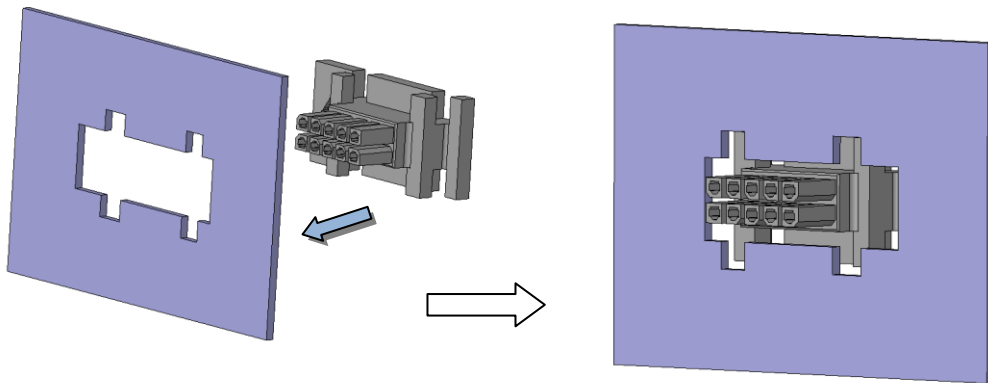
Plug Panel Cutout



BMI Plug Housing (10160855)

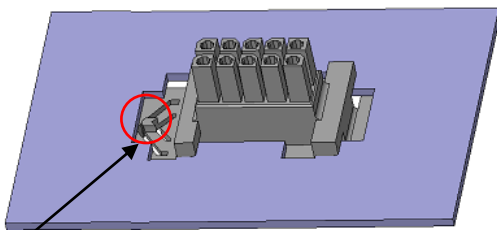
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7.4.1 Receptacle Housing assembly in panel.

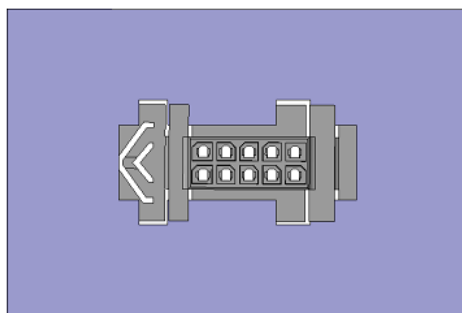
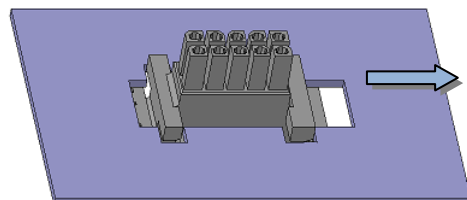


Place the BMI receptacle/Plug at the rear side of the panel (as shown in the figure). Move the housing forward.

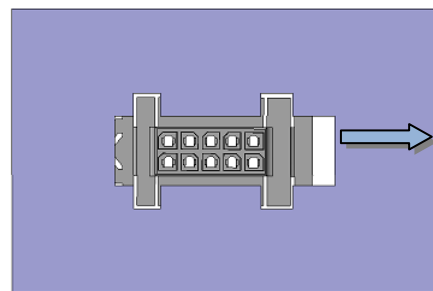
The receptacle/plug housing should pass through the panel up to touches the rear rib of the housing



Locking Feature



Then the housing locking feature get locked in the panel as shown in the figure



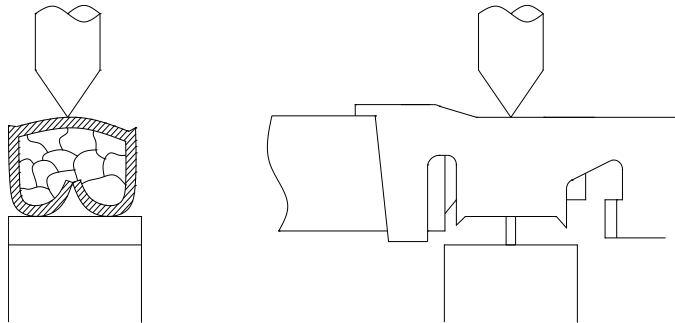
After the panel touched the rear rib, move the connector to side wise as shown in the figure

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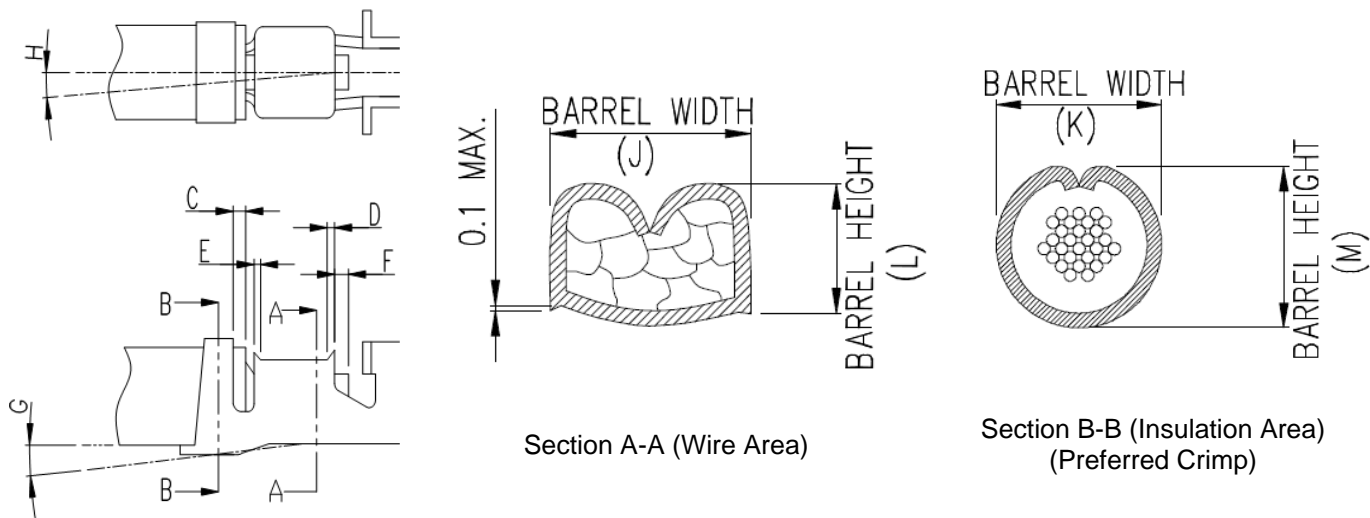
8.0 POST- APPLICATION INSPECTION PROCEDURES

8.1 Crimp height and width measurement:

8.1.1 Use Crimp Height Type Micrometers to measure crimping height.



8.2 Required crimping dimensions, crimp height and width for different wire AWG are defined in Table 3, Table 4 and Table 5.



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Table 3 (unit: mm)

Item		Requirement	Note
Insulation position	C	20% to 75% of Inspection window	Insulation and wire should be visual in this area
Front bell mouth	D	0.40 mm max.	
Rear bell mouth	E	0.40 mm max.	
Extruded wire length	F	0.90 Max.	
Bend up / down	G	±3° max.	
Bend right / left	H	±3° max.	

Table 4 (Unit: mm) For Hand crimping tool

Series	Part Number	Tool Part Number	AWG Range	Conductor		Insulation	
				Crimp Height (mm)	Crimp Width (mm)	Crimp Height (mm)	Crimp Width (mm)
10127719 10127718	10127719-00XXLF 10127718-00XXLF	10159387-001	20	0.92 – 0.98	1.30 – 1.40	1.85 Ref	1.70 Ref
			22	0.77 – 0.83	1.30 – 1.40	1.80 Ref	1.75 Ref
			24	0.82 – 0.88	1.25 – 1.35	1.85 Ref	1.75 Ref
10132447 10132448	10132447-00XXLF 10132448-00XXLF	10159387-002	16	1.20 – 1.30	1.80 – 1.90	2.35 Ref	2.40 Ref
			18	1.05 – 1.15	1.80 – 1.90	2.35 Ref	2.10 Ref
			20	1.00 – 1.10	1.60 – 1.70	2.15 Ref	1.75 Ref
10134160 10161703	10134160-YX10LF 10161703-YX1XXLF	10159387-003	16	1.19 – 1.25	1.76 – 1.86	2.33 Ref	2.31 Ref
			18	1.03 – 1.09	1.74 – 1.84	2.44 Ref	2.15 Ref
			20	0.91 – 0.97	1.76 – 1.86	2.01 Ref	1.77 Ref
10134160 10161703	10134160-YX20LF 10161703-YX2XXLF	10159387-004	20	0.87 – 0.93	1.30 – 1.40	1.70 Ref	1.70 Ref
			22	0.77 – 0.83	1.30 – 1.40	1.70 Ref	1.70 Ref
			24	0.72 – 0.78	1.30 – 1.40	1.75 Ref	1.75 Ref
10134160 10161703 10127718	10134160-YX30LF 10161703-YX3XXLF 10127718-10XXLF	10159387-005	26	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
			28	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
			30	0.67 – 0.73	1.05 – 1.15	1.35 Ref	1.40 Ref

* When using hand crimping tool, insulation crimping height and width in this table are reference only, because the range of wires, strands and insulation OD will affect the actual crimping height.

** Pullout force should be performed to check the hand crimping tool.

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Table 5 (Unit: mm) For Semi-automatic Crimping machine

Series	Part Number	Tool Part Number	AWG Range	Conductor		Insulation	
				Crimp Height (mm)	Crimp Width (mm)	Crimp Height (mm)	Crimp Width (mm)
10127718	10127718-00XXLF	10159974-001	20	0.93 – 0.99	1.45 – 1.55	2.06 Ref	2.10 Ref
		10159975-001	22	0.86 – 0.92	1.45 – 1.55	1.90 Ref	2.10 Ref
		10159976-001	24	0.81 – 0.87	1.45 – 1.55	1.87 Ref	2.10 Ref
10132447	10132447-00XXLF	10159974-002	16	1.13 – 1.19	1.95 – 2.05	2.60 Ref	2.40 Ref
		10159975-002	18	1.04 – 1.10	1.95 – 2.05	2.50 Ref	2.40 Ref
		10159976-002	20	0.93 – 0.99	1.95 – 2.05	2.45 Ref	2.40 Ref
10134160	10134160-YX10LF	10159974-003	16	1.19 – 1.25	1.76 – 1.86	2.33 Ref	2.30 Ref
		10159975-003	18	1.03 – 1.09	1.76 – 1.86	2.44 Ref	2.30 Ref
		10159976-003	20	0.91 – 0.97	1.76 – 1.86	2.01 Ref	2.30 Ref
10134160	10134160-YX20LF	10159974-004	20	0.95 – 1.01	1.45 – 1.55	2.03 Ref	2.00 Ref
		10159975-004	22	0.89 – 0.95	1.45 – 1.55	2.03 Ref	2.00 Ref
		10159976-004	24	0.83 – 0.89	1.45 – 1.55	1.90 Ref	2.00 Ref
10134160	10134160-YX30LF	10159974-005	26	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159975-005	28	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159976-005	30	0.67 – 0.73	1.05 – 1.15	1.35 Ref	1.40 Ref
10127719	10127719-00XXLF	10159974-006	20	0.93 – 0.99	1.45 – 1.55	2.06 Ref	2.10 Ref
		10159975-006	22	0.86 – 0.92	1.45 – 1.55	1.90 Ref	2.10 Ref
		10159976-006	24	0.81 – 0.87	1.45 – 1.55	1.87 Ref	2.10 Ref
10132448	10132448-00XXLF	10159974-007	16	1.13 – 1.19	1.95 – 2.05	2.60 Ref	2.40 Ref
		10159975-007	18	1.04 – 1.10	1.95 – 2.05	2.50 Ref	2.40 Ref
		10159976-007	20	0.93 – 0.99	1.95 – 2.05	2.45 Ref	2.40 Ref
10127718	10127718-10XXLF	10159974-008	26	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159975-008	28	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159976-008	30	0.67 – 0.73	1.05 – 1.15	1.35 Ref	1.40 Ref
10161703	10161703-YX1XXLF	10159974-009	16	TBD	TBD	TBD	TBD
		10159975-009	18	TBD	TBD	TBD	TBD
		10159976-009	20	TBD	TBD	TBD	TBD
10161703	10161703-YX2XXLF	10159974-010	20	0.95 – 1.01	1.45 – 1.55	2.03 Ref	2.00 Ref
		10159975-010	22	0.89 – 0.95	1.45 – 1.55	2.03 Ref	2.00 Ref
		10159976-010	24	0.83 – 0.89	1.45 – 1.55	1.90 Ref	2.00 Ref
10161703	10161703-YX3XXLF	10159974-011	26	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159975-012	28	0.67 – 0.73	1.05 – 1.15	1.30 Ref	1.40 Ref
		10159976-013	30	0.67 – 0.73	1.05 – 1.15	1.35 Ref	1.40 Ref

* Will be update.

8.3 Pullout force measurement:

- 8.3.1 After crimping, pullout force measurement should be applied to ensure the performance. Follow test procedure of GS-12-1177, GS-12-1374 and GS-12-1291.
- 8.3.2 Apply an axial pullout force on the wire at a rate of 25 ± 6 mm.
- 8.3.3 Pullout force should not be less than those listed in Table 5.

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Table 6 (unit: N)

Wire AWG	AWG 16	AWG 18	AWG 20	AWG 22	AWG 24	AWG 26	AWG 28	AWG 30
Wire Pullout Force	68.8	68.8	49	35.6	22.2	13.3	8.9	6.6

8.4 Visual Inspection:

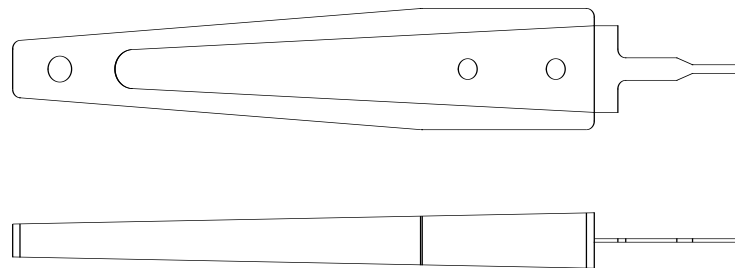
- 8.4.1 No damage, deformation on locking tabs, contact area or other portion of the terminals.
- 8.4.2 Insulation should not be crimped into wire barrel.
- 8.4.3 Wire should not be cut-off and insulation should not be broken after crimping process.

9.0 REPAIR TOOLING

The tool needed for extracting terminals from Housing is defined in Table 7:

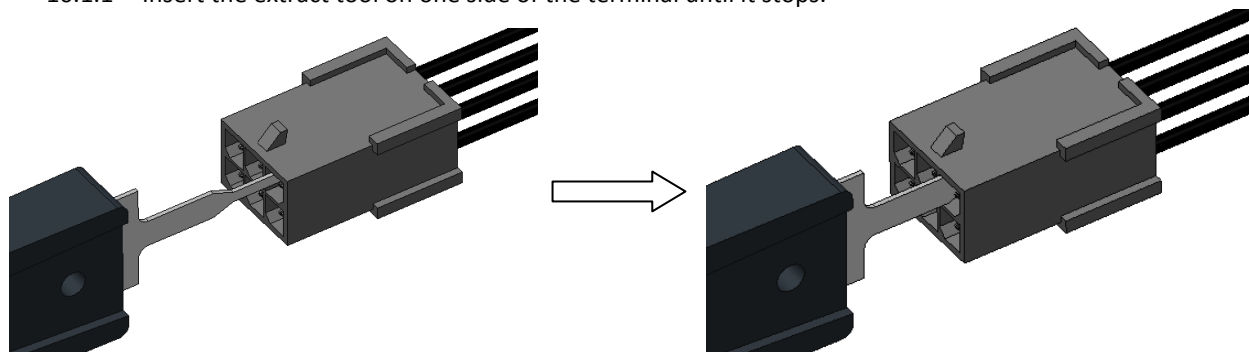
Table 7

Tool P/N	Tool Description	Applicable Terminal P/N
FCI 10129274-030LF	Terminal extract tool	10127718 & 10127719 series 10132447 & 10132448 series 10134160 & 10161703 Series

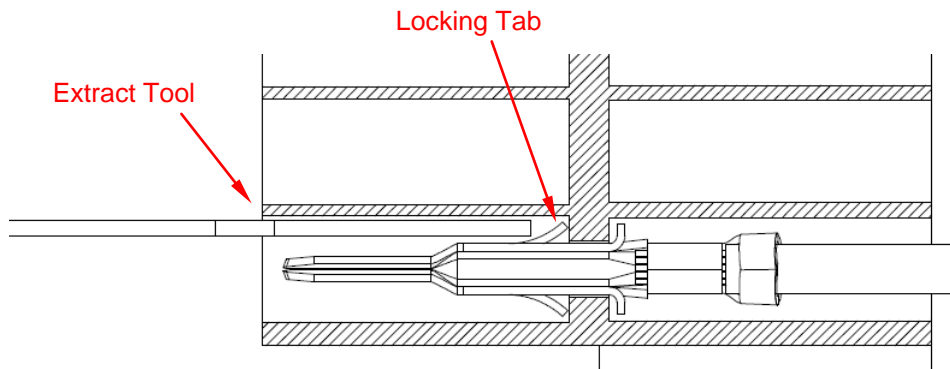


10.0 REPAIR / REMOVAL PROCEDURE

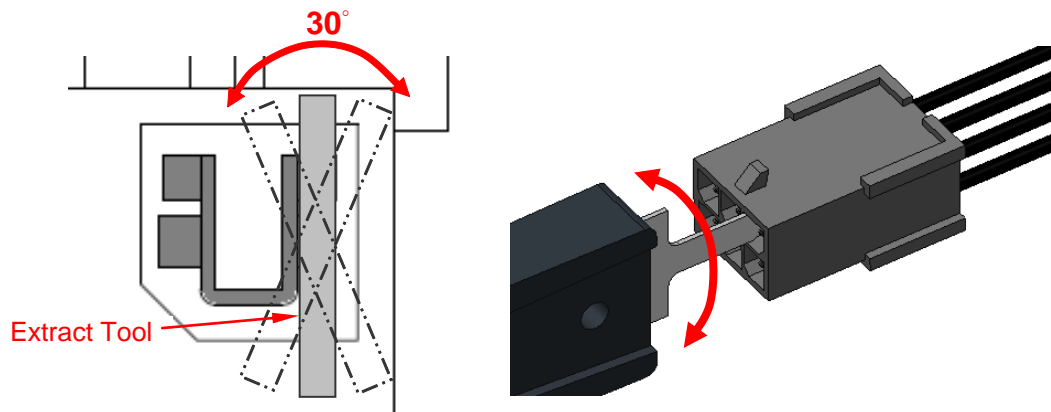
- 10.1 Use the extract tool 10129274-030LF to replace or repair individual terminal which is in the Housing.
- 10.1.1 Insert the extract tool on one side of the terminal until it stops.



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- 10.1.2 Rotate the tool clockwise and then counter clockwise about 30 degrees in each direction.
- 10.1.3 Repeat above steps on the opposite side of terminal. Depress locking tab on the terminal and pull out terminal from housing.



- 10.2 The locking tabs, after extracted from housing, will be damaged and the terminal is not reusable.

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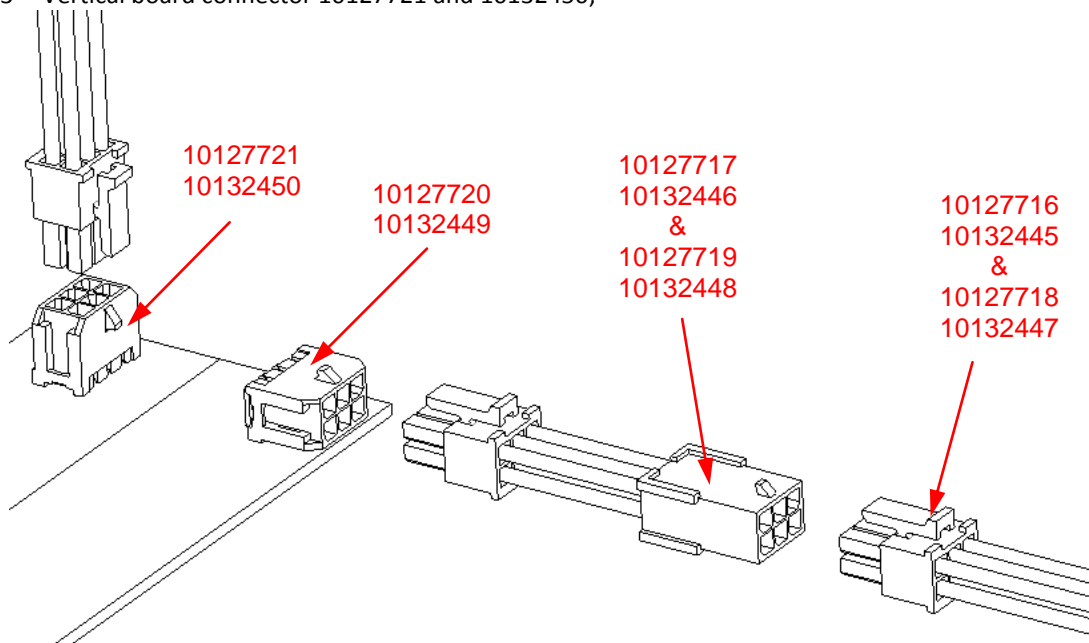
11.0 OTHERS

11.1 Mating pairs : Receptacle wire connector 10127716 and 10132445, with receptacle crimping terminals 10127718, 10132447 and 10134160 inserted, can mate with the following FCI wire / board connectors:

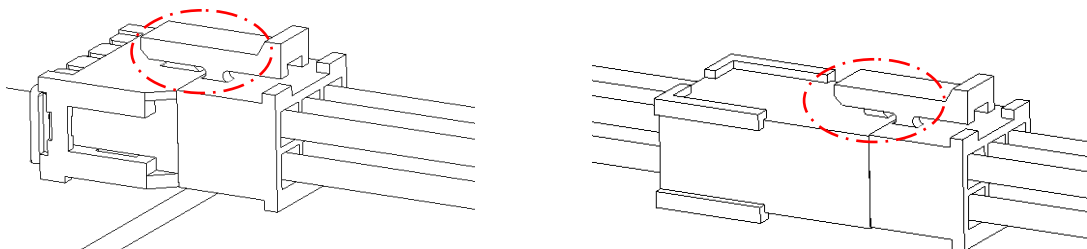
11.1.1 Plug wire connector 10127717 and 10132446, with plug crimping terminals 10127719 and 10132448 inserted;

11.1.2 Right angle board connector 10127720 and 10132449;

11.1.3 Vertical board connector 10127721 and 10132450;

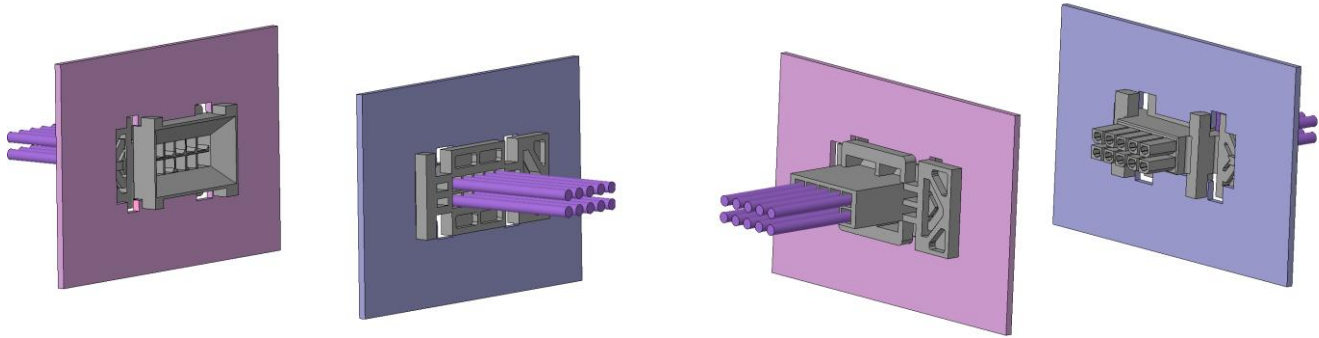


11.1.4 During connectors mating, make sure latch on the receptacle wire connectors is fully secured to the lock on plug wire connectors or board connectors.



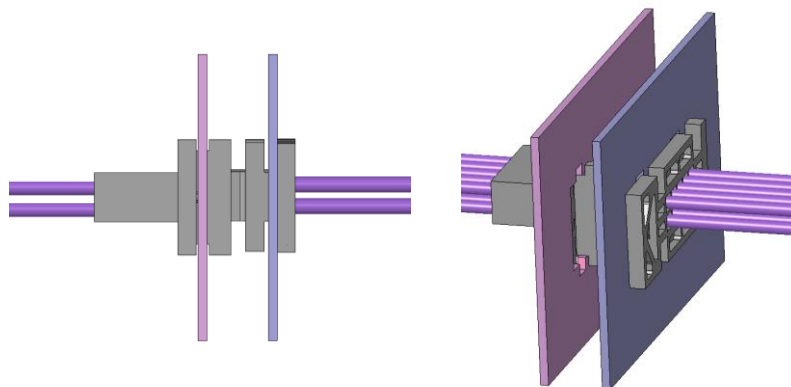
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11.1.5 BMI Receptacle Housing 10159684 mates with BMI Plug Housing 10160855



View from Receptacle side

View from Plug side



Assembly Condition

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RECORD RETENTION

REV	PAGE	DESCRIPTION	EC#	DATE
A	All	New Release		2014/3/17
B	All	Add data for Minitek Pwr 3.0 HCC	ELX-T-26082	2017/2/10
C	All	<ul style="list-style-type: none"> • Change Authorized and Sign in all page • Added 10134160 terminal series. • Updated 10134160, 10127718, 10127719, 10132447 and 10132448 terminal series Crimping Specification with new developed crimping Applicator and Hand crimping tool • 10160855 Crimp dimension added • Added BMI Plug (10160855) and Receptacle (10159684) Housing details 	ELX-I-40965	2021/05/20