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PPAP Package for:

Customer Name: NURSAN ELEKTRIK DONANIM SAN.
Customer Part Number: 1326032-3
(TE Connectivity Part Number): 1326032-3
10.03.2012

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.

MUTUAL CONFIDENTIALITY AGREEMENT

This Agreement, effective as of 01.06. 2011, is by and between NURSAN ELEKTRİK DONANIM SAN.VE TİC. A.Ş including its affiliates and subsidiaries ("Participant"), having a place of business at ADNAN KAHVECİ MAH.KAFKAS CD.NO:8 34528 GURPINAR,BEYLIKDUZU ;ISTANBUL /TURKEY and Tyco Elektronik AMP Tic. Ltd. Şti., including its subsidiaries, sister companies and other companies wholly owned or controlled by Tyco Electronics Limited ("Tyco Electronics"), having a place of business at Buyukdere Cad. Yapı Kredi Plaza B Blok K.10 Levent 34330 Istanbul, TURKEY.

The parties desire to enter into business discussions, technical exchanges, and/or other activities (collectively "Discussions") relating to FORD V36X;V34X;H566;H298;H476 PROJECTS;RENAULT L35 PROJECT;HYUNDAI PBT;MCT PROJECTS.

In the course of the Discussions, it may be necessary or desirable for each party ("Disclosing Party," Participant or Tyco Electronics, as the case may be) to provide the other party ("Receiving Party," Tyco Electronics or Participant, as the case may be) with, or give it access to, technical or business data or other proprietary information of the Disclosing Party relating to the Subject Matter (collectively "Proprietary Information"), so that the Discussions may freely take place. Proprietary Information may include, by way of example but without limitation, data, know-how, formulas, algorithms, computer programs, processes, designs, sketches, photographs, plans, drawings, product concepts, specifications, samples, reports, laboratory notebooks, vendor, customer and distributor names, pricing information, market definitions, business and financial plans, inventions, and ideas.

The parties understand and acknowledge that each party has developed its respective Proprietary Information through the expenditure of substantial time and money, that each party desires to retain the same in trust and confidence and to withhold access thereto from third parties, and that the commitments set forth herein are a condition precedent to each party's agreement to enter into the Discussions.

Therefore, the parties agree as follows:

1. Nondisclosure. A Receiving Party: (a) will use all reasonable efforts (but in any event not less than those employed for safeguarding its own Proprietary Information) to keep Proprietary Information of the Disclosing Party and/or any knowledge which may be imparted through examination thereof or working therewith confidential and (b) will not, except as specifically authorized in writing by the Disclosing Party, (i) communicate such Proprietary Information and/or knowledge to any third party or any employee, agent, or consultant of the Receiving Party, unless such employee, agent, or consultant reasonably requires access thereto and has

undertaken an obligation of confidentiality with respect to trade secrets of others entrusted to him or her, or (ii) utilize such Proprietary Information and/or knowledge for any purpose other than internal evaluation and/or furthering a business relationship with the Disclosing Party.

2. Exceptions. A Receiving Party shall not be required to treat information as Proprietary Information of the Disclosing Party if such information: (a) was already lawfully known to the Receiving Party at the time of receipt thereof from the Disclosing Party, as shown by documents or other tangible evidence in the Receiving Party's possession; (b) either had been published or was otherwise available to the public at the time of its receipt by the Receiving Party from the Disclosing Party; (c) is subsequently disclosed to the Receiving Party without any duty of confidentiality by a third party having the legal right to do so; (d) subsequently becomes published or available to the public other than by a breach of this Agreement; (e) is subsequently developed by the Receiving Party independently of any disclosure to it by the Disclosing Party, as shown by documents or other tangible evidence in the Receiving Party's possession; or (f) is subsequently intentionally disclosed by the Disclosing Party to a third party without any duty of confidentiality. Exceptions (c), (d), (e), and (f) shall apply only as of the respectively stated subsequent events.

   The mere sale or unrestricted disclosure of an article or product made from a proprietary composition by a Disclosing Party shall not be deemed to constitute a disclosure of the formula of such composition bringing the formula within one of the foregoing exceptions.

3. Non-analysis. Apart for the purposes of the Subject Matter, a Receiving Party will not analyze samples provided by the Disclosing Party to determine their composition or method of operation or manufacture, except upon prior written consent by the Disclosing Party and then only to the extent consented to by the Disclosing Party.

4. Return of Tangible Information. Upon written request by the Disclosing Party, a Receiving Party shall promptly return or securely destroy all tangible information (such as drawings, specifications, data, prototypes, or samples) provided by the Disclosing Party, along with any and all copies thereof.

5. Marking of Proprietary Information. A Receiving Party shall not be required to treat information as Proprietary Information of the Disclosing Party unless such information was disclosed by the Disclosing Party via: (a) a writing which is marked with a "Confidential," "Proprietary," or other suitable legend of similar meaning or (b) oral, visual, or tangible means (such as a sample, model, or writing not marked in accordance with preceding clause (a)) which is identified as Proprietary Information in a written communication delivered to the Receiving Party within thirty (30) days of the disclosure date.

6. No Licenses Granted. Nothing in this Agreement, and no course of dealing between the parties, shall be construed to constitute the grant of a license, express or implied, to a Receiving Party under any patent, patent application, trademark, copyright, trade secret, or other Proprietary Information of the Disclosing Party.

7. Disclosure Period. The period for disclosure ("Disclosure Period") of Proprietary Information under this Agreement shall commence on the Effective Date and expire one (1) year thereafter. Either party may provide for an earlier expiration of the Disclosure Period by giving the other party at least thirty (30) days' written notice to such effect. A Receiving Party shall have no obligation to treat information which was not received within the Disclosure Period as Proprietary Information of the Disclosing Party unless otherwise agreed to in writing by the parties.

8. Confidentiality Period. A Receiving Party's obligations in respect of use or disclosure of Proprietary Information of the Disclosing Party shall extend for a period terminating five (5) years from the date on which the Receiving Party receives the Proprietary Information and shall survive any subsequent termination of this Agreement or expiration of the Disclosure Period; provided, however, that in respect of the Disclosing Party's Proprietary Information, including formulae of proprietary compositions of a Disclosing Party, such obligations shall remain in effect until excepted under the Paragraph entitled "Exceptions" above.

9. Choice of Law and Forum. This Agreement shall be governed by and construed in accordance with the laws of TURKEY. The courts of TURKISH LAW shall have exclusive jurisdiction over any disputes arising in relation with this Agreement.

10. No warranty. All Proprietary Information is provided "as is". Neither Party makes any warranty, express or implied, regarding the accuracy or completeness of its Proprietary Information.

11. Equitable Relief. Receiving Party acknowledges that any disclosure not authorized by this Agreement may cause substantial damage to the Disclosing Party for which a compensation of damages would not be a fully adequate remedy. In the event of any such breach of Agreement, in addition to available remedies, Disclosing Party shall have the right to injunctive relief (without being required to post a bond or other security).

Mutual Confidentiality Agreement

For and on behalf of:

By: NURSAN ELEKTRİK DONANIM SAN.VE TİC.AŞ
Name: DİDEM KARABAŞ
Title: PURCHASING MANAGER
Date: 01.06.2011

NURSAN ELEKTRİK DONANIM
Sanayi ve Ticaret A.Ş.
Adnan Kahveci Mah. Kafkas Cad.
No:8 PK:34528
BEYLİKDÜZÜ/İSTANBUL

For and on behalf of:

By: TYCO ELEKTRONİK AMP Tic. Ltd. Şti.
Name: ERSİN YÜCECAN
Title: MANAGING DIRECTOR
Date: 03.06.2011

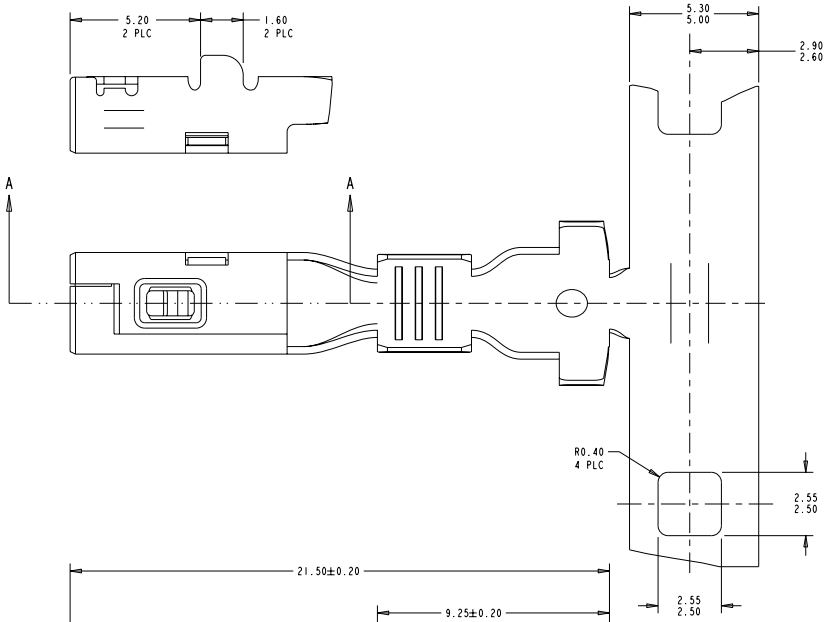
Section 1

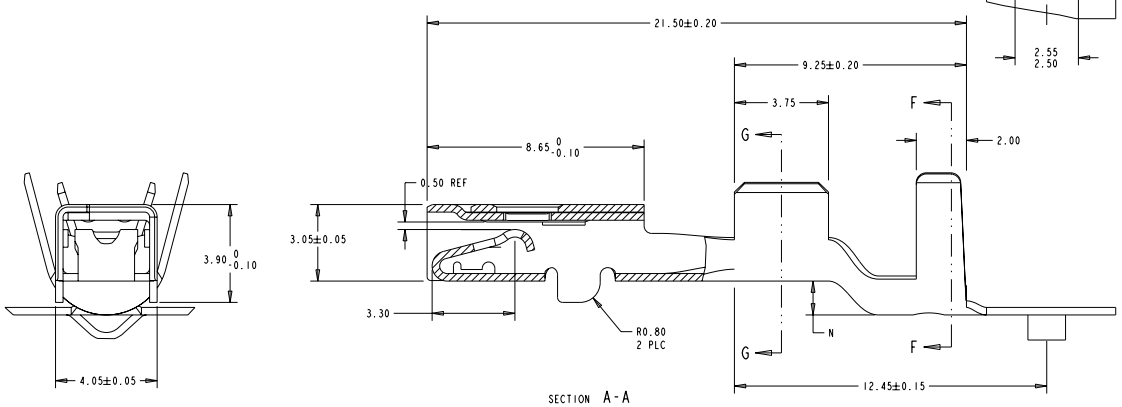
Design Records

LOC	DIST
GE	00

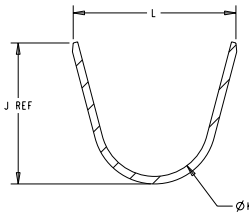
REVISIONS

P	LTR	DESCRIPTION	DATE	DWN	APVD
	E1	REVISED PER ECO-11-005030	26APR2011	RK	HMR

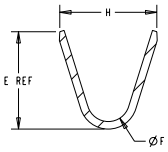




SECTION A-A



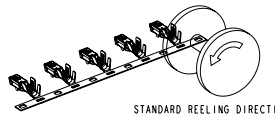
SECTION F-F



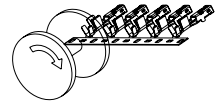
SECTION G-G

1. MATERIAL: 0.30 THICK COPPER ALLOY, PREPLATED WITH 0.0008 MINIMUM THICK REFLOW TIN OR BRIGHT TIN (ELV COMPLIANT).

   ALTERNATE MATERIAL: 0.30 THICK COPPER ALLOY, PREPLATED WITH 0.0008 MINIMUM THICK BRIGHT TIN (ELV COMPLIANT).

2. 

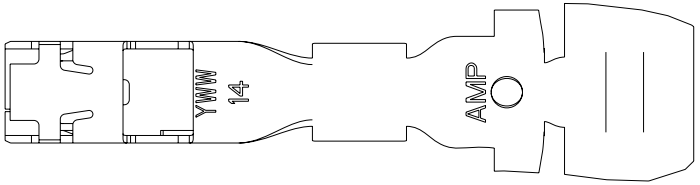
STANDARD REELING DIRECTION

3. 

REVERSE REELING DIRECTION

4. QUALIFICATION OF THE CRIMP APPLICATION TOOLING SHALL BE CONTROLLED BY THE REQUIREMENTS ESTABLISHED UNDER USCAR 21.

5. LOOSE END SPLICING TO BE USED.



	REELING	N	L	ØK	J	H	ØF	E	WIRE SIZE	PART NO.
3									12 AWG	1-1326032-2
3									14 AWG	1-1326032-1
3									16 AWG	1-1326032-0
3									18 AWG	1326032-9
3									20 AWG	1326032-8
3									22 AWG	1326032-7
2		1.35	6.8	4.30	6.09	4.7	2.70	5.25	12 AWG	1326032-6
2		1.35	6.5	4.30	5.62	3.9	1.70	3.88	14 AWG	1326032-5
2		1.10	5.6	3.80	4.54	3.9	1.70	3.88	16 AWG	1326032-4
2		1.10	5.6	3.80	4.54	3.3	1.30	2.76	18 AWG	1326032-3
2		0.90	5.0	3.40	4.11	3.3	1.30	2.76	20 AWG	1326032-2
2		0.90	5.0	3.40	4.11	2.5	0.90	2.11	22 AWG	1326032-1

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: mm

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ±-
1 PLC ±0.3
2 PLC ±0.10
3 PLC ±-
4 PLC ±-
ANGLES ±5°

MATERIAL 1

FINISH 1

DWN D. STRAUSSER 28APR99
CHK D. BROWN 28APR99
APVD D. BROWN 28APR99
PRODUCT SPEC SAE/USCAR-2 8/97
APPLICATION SPEC 114-13013
WEIGHT -

CUSTOMER DRAWING

TE Connectivity

NAME 2.8mm RECEPTACLE, SEALED

SIZE	CAGE CODE	DRAWING NO	RESTRICTED TO
A1	00779	C-1326032	-

SCALE 10:1 SHEET 1 OF 1 REV E1

4805 13/111

Pro/ENGINEER DRAWING

Section 2

Engineering Change Documents

Not Applicable

Section 3

Customer Engineering Approval

FORD OTOSAN

FORD OTOMOTİV SAN. A.Ş.
İzmit Gölcük Yolu 14.km
41670 İhsaniye / Gölcük
Kocaeli / Turkey
Tel : +90 262 315 53 74
Fax : +90 262 315 53 92

21.04.2011

Dear Mr Yucecan,

I am the STA Site Engineer responsible from Nursan Elektrik Donanım San.ve Ticaret A.Ş for Ford Transit and Ford Cargo Project at Ford Otosan Golcuk Plant- Turkey.
Nursan Elektrik Donanım San.ve Ticaret A.Ş has to get PPAP level 3 for all the materials supplier by TE in order to get approval from Ford for production.

I kindly request you to supply PPAP level 3 to Nursan Elektrik Donanım San.ve Ticaret A.Ş
The contact person details in Nursan Elektrik Donanım is as follows;

Mr Zafer Namdar

Nursan Elektrik Donanim A.S.
Tel : +90 (0) 212 855 93 00 Ext:318e-mail: znamdar@nursanelektrik.com

Best Regards,

Nihan Bilgin

Ford Otosan
STA Site Engineer
Mail: Izmit -Golcuk Otoyolu 14.km -Kocaeli/Turkey
Tel: +90 (0) 262-315 5372
Fax: +90 (0) 262-315 53 08
E-mail: nbilgin@ford.com.tr

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.

PROCESS / INSPECTION FLOW CHART
USCAR Assembly Platform

PRODUCT PROGRAM: Stamping Tab		**ISSUE DATE:**	03-Jan-07
		REVISION DATE:	22-Oct-08
SUPPLIER NAME: Tyco Electronics		**PART NAME:** 2.8 Receptacle, Sealed	
SUPPLIER LOCATION: 233 Burgess Road Greensboro, NC 27409		**Tyco P/N:**	1326032-3 / E1
		CUST. P/N:	0 / 0

LEGEND:

OPERATION	TRANSPORT	INSPECTION	DELAY	STORAGE
O	\/	[ ]	< >	/\

OPERATION OR EVENT O	\/	[ ]	< >	/\	ITEM NO.	DESCRIPTION OF OPERATION OR EVENT	EVALUATION AND ANALYSIS METHODS
*					100	RECEIVING OF STAMPING BASE MATERIAL	102-17, 102-40, 102-31, 100-86
		*			110	RECEIVING INSPECTION	107-57, 107-64, 107-204
	*				120	MOVE MATERIAL TO STORES	102-17
				*	130	STORE RAW MATERIAL	102-17
	*				140	SHIP MATERIAL TO STAMPING FACILITY	102-17; PER PARTS LIST AND ROUTING
*					150	RECEIVE RAW MATERIAL AT STAMPING FACILITY	PARTS LIST AND ROUTING
*					160	SETUP / STAMPING COMPONENT	OPERATOR PROCEDURE (TPBU-STMP-OP-05; AND TPBU-STMP-OP-07), MASTER PROCESS SHEET PARAMETERS; QIP PARAMETERS
		*			170	FINAL INSPECTION/AUDIT	QUALITY INSPECTION PLAN
*					180	PACKAGING OF STAMPED PRODUCT	PALI/PACKAGING PROCESS SHEET
	*				190	TRANSPORT STAMPING COMPONENT TO STORES	PALI/PACKAGING PROCESS SHEET
				*	200	STORE STAMPED COMPONENT	PARTS LIST AND ROUTING
*					210	LAYOUT INSPECTIONS	102-17; PER PARTS LIST AND ROUTING

Revision History

Revision Date	Revised By	Description of Revision
03-Jan-07	MK auer	Lookup Table Format
22-Oct-08	F. Fountain III	Update Process Numbering

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.

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS
POTENTIAL
(PROCESS FMEA)

Item: 2.8 Receptacle, Sealed
Tyco P/N: 1326032-3 Rev. E1
Customer P/N: 0 Rev. 0

Process Responsibility: Tyco Electronics
233 Burgess Road
Greensboro, NC 27409

FMEA Number: 1326032-3
Prepared by: G. kirk

Model Year(s)/Vehicle(s):

Key Date:

FMEA Date (Orig.): 03-Jan-07 (Rev.) 22-Oct-08

Core Team: Stamping Team

Process Function / Requirements	Potential Failure Mode	Potential Effect(s) of Failure	Sev	Class	Potential Cause(s)/ Mechanism(s) of Failure	Occur	Current Process Controls Prevention	Current Process Controls Detection	Detec	R. P. N.	Recommended Action(s)	Responsibility & Target Completion Date	Action Results: Actions Taken	Sev	Occ	Det	R.P.N.
100 Receive & Inspect Base Metal	Raw material does not meet specifications	Part will either not assemble, cause connector damage, or part will be nonfunctional	7		Incorrect processing at material vendor.	1		Material is tested at vendor and/or at the Tyco materials laboratory to verify the physical properties of the material. If testing fails the material is rejected and returned to vendor.	3	21	None.						
130 Material Stores	Shelf life of material exceeded (I.e. stored too long.	Processing problems during stamping operation/assembly operation	2		FIFO system not adhered to.	1		Tyco Spec 122-1065 and periodic checks of inventory.	3	6	None.						
150 Receive raw material at Stamping Press	Incorrect material	Increased mating force of connector. Unable to process.	7		Wrong material is taken out of storage.	1		Material will not feed through die. Visual check to Bill of materials per operator instructions. Verification of correct material per QIP and stamping master process sheet.	1	7	None.						
			7		Operator does not catch material with the same part number with a different dash number (indicates plated vs. unplated material).	1		Visual check to Bill of materials per operator instructions. Verification of correct material per QIP. Plating will catch problem with plating thickness test and stamping master process sheet.	1	7	None.						
	Coil of material is damaged.	Metal will not properly feed through stamping press.	2		Mishandling of coil during transportation.	5		Material will not feed through stamping press.	1	10	None.						
	Raw material without proper traceability data is used.	Stamped product cannot be traced back to receiving and testing data.	2		Tags are not properly placed on material.	2		Operator looks for presence of inspection status per routing sheet and QIP at set-up and stamping master process sheet.	1	6	None.						
160 Set-up die	Improper swages on terminal.	Increased mating force of connector. Burr on contact which could cause a short on connector.	6		Shut height is set too high or too low.	2		Shut height monitor is used to set-up press and during the operation or the press. Operator periodically checks monitor per process book.Straightness check per QIP Inspection.	3	36	None.						
			6		Worn or broken tooling.	3		Planned maintenance and visual QIP.	2	36	None.						
			6		Press heat increases during operation effecting the shunt height.	2		Shut height monitor is used to set-up press and during the operation or the press. Operator periodically checks monitor per process book.Coolant system is used to control press heat. Straightness check on QIP inspection.	3	36	None.						
			5		Wrong numbers are programmed into monitor box.	1		Operator training. Set-up instructions specify the correct program. Straightness check per QIP inspection.	3	15	None.						
	Missing swages	Insufficient crimping strength / ability. Overlapping of the wire and insulation wings after crimping which may lead to loose wire after crimping operation has been completed.	6		Worn or broken tooling.	3		Planned maintenance and visual QIP.	2	36	None.						
	Incorrect camber on part.	Contact will not feed through applicator machine which could cause problems affecting the customer.	6		Shunt height is set too high or too low.	2		Shut height monitor is used to set-up press and during the operation of the press. Operator periodically checks monitor per process book. Curvature check per QIP inspection.	3	36	None.						

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS
POTENTIAL
(PROCESS FMEA)

Item: 2.8 Receptacle, Sealed
Tyco P/N: 1326032-3 Rev .E1
Customer P/N: 0 Rev. 0

Process Responsibility: Tyco Electronics
233 Burgess Road
Greensboro, NC 27409

FMEA Number: 1326032-3
Prepared by: G. kirk

Model Year(s)/Vehicle(s):

Key Date:

FMEA Date (Orig.): 03-Jan-07 (Rev.) 22-Oct-08

Core Team: Stamping Team

				6		Press heat increases during operation effecting the shunt height.	2		Shut height monitor is used to set-up press and during the operation of the press. Operator periodically checks monitor per process book. Curvature check per QIP inspection.	3	36	None.						
				5		Wrong numbers are programmed into monitor box.	1		Operator training. Set-up instructions specify the correct program. Curvature check per QIP inspection.	6	30	None.						
				6		Dul or worn tooling.	3		Curvature correction devices in die. Planned maintenance on die.	2	36	None.						
	Markings on stamped produce.		Visual defect of part in final assembly.	2		Feed roller pressure is too high.	1		Visual QIP inspection of part for marks every reel.	3	6	None.						
	Incorrect coolant or lube is used.		Increased die wear due to improper coolant or lube would cause burrs, sliver or slugs which would short the connector.	6		Incorrect coolant or lube is used by mistake.	2		Operator checks for lube and coolant call out per set-up instructions. Reference made to stamping master process sheet.	3	36	None.						
				6		Coolant or lube is used up during run.	3		Sensor detects coolant and lube levels and i low level is detected the press will automatically shut off.	2	36	None.						
				6		Too little coolant or lube is used.	3		Operator checks for lube and coolant call out per set-up instructions.	2	36	None.						
	Board lock slug marks.		Electrical contact of connector is intermittent	6		Improper removal of slugs during processing.	2		Slug marks controlled by proper maintenance o die. Visual QIP inspection of contacts for slug marks. Die is routinely cleaned per set-up and preventative maintenance schedule.	3	36	None.						
	Incorrect profile.		High mating force of connector.	2		Chipped tooling caused by machine jam.	2		Part profile is checked per visual inspection using a compartor and stero scope.	3	12	None.						
	Improper swages on terminal.		Increased mating force of connector. Burr on contact which could cause a short on connector.	6		Shut height is not adjusted with increased speed.	2		Operator periodically checks monitor per process book. Swages dimensions checked pe QIP instructions.	3	36	None.						
				6		Worn or broken tooling.	2		Planned maintenance and visual QIP.	3	36	None.						
	Improper curvature on terminal.		Contact will not feed through applicato machine which could cause problems affecting the customer.	6		Shut height is not adjusted with increased speed.	2		Operator periodically checks monitor per process book. Swages dimensions checked pe QIP instructions.	3	36	None.						
				6		Worn or broken tooling.	2		Planned maintenance and visual QIP.	3	36	None.						
170 Stamp/Final Inspection/Audit	Incorrect curvature on part.		Contact will not feed through applicato machine which could cause problems affecting the customer.	6		Dull or worn tooling.	2		Operator checks for camber and twist using gages per QIP inspection instructions. Preventive maintenance schedules for each stamping die.	3	36	None.						
				6		Slug or tool mark on contact causes incorrect curvature.	2		Parts are visually inspected per QIP instructions. Operator checks for camber and twist using gages per QIP inspection instructions. Preventative maintanence schedules for each stamping die. Venturi vacuums slugs out of tooling. Current die design.	2	24	None.						
				5		Tunker (anti-curvature) punch out of adjustment.	2		Operator checks for camber and twist using gages per QIP inspection instructions. Preventive maintenance schedules for each stamping die.	2	20	None.						
	Greased Terminal		Too much grease/not enough grease.	6		Helps with mating force/clogs applicators.	2		Operator checks for quantity of grease applied.	2	24	None.						

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS
POTENTIAL
(PROCESS FMEA)

FMEA Number 1326032-3

Item 2.8 Receptacle, Sealed
Process Responsibility Tyco Electronics
Prepared by: G. kirk

Tyco P/N: 1326032-3 Rev .E1
233 Burgess Road

Customer P/N: 0 Rev. 0
Greensboro, NC 27409

Model Year(s)/Vehicle(s)
Key Date
FMEA Date (Orig.) 03-Jan-07 (Rev.) 22-Oct-08

Core Team Stamping Team

	Terminal slug marks.		Electrical contact of connector is intermittent	6		Slugs in die.	2		Slug marks controlled by proper die maintenance. Shut height monitors detect variations in shut height due to slug. QIP inspection for slug marks. Preventative maintenance schedules for each stamping die.	2	24	None.							
	Serrations not to print.		Poor crimp tensile strength	6		Worn / chipped tooling.	4		Visual per QIP. Preventive maintenance schedule for tooling made from long life carbide.	2	48	None.							
	Improper swages on terminal.		Increased mating force of connector. Burr on contact which could cause a short on connector.	4		Slugs in die.	2		Shut height monitors detect variations in shut height due to slug. QIP inspection for swage dimensions using Ram Optic. Preventive maintenance schedules for each stamping die.	2	16	None.							
				5		Variation in shut height.	2		QIP inspection for swage dimensions using comparator chart. Preventitive maintenance schedules for each stamping die.	2	20	None.							
				6		Worn tooling	2		QIP inspection for swage dimensions using comparator chart. Preventitive maintenance schedules for each stamping die.	2	24	None.							
	Missing swages		Insufficient crimping strength / ability. Overlapping of the wire and insulation wings after crimping which may lead to loose wire after crimping operation has been completed.	6		Worn or broken tooling.	3		Planned maintenance and visual QIP.	2	36	None.							
	Burrs / Slivers on terminal		Electrical failure of connector	6		Dull / Worn tooling.	3		Visual QIP inspection with stereo scope for burrs/slivers each reel. Preventitive maintenance schedules for each stamping die.	3	54	None.							
	Body width too wide/body height too tall.		Terminal does not fit in plug.	6		Worn tooling.	3		Measure per QIP. Preventive maintenance schedurle for tooling made from long life carbide.	3	54	None.							
	Insertion force/extraction froce.		Poor continuity, high mating force.	7		Beam gap height out of tolerance.	2		QIP inspection.	2	28	None.							
	Poor barrel performance.		Poor crimp performance.	6		Broken or worn tooling.	3		Preventive maintenance schedule for tooling made from long life carbide.	2	36	None.							
	Carrier Strip too small		Difficulty attaining the proper feed at the customer during processing and attributes to problems during crimping.	6		Misadjustment of stock feeds or raw material out of specification before processing	3		Measure per QIP. Correct adjustment of the stck feed guides.	2	36	None.							
	Side Beam Guides		Terminal does not fit in plug.	6		Worn tooling.	3		Measure per QIP. Preventive maintenance schedurle for tooling made from long life carbide.	3	54	None.							
	Terminals Covered with Blue Indicator Dye		Terminal may be weaker than normal. Blue dye indicates a raw material splice from the supplier.	3		Operator error.	2		Operator training pertaining to removing the blue covered terminals from the product strip beofre reeling, packaging, and shipment to the customer.	3	18	Remove the blue covered terminals from the product strip before reeling. Refer to the visual standard in the die book. Retrain operator per this issue. Update QIP	Retrain operator - Larry Rine 5/8/08 Update QIP - Fred Fountain III 5/8/08	The operator has been retrained (completed on 5/16/08) Updated the QIP (completed on 4/17/08)	3	2	2	12
180 Packaging of the Stamped Component	Improper width reel causes damaged product.		Damaged board lock stubs at the assembly operation causing various problems which could effect the customer.	7		Improper width reel is placed on reeler.	2		Visual inspection of packaging per PALI instructions.	2	28	None.							
	Reeling paper is too narrow causes board locks to rub together causing damage to them.		Incorrect traceability data on reel package. Wrong part is used in connector making it nonfunctional.	7		Improper width reel is placed on reeler.	2		Visual inspection of packaging per PALI instructions.	2	28	None.							
	Incorrect reel sticker placed on reel.		Incorrect traceability data on reel package.	4		Operator error.	2		Visual inspection of packaging per PALI instructions.	2	16	None.							

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS
POTENTIAL
(PROCESS FMEA)

Item: 2.8 Receptacle, Sealed
Tyco P/N: 1326032-3 Rev. E1
Customer P/N: 0 Rev. 0

Process Responsibility: Tyco Electronics
233 Burgess Road
Greensboro, NC 27409

FMEA Number: 1326032-3
Prepared by: G. kirk

Model Year(s)/Vehicle(s):

Key Date:

FMEA Date (Orig.): 03-Jan-07 (Rev.) 22-Oct-08

Core Team: Stamping Team

				4		Transposing of information on reel.	2		Operator training; visual per QIP.	2	16	None.						
	Incorrect label.		Production delay at assembly.	7		Operator error.	2		PALI / Packaging process sheet.	2	28	None.						
			Missed delivery.	7		Operator error.	2		PALI / Packaging process sheet.	2	28	None.						
			Incorrect traceablity.	8		Operator error.	2		PALI / Packaging process sheet.	2	32	None.						

Revision History

Revision Date	Revised By	Description of Revision
03-Jan-07	MK Auer	Lookup Table Format
07-Dec-07	F. Fountain III	Swage failure mode addition
15-Feb-08	F. Fountain III	Carrier Strip failure mode addition
3/4/2008	F. Fountain III	Side Beam Guides Failure Mode Addition
4/15/2008	F. Fountain III	Terminals Covered in Blue Indicator Dye Addition
10/22/2008	F. Fountain III	Updated Actions Taken Section

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.

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
Control Plan Number	1326032-3	George Kirk		1-Jan-07	22-Oct-08
Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
		--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
100	Receive raw material			Correct Material			Purchase order, Tyco Specifications: 102-17, Identification Requirements for Production and Packaging Material; 107-57, Suppliers Requirements for packaging polymer compounds; 102-40, Receiving Inspection Procedure	Visual comparison of packing slip and purchase order documentation	Each Shipment	Each Shipment	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Undamaged material packaging			Tyco Specification: 107-57, Suppliers Requirements for packaging polymer compounds, 102-40, Receiving Inspection Procedure	Visual	Each Shipment	Each Shipment	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Correct quantity			Purchase order, Tyco Specification: 102-40, Receiving Inspection Procedure	Visual comparison of packing slip and purchase order documentation	Each Shipment	Each Shipment	-Receiver in purchasing on-line system documents acceptance of material -Receiver quantity is adjusted to reflect proper quantity	-Adjust receiver to reflect correct quantity
110	Inspection of raw material for conformance			Label is complete, present and correct			Tyco Specification: 107-57, Suppliers Requirements for packaging polymer compounds; 107-64, Requirements for packaging and marking purchased material; 102-40, Receiving Inspection Procedure	Visual	Each unit packaging	Each Shipment	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Correct Packaging			Purchase order, Tyco Specifications: 107-57, Suppliers Requirements for packaging polymer compounds; 107-64, Requirements for packaging and marking purchased material; 102-40, Receiving Inspection Procedure	Visual	Each unit packaging	Each Shipment	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Material certification is present			Tyco Specification: 102-40, Receiving Inspection Procedure;	Visual review of Material certification	Each supplier lot	Each supplier lot	-Receiver in purchasing on-line system documents acceptance of material -Supplier Material Certification placed on file	-Place material on hold for material certification from supplier
				Correct Material			Purchase Order, Tyco Specification: 102-40, Receiving Inspection Procedure; 100-1564 Questra WA212	Visual review of Material certification	Each supplier lot	Each supplier lot	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production	Key Contact / Phone		Date (Orig.)		22-Oct-08
Control Plan Number 1326032-3	George Kirk		1-Jan-07		
Part Number / Latest Change Level	Core Team		Customer Engineering Approval Date (if Req'd)		
Tyco 1326032-3 Rev. E1					
Customer 0 Rev. 0	Stamping Team		--		
Part Name / Description	Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)		
2.8 Receptacle, Sealed	--		--		
Supplier / Plant 233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)		
	--		--		

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
120	Move material to stores				Accepted before release to stores		Tyco Specifications: 102-17, Identification Requirements for Production and Packaging Material	Visual verification for presence of accepted tag, approved receiver	Each Skid	Each Skid	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Undamaged material			No visible damage to packaging materials	Visual	As observed	As observed	-Receiver in purchasing on-line system documents acceptance of material	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line
130	Store raw material			Undamaged material			No visible damage to packaging materials	Visual	As observed	As observed	-Raw Material location in inventory control system	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
140	Ship materials to stamping facility			Undamaged material			No visible damage to packaging materials	Visual	As observed	As observed	-Raw Material location in inventory control system	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
					Accepted before release		Tyco Specifications: 102-17, Identification Requirements for Production and Packaging Material	Visual for presence of accepted tag	Each Skid	Each Skid	Reciever number ID recorded on material trace log.	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
150	Receive raw material at manufacturing facility			Correct Material			Tyco part number on Interplant bill of lading, warehouse pick request, and product identification labels match. Burgess Road specification: ABP006-MA, Material Handler Procedure	Visual verification of interplant bill of lading, warehouse pick request, product identification label	Each Shipment	Each Shipment	-Raw material stock status is updated in inventory control system to reflect new inventory location	Return incorrect material to warehouse and request correct material
				Undamaged material			No visible packaging damage. Burgess Road specification: ABP006-MA, Material Handler Procedure	Visual	As observed	As observed	-Raw material stock status is updated in inventory control system to reflect new inventory location	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure. -Inspection Rejection Report in purchasing on-line system documents when non-conformance is observed
				Correct quantity			Raw material quanity on Interplant bill of lading, warehouse pick request, and product identification labels match. Burgess Road specification: ABP006-MA, Material Handler Procedure	Visual verification of interplant bill of lading, warehouse pick request, product identification label	Each Shipment	Each Shipment	-Raw material stock status is updated in inventory control system to reflect new inventory location	Return incorrect material to warehouse or adjust stock status quantity in inventory control system.

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
Control Plan Number	1326032-3	George Kirk		1-Jan-07	22-Oct-08
Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
		--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				Acceptance tag and liscence tag is present			Tyco Specifications: 102-17, Identification Requirements for Production and Packaging Material; Burgess Road specification: ABP006-MA, Material Handler Procedure	Visual for presence of accepted tag	Each Skid	Each Skid	Reciever number ID recorded on material trace log.	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
160	Set-up/stamping Component			Stock Width/Thickness			Master Process Sheet	Verify Specification on Coil Tag	Each Coil	At Set-up and At Material Change	Record on trace log sheet Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
					Stamping Process Parameters		Per In-process Control Sheet	-Programmed Press Setting - Visual verification by operator	Each Shift	-At set-up, start-up and each shift change	-In-Process Control Sheet -Burgess Road Specification: ABP001-ST'	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
170	Final Inspection/Audit			Correct Material			Production Print Note 1	Visual	1	Each setup	Quality Inspection Plan Production Print	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Correct Reeling			Production Print	Visual	1	Each setup	Quality Inspection Plan PALI (Packaging and Labeling Instructions)	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Correct Splicing			Tyco Specification 115-1214	Visual	1	Each setup	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Correct Die Lube			Per production print, 987325-2	Visual	1	Each setup	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Correct reel/paper/quantity			Per Packaging and Labeling Instructions (PALI) adjust paper guide to align with center of reel route interleaf paper per setup	Visual	1	Each set-up	Quality Inspection Plan PALI (Packaging and Labeling Instructions) Counter on press	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production	Key Contact / Phone	Date (Orig.)	
Control Plan Number 1326032-3	George Kirk	1-Jan-07	22-Oct-08
Part Number / Latest Change Level	Core Team	Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3 Rev. E1			
Customer 0 Rev. 0	Stamping Team	--	
Part Name / Description	Supplier / Plant Approval Date	Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed	--	--	
Supplier / Plant 233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)	Other Approval Date (if Req'd)	
	--	--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				General Visual			No tool marks, slug marks, or slivers / check area between end of wire barrel and insulation wing for cracks.	Visual with microscope	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Trim Burr			0.05 Max	Visual with microscope	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Number of Splices			Number of splices recorded on each reel (Remove parts covered in blue dye from the product strip)	Visual	Each reel	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Crimp Code Stamp			18 AWG Per production print note 3 and table (A5)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				AMP Stamp and Date Code			Y/WW for Year/Week per production print note 7 & 8 (A4)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Serrations			Present 3 places (2C7)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Swage			Present 4 Places (2B5)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Side Beam Guides			Beam Guides Present, 2 places (B8)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
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Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
	Greensboro, NC 27409	--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				Blade Pads			Blade Pads present, 2 places (2B2)	Visual	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Twist			90 Degrees Max per 1000 mm strip, per production print note 7	Twist Gage #733245	1000 mm strip	Each setup and stock change	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Camber			15mm Max per 1000 mm strip, per print note 6	Camber Gage # 733934	1000 mm strip	Each setup and stock change	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Serration Length			4.35mm	Comparator	1 per die out	Each setup and each shift	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Serration Depth			0.08/0.13 mm, 3 places (2C7)	Digital Height Indicator	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Receptacle Width			4.05 +/- 0.05 mm (A8)	Digital Micrometer	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan -results recorded on die log	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Receptacle Height			3.90 +0/-0.10 mm (A8)	Digital Micrometer	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Box Height			3.05 +/- 0.05 mm (B7)	Digital Micrometer Make sure box is not collasped/Per ABP042-ST	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
Control Plan Number	1326032-3	George Kirk		1-Jan-07	22-Oct-08
Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
		--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				Box Length			8.65 +0/-0.10 mm (B6)	Digital Micrometer	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Contact Gap			Per Production Print Note 4, (B6)	On-line Inspection	100%	Each Reel	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				"Back-End" Dimensions			9.25 +/- 0.20 mm 0DEG-0Min/5Deg-0Min 5.75 +/- 0.10 mm (B4/C4)	Comparator and Comparator Chart # 91-701306	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Insulation Barrel Width			5.6 +/-0.30mm (2B5)	Comparator	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Insulation Barrel Height			NA	Comparator	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Insulation Barrel Diameter			3.80 +/-0.10mm (2B5)	Go/No Go Gage #747700-8	1 per die out	Each setup and tool change and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Transition area			4.15mm max	Digital Micrometer	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	
				Wire Barrel Width			3.3 +/- 0.30 mm (2A4)	Comparator	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
Control Plan Number	1326032-3	George Kirk		1-Jan-07	22-Oct-08
Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road Greensboro, NC 27409	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
		--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				Wire Barrel Diameter			1.30 +/- 0.10 mm (2B5)	Go/No Go Gage # 747700-12	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Pad Height			0.70 +0.10/-0.05 mm (2B3)	Comparator	1 per die out	Each setup and every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				"Leaf Area" - Flat Blank			Per Production Print (2D5)	Comparator and Comparator Chart #91-701302	1 per die out	Each setup and tool change, Each stock change and splice, Each Shift	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Detail M on Flat Blank			R0.75 +/- 0.10 mm 1.00 +/- 0.07 mm 0.75 +/- 0.10 mm	Comparator and Comparator Chart #91-701303	1 per die out	Each setup and tool change, Each stock change and splice, Each Shift	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Normal Force			High Normal Force	Bell Weight 625254-1 Weight must fall off	1 per die out	Each setup and Every 15 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Swage Flat Thickness			0.18 +/- 0.05 mm, (2B5), Check both sides of the wire and & insulation barrels (4 places)	Comparator	1 per die out	Each setup and every 10 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Side Beam Guides			4.05 +/- 0.05 (B8)	Micrometer or Calipers (Make sure guides are not bent. They must be straight.	1 per die out	Each setup and every 3 reels	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material

CONTROL PLAN

[ ] Prototype [ ] Pre-launch [x] Production		Key Contact / Phone		Date (Orig.)	
Control Plan Number	1326032-3	George Kirk		1-Jan-07	22-Oct-08
Part Number / Latest Change Level		Core Team		Customer Engineering Approval Date (if Req'd)	
Tyco 1326032-3	Rev. E1				
Customer 0	Rev. 0	Stamping Team		--	
Part Name / Description		Supplier / Plant Approval Date		Customer Quality Approval Date (if Req'd)	
2.8 Receptacle, Sealed		--		--	
Supplier / Plant	233 Burgess Road	Other Approval Date (if Req'd)		Other Approval Date (if Req'd)	
	Greensboro, NC 27409	--		--	

			Characteristics			Special Char. Class	Methods					Reaction Plan
Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	No.	Product	Process		Product / Process Specification / Tolerance	Evaluation Measurement Technique	Sample Size	Sample Freq.	Control Method	
				Carrier Strip Width Measurement			Must be between 5.00 and 5.30	Toolmakers scope	1 per die out	Each setup or tool change and each sctok change and or splice	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
				Sample Retains			Retain 6 inch sample from beginning and end and attach to QIP	Per QIP	6 inch sample	First and last reel of order	Quality Inspection Plan	Stop process, contact shift leader and contain suspect material for disposition per: Burgess Road Specification: ABP001-QU, Procedure for processing nonconforming material,Tyco Specification 102-19, Nonconforming material
180	Packaging of the Stamped Component			stamped component not damaged			No broken or damaged stamped components	Visual	As observed	As observed	-Raw Material location in inventory control system	Reject and contain non-conforming material per Tyco specification 102-40, Receiving Inspection Procedure.
190	Transport stamping component to stores			stamped component not damaged			No broken or damaged stamped components	Visual	As observed	As observed	-Raw material stock status is updated in inventory control system to reflect new inventory location	Reject and contain non-conforming material per Tyco specification 102-19, Nonconforming material
200	Store stamped component			stamped component not damaged			No broken or damaged stamped components	Visual	As observed	As observed	-Raw material stock status is updated in inventory control system to reflect new inventory location	Reject and contain non-conforming material per Tyco specification 102-19, Nonconforming material
210	Layout Inspections			Part dimensions			-Customer Print	Gage Lab	1 per Die Out	Per Customer Specific Requirements	Layout Inspection Report	Reject and contain non-conforming material per Tyco specification 102-19, Nonconforming material

Revision History

Revision Date	Revised By	Description of Revision
1/1/2007	MK Auer	Lookup table format and QIP shell (1326029-3)
10/26/2007	j. Kirk	Audit update
12/7/2007	F. Fountain III	Swage instruction addition
2/15/2008	F. Fountain III	Carrier Strip instruction addition
3/4/2008	F. Fountain III	Side Beam Guide Instruction Addition
4/15/2008	F. Fountain III	Remove Terminals w/ Blue Dye Addition
10/22/2008	F. Fountain III	Update Numbering of Control Plan

Section 8

Measurement System Analysis

tyco Electronics

Variable Data Gage R & R Study

PART NO. :	1326032-3	GAGE NAME:	Mitutoyo	OPERATOR A:	Fran Baker
PART DESC. :	2.8 MM Recpt	GAGE NO. :	755083-13 FV	OPERATOR B:	W. Campbell
SPEC. :	4.05 +/- 0.05	GAGE TYPE:	Micrometer	OPERATOR C:	J. Lashmit
TOL. SPREAD :	0.1000				

DEFINE INTENDED PURPOSE OF GAGE SYSTEM: (X)	Attribute Gauging:		QIP Inspection:		SPC:	X

	Operator A - Fran Baker				Operator B - W. Campbell				Operator C - J. Lashmit			
	Trial 1	Trial 2	Trial 3	Range	Trial 1	Trial 2	Trial 3	Range	Trial 1	Trial 2	Trial 3	Range
1	4.0770	4.0760	4.0740	0.0030	4.0760	4.0760	4.0740	0.0020	4.0750	4.0780	4.0770	0.0030
2	4.0740	4.0770	4.0770	0.0030	4.0760	4.0760	4.0730	0.0030	4.0760	4.0770	4.0800	0.0040
3	4.0740	4.0750	4.0770	0.0030	4.0750	4.0790	4.0760	0.0040	4.0770	4.0790	4.0780	0.0020
4	4.0770	4.0770	4.0740	0.0030	4.0770	4.0760	4.0740	0.0030	4.0800	4.0780	4.0790	0.0020
5	4.0760	4.0780	4.0760	0.0020	4.0760	4.0740	4.0740	0.0020	4.0770	4.0790	4.0800	0.0030
6	4.0760	4.0720	4.0760	0.0040	4.0760	4.0710	4.0720	0.0050	4.0760	4.0770	4.0770	0.0010
7	4.0730	4.0720	4.0750	0.0030	4.0760	4.0740	4.0700	0.0060	4.0740	4.0750	4.0740	0.0010
8	4.0760	4.0750	4.0750	0.0010	4.0730	4.0720	4.0700	0.0030	4.0680	4.0660	4.0660	0.0020
9	4.0740	4.0730	4.0770	0.0040	4.0780	4.0750	4.0740	0.0040	4.0760	4.0800	4.0790	0.0040
10	4.1690	4.1690	4.1680	0.0010	4.1670	4.1690	4.1670	0.0020	4.1670	4.1660	4.1670	0.0010
Avg.	4.0846	4.0844	4.0849		4.0850	4.0842	4.0824		4.0846	4.0855	4.0857	
R	0.0960	0.0970	0.0940		0.0940	0.0980	0.0970		0.0990	0.1000	0.1010	

	1	2	3	4	5	6	7	8	9	10
Part Avg.	4.0759	4.0762	4.0767	4.0769	4.0767	4.0748	4.0737	4.0712	4.0762	4.1677

RESULTS SUMMARY

XBARa =	4.0846	RBARa =	0.0027
XBARb =	4.0839	RBARb =	0.0034
XBARc =	4.0853	RBARc =	0.0023

XdoubleBAR =	4.0846
RdoubleBAR =	0.0028
XBARdiff =	0.0014
UCLr = 0.0072	LCLr = 0.0000

	% Variation	% Tolerance
REPEATABILITY - EQUIPMENT VARIATION (EV)	5.5%	8.54%
REPRODUCIBILITY - APPRAISER VARIATION (AV)	2.2%	3.44%
REPEATABILITY & REPRODUCIBILITY (R & R)	5.9%	9.21%
PART VARIATION (PV)	99.8%	156.24%
TOTAL VARIATION (TV)	15.65%	156.51%

SIGNAL-TO-NOISE RATIO :	17.0
DATA CATEGORIES :	23.9

CONCLUSION:

NOTE: Reference AIAG Measurement System Analysis (MSA) for acceptance criteria.

Accept gaging system with Gage R&R of **9.2%** (tolerance method)

Alternate calculation: **Accept** gaging system with Gage R&R of **5.9%** (variation method)

Accept gaging system with Data Categories of **23.9**

Gaging system **acceptable** based upon R&R and /or Data Category values.

Note: Engineering and Management authorization required for "Marginal" Gaging system.

DEFINE GAGE PROCEDURE:

Place recept in micrometer and measure box .Zero mic each time and measure all recpt the same.

REMARKS:

RR01227

Evaluator — Date: 3/14/2012 — Engineering and Management Authorization for "Marginal" — Date:

Section 9

Dimensional Results

PRODUCT / TOOLING APPROVAL LAB
WINSTON-SALEM N.C.

AUTHOR	: Ron Fortner
REQUEST	: 201111.135
PART DESC.	: 2.8mm Receptacle, Sealed
PART	: 1326032-3
TOOL	: 714149
CAVITY	: 1 out die
PRINT REV.	: E1
METHOD	: Scope # T2993-0006
VENDOR	: Bldg. #253 / David Wilson
DATE	: 11/22/2011
FILENAME	: 11135p00.MES

** ALL DIMENSIONS IN MILLIMETERS **

LABEL = MEASUREMENT LABEL
DESC = FEATURE DESCRIPTION
NOM.VAL = NOMINAL VALUE
UPPER = UPPER TOLERANCE OR UPPER LIMIT OF A RANGE
LOWER = LOWER TOLERANCE OR LOWER LIMIT OF A RANGE
HM = HOW MEASURED DEVICE
ACT.VAL = ACTUAL MEASURED VALUE
DEV>TOL = DEVIATION GREATER THAN UPPER OR LOWER TOLERANCE

NOTES

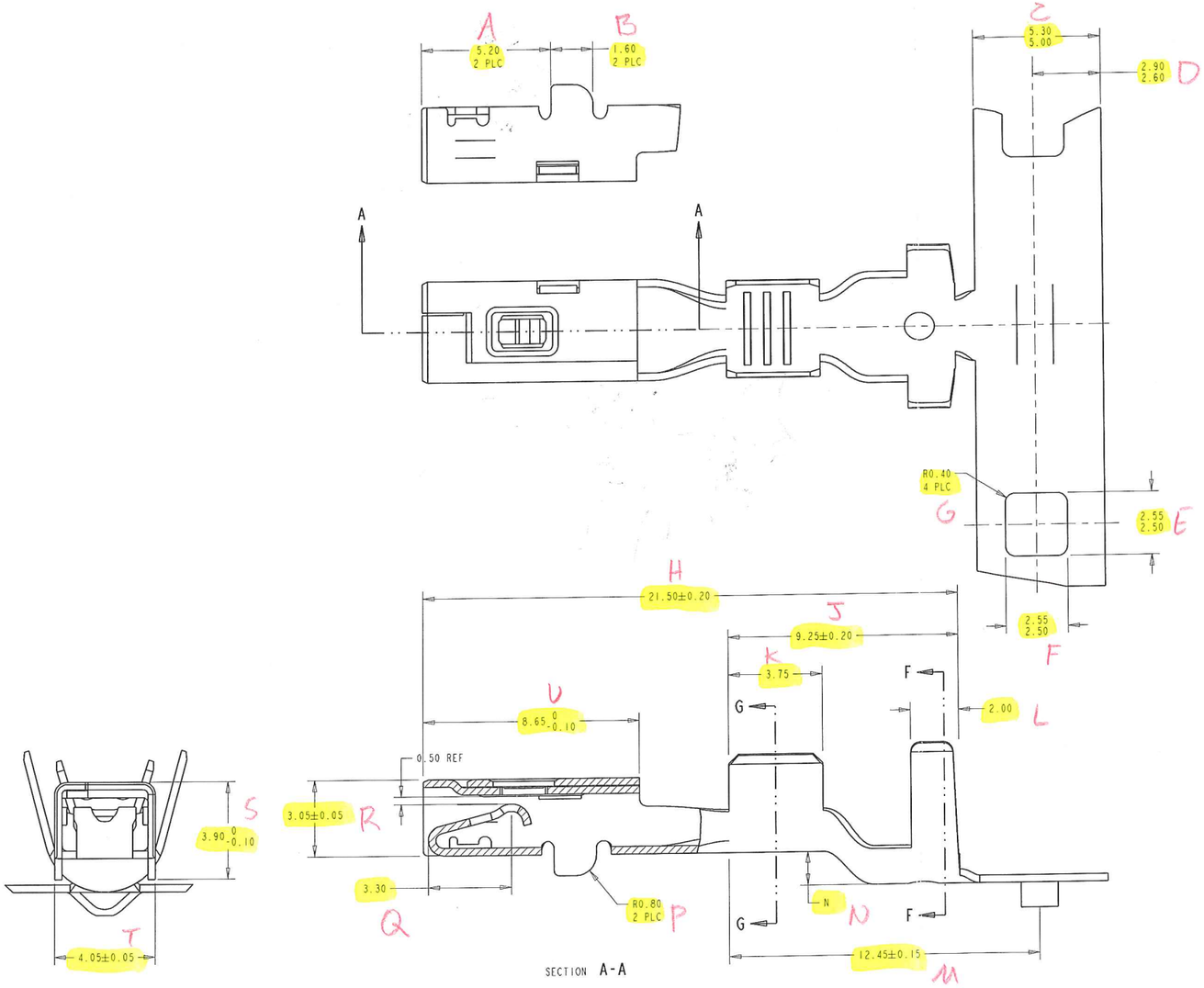
LABEL	DESC	NOMINAL	UPPER	LOWER	FN	HM	ACTUAL	DEV>TOL
A	**LT**	5.200	0.100	0.100	LXX	SCOP	5.205	
A	**RT**	5.200	0.100	0.100	LXX	SCOP	5.203	
B	**LT**	1.600	0.100	0.100	LXX	SCOP	1.615	
B	**RT**	1.600	0.100	0.100	LXX	SCOP	1.608	
C		RANGE	5.300	5.000	LXX	SCOP	5.128	
D		RANGE	2.900	2.600	LXX	SCOP	2.896	
E		RANGE	2.550	2.500	LYY	SCOP	2.518	
F		RANGE	2.550	2.500	LXX	SCOP	2.534	
G	**TPLT**	0.400	0.100	0.100	MAE	SCOP	0.400	
G	**TPRT**	0.400	0.100	0.100	MAE	SCOP	0.400	
G	**BTLT**	0.400	0.100	0.100	MAE	SCOP	0.400	
G	**BTRT**	0.400	0.100	0.100	MAE	SCOP	0.400	
H		21.500	0.200	0.200	LXX	SCOP	21.541	
J		9.250	0.200	0.200	LXX	SCOP	9.162	
K		3.750	0.100	0.100	LXX	SCOP	3.759	
L		2.000	0.100	0.100	LXX	SCOP	1.900	
M		12.450	0.150	0.150	LXX	SCOP	12.351	
N		1.100	0.100	0.100	LYY	SCOP	1.000	
P	**LT**	0.800	0.100	0.100	MAE	SCOP	0.800	
P	**RT**	0.800	0.100	0.100	MAE	SCOP	0.700	
Q		3.300	0.100	0.100	LXX	SCOP	3.312	
R		3.050	0.050	0.050	LYY	SCOP	3.083	
S		3.900	0.000	0.100	LYY	SCOP	3.835	
T		4.050	0.050	0.050	LXX	SCOP	4.069	
U		8.650	0.000	0.100	LXX	SCOP	8.650	
V		5.600	0.300	0.300	LXX	SCOP	5.900	
W		3.800	0.100	0.100	MAE	SCOP	3.900	

LABEL	DESC	NOMINAL	UPPER	LOWER	FN	HM	ACTUAL	DEV>TOL
X		3.300	0.300	0.300	LXX	SCOP	3.245	
Y		1.300	0.100	0.100	MAE	SCOP	1.300	

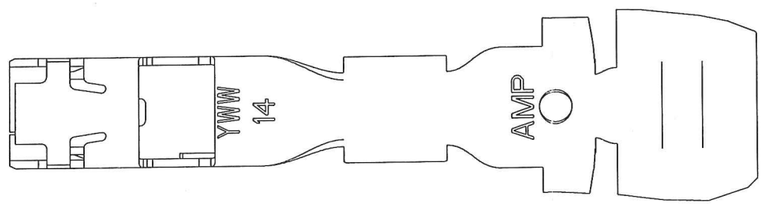
LOC	DIST
GE	00

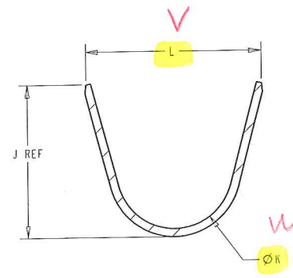
REVISIONS

P	LTR	DESCRIPTION	DATE	DRN	APVD
	E1	REVISED PER ECO-11-005030	26APR2011	RK	HMR



SECTION A-A





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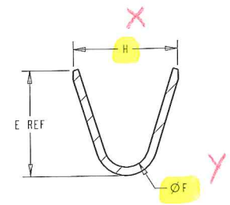
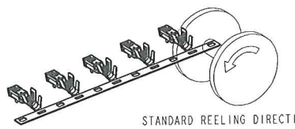


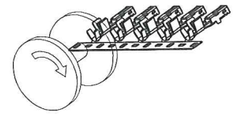
SECTION G-G

1. MATERIAL: 0.30 THICK COPPER ALLOY, PREPLATED WITH 0.0008 MINIMUM THICK REFLOW TIN OR BRIGHT TIN (ELV COMPLIANT).

   ALTERNATE MATERIAL: 0.30 THICK COPPER ALLOY, PREPLATED WITH 0.0008 MINIMUM THICK BRIGHT TIN (ELV COMPLIANT).

2. 

STANDARD REELING DIRECTION

3. 

REVERSE REELING DIRECTION

4. QUALIFICATION OF THE CRIMP APPLICATION TOOLING SHALL BE CONTROLLED BY THE REQUIREMENTS ESTABLISHED UNDER USCAR 21.

5. LOOSE END SPLICING TO BE USED.

REELING	N	L	ØK	J	H	ØF	E	WIRE SIZE	PART NO.
3	1326032-6 REELED FOR AMP APPLICATORS							12 AWG	1-1326032-2
	1326032-5 REELED FOR AMP APPLICATORS							14 AWG	1-1326032-1
	1326032-4 REELED FOR AMP APPLICATORS							16 AWG	1-1326032-0
	1326032-3 REELED FOR AMP APPLICATORS							18 AWG	1326032-9
	1326032-2 REELED FOR AMP APPLICATORS							20 AWG	1326032-8
	1326032-1 REELED FOR AMP APPLICATORS							22 AWG	1326032-7
2	1.35	6.8	4.30	6.09	4.7	2.70	5.25	12 AWG	1326032-6
	1.35	6.5	4.30	5.62	3.9	1.70	3.88	14 AWG	1326032-5
	1.10	5.6	3.80	4.54	3.9	1.70	3.88	16 AWG	1326032-4
	1.10	5.6	3.80	4.54	3.3	1.30	2.76	18 AWG	1326032-3
	0.90	5.0	3.40	4.11	3.3	1.30	2.76	20 AWG	1326032-2
	0.90	5.0	3.40	4.11	2.5	0.90	2.11	22 AWG	1326032-1

THIS DRAWING IS A CONTROLLED DOCUMENT.

DIMENSIONS: mm

TOLERANCES UNLESS OTHERWISE SPECIFIED:
0 PLC ±-
1 PLC ±0.3
2 PLC ±0.10
3 PLC ±-
4 PLC ±-
ANGLES ±5°
FINISH 1

MATERIAL 1

DRN D. STRAUSSER 28APR99
CHK D. BROWN 28APR99
APVD D. BROWN 28APR99
PRODUCT SPEC SAE/USCAR-2 8/97
APPLICATION SPEC 114-13013
WEIGHT -

TE Connectivity

NAME 2.8mm RECEPTACLE, SEALED

SIZE A1 | CAGE CODE 00779 | DRAWING NO C-1326032 | RESTRICTED TO -

CUSTOMER DRAWING | SCALE 10:1 | SHEET 1 OF 1 | REV E1

Section 10

Material, Performance Test Results

CERTIFICATION REPORT

Aurubis

SOLD TO	SHIP TO	ENTRY - BOL
TYCO ELECTRONICS ATTN: ACCOUNTS PAYABLE P.O. BOX 68355 HARRISBURG, PA 17106	TYCO ELECTRONICS 233 BURGESS RD., BLDG 20063 GREENSBORO, NC 27409	**69823-373716** ALLOY 6476

PRODUCT DESCRIPTION	QUANTITY ORDERED		CUSTOMER ORDER NO.
1.2870 .01180 TM02 CAC60 CU/NI/SI STRIP *REFLOW* SPEC 100-1554 REV.F P/N 705485-2	PCS. LBS. 288000	PCS. 4 LBS. 8380 DATE 7/11/2012 TIME 9:48:02 AM	7000340970 513440 GOV'T CONTRACT NO.

COIL NUMBER	770072AA	768392AC	769290AC	768392AA	769288AC	
COMPOSITION - %						
Copper - includes Ag	96.4	96.2	96.3	96.2	96.4	
Zinc	1.14	1.23	1.14	1.23	1.13	
Lead	<.002	<.002	<.002	<.002	<.002	
Tin	.093	.135	.096	.135	.101	
Nickel	1.85	1.89	1.88	1.89	1.85	
Silicon	.386	.408	.4	.408	.388	
Manganese	.033	.033	.039	.033	.034	
Magnesium	.021	.021	.017	.021	.010	
PROPERTIES						
Tensile Str. (ksi)	101.8	100.1	99.1	100.1	100.1	
Yield Str. (ksi) @ .2 OFFSET	94.7	93.1	92.6	93.1	94.1	
Elongation (%) in 2 inches	7.4	7.6	7.3	7.6	11.2	
Grain Size (RTF) in mm	.010	.020	.010	.020	.005	
Vickers	191	206	208	206	210	
Bend Test (L)	OK	OK	OK	OK	OK	
Bend Test (T)	OK	OK	OK	OK	OK	
Elec. Cond. (%) IACS	47.6	46.9	47.0	46.9	41.3	
Coating Thickness (µin)	41.00	38.00	42.00	38.00	39.00	

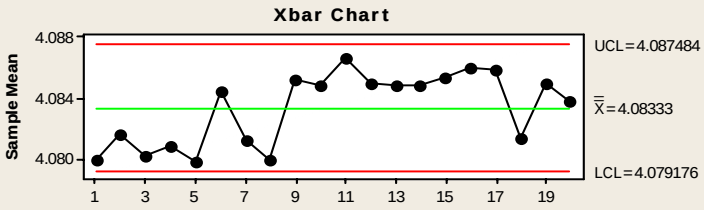
Certification Report continues on the next page.

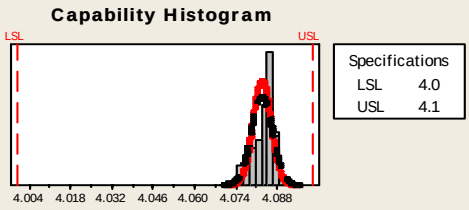
Section 11

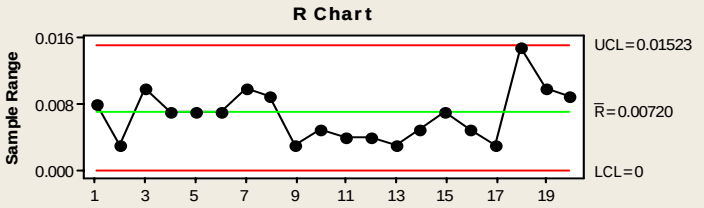
Initial Process Studies

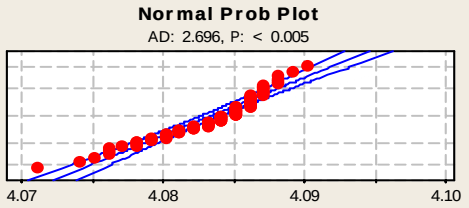
1326032-3, Blade #1, 4.05 +/- 0.05, CS01229 03/14/12

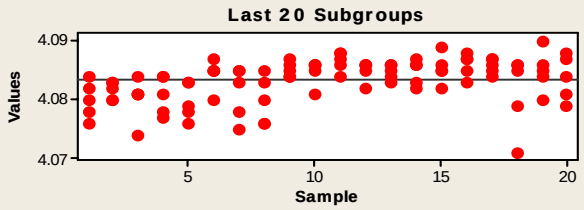
Tool # 714147

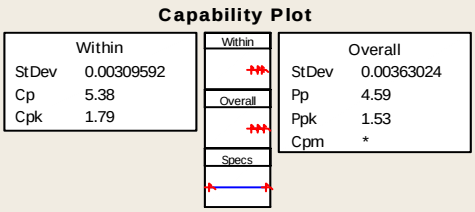












Blade 1

4.08
4.076
4.084
4.082
4.078
4.08
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4.08
4.083
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4.084
4.081
4.074
4.081
4.081
4.077
4.078
4.084
4.084
4.081
4.078
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4.079
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4.085
4.086
4.085
4.09
4.084
4.086
4.08
4.081
4.084
4.088
4.079
4.087

Section 12

Qualified Laboratory Documentation

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO/TS 16949:2009

This is to certify that:

TE Connectivity
Global Automotive Division
Americas North
233 Burgess Road
Greensboro
North Carolina
27409
USA

Holds Certificate No: **TS 514458-000**

and operates a Quality Management System which complies with the requirements of ISO/TS 16949:2009 for the following scope:

Design and manufacture of electrical interconnecting devices for the automotive industry.

For and on behalf of BSI:

VP Regulatory Affairs, BSI Group America Inc.

Originally Registered: **02/11/2010** Latest Issue: **03/29/2011** Expiry Date: **02/10/2013**

IATF Number: 0097555

Certificate No: **TS 514458-000**

Location	*Registered Activities*
TE Connectivity Global Automotive Division Americas North 233 Burgess Road Greensboro North Carolina 27409 USA	Stamping, molding and assembly. Including the following remote support functions: TE Connectivity Global Automotive Division Americas North Troy, MI Design and Development. TE Connectivity Global Automotive Division Americas North Middletown, PA Design and Development, Product Testing and Customer Service. TE Connectivity Global Automotive Division Americas North Winston-Salem, NC Design and Development, Product Testing and Calibration, Business Office (Quote Process) and Purchasing. TE Connectivity Global Automotive Division Americas North Markham, ON Canada Design and Development and product testing (optics lab). TE Connectivity Global Automotive Division Americas North Harrisburg, PA Provision of Product Testing to TE Connectivity Manufacturing Sites.

Originally Registered: **02/11/2010** Latest Issue: **03/29/2011** Expiry Date: **02/10/2013**

IATF Number: 0097555

TYCO ELECTRONICS GAD-AN
NORTH CAROLINA LABORATORIES SCOPE OVERVIEW

SERVICE	EQUIPMENT		TYPICAL PROCEDURES
Product/Tooling Approval Laboratory 3800 Reidsville Road, Winston-Salem, NC 27101			
Layout Inspection	Leitz Toolmakers Microscopes Starrett Coordinate Meas. Machine Mycrona Vision/Contact CMM Mitutoyo Hand Measuring Devices Micro-Vu Vertex Vision/Contact Measuring Center		AAP129, AAP165, AWP127-LB
Cross-Sectioning	Low speed saws Polishing/grinding equipment		ASTM E3
SERVICE	**EQUIPMENT**		**TYPICAL PROCEDURES**
Product Reliability Center 3800 Reidsville Road, Winston-Salem, NC 27101			
Electrical, High Current			
Current Cycling	Hewlett-Packard 6032A	System Power Supply	TIN 109-51, SAE/USCAR-2
Current Surge	Wavetek 395, Kepco ATE 15-50M	Current Pulsing Station	Customer/Product Specific
Maximum Current Rating	T System	Portable Data Acquisition System	SAE/USCAR-2
Millivolt Drop	READA System		SAE/USCAR-2, EIA 364-6B, IEC 60512-2-2
T-rise at Rated Current	READA System		SAE/USCAR-2, EIA 364-70A Method 1
T-rise vs. Current Curve	T System		SAE/USCAR-2, EIA 364-70A Method 2
Resistive Load Verification	Agilent 60502B and 6681A	Programmable loads & power supplies	Customer/Product Specific
Electrical, Low Current			
Termination Resistance, Dry Circuit	READA System, Buttons System, H-P Micro-Voltmeter	Portable Data Acquisition System Hand Probe	SAE/USCAR-2, -17 & 20, EIA 364-23A, IEC 60512-2-1
Electrical, Voltage			
Breakdown Voltage	Associated Research 4271m13, EDNA System, Quadtec	HiPot Dielectric Tester	EIA 364-20B, IEC 60512-4-1
Dielectric Withstanding Voltage			SAE/USCAR-2, -17 & -20, EIA 364-20B, IEC 60512-4-1
Insulation Resistance	GenRad 1644-A, Quadtech	Megohm Bridge, Dielectric Analyzer	SAE/USCAR-2, -17 & -20, EIA 364-21C, IEC 60512-3-1
Electrical, RF			
Insertion Loss	Agilent 8753ES	Network Analyzer	SAE/USCAR-17
VSWR	Agilent 8753ES	Network Analyzer	SAE/USCAR-17

Environmental			
Heat Age	Blue M Models Such as OV490A-2, POM966E, POM206EX, HS3802FG, POM336B-1, CW5512F-1, POM336EX, Despatch LEB1-76-4	Oven	SAE/USCAR-2 & -20, EIA 364-17B, IEC 60512-11-9
Humidity / Temp. Cycling	Thermotron F-52-CHMV ESPEC ETH37 4DW CSZ Models CTH-32-15-15-S/WC CTH-16-705-705-S/W ZH-16-2-2-H/AC CVH-16-3-3-H/WC Blue M Electric Models FR-256PB, FR-366PB LRM386E CSZ ZH-8	Temperature / Humidity Chamber	SAE/USCAR-2 & -20, EIA 364-31B, IEC 60512-11-3, IEC 60512-11-12
Immersion	Blue M Electric OV490A-2, GenRad 1644-A	Oven, Megohm Bridge	SAE/USCAR-2
Pressure / Vacuum Leak	Ashcroft 415P-20, Ashcroft 4116P	Precision Gauges	SAE/USCAR-2
Salt Spray	Harshaw 4100-000-003	Salt Fog Chamber	SAE/USCAR-2 (Aug 97) EAI 364-26B, ASTM B117
Submergible Air Leak	Ashcroft 415P-20, Ashcroft 4116P	Precision Gauges	SAE/USCAR-2
Temp. Cycling	Blue M Models VRC30-PS-6WE VRC12-PC-4WE GOP 1004-12-2TPE CSZ Models Z-16-2-2-H/AC Z-8-1-1-H/AC BAV-1.6-033-033-H/A	Temperature Cycling Chamber	Customer/Product Specific
Thermal Shock	-Ransco 7103-1 -ESPEC TSA-70H-W -Thermotron ATS-100-3-3-LN2 ATS-150-H-3-3-LN2 -CSZ VTS-2.6-705-705-S/W VTS-3.3-705-705-S/A -Envirotronics SV2-2-2-3	Thermal Shock Chamber	SAE/USCAR-2 & -20, EIA 364-32C, IEC 60512-11-4
High Pressure Washing (Hot & Ambient)	Landa Pressure Washer, Wika Pressure gage	Pressure washer set-up	Customer Specific
Dust Testing	Triton	Dust Chamber	PF-9688, Customer Specific
Air Leak Detector	Furness – Sovereign	Leak Detector	Customer Specific

Mechanical			
Drop	n/a	n/a	Ford SDS #40
Durability	AMP Inc. 37517	Cycling Machine	SAE/USCAR-2, EIA 364-9C, IEC 60512-9-1
Mechanical Shock	AVCO SM105MP Vibration Machines	Mechanical Shock Tester High Frequency Vibration Machines	SAE/USCAR-2 EIA 364-27B IEC 60512-6-3
Torque	Snap-On TQJE1000	Torque Tester	TIN 109-183, Customer/Product Specific
Vibration – Low	LAB LVH18-100	Low-Frequency	Mil Std 202 Method 201A
Frequency		Vibration Machine	EIA 364-28A Test Cond. I
Vibration – High Frequency	Unholtz-Dickie Models SA30-560/ST MA250D-206 Ti000-14 206 LDS V850	High-Frequency Vibration Machine	SAE/USCAR-2 & -20 EIA 364-28D, IEC 60512-6-4
Miscellaneous			
Audible Feedback	Bruel & Kjaer 1561725	Sound Meter (db)	TIN 109-133, SDS #EL-0017, Customer Specific
Thermal Imaging	Nikon Laird 3AS	Infrared Camera	Application Specific
Tensile / Compression			
Axial Pull Test	Instron 4502	Tensile / Compression Machine	SAE/USCAR-2 & -17
Bend Force			SAE/USCAR-2
Bend, Crimp			SAE/USCAR-2
Connector - Connector Engage / Disengage			SAE/USCAR-2, EIA 364-13B IEC60512-13-1
Connector Lock Strength Integrity			SAE/USCAR-2 & -17
Connector Mechanical Integrity			SAE/USCAR-2
Contact Insertion			SAE/USCAR-2, TIN 109-41
Contact Retention			SAE/USCAR-2, TIN 109-41
Crimp Tensile			SAE/USCAR-2, EIA 364-8B, IEC 60512-16-4 & -20
Engaging Force			SAE/USCAR-2, TIN 109-35
Force vs. Deflection			TIN 109-98
Insulated Crimp			SAE/USCAR-2
Latch Depression			SAE/USCAR-2
Lock Insertion & Removal Forces			SAE/USCAR-2 & -17
Misc. Component Engage / Disengage			SAE/USCAR-2 & -17
Contact Normal Force			TIN 109-98
Panel Retention			TIN 109-41

Secondary Lock Strength			SAE/USCAR-2, TIN 109-35,
Separating Force			USCAR-2, TIN 109-98
Spring Rate			Ford SDS #32
Staging Latch Strength			SAE/USCAR-2, Ford SDS #32
Tensile			SAE/USCAR-2, EIA 364-8B, IEC 60512-16-4 & -20
Terminal Assurance Retention			SAE/USCAR-2, TIN 109-14
Terminal Insertion / No False Lock-up			SAE/USCAR-2, TIN 109-14
Terminal Push Thru			SAE/USCAR-2, TIN 109-14
Unmating Force			SAE/USCAR-2, EIA 364-13B, IEC 60512-13-1
SERVICE	**EQUIPMENT**		**TYPICAL PROCEDURES**
Electromechanical Components Laboratory 3920 Reidsville Road, Winston-Salem, NC 27101			
Electrical, APT			
Pull-in/Drop-out Voltage	Markenrich Tester	APT	VTEST-0001
Pull-in/Drop-out Current	Markenrich Tester	APT	VTEST-0001
Operate/Release time	Markenrich Tester	APT	VTEST-0001
Contact Voltage Drop	Markenrich Tester, CVD Tester	APT	VTEST-0001
Contact Resistance	Markenrich Tester, CVD Tester	APT	VTEST-0001
Contact Bounce	Markenrich Tester	APT	VTEST-0001
Coil Resistance	Markenrich Tester	APT	VTEST-0001
Electrical, Durability			
Overload and Endurance	Life Test Monitor	L.T.M.	Customer Specific
Current Cycling	Power Supplies	L.T.M.	Customer Specific
Flasher Testing	Power Supplies, Temp Chambers, Flasher Tester	Flasher Test Set-up	Customer Specific VTEST-0055 & 0056
Continuous Current Overload	Life Test Monitor	L.T.M.	Customer Specific
Millivolt Drop Testing	Power Supplies, Agilent 34970A, Millivolt LTMs	Millivolt Drop Testers	VTEST-0001, Customer Specific
Load Soak	Power Supplies Temp Chambers	Load Soak Set-up	VTEST-0003
Electrical, Coil			
Coil Over/Under Voltage	Power Supplies Multi-meters	Coil Over/Under Voltage Test Set-up	Customer Specific
Coil Temperature Rise	YEW Chart Recorder/ Power Supplies/Temp. Chambers, Agilent 34970A	Coil Temperature Rise Test Set-up	Customer Specific
Coil Input (power)	Power Supply/Multi-meter	Coil Power Test Set-up	Customer Specific

Electrical, Voltage			
Breakdown Voltage	Kikusui Tos 8650, Quadtech Guardian 2530, Quadtech Sentry 30	Hipot Tester	EIA 364-20B, IEC 60512-4-1
Dielectric Testing	Kikusui Tos 8650, Quadtech Guardian 2530, Quadtech Sentry 30	Hipot Tester	VTEST-0001
Insulation Resistance	Quadtech Guardian 2530, Quadtech Sentry 30	IR Tester	EIA 364-21C, IEC 60512-3-1, VTEST-0001
Circuit Breaker			
Short Circuit AC	Short Circuit Tester	Short Circuit Tester	Customer Specific
Calibration- Circuit Breakers	Model F-EDC12159	Circuit Breaker Calibration	Customer Specific
Current Cycling Endurance	Power Supplies/LTM/ pneumatic cycler.	Circuit Breaker Cycler Set-up	Customer Specific
Environmental			
Humidity / Temp. Cycling	Thermotron/Tenney Chambers/LTM	Humidity / Temp. Cycling Set-up	EIA 364-31B, IEC 60512-11-3, IEC 60512-11-12
Thermal Shock	Thermal Shock Chambers @ 3800RR	Thermal Shock Chambers	EIA 364-32C, IEC 60512-11-4
Dust	Dust Chamber	Dust Test Chamber	VTEST-0011
Salt Fog	Harshaw 4100-000-003	Salt Fog Chambers	EIA 364-26B, ASTM B117
Temp. Cycling	LTM/Power supplies/Temp Chamber	Temp. Cycling Set-up	Customer/Product Specific
Mechanical			
Drop	Drop Tester	Drop Test Set-up	VTEST-0008
Mechanical Shock	AVCO SM105MP Vibration Tables @ 3800RR	Mechanical Shock Tester High-Frequency Vibration Machines	EIA 364-27B IEC 60512-6-3
Vibration – Low Frequency	LAB LVH18-100 @ 3800 RR	Low-Frequency Vibration Machines	EIA 364-27B IEC 60512-6-3
Vibration – High Frequency	Vibration Tables at 3800RR	High-Frequency Vibration Machine	EIA 364-28D, BTEST-0010 IEC 60512-6-4
Mechanical Life Cycling	Power Supplies/ Counter	Mechanical Life Cycling Test Set-up	Customer Specific Technical Data Book
Mechanical, Miscellaneous			
Audible Sound	Sound Meter / Sound Chamber	Audible Sound Test Set-up	VTEST-0017
Tensile/Compression			
Panel Retention	Insertion 4502 @ 3800RR	Tensile / Compression Machine	TIN109-41
Tensile	Instron 4502 @ 3800RR	Tensile / Compression Machine	EIA 364-8B, IEC 60512-16-4 & -20
Cover Retention	Instron 4502 @ 3800RR	Tensile / Compression Machine	VTEST-0005
Thermal retention	Instron 4502 @ 3800RR	Tensile / Compression Machine	VTEST-0004

SERVICE	EQUIPMENT	TYPICAL PROCEDURES
Materials and Processes Laboratory 3800 Reidsville Road, Winston-Salem, NC 27101		
Metallographic Sample Preparation	Embedding Media, polishing compounds, LECO AP-200 polisher	ASTM E3
Optical Examination of Cross-Sectioned Materials	Nikon Epiphot Metallograph	TIN 109-52, Method 2 ASTM E112
Vickers Hardness	Micromet Microhardness Tester	ASTM E384, ASTM E92
Knoop Hardness	Micromet Microhardness Tester	ASTM B758, ASTM E384
Rockwell Hardness	Wilson Series 500 Hardness Tester	ASTM E18, ASTM 1842
Coercive Force	Forster Coercive Force Tester	ASTM A867, ASTM A848
Tensile Testing – Materials	United TM-10 Tensile Tester	TIN 109-79, ASTM E8
Differential Scanning Calorimetry (DSC)	Mettler DSC 20 Differential Scanning Calorimeter	TIN 109-172, ASTM D3417
Scanning Electron Microscopy (SEM) Surface Characterization	AMRAY 1830i Scanning Electron Microscope	Application Specific
Elemental Analysis – Qualitative and Quantitative Energy Dispersive Spectroscopy	EDAX International EDS Detector PV9700/43 with Phoenix Software	Application Specific, ASTM E1508
Fourier Transform Infrared (FTIR) Material Identification	Nicolet 5PC FTIR with IR-Plan analytical microscope	Application Specific, ASTM E1252, ASTM E334
Melt Viscosity	Kayeness (Dynisco) Capillary Rheometer	ASTM D3835, TIN 109-57, TIN 103-2915
Melt Flow Rate	Dynisco Melt Indexer	ASTM D1238, TIN 118-1952
Melt Volume Rate	Dynisco Melt Indexer	ISO 1133, TIN 118-4440
Moisture Content	Computrac Vapor Pro	TIN 118-1953
Solderability	Multicore Solder Must II	MIL-STD 883C, TIN 109-11

CERTIFICATE OF REGISTRATION

SRI Quality System Registrar

Having been audited in accordance with requirements of

ISO/TS 16949:2009

SRI Quality System Registrar, Seven Fields, Pennsylvania, USA, hereby grants to:

Aurubis Buffalo, Inc.

Registration of the management system at its location:

70 Sayre Street
Buffalo, New York, USA

The conditions for maintaining this certificate of registration are set forth in the SRI registration agreements R20.3 and R20.4.

Scope of ISO/TS 16949:2009 registration:	"Manufacture of copper and copper alloy, sheet, strip, cups, phosphor bronze, specialty alloys, and tinned strip for connectors."
Exclusions:	Product Design and Development
Initial SRI registration date:	December 29, 2003
Current registration period:	October 3, 2011 through December 20, 2012

Signed for SRI: _____

Christopher H. Lake, President & COO

Certificate Date: October 3, 2011
Certificate Number: 010406
IATF Certificate Number: 0094280
Registration Number: 0276-01

ISO/TS 16949 SRI® CERTIFIED

Buffalo Manufacturing Unit

70 Sayre Street Buffalo, NY 14207

Work Instruction

Title: Laboratories Scope Luvata Buffalo Inc.		WI Number WI-0622 Revision: 14
Process: Process Product/Validation Verification Area: Chem/Sheet Mill Labs	***Approved & Released Work Instruction***	Implementation Date: 07/09/2009
Unit:		Review Period - 365 Days

Purpose:

To provide the Scope of the Buffalo Plant's Chemical and Sheet Mill Labs.

Responsibilities:

It is the responsibility of the Technical Director and all laboratory employees to comply and fully support this scope.

Procedure:

Scope:

The Laboratories at the Buffalo Plant are ISO/TS16949: latest revision, Certified (SRI Certificate No. 006259) captured labs and do not profit from any testing of customer product. The scope of our laboratories covers the type of inspection, calibration and tests performed.

Chemical/Metallurgical

Technology	Range, when necessary	Methods Used	Product Types	Remarks
Optical Emission Spectroscopy		ASTM E1251	Copper and Copper Alloys	
Microhardness		ASTM E384	Copper and Copper Alloys	Vickers Scale
Rockwell / Rockwell Superficial		ASTM E18	Copper and Copper Alloys	
Tension		ASTM E8	Copper and Copper Alloys	Flat Products
Grain Size		ASTM E112	Copper and Copper Alloys	Comparison Method
Conductivity		ASTM E1004	Copper and Copper Alloys	%IACS
Surface Roughness		ASME B46.1	Copper and Copper Alloys	
Tin Thickness		ASTM B568	Copper and Copper Alloys	Tin Coating over Copper and Copper Alloys
Hydrogen Embrittlement		ASTM B577	Copper and Copper Alloys	
Spring Limit		ASTM E855	Copper and Copper Alloys	
Bend Testing		ASTM E290	Copper and Copper Alloys	
% Oxygen/Hydrogen		Calibration	Copper and Copper Alloys	Eltra Oxygen/Hydrogen Determinator
Elemental analysis		Calibration	Copper and Copper Alloy Elements	Inductively Coupled Plasma Spectrometer
PH of solutions		Calibration	Solutions	Chemical laboratory
Conductivity of Solutions		Calibration	Solutions	Chemical laboratory

Inspection and Testing:

All inspection and testing will be performed in accordance with the Buffalo Plant ISO/TS16949: latest revision documentation and the Scope of Accreditation.
This work instruction must be revised annually to show customers that this is the latest revision.


Scope 7-8-09.xls

7.0 Associated Documents:

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

Section 18

Part Submission Warrant

DaimlerChrysler Ford GM

Part Submission Warrant

Part Name: 2.8mm Receptacle, Seal, 18AWG
Cust. Part Number: 1326032-3
Shown on Drawing No.: C-1326032
Org. Part Number: 1326032-3
Engineering Change Level: E1 Dated: 26-Apr-2011
Additional Engineering Changes: N/A Dated: N/A
Safety and/or Government Regulation: ☐ Yes ☑ No Purchase Order No.: N/A Weight (kg): 0.0005
Checking Aid Number: N/A Checking Aid Engineering Change Level: N/A Dated: N/A

ORGANIZATION MANUFACTURING INFORMATION

TE CONNECTIVITY J6DRY
Supplier Name & Supplier/Vendor Code

233 Burgess Road
Street Address

Greensboro | NC | 27409 | US
City | Region | Postal Code | Country

CUSTOMER SUBMITTAL INFORMATION

Nursan Otomotiv EOOD
Customer Name/Division

N / A
Buyer/Buyer Code

Automotive
Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported? ☑ Yes ☐ No ☐ N/A

Submitted by IMDS or other customer format: 2163551 / 14

Are polymeric parts identified with appropriate ISO marking codes? ☐ Yes ☐ No ☑ N/A

REASON FOR SUBMISSION

- ☑ Initial submission
- ☐ Engineering Change(s)
- ☐ Tooling: Transfer, Replacement, Refurbishment, or additional
- ☐ Correction of Discrepancy
- ☐ Tooling Inactive > than 1 year
- ☐ Change to Optional Construction or Material
- ☐ Sub-Supplier or Material Source Change
- ☐ Change in Part Processing
- ☐ Parts produced at Additional Location
- ☐ Other - please specify

REQUESTED SUBMISSION LEVEL (Check one)

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

SUBMISSION RESULTS

The results for ☑ dimensional measurements ☑ material and functional te ☐ appearance criteria ☑ statistical process package
These results meet all design record requirements: ☑ YES ☐ NO (If "NO" - Explanation Required)
Mold / Cavity / Production Process: Stamping

DECLARATION

I affirm that the samples represented by this warrant are representative or our parts, which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm the these samples were produced at a production rate of 324,000 / 24 hours
I also certify that the documented evidence of such compliance is on file and available for review. I have noted any deviation from the declaration below.

EXPLANATION/COMMENTS:

Is each Customer Tool properly tagged and numbered? ☐ Yes ☐ No ☑ N/A

Organization Authorized Signature: David Wilson Date: 10.03.2012

Print Name: David Wilson Phone No.: 336-665-4428 Fax No.: 336-665-4571

Title: Quality Technician E-mail: dwwilson@tycoelectronics.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: ☐ Approved ☐ Rejected ☐ Other

Customer Signature Date

Print Name Customer Tracking Number (optional)

Optional customer tracking number:

Section 18a

Bulk Material Requirements

Not Applicable