

## 【1. 適用範囲 SCOPE】

本仕様書は、0.5 mmピッチ基板対基板用コネクタ について規定する。  
This specification covers the 0.5mm pitch BOARD TO BOARD CONNECTOR series.

## 【2. 製品名称及び型番 PRODUCT NAME AND PART NUMBER】

製品名称 Product Name			製品型番 Material Number	
			Connector Number	Order Number
リセプタクル Receptacle	ボス無 Without Boss	テープ無 Without Tape	52991-***0 (ナチュラル(白), Natural(White))	52991-***8
			54167-***1 (黒,Black)	54167-***8
プラグ Plug (H=3)	ボス無 Without Boss	テープ無 Without Tape	53748-***0 (ナチュラル(白), Natural(White))	53748-***8
		テープ有 With Tape	53748-***2 (ナチュラル(白), Natural(White))	53748-***4

\* : 図面参照 Refer to the drawings.  
・上記の各製品は全てボス、ネイル無し。

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	1 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

## 【 3. 定格 RATINGS 】

項目 Item	規 格 Standard	
最大許容電圧 Rated Voltage (MAXIMUM)	50V	[AC(実効値 rms)/DC]
最大許容電流 Rated Current (MAXIMUM)	0.5A	
使用温度範囲*1 Operating Temperature Range	-40°C ~ +105°C *2	
保管条件 Storage Condition	温度 Temperature	-10°C ~ +50°C
	湿度 Humidity	85%R.H.以下 (但し結露しないこと) 85%R.H. MAX. (No Condensation)
	期間 Terms	出荷後6ヶ月 (未開封の場合) For 6 months after shipping (unopened package)

\*1 : 基板実装後の無通電状態は、使用温度範囲が適用されます。

Non-operating connectors after reflow must follow the operating temperature range condition.

\*2 : 通電による温度上昇分を含む。

This includes the terminal temperature rise generated by conducting electricity.

## 【 4. 性 能 PERFORMANCE 】

標準状態 ; 特に指定がない限り、測定は以下の条件にて行う。

Standard atmospheric conditions;

Unless otherwise specified, the standard range of atmospheric conditions for conducting measurements and tests are as follows.

気温 Ambient temperature	: 15°C to 35°C
湿度 Relative humidity	: 25% to 85%
気圧 Air pressure	: 86kPa to 106kPa

但し判定に疑義を生じた場合は、測定は以下の条件にて行う。

If there is any doubt on the results, the measurement shall be conducted with the following test conditions.

気温 Ambient temperature	: 20±1°C
湿度 Relative humidity	: 63% to 67%
気圧 Air pressure	: 86kPa to 106kPa

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	2 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

## 4-1. 電気的性能 Electrical Performance

項目 Item		条件 Test Condition	規格 Requirement
4-1-1	接触抵抗 Contact Resistance	実装したコネクタを嵌合させ、開放電圧 20mV 以下、短絡電流 10mA 以下にて測定する。 (JIS C5402-2-1) Mate mounted connectors and measure contact resistance at less than 20mV of open circuit voltage and less than 10mA of short circuit current. (JIS C5402-2-1)	50 milliohm MAX.
4-1-2	絶縁抵抗 Insulation Resistance	実装したコネクタを嵌合させ、隣接するターミナル間及びターミナル、アース間に、DC 500Vを印加し測定する。 ( JIS C5402-3-1/MIL-STD-202 試験法 302 ) Mate mounted connectors and measure insulation resistance at 500V-DC applied to between terminals that are adjacent. (JIS C5402-3-1/MIL-STD-202 Method 302)	100 Megohm MIN.
4-1-3	耐電圧 Dielectric Strength	実装したコネクタを嵌合させ、隣接するターミナル間及びターミナル、アース間に、AC(rms) 500V (実効値) を1分間印加する。 (JIS C5402-4-1/MIL-STD-202 試験法 301 ) Mate mounted connectors and apply 500V-AC (RMS) to between the terminals that are adjacent for 1 minute. (JIS C5402-4-1/MIL-STD-202 Method 301)	異状なきこと No Breakdown

## 4-2. 機械的性能 Mechanical Performance

項目 Item		条件 Test Condition	規格 Requirement
4-2-1	挿入・抜去力 Insertion and Withdrawal Force	毎分 25±3 mm の速さで挿入、抜去を行う。 Insert and withdraw connectors at the speed rate of 25±3 mm / minute.	第6項参照 Refer to paragraph 6
4-2-2	ターミナル保持力 Terminal/ Housing Retention Force	ハウジングに装着されたターミナルを毎分25±3mmの速さで引っ張る。 Apply axial pull out force at the speed rate of 25±3mm / minute on the terminal assembled in the housing.	1.5N { 0.15kgf }MIN.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	3 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

4-3. その他 Environmental Performance and Others

項目 Item		条件 Test Condition	規格 Requirement	
4-3-1	繰返し挿抜 Repeated Insertion/ Withdrawal	1分間に10回以下の速さで挿入、抜去を30回繰返す。 Repeatedly insert and withdrawal up to 30 cycles at the speed of less than 10 cycles per minute.	接触抵抗 Contact Resistance	70 milliohm MAX.
4-3-2	温度上昇 Temperature Rise	実装したコネクタを嵌合させ、最大許容電流を通電し、コネクタの温度上昇分を測定する。 (UL 948) Apply maximum rated current to the mated connectors and measure the temperature rise. (UL 948)	温度上昇 Temperature Rise	30 °C MAX.
4-3-3	耐振動性 Vibration	実装したコネクタを嵌合させ、DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な 3方向に掃引割合 10~55~10 Hz/分、全振幅 1.5mm の振動を各 2時間 加える。 (JIS C60068-2-6/MIL-STD-202試験法 201) With energizing 1mA-DC to mated mounted connectors, vibrate for 2 hours each in 3 mutually perpendicular planes with the following conditions; 1.5mm of amplitude, 10~55~10 Hz in 1 minute of sweep time. (JIS C60068-2-6/MIL-STD-202, Method 201)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
			瞬断 Discontinuity	1 microsecond MAX.
4-3-4	耐衝撃性 Shock	実装したコネクタを嵌合させ、DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な 6方向に、490 m/s <sup>2</sup> {50G} の衝撃を各3回 加える。 ( JIS C60068-2-27/MIL-STD-202 試験法 213 ) With energizing 1mA-DC to mated mounted connectors, give 3 shocks each of 490m/s <sup>2</sup> { 50G } in 6 mutually perpendicular planes. (JIS C60068-2-27/MIL-STD-202 Method 213)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
			瞬断 Discontinuity	1 microsecond MAX.
4-3-5	耐熱性 Heat Resistance	実装したコネクタを嵌合させ、105±2°Cの雰囲気中に96時間放置後取り出し、1~2時間 室温に放置する。 ( JIS C60068-2-2/MIL-STD-202 試験法 108 ) Mate mounted connectors and expose to the atmosphere of 105±2°C for 96 hours, then expose to the room ambient for 1~2 hours. (JIS C60068-2-2/MIL-STD-202 Method 108)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
4-3-6	耐寒性 Cold Resistance	実装したコネクタを嵌合させ、-40±3°Cの雰囲気中に96時間放置後取り出し、1~2時間室温に放置する。 (JIS C60068-2-1) Mate mounted connectors and expose to the atmosphere of -40±3°C for 96 hours, then expose to the room ambient for 1~2 hours. (JIS C60068-2-1)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	4 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

項目 Item		条件 Test Condition	規格 Requirement	
4-3-7	耐湿性 Humidity	実装したコネクタを嵌合させ、60±2℃、相対湿度90～95%の雰囲気中に96時間放置後取り出し、1～2時間室温に放置する。 (MIL-STD-202 試験法103) Mate mounted connectors and expose to the atmosphere of the condition; 60±2℃, 90%~95% for 96 hours, then expose to the room ambient for 1~2 hours. (MIL-STD-202 Method 103)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
			耐電圧 Dielectric Strength	4-1-3項 満足のこと Must meet 4-1-3
			絶縁抵抗 Insulation Resistance	50 Megohm MIN.
4-3-8	温度サイクル Temperature Cycling	実装したコネクタを嵌合させ、-55±3℃に30分、+105±2℃に30分、これを1サイクルとし、5サイクル繰り返す。但し、温度移行時間は、5分以内とする。試験後1～2時間室温に放置する。 (JIS C60068-2-14) Mate mounted connectors and expose to the test atmosphere for 5 cycles; 1 cycle is -55±3℃ for 30 minutes and +105±2℃ for 30 minutes. Temperature transfer time should be less than 5 minutes. Then expose to room ambient for 1~2 hours. (JIS C60068-2-14)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
4-3-9	塩水噴霧 Salt Spray	実装したコネクタを嵌合させ、35±2℃にて、重量比5±1%の塩水を48±4時間噴霧し、試験後常温で水洗いした後、室温で乾燥させる。 (JIS C60068-2-11/MIL-STD-202 試験法101) Mate mounted connectors and expose to the salt spray atmosphere from the 5±1% solution at 35±2℃ for 48±4 hours, then expose to room ambient for dry after water washed connectors. (JIS C60068-2-11/MIL-STD-202 Method 101)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
4-3-10	亜硫酸ガス SO <sub>2</sub> Gas	実装したコネクタを嵌合させ、40±2℃にて、50±5ppmの亜硫酸ガス中に24時間放置する。 Mate mounted connectors and expose to SO <sub>2</sub> gas atmosphere of 50±5ppm at 40±2℃ for 24 hours.	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	5 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

項目 Item		条件 Test Condition	規格 Requirement	
4-3-11	耐アンモニア性 NH <sub>3</sub> Gas	実装したコネクタを嵌合させ、濃度28%のアンモニア水を入れた容器中に40分間放置する。 (1Lに対して25mLの割合) Mate connectors and apply below conditions. 40 minutes exposure to NH <sub>3</sub> gas evaporating from 28% Ammonia solution.	外 観 Appearance	異状なきこと No Damage
			接触抵抗 Contact Resistance	70 milliohm MAX.
4-3-12	半田付け性 Solderability	ターミナルまたはピンをフラックスに浸し、 245±5℃の半田に3±0.5秒浸す。 Dip the terminal in flux, then dip in solder Soldering Time: 3±0.5 sec. Solder Temperature : 245±5℃	濡れ性 Solder Wetting	浸漬面積の 95%以上 95% of immersed area must show no voids, pin holes
4-3-13	半田耐熱性 Resistance to Soldering- Heat	(リフロー時) 第7項の条件にて、2回リフローを行う。 (When reflowing) Conduct reflow twice at the condition specified in the paragraph 7.	外 観 Appearance	端子ガタ 割れ等 異状無きこと No Damage

( ) : 参考規格 Reference Standard  
{ } : 参考単位 Reference Unit

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	6 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

【 5. 外観形状、寸法及び材質 PRODUCT SHAPE, DIMENSIONS AND MATERIALS】

図面参照 Refer to the drawing.

【 6. 挿入力及び抜去力 INSERTION/WITHDRAWAL FORCE 】

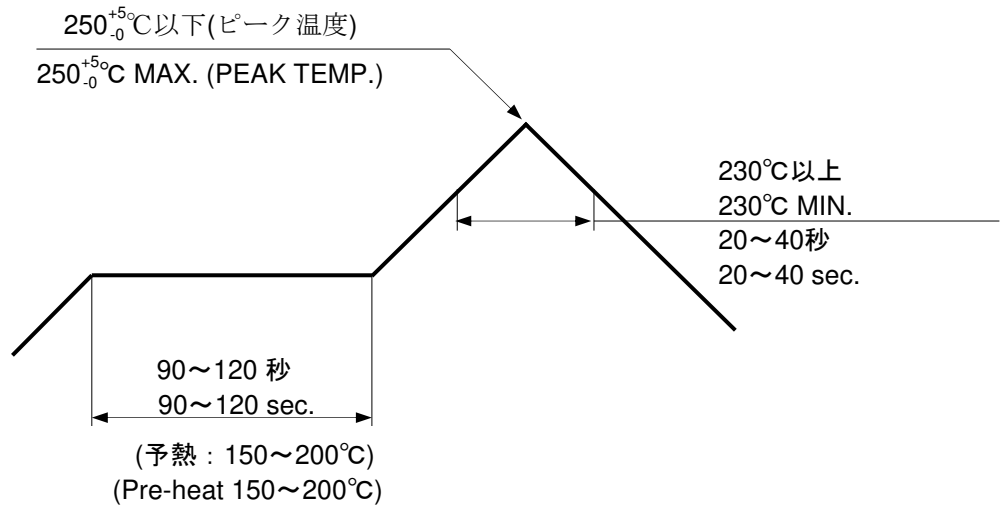
極数 No. of CKT	単位 UNIT	挿入力 (最大値) Insertion (MAX.)			抜去力 (最小値) Withdrawal (MIN.)		
		初回 1st	6回目 6th	30回目 30th	初回 1st	6回目 6th	30回目 30th
20	N kgf	21.5 {2.20}	12.7 {1.30}	12.7 {1.30}	4.9 {0.50}	3.0 {0.30}	3.0 {0.30}
30	N kgf	30.3 {3.10}	21.5 {2.20}	21.5 {2.20}	5.9 {0.60}	4.0 {0.40}	4.0 {0.40}
40	N kgf	39.2 {4.00}	30.3 {3.10}	30.3 {3.10}	6.9 {0.70}	4.9 {0.50}	4.9 {0.50}
50	N kgf	48.0 {4.90}	39.2 {4.00}	39.2 {4.00}	7.9 {0.80}	5.9 {0.60}	5.9 {0.60}
60	N kgf	56.8 {5.80}	48.0 {4.90}	48.0 {4.90}	8.9 {0.90}	6.9 {0.70}	6.9 {0.70}
70	N kgf	65.6 {6.70}	56.8 {5.80}	56.8 {5.80}	9.8 {1.00}	7.9 {0.80}	7.9 {0.80}
80	N kgf	74.4 {7.60}	65.6 {6.70}	65.6 {6.70}	10.8 {1.10}	8.9 {0.90}	8.9 {0.90}

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>						
CHANGE NO.	650988							
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES	
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991	
INITIAL RELEASE			CUSTOMER		DOCUMENT NUMBER		REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	7 OF 15	
INITIAL APPR	JALEXANDER	DATE	2001/12/27					



【 7. 赤外線リフロー条件 INFRARED REFLOW CONDITION 】



**温度条件グラフ**  
(温度は基板パターン面)  
**TEMPERATURE CONDITION GRAPH**  
(TEMPERATURE ON THE SURFACE OF P.C.BOARD PATTERN)

本リフロー条件に関しては、温度プロファイル、半田ペースト、大気、N2リフロー、基板などにより条件が異なりますので事前に実装評価(リフロー評価)を必ず実施願います。実装条件によっては、製品性能に影響を及ぼす場合があります。

Please check the surface-mounting condition (reflow soldering condition) on your own devices beforehand, because they may be different by the temperature profile, the solder paste, the atmosphere (Air or Nitrogen) or the type of the boards.

The different conditions may have an influence on the product's performance.

- ・ 推奨ランド寸法 Recommended Pattern dimension  
 図面をご参照ください。  
 Refer to the Drawing.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	8 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				



【 8. 取り扱い上の注意事項 INSTRUCTION UPON USAGE 】

[嵌合]

嵌合は極力嵌合軸に沿って平行に行ってください。(図-1)  
 その際、リセハウジングとプラグの内壁同士を合わせる様に位置決めした後に押し込み嵌合して下さい。  
 斜めの嵌合になる場合は10°以下の角度でリセハウジングとプラグの内壁同士を軽く当て、位置決めした後に平行にしてから嵌合して下さい。(図-2)  
 尚、リセハウジングの外壁とプラグ外壁とを当てた(支点とした)状態で嵌合を行いますと、反支点側のリセハウジングとプラグの内壁同士が干渉し、ハウジングの破壊およびピン損傷の恐れが有りますのでこのような嵌合はお避け下さい。(図-3)

[Mating]

Mate connectors parallel to the mating axis as much as possible. (Figure-1)  
 In doing so, priory determine the position with temporary fitting each inner wall of the Receptacle and Plug housing, then mate those fully.  
 If angled mating is inevitable, determine the position priory with temporary fitting each inner wall of the Receptacle and Plug housing softly within an angle less than 10 degree, and mate the connector parallel. (Figure-2)  
 Avoid from mating connectors with fitting each outer wall of Receptacle and Plug housing as a supporting point because the each inner wall on the opposite side could interfere each other and cause housing or pin breakage. (Figure-3)

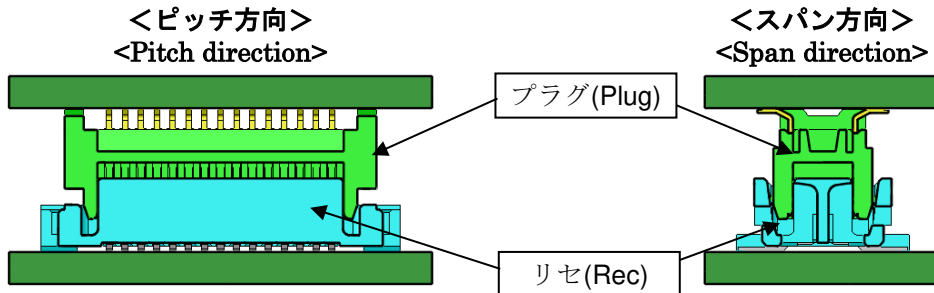


図-1 平行状態での挿抜  
 Figure-1 Horizontal Mating/Unmating

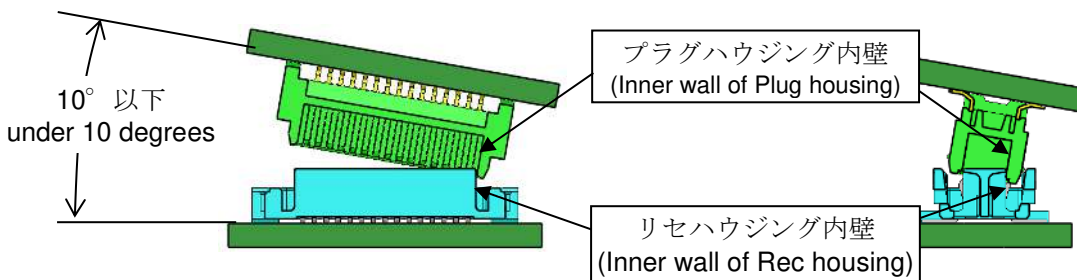
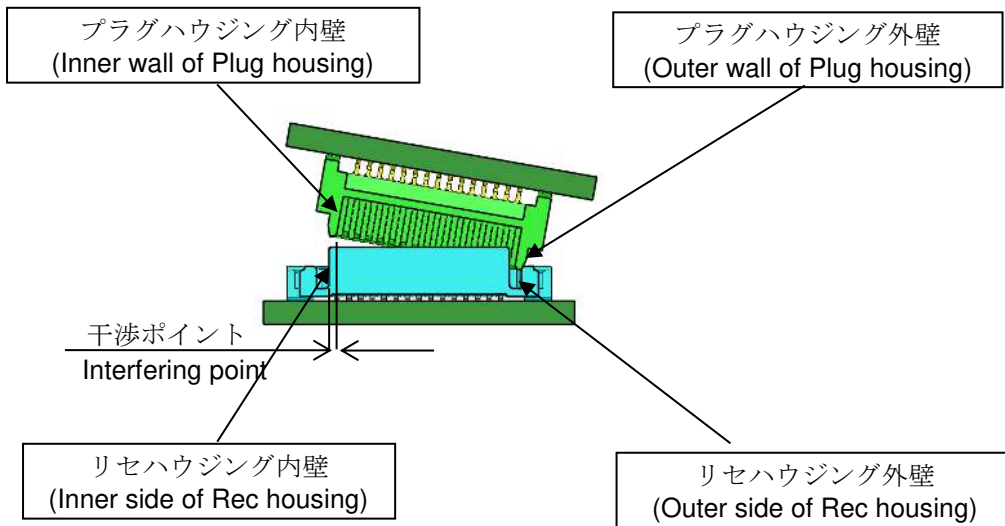


図-2 内壁合わせによる嵌合  
 Figure-2 Mating aligning to inner wall of housings

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION		REVISED		<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>			
CHANGE NO.		650988					
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	9 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				



Not Good

図-3 外壁合わせによる嵌合

Figure-3 Matting aligning to outer wall of housings

[抜去]

抜去は極力嵌合軸に沿って平行に行ってください。(図-1)

または、左右に少しづつ振りながら行ってください。(図-4)

(過度のこじり抜去には注意して下さい。ハウジングの破壊およびピン損傷の原因となります。)(図-5)

[Withdrawal]

Withdraw the connector parallel to mating axis as much as possible (Figure-1).

Or do it with slightly swinging them right to left. (Figure-4)

(Please take care NOT to do excess twist extraction. It could cause the housing or pin breakage.) (Figure-5)

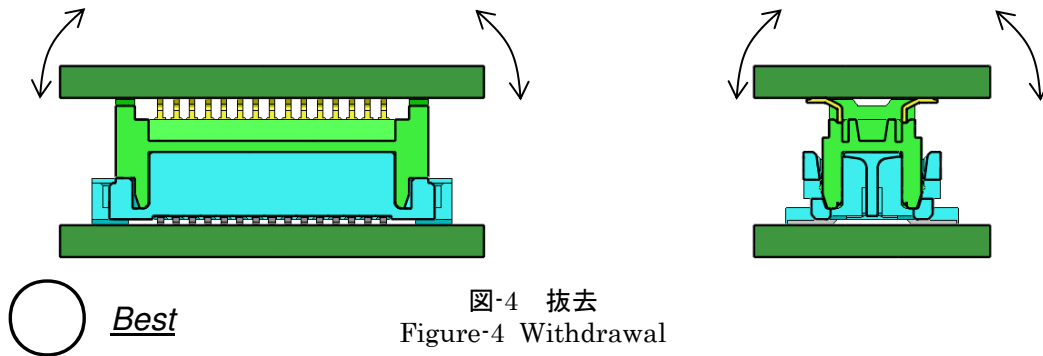
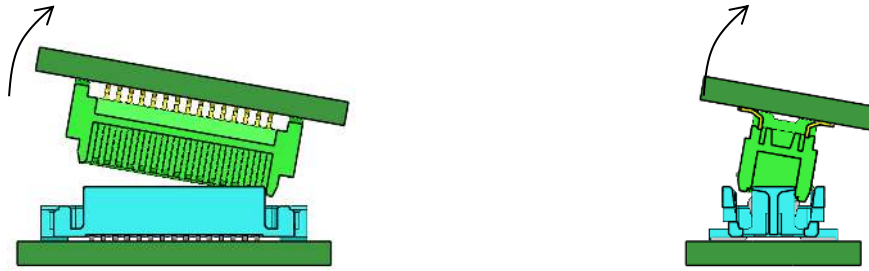


図-4 抜去

Figure-4 Withdrawal

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	10 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				



Not Good

図-5 こじり抜き

Figure-5 Withdrawal with twisting the connector at an angle

【9. その他 注意事項 OTHERS】

・外観について Appearance

1. 本製品の樹脂部に黒点、多少の傷、微小な気泡等が生じることがありますが、性能上問題ありません。また、本製品のモールド材料は LCP を使用しているため、ウェルドラインが目立つ場合がありますが、製品性能には影響ないものです。  
Although this product may have a small black dot, a scratch and minimal air bubble on the housing, it doesn't impact the product's performance. Also, although weld line may stand out due to LCP used to mold material of this product, it doesn't impact the product's performance.
2. 成形品の色相に多少の違いを生じる場合がありますが、製品性能には影響ありません。  
Although there may be slight differences in the housing color tone, it doesn't impact the product's performance.

・実装について Mount

3. 本リフロー条件に関しては、実装条件(大気/N2リフロー、温度プロファイル、半田ペースト、メタルマスク板厚・開口率、基板パターンレイアウト、実装基板種別などの種々の要素)により条件が異なりますので、必ずご使用前に、顧客様のご使用環境で事前に実装評価(リフロー評価)を実施願います。実装条件によっては、接点部への半田上がりやフラックス上りが発生するなど製品性能に影響を及ぼす場合があります。  
Please make sure to do test run under the mounting condition (reflow soldering condition) on your own devices before use because reflow condition may change due to the local condition (Air / N2 reflow / temperature profile / solder paste, metal mask thickness / aperture rate / pattern layout of PWB / types of PWB / and other factors ). Depending on the mounting condition, product's performance might be influenced by occurrence of solder-wicking or flux wicking at contact area.
4. 本製品の一般性能確認はリジッド基板にて実施しております。フレキシブル基板等の特殊な基板へ実装する場合は、事前に実装確認等を行った上でご使用願います。  
The product performance was tested using rigid PWB. In case the product needs to be mounted onto FPC, please conduct a reflow test on the FPC before use.
5. フレキシブル基板に実装する場合は、基板の変形を防止するため、補強板をご使用願います。  
In case of mounting the connector onto FPC, add a stiffener on the FPC in order to prevent the deformation.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	11 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

6. 弊社の推奨基板パターン寸法を変更して設計を行なう際は、致命的な不良の原因にもなりますので、あらかじめご相談ください。  
In case of designing with changing our recommended board pattern size, please consult the contact person in advance because it may cause a fatal defect.
7. 実装性能(平坦度)は、実装基板の反りの影響を含まないものと致します。基板の反りによってはコネクタの実装不良が発生します。事前に実装確認等を行った上で、ご使用願います。  
The mounting specification for coplanarity does not include the influence of warpage of the printed circuit board. Mounting failure of the connector is caused by the warpage of the printed circuit board. Please conduct a reflow test on the flexible circuit board in advance.
8. 本製品は大気リフローでの実装を想定しています。N2リフローで実装した場合、リフロー後、半田上がりを生じる恐れがあります。N2リフローでの実装をお考えの場合、別途評価が必要になります。  
This product is designed to be mounted by air reflow. So, if this product is mounted by N2 reflow, solder wicking may cause after reflow. Therefore if it is plan to adopt N2 reflow for this connector, an evaluation is needed separately.
9. 本製品の平坦度については、実装前での保証のみであり、実装中および実装後での平坦度については、保証の限りではありません。  
Only coplanarity before reflow is guaranteed. Coplanarity in and after reflow is not guaranteed.
10. 本製品は端子先端部に、カット面がある為に端子先端部の実装性(基板への半田付け性)は、端子側面・後側に比べて悪くなります。しかし、側面及び後側においてフィレットが形成されていれば、機能及び強度に問題はありません。  
The solderability of the terminal tip, which is cut surface without plating, is worse than the sides/back of the terminal with plating. However, it will not impact the product's function or the retention force if good soldering fillet is formed at the sides/back of the terminal.
11. 半田実装部の未半田は、ターミナル脱落、ピン間ショート、ターミナル座屈、またコネクタの基板からの外れが懸念されます。従って全てのターミナルテール部及び、ネイル部に半田付けを行って下さい。  
If you leave any soldering area on this product open, it could occur terminal disengagement, short circuit between pins, terminal buckling or connector disengagement from the PWB. Therefore, please solder all of the soldering tails and fitting nails on the PWB.
12. 実装機によってコネクタに負荷が加わると変形、破損する場合がありますので事前にご確認下さい。  
If accidental contact is added onto connectors in the reflow machine, connectors could be deformed or damaged. Therefore review the reflow machine before use of the connectors.
13. リフロー条件によっては、樹脂部の変色が発生する場合がありますが、製品性能に影響はございません。  
Although color tone of housing could be varied depending on reflow conditions, it does not impact on the product's performance.
14. リフロー後、半田付け部に変色が見られることがありますが、製品性能に影響はありません。  
Although some discoloration could be seen on the soldering tail after reflow, it does not impact on the product's performance.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	12 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

・製品の仕様について Product specification

15. 本製品をご使用時には、1PIN 当りの定格以上の電流を複数の回路に分岐しての使用は避けて下さい。  
When using this product, ensure that the specification for rated current per a circuit is followed. Do not allow the sum of the current used on several circuits to exceed the maximum allowable current.
16. 本製品をご使用時に取り付けられた電線・プリント基板の共振や、機器の回転構造や可動部分の動作によりコネクタ嵌合部(接点部)が常に動いてしまう状態での御使用は避けて下さい。接触部の摺動磨耗等による接触不良の原因となります。従って、機器内で電線・プリント基板を固定し、共振を抑える等の処置をお願い致します。  
Do not use the connector in a condition where the mating area (contact area) are constantly moved due to sympathetic vibration of wires and PWB or constant movement of devices. It may cause contact failure due to the worn out. Therefore fix wires and PWB on the chassis to reduces sympathetic vibration.
17. コネクタに外力が加わらないようにクリアランスをあげた筐体構造にして下さい。  
Keep enough clearance between connector and chassis of your application in order to avoid pressure on the connector.
18. 本製品を結露・水濡れが発生する環境でのご使用の場合は、適切な防滴処置をお願い致します。結露・水濡れにより、回路間で絶縁不良を起こす可能性が御座います。  
When using this product in an environment where dew condensation and water wetting occur, apply an appropriate drip-proof treatment. Dew condensation and water wetting could cause insulation failure between the circuits.
19. コネクタのみで基板を支えることは避け、コネクタ以外での基板固定対策を行ってください。  
Avoid using a connector alone to mechanically support the PWB. Adopt separate fixture to support PWB besides the connector in the chassis.
20. 活電状態の電気回路で、挿入、抜去ができることを前提に作られていません。スパーク等による危険の発生、性能不良につながりますので、活電状態での挿入、抜去はしないで下さい。  
Do not mate and un-mate connectors while those are energized since this connector is not designed to allow it. It may cause danger due to sparks and functional failure of the product.
21. 一枚の基板にコネクタを複数実装する場合は、嵌合相手側はそれぞれ個別の基板に実装してご使用をお願いします。  
When mounting several board to board connectors on a same PWB, ensure to mount the each mating connector on a separate PWB.
22. 本製品及び加工工程品(仕掛品)や加工品(ハーネス品)の梱包及び輸送・保管時において、コネクタ間での絡みや衝撃、積み重ね等による負荷が掛からないようにして下さい。変形・破損等による性能不良の原因となります。  
At packaging, transportation and storing, avoid applying loads to connectors by handling, interference of connectors or piling-up packages. It could cause functional defect such as connector deformation or breakage.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>						
CHANGE NO.	650988							
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES	
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991	
INITIAL RELEASE			CUSTOMER		DOCUMENT NUMBER		REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	13 OF 15	
INITIAL APPR	JALEXANDER	DATE	2001/12/27					



23. 推奨保管条件での保管をお願い致します。もし、梱包品の推奨保管条件を超えてしまった場合は外観、半田付け性を確認の上ご使用ください。  
Store the products under recommended storage condition. If the recommended storage conditions of the packaging is exceeded, check the appearance of the products and solder-wettability before use.

24. 基板実装後に基板を直接積み重ねない様に注意してください。  
Do not stack PWB directly after mounting the connector on it.

25. コネクタの性能を損なう恐れがある為、コネクタの洗浄は、行わないで下さい。  
Do not wash connector because it may impact the product's function.

#### ・製品操作について Product operation

26. 基板実装前後に端子、補強金具に触らないでください。  
Do not touch the terminals and fitting nails of connectors before or after mounting onto the PWB.

27. 嵌合後、コネクタピッチ方向、スパン方向及び回転方向への負荷がかかるような動作またはセットはしないでください。コネクタ破壊やはんだクラックを引き起こします。Avoid move or assembly of connector which could apply loads to the direction of the connector pitch, span or rotation. It may damage the connector and crack the soldering.

28. ハウジングのロック部やランス部などの可動部、及び端子を故意に変形させないで下さい。製品性能が満足出来ない原因となります。  
Do not purposely deform the movable parts such as housing lock or lance and terminals. It may impact the product performance.

29. 嵌合の際、嵌合が不十分にならないようにご注意下さい。また、セットへの組み込み後も、振動、衝撃等で嵌合の浮きが発生しないような状態にて使用してください。  
Ensure to mate connectors fully. Also mount and assemble the connector in your application unit with disengagement proof to avoid connector disengagement due to vibration or shocks.

#### ・リペアについて Repair

30. 実装後において半田こてによる手修正を行う際は、必ず仕様書掲載の条件以内で行って下さい。条件を超えて実施した場合、端子の抜け、接点ギャップの変化、モールドの変形、溶融等、破損の原因になります。  
When conducting manual repairs using a soldering iron, follow the soldering conditions shown in the product specification. If the conditions in the product specification are not followed, it may cause the terminal disengagement, contact gap change, housing deformation, housing melting, and connector damage.

31. 半田こてによる手修正を行なう際、過度の半田やフラックスを使用しないで下さい。半田上がりやフラックス上がりにより接触、機能不良に至る場合があります。  
When conducting manual repairs using a soldering iron, do not use excess solder and flux than needed. It may cause solder wicking and flux wicking issues, and also eventually cause a contact defect and functional issues.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	REVISED	0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION					
CHANGE NO.	650988						
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	PS-52991-003	G	14 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				

REV.	REV. RECORD	DATE	ECN NO.	WRITTEN BY :	CHECKED BY :
0	新規作成 PROPOSED	'96/03/06	JC60623	T.YASUI	M.FUKUSHIMA
A	変更 REVISED	'96/03/25	JC60675	S.AIHARA	M.FUKUSHIMA
B	変更 & 再作図 REDRAWN & REVISED	'01/12/26	J2002-1543	S.AIHARA	M.SASAO
C	変更 REVISED	'04/04/21	J2004-3937	N.AIDA	K.TOJO
D	変更 REVISED	'06/07/28	J2007-0273	TE.NAGASE	T.HARUYAMA
E	変更 REVISED	'07/11/19	J2008-2032	R.TSURUOKA	T.HARUYAMA
F	変更 REVISED	'15/10/02	J2016-0343	N.NAITO	T.ASAKAWA
G	変更 REVISED	'20/12/08	650988	AHMADI2	HSHIMOYAMA

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION		REVISED		<b>0.5 MM PITCH B-TO-B CONN. HEIGHT = 3 PRODUCT SPECIFICATION</b>			
CHANGE NO.		650988					
REVISED BY	TNAKAGAWA01	DATE	2020/09/04	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	SHOSHIKAWA	DATE	2020/12/21	PS	ENGINEERING SPECIFICATION WORD	001	52991
INITIAL RELEASE				CUSTOMER		DOCUMENT NUMBER	
INITIAL DRWN	RFC_PLMMW	DATE	2016/06/15	GENERAL	<b>PS-52991-003</b>	<b>G</b>	15 OF 15
INITIAL APPR	JALEXANDER	DATE	2001/12/27				