



Table of Contents

PPAP Package for:

Customer Name: Newark Electronics
Customer Part Number: 08AH2106
(TE Connectivity Part Number): 5-1418760-3
Date: October 2020

Section A	<u>Nondisclosure Agreement</u>
Section # 1	<u>Design Records</u>
Section # 2	<u>Engineering Change Documents</u>
Section # 3	<u>Customer Engineering Approval</u>
Section # 4	<u>Design FMEA</u>
Section # 5	<u>Process Flow Diagrams</u>
Section # 6	<u>Process FMEA</u>
Section # 7	<u>Control Plan</u>
Section # 8	<u>Measurement Systems Analysis Studies</u>
Section # 9	<u>Dimensional Results</u>
Section # 10	<u>Material, Performance Test Results</u>
Section # 11	<u>Initial Process Study</u>
Section # 12	<u>Qualified Laboratory Documentation</u>
Section # 13	<u>Appearance Approval Report</u>
Section # 14	<u>Sample Product</u>
Section # 15	<u>Master Sample</u>
Section # 16	<u>Checking Aids</u>
Section # 17	<u>Records Of Compliance With Customer-Specific Requirements</u>
Section # 18	<u>Part Submission Warrant</u>
Section # 18a	<u>Bulk Material Requirements</u>



Nondisclosure Agreement

If a nondisclosure agreement has been reached with your company, it will be included on the following page(s). Please review the terms of this agreement to ensure that further actions associated with information contained within this PPAP package do not violate these terms.

If a nondisclosure agreement HAS NOT been reached, certain documents deemed confidential by TE Connectivity will not be included in this PPAP package. These documents include but are not limited to the Design FMEA, the Process Flow Diagram, the Process FMEA and the Control Plan. These documents can be reviewed by you company but cannot be retained.



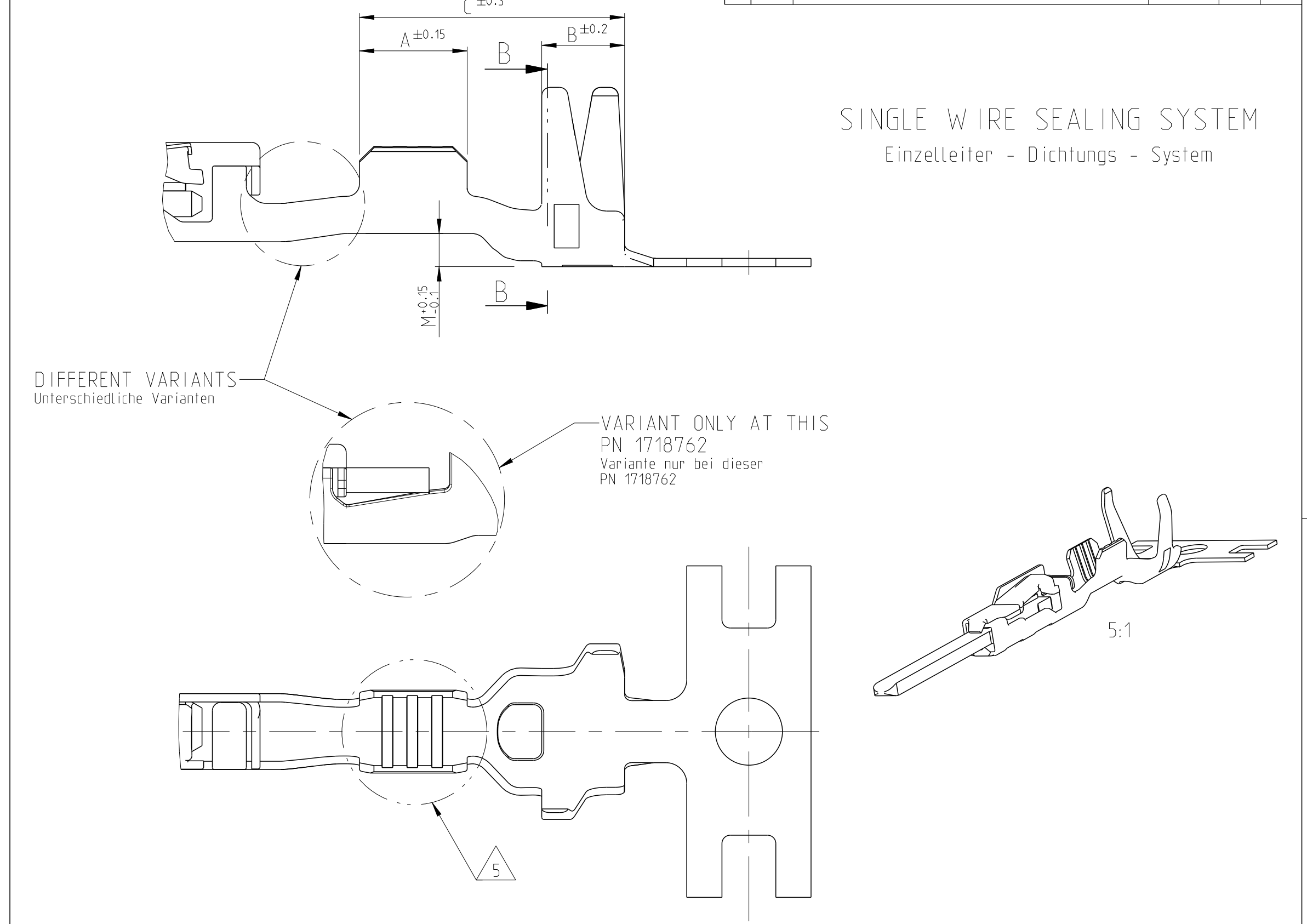
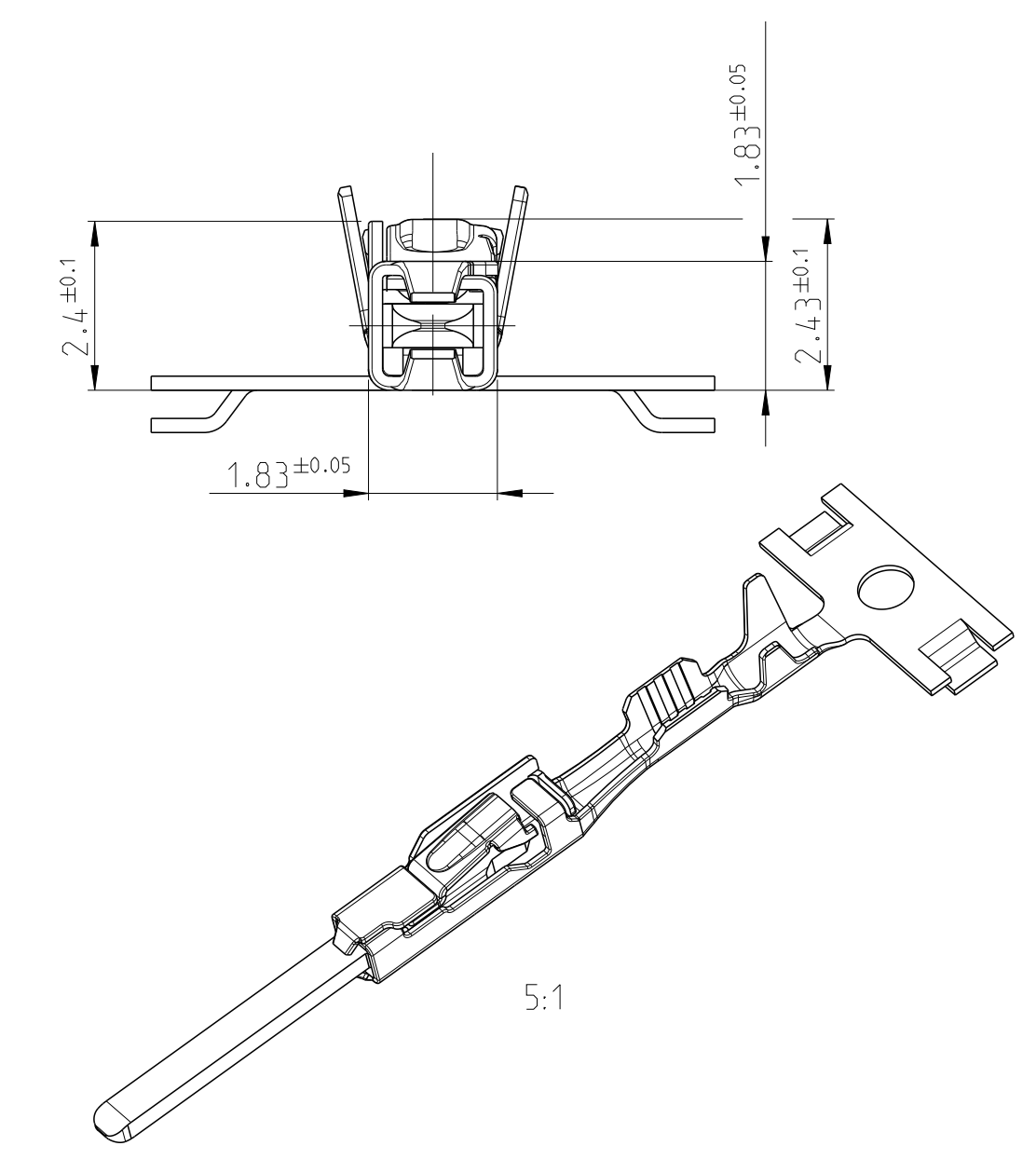
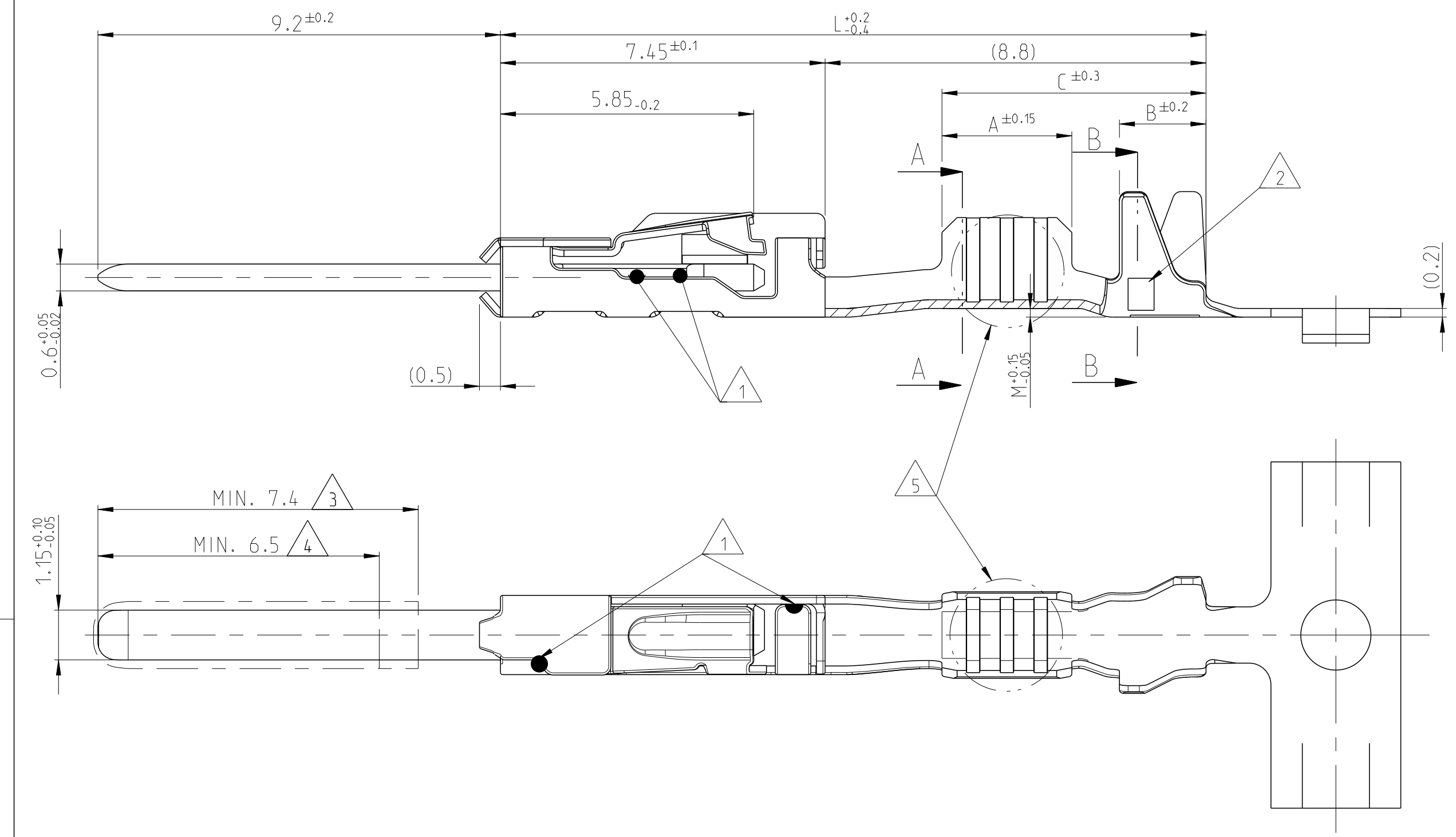
Section 1

Design Records

THE DRAWING SHOWS THE 2-DIMENSIONAL REFERENCE COMPONENT CONDITION OF THE ASSEMBLY TO IDENTIFY AND SPECIFY THE NECESSARY DIMENSIONS ONLY. THE DELIVERED PARTS MAY DEVIATE FROM THE DRAWING REGARDING THE ORIENTATION AND POSITION OF EACH COMPONENT (e.g. SLACK CABLE), SO FAR THE FUNCTIONALITY IS NOT CONCERNED.

DIE ZEICHNUNG ZEIGT DEN 2-DIMENSIONAL IDEALZUSTAND DES ZUSAMMENBAUTEILS BEZÜGLICH DER KOMPONENTEN ZUR IDENTIFIKATION UND SPEZIFIKATION DER NOTWENDIGEN DIMENSIONEN. HINSICHTLICH DER ORIENTIERUNG UND DER LAGE DER KOMPONENTEN (Z.B. BIEGESCHLAPTES KABEL) KÖNNEN DIE DELIEFERTEN TEILE VON DER ZEICHNUNG ABWEICHEN, SOFERN DIE FUNKTIONALITÄT NICHT BEEINTRÄCHTIGT IST.

REVISONS		DATE	DWN	APVD
PROJECT No.	C9	ECR-15-012070	22SEP2015	JBH BK
EGAUT 02021	C10	DIM 'L' FOR 2141868-1, -2 and -3 IS CHANGED TO 16.3mm	06OCT2017	GH CASS
	C11	E-19-013005	20AUG2019	FRAN CASS
	C12	Correction of Design 3	05JUN2020	FRAN CASS



SINGLE WIRE SEALING SYSTEM
 Einzelleiter - Dichtungs - System

INSULATION CRIMP FOR Isolationsschraubfeder	ORDER NO. Bestell-Nr. STRIP Bandware	REV	WIRE RANGE Drahtgrößenbereich (mm ²)	INSULATION-Ø Isolations-Ø (mm)	BODY Kontaktkörper	TAB Flachstecker	BODY Kontaktkörper	SPRING Kontaktfeder	DESIGN WIRE-CRIMP Ausführung Draht - Crimp	LENGTH Laenge	WIRE CRIMP Drahtcrimp	INSULATION CRIMP Isolations Crimp	DIMENSION Mass "L" (mm)	
SINGLE WIRE SEALING SYSTEM / Einzelleitungssystem SEE APPLICATION SPECIFICATION / siehe Verarbeitungsspezifikation	1718762-3	B	1.0 - 1.5	1.9 - 2.4	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	2	A = 3.0 B = 2.0 C = 6.8	E = 2.6 G = 2.9 D _{or} = 1.35	H = 4.4 K = 4.3 D ₁₅₀ = 2.9 M = 0.8	16.8	
	1718762-2	C					3							
	1718762-1	B					TIN PLATED verzinkt							
	1718760-3	A	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	2	A = 2.6 B = 2.0 C = 6.4	E = 2.0 G = 2.1 D _{or} = 1.1	H = 4.2 K = 4.3 D ₁₅₀ = 2.7 M = 0.8	16.3	
	1718760-2	B					3							
	1718760-1	A					TIN PLATED verzinkt							
	1718758-3	A	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	2	A = 2.6 B = 2.0 C = 6.4	E = 1.8 G = 1.8 D _{or} = 0.8	H = 4.2 K = 4.3 D ₁₅₀ = 2.6 M = 0.8	16.3	
	1718758-2	B					3							
	1718758-1	A					TIN PLATED verzinkt							
	2141868-3	A	0.13 - 0.22	2.6	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	1	A = 2.5 B = 1.9 C = 6.2	E = 1.5 G = 1.4	H = 4.0 K = 4.1 D ₁₅₀ = 2.6 M = 0.6	16.3	
	2141868-2	A					3							
	2141868-1	A					TIN PLATED verzinkt							
FLR CABLE / Leitung SEE APPLICATION SPECIFICATION / siehe Verarbeitungsspezifikation	1418762-3	A	1.0 - 1.5	1.9 - 2.4	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	3	A = 3.0 B = 2.0 C = 6.1	E = 2.6 G = 2.9 D _{or} = 1.35	H = 3.7 K = 3.9 D ₁₅₀ = 2.1 M = 0.2	16.3	
	1418762-2	B					3							
	1418762-1	A					TIN PLATED verzinkt							
	5-1418760-3	A	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	2	A = 3.0 B = 2.0 C = 6.1	E = 2.0 G = 2.1 D _{or} = 1.1	H = 2.7 K = 2.9 D ₁₅₀ = 1.6 M = 0.2	16.3	
	5-1418760-2	A					3							
	5-1418760-1	A					TIN PLATED verzinkt							
	1418760-3	B	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	3	A = 3.0 B = 2.0 C = 6.1	E = 2.0 G = 2.1 D _{or} = 1.1	H = 2.7 K = 2.9 D ₁₅₀ = 1.6 M = 0.2	16.3	Superseded
	1418760-2	C					3							
	1418760-1	B					TIN PLATED verzinkt							
	5-1418758-3	A	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	2	A = 2.6 B = 2.0 C = 5.7	E = 1.8 G = 1.8 D _{or} = 0.8	H = 2.6 K = 2.6 D ₁₅₀ = 1.4 M = 0.2	16.3	
	5-1418758-2	B					3							
	5-1418758-1	A					TIN PLATED verzinkt							
1418758-3	A	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	4	A = 2.6 B = 2.0 C = 5.7	E = 1.8 G = 1.8 D _{or} = 0.8	H = 2.6 K = 2.6 D ₁₅₀ = 1.4 M = 0.2	16.3	Superseded	
1418758-2	B					3								
1418758-1	A					TIN PLATED verzinkt								
2141864-3	A	0.13 - 0.22	0.85 - 1.2	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	4	1	A = 2.5 B = 1.7 C = 5.4	E = 1.5 G = 1.4	H = 2.0 K = 1.9 D ₁₅₀ = 1.1	15.3		
2141864-2	A					3								
2141864-1	A					TIN PLATED verzinkt								

- 1 LASER WELDED Lasergeschweisst
- 2 REVISION STATUS Revisionsstand
- 3 CONTACT AREA TAB MIN. 0.8µm SELECTIV GOLD OVER Ni Kontaktzone selectiv vergoldet min. 0.8µm ueber Ni
- 4 CONTACT AREA TAB MIN. 2.0µm SELECTIV SILVER Kontaktzone selectiv versilbert min. 2.0µm
- 5 DIFFERENT FORM OF THE SERRATIONS AND WIRE-CRIMP POSSIBLE unterschiedliche Ausfuehrung der Rillen und des Draht-Crimps moeglich
- 6 RELEASED WIRE. SEE APPLICATION SPEC. TE 114-18464 Freigegebene Leitung, siehe APPLICATION SPEC. TE 114-18464

PRODUCT CHARACTERISTICS ACC. QMP 1.12 BESONDERE MERKMALE NACH QMP 1.12	TOLERANCING ISO 8015 TOLERIERUNG ISO 8015
THIS DRAWING IS A CONTROLLED DOCUMENT. DIESER ZEICHNUNGSDRUCK IST EIN KONTROLLIERTES DOKUMENT. ANWENDEBARE STANDARTE: ISO 8015 (TOLERANZANGABEN) ISO 10002 (KUNDENBESCHWERDEN) ISO 10003 (KUNDENBESCHWERDENBEHANDLUNG) ISO 10004 (KUNDENBESCHWERDENBEHANDLUNG)	DWN R. Meier 10MARD3 CHK U. Muenk 30JUL03
DIMENSIONS: mm	APVD - NAME
TOLERANCES UNLESS OTHERWISE SPECIFIED: PLC ± P PLC ± S PLC ± T PLC ±	PRODUCT SPEC 108-18782 APPLICATION SPEC 114-18464
MATERIAL: SEE TABLE siehe Tabelle	WEIGHT: -
FINISH: SEE TABLE siehe Tabelle	Customer Drawing
PRODUCT GROUP DRAWING FOR TAB CONTACT 1.2 MM Produktgruppenzeichnung Flachstecker 1.2mm SIZE: 114-18464 SCALE: 10:1 SHEET 1 OF 1 REV C12	



Section 2

Engineering Change Documents



Product Change Notification

Current Date: 01-Oct-2020

TE Connectivity

Product Change Notification: E-19-013005

PCN Date: 26-AUG-19

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:

PRODUCT GROUP DRAWING FOR TAB CONTACT 1.2MM Produktgruppenzeichnung Flachstecker 1.2mm

Description of Changes

In order to enable reduce portfolio and production complexity and with aim to improve our shipments and delivery commitments. Please be informed that as part of the MCON optimization program done in 2014 to improve the performance with regards to Slow Motion bending test and LV214/USCAR qualification the following PNs are superseded (Obsoleted and replaced by new Part numbers released and in production since 2011). The only difference in the new PNs is a different crimp serration design, therefore the same application equipment can be used to crimp the terminals.

Other attachments:
[E-19-013005](#)
Reason for Changes:

Discontinuance. Discontinuance - Superseded parts. For detailed information contact matthias.cassel@te.com

Estimated Dates:
Last Order Date (Obsolete Parts Only):

01-MAR-2020

First Date To Ship (Changed Parts Only):

Last Ship Date (Obsolete Parts Only):

01-JUN-2020

Last Date for Mixed Shipments: (Changed Parts Only):

No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1418758-1	YES					
1418758-2	YES					
1418758-3	YES					
1418760-1	YES					
1418760-2	YES					
1418760-3	YES		"EF8315-000", "AMP-0-1418760-3"			

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Customer Drawing(s) Being Modified:

Drawing Number	Current Revision	New Revision
1418754	C10	



Section 3

Customer Engineering Approval



Section 4

Design FMEA

See Section A for nondisclosure conditions.

The Design FMEA, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 5

Process Flow Diagram

See Section A for nondisclosure conditions.

The Process Flow Diagram, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 6

Process FMEA

See Section A for nondisclosure conditions.

The Process FMEA, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 7

Control Plan

See Section A for nondisclosure conditions.
The Control Plan, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.

Section 8

Measurement System Analysis

Section 9

Dimensional Results

ORGANIZATION: TE Connectivity Germany GmbH SUPPLIER/VENDOR CODE 329715044 INSPECTION FACILITY <p style="text-align: center;">Speyer</p>	PART NUMBER 5-1418760-3 PART NAME MCON 1.2 LL TAB STC AG DESIGN RECORD CHANGE LEVEL: C-1418754 ENGINEERING CHANGE DOCUMENT C12
---	---

ITEM	DIMENSION/SPECIFICATION	SPECIFICATION/ LIMITS	TEST DATE	QTY. TESTED	ORGANIZATION MEASUREMENT RESULT (DATA)					OK	NOT OK
1	9,3 ±0,2				9,29						
2	5,85 -0,2				5,80						
3	7,5 ±0,1				7,41						
4	16,3 ±0,2-0,4	L			16,28						
5	3 ±0,15	A			3,06						
6	6,1 ±0,3	C			6,19						
7	2 ±0,2	B			2,00						
8	0,2 ±0,15-0,05	M			0,26						
9	0,62 ±0,1-0,05				0,63						
10	1,83 ±0,05				1,85						
11	2,43 ±0,1				2,45						
12	1,83 ±0,05				1,81						
13	2,4 ±0,1				2,40						
14	1,15 ±0,1-0,05				1,16						
15	2 ±0,3	E			1,92						
16	2,1 ±0,3	G			2,13						
17	2 ±0,2	DDr			2,16						
18	2,7 ±0,3	H			2,81						
19	2,9 ±0,3	K			2,92						
20	1,6 ±0,2	Diso			1,61						

Blanked statements of conformance are unacceptable for any test results

SIGNATURE Michael Duwe	TITEL Supv <input type="checkbox"/> lty <input type="checkbox"/> Reliability Eng	DATE 07.09.2020
---------------------------	---	--------------------

ORGANIZATION: TE Connectivity Germany GmbH SUPPLIER/VENDOR CODE: 329715044 INSPECTION FACILITY: <p style="text-align: center;">Speyer</p>	PART NUMBER: 5-1418760-3 PART NAME: MCON 1.2 LL TAB STC AG DESIGN RECORD CHANGE LEVEL: C-1418754 ENGINEERING CHANGE DOCUMENT: C12
---	--

ITEM	DIMENSION/SPECIFICATION	SPECIFICATION/LIMITS	TEST DATE	□TY. TESTED	ORGANIZATION MEASUREMENT RESULT (DATA)				OK	NOT OK
	Material									
	Body				see Materialcertificate					
	CuNiSi				CuNiSi				x	
	Surface: Tin Plating				Tin Plating				x	
	Spring (TAB)				see Materialcertificate					
	CuSn15				CuSn15				x	
	Surface: Ag plating				Ag plating				x	

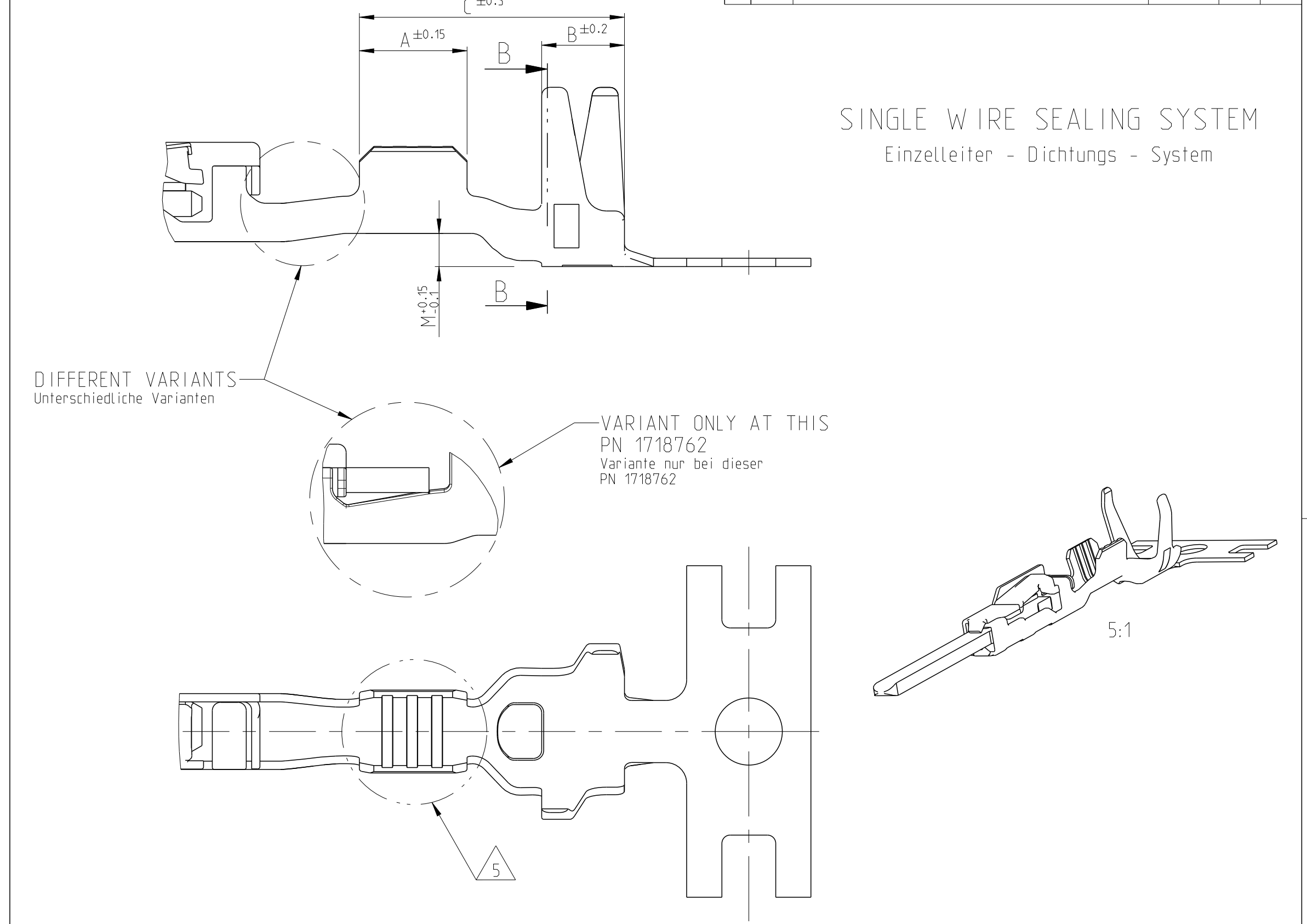
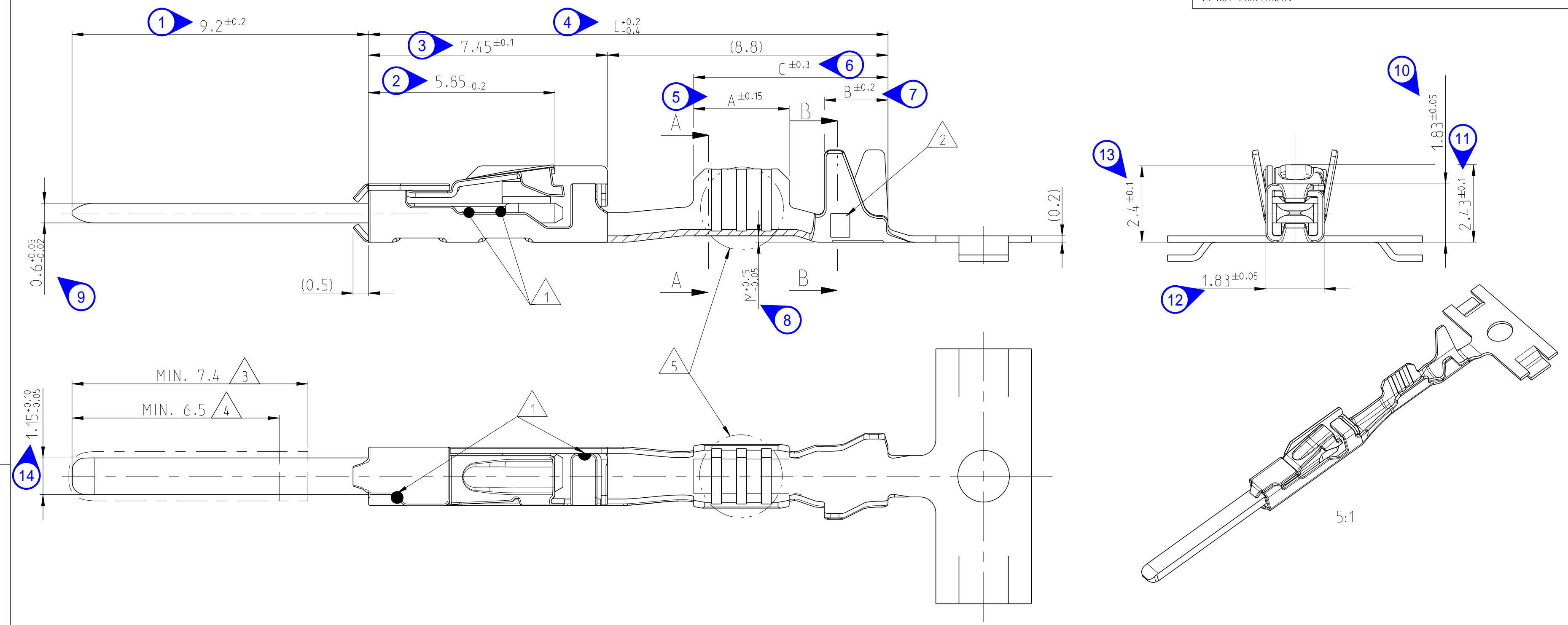
Blanked statements of conformance are unacceptable for any test results

<u>SIGNATURE</u> Michael Duwe	<u>TITEL</u> Supv □ lty □ Reliability Engineering	<u>DATE</u> 07.09.2020
----------------------------------	--	---------------------------

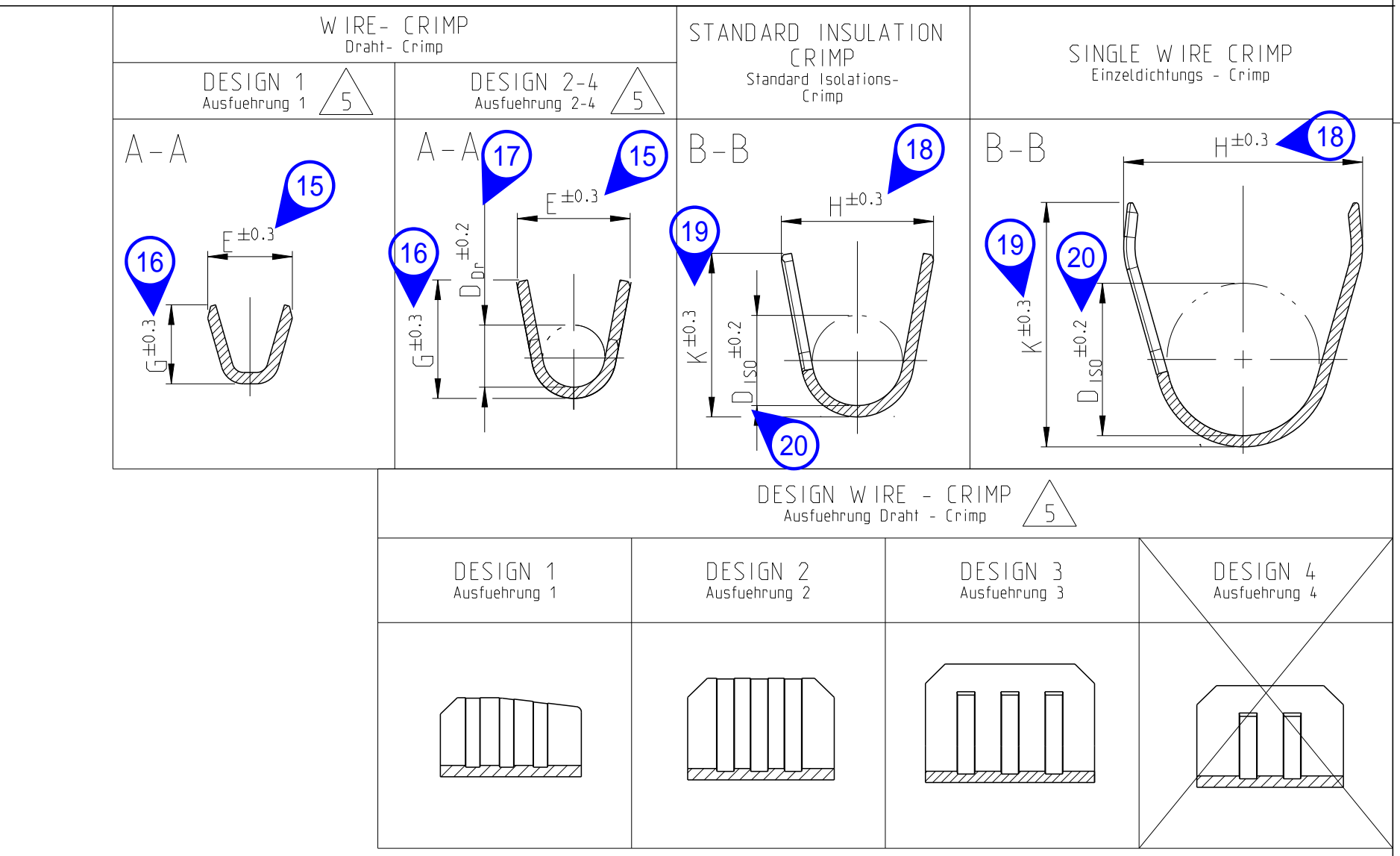
THE DRAWING SHOWS THE 2-DIMENSIONAL REFERENCE COMPONENT CONDITION OF THE ASSEMBLY TO IDENTIFY AND SPECIFY THE NECESSARY DIMENSIONS ONLY. THE DELIVERED PARTS MAY DEVIATE FROM THE DRAWING REGARDING THE ORIENTATION AND POSITION OF EACH COMPONENT (e.g. SLACK CABLE), SO FAR THE FUNCTIONALITY IS NOT CONCERNED.

DIE ZEICHNUNG ZEIGT DEN 2-DIMENSIONAL IDEALZUSTAND DES ZUSAMMENBAUTEILS BEZÜGLICH DER KOMPONENTEN ZUR IDENTIFIKATION UND SPEZIFIKATION DER NOTWENDIGEN DIMENSIONEN. HINSICHTLICH DER ORIENTIERUNG UND DER LAGE DER KOMPONENTEN (Z.B. BIEGESCHLAPPE KABEL) KÖNNEN DIE DELIEFERTEN TEILE VON DER ZEICHNUNG ABWEICHEN, SOFERN DIE FUNKTIONALITÄT NICHT BEEINTRÄCHTIGT IST.

LOC		DIST		REVISIONS			
AI	-	P	LTN	DESCRIPTION	DATE	DWN	APVD
PROJECT No.	C9	ECR-15-012070			22SEP2015	JBH	BK
EGAUT 02021	C10	DIM 'L' FOR 2141868-1, -2 and -3 IS CHANGED TO 16.3mm			06OCT2017	GH	CASS
	C11	E-19-013005			20AUG2019	FRAN	CASS
	C12	Correction of Design 3			05JUN2020	FRAN	CASS



INSULATION CRIMP FOR Isolationssystem	ORDER NO. Bestell-Nr. STRIP Bandware	REV	WIRE RANGE Drahtgrößenbereich (mm²)	INSULATION-Ø Isolations-Ø (mm)	BODY Kontaktkörper	TAB Flachstecker	BODY Kontaktkörper	SPRING Kontaktfeder	DESIGN WIRE-CRIMP Ausführung Draht - Crimp	LENGTH Laenge	WIRE CRIMP Drahtcrimp	INSULATION CRIMP Isolations Crimp	DIMENSION Messung (mm)	MATERIAL Werkstoff	SURFACE Oberflaeche	SUPERSED	
																	CRIMP DIMENSION Crimpabmessungen (mm)
SINGLE WIRE SEALING SYSTEM / Einzeldichtungssystem SEE APPLICATION SPECIFICATION / siehe Verarbeitungsspezifikation	1718762-3	B							4								
	1718762-2	C	1.0 - 1.5	1.9 - 2.4	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	2	A = 3.0 B = 2.0 C = 6.8	E = 2.6 G = 2.9 D _{or} = 1.35	H = 4.4 K = 4.3 D ₁₅₀ = 2.9	16.8				
	1718762-1	B							4								
	1718760-3	A							4								
	1718760-2	B	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	2	A = 2.6 B = 2.0 C = 6.4	E = 2.0 G = 2.1 D _{or} = 1.1	H = 4.2 K = 4.3 D ₁₅₀ = 2.7	16.3				
	1718760-1	A							4								
	1718758-3	A							4								
	1718758-2	B	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	2	A = 2.6 B = 2.0 C = 6.4	E = 1.8 G = 1.8 D _{or} = 0.8	H = 4.2 K = 4.3 D ₁₅₀ = 2.6	16.3				
	1718758-1	A							4								
	2141868-3	A							4								
	2141868-2	A	0.13 - 0.22	2.6	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	1	A = 2.5 B = 1.9 C = 6.2	E = 1.5 G = 1.4	H = 4.0 K = 4.1 D ₁₅₀ = 2.6	16.3				
	2141868-1	A							4								
FLR CABLE / Leitung SEE APPLICATION SPECIFICATION / siehe Verarbeitungsspezifikation	1418762-3	A							4								
	1418762-2	B	1.0 - 1.5	1.9 - 2.4	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	3	A = 3.0 B = 2.0 C = 6.1	E = 2.6 G = 2.9 D _{or} = 1.35	H = 3.7 K = 3.9 D ₁₅₀ = 2.1	16.3				
	1418762-1	A							4								
	5-1418760-3	A							4								
	5-1418760-2	A	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	2	A = 3.0 B = 2.0 C = 6.1	E = 2.0 G = 2.1 D _{or} = 1.1	H = 2.7 K = 2.9 D ₁₅₀ = 1.6	16.3				
	5-1418760-1	A							4								
	1418760-3	B							4								
	1418760-2	C	0.5 - 0.75	1.4 - 1.9	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	3	A = 3.0 B = 2.0 C = 6.1	E = 2.0 G = 2.1 D _{or} = 1.1	H = 2.7 K = 2.9 D ₁₅₀ = 1.6	16.3	Superseded			
	1418760-1	B							4								
	5-1418758-3	A							4								
	5-1418758-2	B	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	2	A = 2.6 B = 2.0 C = 5.7	E = 1.8 G = 1.8 D _{or} = 0.8	H = 2.6 K = 2.6 D ₁₅₀ = 1.4	16.3				
	5-1418758-1	A							4								
1418758-3	A							4									
1418758-2	B	0.25 - 0.35	1.1 - 1.75	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	4	A = 2.6 B = 2.0 C = 5.7	E = 1.8 G = 1.8 D _{or} = 0.8	H = 2.6 K = 2.6 D ₁₅₀ = 1.4	16.3	Superseded				
1418758-1	A							4									
2141864-3	A							4									
2141864-2	A	0.13 - 0.22	0.85 - 1.2	CuNiSi	CuSn0.15/0.2	TIN PLATED verzinkt	3	1	A = 2.5 B = 1.7 C = 5.4	E = 1.5 G = 1.4	H = 2.0 K = 1.9 D ₁₅₀ = 1.1	15.3					
2141864-1	A							4									



- 1 LASER WELDED Lasergeschweisst
- 2 REVISION STATUS Revisionsstand
- 3 CONTACT AREA TAB MIN. 0.8µm SELECTIV GOLD OVER Ni Kontaktzone selectiv vergoldet min. 0.8µm ueber Ni
- 4 CONTACT AREA TAB MIN. 2.0µm SELECTIV SILVER Kontaktzone selectiv versilbert min. 2.0µm
- 5 DIFFERENT FORM OF THE SERRATIONS AND WIRE-CRIMP POSSIBLE unterschiedliche Ausfuehrung der Rillen und des Draht-Crimps moeglich
- 6 RELEASED WIRE. SEE APPLICATION SPEC. TE 114-18464 Freigegebene Leitung, siehe APPLICATION SPEC. TE 114-18464

PRODUCT CHARACTERISTICS ACC. QMP 1.12 BESONDERE MERKMALE NACH QMP 1.12	TOLERANCING ISO 8015 TOLERIERUNG ISO 8015
THIS DRAWING IS A CONTROLLED DOCUMENT. DIESER ZEICHNUNGSDRUCK IST EIN KONTROLLIERTES DOKUMENT.	DWN R. Meier CHK U. Muenk APVD 30JUL03
DIMENSIONS: mm	PRODUCT SPEC 108-18782 APPLICATION SPEC 114-18464
TOLERANCES UNLESS OTHERWISE SPECIFIED: PLC ± 0.2mm P ± 0.1mm S ± 0.1mm Z ± 0.1mm	TE Connectivity PRODUCT GROUP DRAWING FOR TAB CONTACT 1.2 MM Produktgruppenzeichnung Flachstecker 1.2mm
MATERIAL: SEE TABLE FINISH: SEE TABLE	SIZE: 114-18464 WEIGHT: - Customer Drawing
Customer Drawing	SCALE 10:1 SHEET 1 OF 1 REV C12



Section 10

Material, Performance Test Results

Kunde TE Connectivity Germany GmbH Ämperstrasse 12-14 64625 Bensheim	Unsere Auftrags-Nr.	10294 / 40	Ausdruck vom	04.08.2020
	Unsere Artikel-Nr.	95-077-21129	Lieferschein / Pos	80154610 / 10
	Ihre Bestell-Nr.	2550119505	Liefermenge	3385 KG
	Ihre Artikel-Nr.	7-704492-8 AP	Gieß-Charge	1000034513
	Charge	CN35930 ✓ CN35948 ✓ CN35955 ✓	Kundennorm	TEC-100-1343-E R420 TEC-100-400-J
Werkstoff	KHP®15, CuSn0.15, C14415, CW117C			
Abmessung	0,620 x 16,500 mm			

Chemische Zusammensetzung des Grundwerkstoffes

min.			0,10	0,005		
max.		0,020	0,25	0,020	0,050	0,0200
	Cu %	Pb %	Sn %	P %	Fe %	Ag %
	99,87	0,001	0,11	0,007	0,004	0,0018

Mechanische Werte

Nr.	Merkmal	Soll-Wert		Ist-Wert	
		min.	max.	min.	max.
1	Säbel - mm /1m		2,0	0,5	0,6
2	Breite - mm	16,45	16,55	16,50	16,51
3	Dicke - mm - SC	0,610	0,630	0,614	0,618
4	Streckgrenze (Rp0,2) - N/mm ²	350		422	424
5	Zugfestigkeit (Rm) - N/mm ²	420	490	441	442
6	Bruchdehnung (A50) - %	2		6	6
7	Härte (HV) -			128	128
8	Elektrische Leitfähigkeit - m/Ohm mm ²	45,0		49,6	49,6
9	Rautiefe Ra - µm		0,20	0,10	0,11
10	Korngröße - µm		30	15	15
11	Kugelschleiftest -			i.O.	i.O.
12	Biegeprüfung 180°II - R=1,55 b=17			i.O.	i.O.
13	Biegeprüfung 180°_ - R=1,24 b=17			i.O.	i.O.
14	Schneidgrat max. - 0,062 mm			i.O.	i.O.

Bemerkungen

Konformitätserklärung: Hiermit bestätigen wir, dass die gelieferten Erzeugnisse die in der Auftragsbestätigung genannten Forderungen erfüllen.

Bestätigung spezieller Anforderungen: Directive 2011/65/EU „RoHS“
Directive 2000/53/EG „End-of-Life Vehicles Directive“

geprüft und freigegeben (Datum, Name) **30.07.2020, Michael Weber** (Abnahmebeauftragter)

Dieses Dokument wurde maschinell erstellt und ist ohne Unterschrift gültig.

Wieland-Werke AG D-89079 Ulm
 Tyco Electronics AMP GmbH
 Werk Speyer
 Pfnorstr. 1
 64293 Darmstadt

Ihre Bestell-Nr.	2550163696
vom	07.04.2020
Ihre Material-Nr.	1-705566-3 REV. B
Unsere Auftrags-Nr.	20001344 001
Unsere Lieferschein-Nr.	82754543 010
Liefermenge	4154 KG
Datum	24.06.2020

Abnahmeprüfzeugnis 3.1 nach EN 10204 : 2004

Halbfabrikat:	Abmessungen:
Band verzinkt	Maß A: 0,2 mm - 0,01
Werkstoff:	Maß B: 22 mm - 0,05 + 0,05
Wieland K55 CuNi3Si1Mg	Maß C:
	Maß D:

Spezifikation:	Revision/Ausgabedatum:	Normzahl
Mitgeltende Vorsch.: TEC-100-1086 TM00=R620	Rev. Z	
Mitgeltende Vorsch.: TEC-112-20-5	Rev. AE	
weitere Vorschriften: Verp. n. 107-18010 Rev. D		

Bemerkungen:

Ring-Nr.	3653050902	3653050903	3653146502	3653146503	3653189202
Guss-Nr.	R2177.0004	R2177.0003	T2175.0002	T2175.0001	R2176.0002
Auftr-Nr.	36533473	36533473	36533473	36533473	36533473

Chemische Zusammensetzung nach 3.1 EN 10204 : 2004

Die Summe der sonstigen Elemente entspricht der in der chemischen Norm genannten Vorgabe.

Cu Kupfer-Gehalt	Fe Eisen-Gehalt	Pb Blei-Gehalt
Mg Magnesium-Gehalt	Ni Nickel-Gehalt	1B 1B = Nickel + Cobalt
Zn Zink-Gehalt		

Sollwerte:

Prüfmerkmal (in %)	Cu	Fe	Pb	Mg	Ni	1B	Zn
Minimum/Richtwert(R)				0,05	2,2		
Maximum/Richtwert(R)		0,2	0,05	0,3	4,2		1

Messwerte:*

Gussnummer

2175	97,153	< 0,2	< 0,05	0,06	2,2	2,2435	0,1
------	--------	-------	--------	------	-----	--------	-----

Tyco Electronics AMP GmbH

Ihre Bestell-Nr.	2550163696
vom	07.04.2020
Ihre Material-Nr.	1-705566-3 REV. B

Unsere Auftrags-Nr.	20001344 001
Unsere Lieferschein-Nr.	82754543 010
Liefermenge	4154 KG
Datum	24.06.2020

Abnahmeprüfzeugnis 3.1 nach EN 10204 : 2004

2175	97,164	< 0,2	< 0,05	0,06	2,3	2,2516	0,1
2176	97,134	< 0,2	< 0,05	0,06	2,2	2,2376	0,1
2176	97,147	< 0,2	< 0,05	0,08	2,2	2,2464	0,1
2177	97,143	< 0,2	< 0,05	0,06	2,3	2,2514	0,1
2177	97,15	< 0,2	< 0,05	0,08	2,3	2,2584	0,1

Mn Mangan-Gehalt

Si Silizium-Gehalt

Sollwerte:

Prüfmerkmal (in %)	Mn	Si
Minimum/Richtwert(R)		0,25
Maximum/Richtwert(R)	0,1	1,2

Messwerte:*

Gussnummer

2175	< 0,1	0,42
2175	< 0,1	0,42
2176	< 0,1	0,42
2176	< 0,1	0,42
2177	< 0,1	0,43
2177	< 0,1	0,44

Mechanische Prüfmerkmale

Tyco Electronics AMP GmbH

Ihre Bestell-Nr.	2550163696
vom	07.04.2020
Ihre Material-Nr.	1-705566-3 REV. B

Unsere Auftrags-Nr.	20001344 001
Unsere Lieferschein-Nr.	82754543 010
Liefermenge	4154 KG
Datum	24.06.2020

Abnahmeprüfzeugnis 3.1 nach EN 10204 : 2004

RM Zugfestigkeit Rm **RP0,2 Dehngrenze 0,2 %** **A50 Bruchdehnung A50**

Sollwerte:

Prüfmerkmal	RM	RP0,2	A50
Masseinheit	MPa	MPa	%
Minimum/Richtwert(R)	620	450	10
Maximum/Richtwert(R)	760	690	

Messwerte:

Probennummer

R2176_A	697	552	18
R2176_E	695	552	18
R2177.0001_A	694	569	18
R2177.0001_E	698	576	17
T2175_A	692	555	17
T2175_E	693	558	18

Weitere Prüfungen

Prüfmerkmal	Einheit	Soll-Wert bzw. Richtwert(R)		Messwerte	
		Min.	Max.		
		elektrische Leitfähigkeit - Resistomat	MS/m	23	
elektrische Leitfähigkeit in IACS	%	40		47	49
Korngröße	µm		30	8	10
Biegbarkeit 90 Grad parallel r/t=0				Ergebnis gut	
Biegbarkeit 90 Grad quer r/t=0,5				Ergebnis gut	
Biegbarkeit 180 Grad parallel r/t=2,0				Ergebnis gut	
Biegbarkeit 180 Grad quer r/t=3,0				Ergebnis gut	
Ra - arithm.Mittenrauhwert	µm		0,3	0,1	0,1
Ra - arithm.Mittenrauhwert Beschichtung	µm		0,35	< 0,35	< 0,35
Schichtdicke, Feuerverzinnung Reinzinn	µm	1	3	1,3	2

Tyco Electronics AMP GmbH

Ihre Bestell-Nr.	2550163696
vom	07.04.2020
Ihre Material-Nr.	1-705566-3 REV. B

Unsere Auftrags-Nr.	20001344 001
Unsere Lieferschein-Nr.	82754543 010
Liefermenge	4154 KG
Datum	24.06.2020

Abnahmeprüfzeugnis 3.1 nach EN 10204 : 2004

Maßprüfungen

Prüfmerkmal	Einheit	Soll-Wert bzw.		Messwerte	
		Richtwert(R)			
		Min.	Max.		
Breite	mm	21,95	22,05	21,986	21,996
Dicke	mm	0,19	0,2	0,195	0,195
Querwölbung	mm		0,44	0,004	0,009
Säbelförmigkeit auf 1000mm	mm		2	0,02	0,16
Rollkrümmung hängend auf 1000 mm	mm		225	2,9	25,1

Konformitätserklärung

Wir erklären als Hersteller, daß die hier beschriebene Ware den mit dem Käufer vereinbarten Spezifikationen sowie den oben aufgeführten Normen und normativen Vorschriften, der angegebenen Beschreibung, der genannten Menge und den in diesem Zeugnis gemachten Angaben entspricht.

Diese Ware wurde unter einem zertifizierten Qualitätsmanagementsystem nach DIN EN ISO 9001:2015 hergestellt. Unser Qualitätsmanagementsystem wird laufend überwacht (Kiwa ZertifikatsNr. 99440).

Die Prüfergebnisse zur chemischen Analyse, zu den mechanisch-technologischen und physikalischen Prüfverfahren wurden durch ein zertifiziertes und / oder akkreditiertes Prüflabor festgestellt.

Die Lieferung erfolgt bezüglich Cd und Pb konform nach RoHS, ELV und WEEE.

In Bändern und Blechen aus Kupfer und Kupferlegierungen nicht enthalten sind: Cr(VI) und seine Verbindungen CFC, HCFC, PCB, PCN, CP, Mirex, PBB, BDE, PBDE, TBBP - A - bis, organische Zinnverbindungen, Asbest und Azo-Verbindungen, Hg - Analysen an Muster zeigen Werte < 0.0005% (m/m).

*Im Falle mehrerer Zeilen pro Gussnummer enthält die erste Zeile die kleinsten und die zweite Zeile die größten gemessenen Werte der chemischen Zusammensetzung.

i.A. Wolfgang Baur (Abnahmebeauftragter des Herstellers)
Telefon: +49-731-944-3637 Fax: +49-731-944-43637
e-mail: wolfgang.baur@wieland.com
Maschinell erstelltes Abnahmeprüfzeugnis

Section 11

Initial Process Studies

Not Applicable



Section 12

Qualified Laboratory Documentation



CERTIFICATE



This is to certify that

TE Connectivity Germany GmbH

Siemensstraße 13
67346 Speyer
Germany

has implemented and maintains a **Quality Management System**.

Scope:

Design and manufacturing of electronic and mechatronic components and connector systems

An audit, conducted and documented in a report, has verified that this quality management system fulfills the requirements of the following International Automotive Standard:

IATF 16949:2016

(with product design)

Certificate registration no.	515112 IATF16
Main certificate registration no.	515099 IATF16
Issuing date	2018-04-18
This certificate is valid until	2021-10-17
Date of revision	2020-07-28
IATF No.	0301145



2-IAO-QMC-01001

For and on behalf of DQS

Markus Bleher
Managing Director, DQS GmbH

Michael Drechsel
Managing Director, DQS Holding GmbH



Annex to certificate registration no.: 515112 IATF16
IATF-No.: 0301145

TE Connectivity Germany GmbH

Siemensstraße 13
67346 Speyer
Germany



Remote Location	Scope
515109 TE Connectivity Belgium BVBA Siemenslaan 14 8020 Oostkamp Belgium	Testing
547511 TE Connectivity Solution GmbH Via della Posta, 32 6934 Bioggio Switzerland	Testing
515114 TE Connectivity Solutions GmbH Amperestr. 3 9323 Steinach Switzerland	Logistics, Testing
515107 Tyco Electronics Czech s.r.o. KAMP 1293 664 34 Kurim Czech Republic	Testing
515099 TE Connectivity Germany GmbH Ampèrestr. 12-14 64625 Bensheim Germany	Continuous improvement; Customer service; Human Resource; Internal audit management; Management review; Policy making; Product design; Process design; Production equipment development; Purchasing; Quality system management; Sales; Supplier management; Testing
546279 TE Connectivity Germany GmbH Siemensstraße 13 67346 Speyer Germany	Servicing



**Annex to certificate registration no.: 515112 IATF16
IATF-No.: 0301145**

TE Connectivity Germany GmbH

Siemensstraße 13
67346 Speyer
Germany



Remote Location

Scope

**515116
TE Connectivity Germany GmbH
Amperestr. 12-14
73499 Wört
Germany**

Process design; Testing; Warehousing

**515103
TE Connectivity Germany GmbH
Amperestr. 11
91550 Dinkelsbühl
Germany**

Process Design, Production Equipment
Development, Testing

**515108
TE Connectivity Spain, SLU
Polígono Industrial Pla d'en
Coll c/ Tordera 6
08110 Montcada i Reixac
Spain**

Testing

**515110
Tyco Electronics France SAS
1 rue Ampère
95300 Pontoise
France**

Customer service; Product design; Sales;
Testing

**515104
Tyco Electronics Hungary Ltd.
AMP út 2
2500 Esztergom
Hungary**

Testing

**31600242
TE Connectivity India Pvt. Ltd.
RMZ NXT, Campus 1-B, 3rd Floor,
Unit 301- 302, EPIP Area,
Sonnenahalli Village, White Field
Road, Bangalore
Bangalore 560 066, Karnataka
India**

Product design; Testing



**Annex to certificate registration no.: 515112 IATF16
IATF-No.: 0301145**

TE Connectivity Germany GmbH

Siemensstraße 13
67346 Speyer
Germany



Remote Location	Scope
515514 TE Connectivity Italia Distribution S.r.l. Corso Fratelli Cervi 15, 10093 COLLEGNO TORINO Italy	Customer service; Sales, Testing
515111 TE Connectivity Italia S.r.l. Zona Industriale 66050 San Salvo (CH) Italy	Testing
525517 TE Connectivity Morocco SARL I Lot 60, Zone Franche Tangier 90 000 Tangier Morocco	Testing; Warehousing
515105 Tyco Electronics Components Electromecanicos, Lda Estrada de Almeirim, Apartado 55 7006-801 Évora Portugal	Testing
525515 TE Connectivity Tunisia Office Immeuble Lake Forum, 4 ème étage 5 rue de la feuille d'érable 1053 Tunis Tunisia	Warehousing



Section 13

Appearance Approval Report

Not Applicable



Section 14

Sample Product

**Sent in separate package
(if required)**



Section 15

Master Sample

Retained at manufacturing location



Section 16

Checking Aids

Not Applicable



Section 17

Records of Compliance with Customer-Specific Requirements

MDS Report

Substances of assemblies and materials

This report is for internal Automotive industry use only. Distribution to non-Automotive clients is a violation of the Terms of Use, and is not permitted unless a written permission was given by DXC Technology. Parsing is not allowed.

1. Company and Product Name

1.1 Supplier Data

Name [ID]: **Tyco Electronics GAD [913]**
DUNS Number: -
Street/Postal Code: **Amperestr. 12-14**
Nat./ZipCode/City: **DE 64625 Bensheim**
Supplier Code: -
Contact Person: **IMDS Team (India) Engineering Services**
- Phone: -
- Fax No.: -
- E-Mail Address: **IMDS@te.com**

1.2 Product Identification

Part/Item No.: **5-1418760-3**
Description: **Tab Contact 1.2x0.6mm**
Report No.: -
Date of Report: -
Purchase Order No.: -
Bill of Delivery No.: -
Preliminary MDS: **No**
IMDS ID / Version: **154217360 / 10**
Node ID: **957032193**
MDS Status (Change Date): **Internally released (09/09/2020)**

MDS Report

Substances of assemblies and materials

Materials which are subject to legal prohibitions must not be included!
 Dangerous substances formed or released during use must also be declared
 Please note: GADSL list for substances that require declaration

2. Characterization of the Component

Part/Item No.: **5-1418760-3**
 Description: **Tab Contact 1.2x0.6mm**

Report No.: **-**
 IMDS ID / Version: **154217360 / 10**
 Node ID: **957032193**

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
1	Tab Contact 1.2x0.6mm	5-1418760-3	154217360 / 10		0.2423				
└2	Body	0-1418760-3		1	0.1373				
└3	Copper Nickel		73855529 / 5		0.1362			3.2 No	
└4	Copper	7440-50-8				94.775		D	
└4	Nickel	7440-02-0				3.2	2.2 - 4.2	D	Not applicable [34]

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
└4	Cobalt	7440-48-4				0.2	0 - 0.4	D	
└4	Silicon	7440-21-3				0.725	0.25 - 1.2		
└4	Iron	7439-89-6				0.1	0 - 0.2		
└4	Magnesium (metal)	7439-95-4				0.175	0.05 - 0.3		
└4	Manganese	7439-96-5				0.05	0 - 0.1		
└4	Lead	7439-92-1				0.025	0 - 0.05	D / P / SVHC	Concentration within acceptable GADSL limits [44]
└4	Zinc (metal)	7440-66-6				0.5	0 - 1		
└4	Misc., not to declare	system				0.25	0 - 0.5		
└3	Hot-dip Sn-plated		91506360 / 1		0.0011			4.2	No
└4	Lead	7439-92-1				0.005	0 - 0.01	D / P / SVHC	Concentration within acceptable GADSL limits [44]
└4	Cadmium	7440-43-9				0.0005	0 - 0.001	D / P / SVHC	Concentration within acceptable GADSL limits [47]
└4	Tin	7440-31-5				99.8945			
└4	Misc., not to declare	system				0.1	0 - 0.2		
└2	Tab 1.2mm Insert Tab	1418755-3	12212882 / 14	1	0.105				
└3	CuSn0,15		10767190 / 5		0.104			3.2	No
└4	Copper	7440-50-8				99.7475		D	
└4	Misc., not to declare	system				0.05	0 - 0.1		
└4	Phosphorus	7723-14-0				0.0075	0 - 0.015		

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
└4	Iron	7439-89-6				0.01	0 - 0.02		
└4	Zinc (metal)	7440-66-6				0.05	0 - 0.1		
└4	Nickel	7440-02-0				0.01	0 - 0.02	D	Not applicable [34]
└4	Tin	7440-31-5				0.125	0.1 - 0.15		
└3	e-plate Ni (bright) (electrodeposited Nickel bright)		749088 / 2		0.0001			3.4	No
└4	Carbon	7440-44-0				0.05	0 - 0.1		
└4	Nitrogen	7727-37-9				0.05	0 - 0.1		
└4	Sulphur	7704-34-9				0.075	0.05 - 0.1		
└4	Nickel	7440-02-0				99.825		D	Other application (Surface not routinely touched or nickel release rate < 0.5µg/cm2/week) [33]
└3	e-plate Sn (electrodeposited Tin Coatings, bright and matt)		756885 / 6		0.0002			4.2	No
└4	Carbon	7440-44-0				0.505	0.01 - 1		
└4	Sulphur	7704-34-9				0.02	0 - 0.04		
└4	Lead	7439-92-1				0.05	0 - 0.1	D / P / SVHC	Concentration within acceptable GADSL limits [44]
└4	Tin	7440-31-5				99.425			
└3	e-plate Ag (electrodeposited Silver Coatings)		757767 / 3		0.0007			4.2	No
└4	Carbon	7440-44-0				0.05	0 - 0.1		

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
4	Sulphur	7704-34-9				0.05	0 - 0.1		
4	Silver	7440-22-4				99.9		D / P	

This is an uncontrolled copy of a document created by IMDS. End of the report.



Section 18

Part Submission Warrant

Part Submission Warrant

EPPAP:

Part Name _____ Cust. Part Number _____
Shown on Drawing Number _____ Org. Part Number _____
Engineering Change Level _____ Dated _____
Additional Engineering Changes _____ Dated _____
Safety and/or Government Regulation Yes No Purchase Order No. _____ Weight (kg) _____
Checking Aid Number _____ Checking Aid Engineering Change Level _____ Dated _____

ORGANIZATION MANUFACTURING INFORMATION

CUSTOMER SUBMITTAL INFORMATION

Organization Name and Supplier Code _____
Street Address _____
City _____ Region _____ Postal Code _____ Country _____

Customer Name/Division _____
Buyer/Buyer Code _____
Application _____

MATERIALS REPORTING

Has customer-required Substance of Concern information been reported Yes No NA
Submitted by IMDS or other customer format _____

Are polymeric parts identified with appropriate ISO marking codes Yes No NA

REASON FOR SUBMISSION (Check at least one)

Initial submission	Change to Optional Construction or Material
Engineering Change(s)	Sub-Supplier or Material Source Change
Tooling: Transfer, Replacement, Refurbishment, or additional	Change in Part Processing
Correction of Discrepancy	Parts Produced at Additional Location
Tooling Inactive <input type="checkbox"/> than 1 year	Other - please specify _____

REQUESTED SUBMISSION LEVEL (Check one)

Level 1 - arrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
Level 2 - arrant with product samples and limited supporting data submitted to customer.
Level 3 - arrant with product samples and complete supporting data submitted to customer.
Level 4 - arrant and other requirements as defined by customer.
Level 5 - arrant with product samples and complete supporting data reviewed at supplier's manufacturing location.

SUBMISSION RESULTS

The results for _____ dimensional measurement _____ material and functional tests _____ appearance criteria _____ statistical process package
These results meet all design record requirements: Yes No (If No - Explanation Required)
Mold / Cavity / Production Process _____

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts, which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of **Production Rate is TE Proprietary**.
I also certify that documented evidence of such compliance is on file and is available for review. I have noted any deviations from this declaration below.

EXPLANATION/COMMENTS

Is each Customer Tool properly tagged and numbered Yes No NA

Organization Authorized Signature Alejandra Lara A. Date _____

Print Name _____ Phone No. _____ Fax _____

Title _____ Email _____

FOR CUSTOMER USE ONLY (IF APPLICABLE)

PPAP arrant Disposition : Approved Rejected Other _____

Customer Signature _____ Date _____

Print Name _____ Customer Tracking Number (optional) _____



Section 18a

Bulk Material Requirements



Not Applicable