

[illegible]

[illegible]

Sumitomo Electric Wiring Systems,INC.-Components Division

PROCESS FLOW DIAGRAM

PRODUCT : Various Metal Stamping Parts
PROCESS: Metal Stamping

KEY CONTACT/DEPT. LOC. Debbie Gillenwater/L. Roth-QA Dept.
PHONE (270) 237-5419-X8563 & 8201 FAX (270) 237-4653

SUPPLIER APPROVALS:
General Plant Manager/Above: *[Signature]*

10.1.16 Updated Operation Description of 0050. E.Skaggs, K. Wilson, A. Meeks

10.1.16 Updated Key Characteristics of 0010, 0020, 0050, 0070, 0080, 0100, 0130, and 0160. E.Skaggs, K. Wilson, A. Meeks.

04.10.14 Revised set-up operation & characteristics D. Gillenwater

02.25.14 Revised terminology to match PTMEA/CP D. Gillenwater

12.13.13 Remove sections 110, 120 and 150. L.R., J.F., D.G.

5.12.11 Remove In-Line Terminal Clean/Supervisor Audit L. Roth, K. Chapman

8/31/06 Removed the name of cleaning sub-contractor D. Karteskint

4/1/05 GLOBAL QUALITY & ORG UPDATES D. Karteskint, K.

2/17/05 FORMAT CHANGES/UPDATED INFO D. Karteskint

2/9/00 ISSUED WITH FORMAT CHANGES T. DAY

6/04/99 ISSUED W/ FORMAT CHANGES/UPDATES T. GRAYL, D.

DATE CHANGE POINTS CORE/DEV. TEAM

ISSUE/REVISION HISTORY

Customer Approval if required:

Quality Manager/Above:

[Signature]

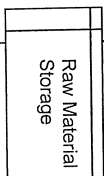
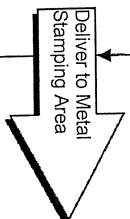
Manufacturing Manager/Above:

[Signature]

Supplier/Loc. SEWS-Scottsville#5
Mfg. Sup.: K. Chapman
Prepared By: Dean Karteskint QA Engineer

OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW							KEY CHARACTERISTICS
0010	#	Raw Material Receiving (Metal Coils)	Raw Material Reject							Visual Comparison Against Packing List Shipping-Receiving
		Reject								Red Tag Procedure Abnormal Handling Procedures
0020	#	Raw Material Receiving Inspection	Receiving Inspection							Per Inspection Instruction Sheet-Receiving
		Packaging								

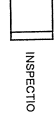
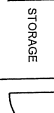
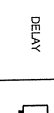
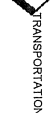
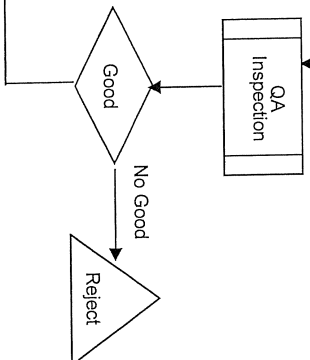
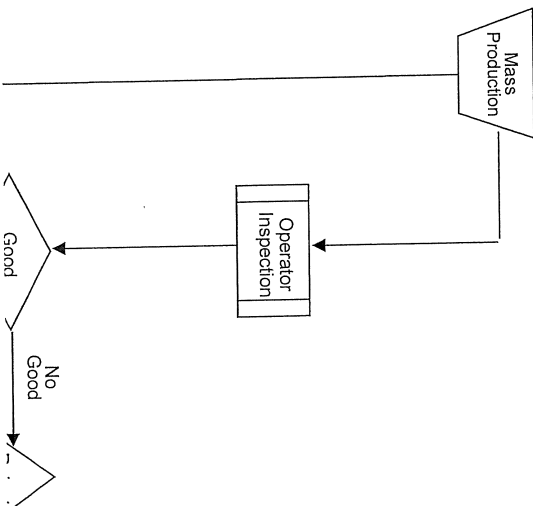
Sumitomo Electric Wiring Systems,INC.-Components Divison

PART AS ASSYD		PART AS RECD	OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR	
OPER #	CI #	OPERATION DESCRIPTION			PROCESS FLOW					KEY CHARACTERISTICS	
		Identification Visual Inspection Characteristics								Per Inspection Instruction Sheet-Receiving Per Inspection Instruction Sheet-Receiving Per Inspection Instruction Sheet-Receiving	
		Reject			Reject					Red Tag Procedure Abnormal Handling Procedures	
0030		Raw Material Storage				Raw Material Storage				Per Raw Material Lot Control Sheet	
0040		Metal Stamping Loading Raw Material				Deliver to Metal Stamping Area				Per Raw Material Lot Control Sheet Per Shop Order and Barcode confirmation	

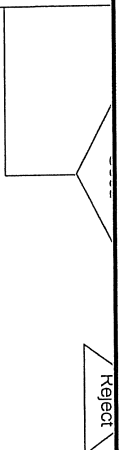
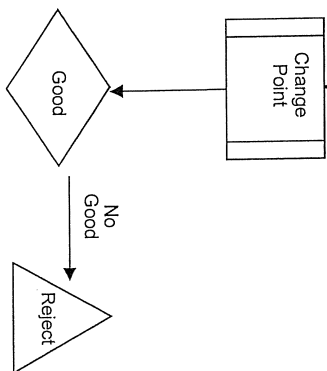
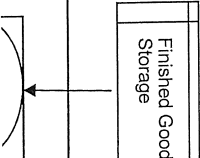
Sumitomo Electric Wiring Systems,INC.-Components Divison

 PART ASSY ASSTD	 PART ASSY REQD	 OPERATION	 INSPECTION	 OPERATION/ INSPECTION	 STORAGE	 DELAY	 TRANSPORTATION	 OPERATION STEP	 OPERATOR
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW						KEY CHARACTERISTICS
0050		Metal Stamping Die/Machine Set-up Machine/Die PM Raw Material Machine Number Tool / Die Number Safety Checks							Per Shop Order & Barcode scanning Per Maintenance Schedule Per Shop Order & Barcode scanning Per Production Schedule Per Shop Order Per Daily Machine Check Per Pressline Checksheet Per Material Straightntner set-up Per Raw Material Vision set-up Per In-Line Inspection Set-Up and /or Vision System Set-up Per Winder Set-up Sheet
0060		Material Straightntner Raw Material Vision System In-Line / Vision Inspection System Winder Set-Up							# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets

Sumitomo Electric Wiring Systems,INC.-Components Divison

									
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW				KEY CHARACTERISTICS		
0070	#	Quality Assurance Inspection (Mass Production)					# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure Abnormal Handling Procedures		
0080		Metal Stamping Production Checks (Manufacturing)					# Part Appearance/Dimension/Function per Visual Inspection Sheets # Part Appearance/Dimension/Function per Visual Inspection Sheets Stop Production- Make Adjustments, Reverify or Die Sent to Maintenance		

Sumitomo Electric Wiring Systems,INC.-Components Divison

									
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW						KEY CHARACTERISTICS
									Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure Abnormal Handling Procedures
0090		QA / Set Up Critical Defect Inspection Prior to Change Point							# Part Appearance/Dimension/Function per Global Quality Standard Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure
0100		Finished Product Packing / Labeling							Per Operator Check Sheet Per Barcode Scanning System
0130		Finished Goods Storage							Per ERP LX Electronic System

Sumitomo Electric Wiring Systems, Inc.-Components Division

OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW						KEY CHARACTERISTICS		
PART AS ASSTD	PART AS REC'D	OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR		
0140		Warehouse Stock Assessment	Stock Assessment Finished Goods/Shipping Shipped to Customer						Per Weekly Stock Assessment Sheet		
0160		Shipping Finished Goods	Finished Goods/Shipping Shipped to Customer						Shipping Label PER ERP LX System		
0170		Annual Layouts	Part Layout						Per Customer Drawing/Request		

Sumitomo Electric Wiring Systems, Inc

Gage R&R Study

03/17/2020

Page 1 of 2

Study Date: 1/16/2020 12:00:00 AM

Company Part No.: Mold 268

Gage ID: 05476117

Part No.:

Gage Desc: 0 - 150 Caliper

Part Desc: HW09-RET-064

Appraisers: 3

Trials: 3

Parts: 10

Characteristic: Length

Study Type:

Specification Limits: Min 19.7 Max 20.1

MSA Version: 4

☒ Approved

Pp (or Ppk) Target

6-Sigma Proc Variation

Appr A: M Haddix			Appr B: T Holland			Appr C: E Skaggs		
1	20.09	20.1	20.1	20.09	20.09	20.09	20.1	20.09
2	20.04	20.05	20.04	20.04	20.04	20.04	20.05	20.05
3	19.68	19.67	19.68	19.68	19.67	19.67	19.67	19.68
4	20.09	20.08	20.09	20.09	20.08	20.08	20.08	20.09
5	19.8	19.79	19.8	19.8	19.8	19.79	19.8	19.8
6	20.05	20.06	20.07	20.05	20.06	20.06	20.05	20.05
7	20.09	20.09	20.09	20.08	20.09	20.09	20.08	20.08
8	19.65	19.64	19.64	19.65	19.64	19.65	19.65	19.65
9	20.06	20.06	20.07	20.06	20.07	20.06	20.06	20.06
10	19.66	19.67	19.67	19.67	19.67	19.66	19.67	19.67

	Std. Dev.	% Contribution	% TV	% Tol		
Repeatability (EV):	0.005317	0.1%	3.8%	8.0%	R bar:	0.009000
Reproducibility (AV):	0.000000	0.0%	0.0%	0.0%	UCL-R:	0.023220
Appraiser x Part (INT):					Study Variation:	0.140971
GRR:	0.005317	0.1%	3.8%	8.0%	Total Variation (TV):	0.140971
Part-to-Part (PV):	0.140871	99.9%	99.9%	99.7%	Tolerance/6 (Tol):	0.066667
number of distinct categories:			37.4	17.6		

* Limit of individual R's (range values). An (*) is used to identify those sets of measurements that have a Range value that exceeds the UCL-R limit value. Correct by repeating those readings using the same appraiser and part or discard the values and recalculate the study results and the value UCL-R.

Comments:

Approved By:



Date:

3/17/2020

GRR Analysis Sheet

Study Date: 1/16/2020 12:00:00 AM Gage ID: 05476117 Gage Desc: 0 - 150 Caliper Appraisers: 3 Trials: 3 Study Type: Long-AIAG 4		Company Part No.: Mold 268 Part No.: Part Desc: HW09-RET-064 Characteristic: Length Specification Limits: 19.7 20.1																					
R bar A = 0.010000 X bar A = 19.922333 R bar B = 0.009000 X bar B = 19.921000 R bar C = 0.008000 X bar C = 19.920667 R bar = 0.0090000 X bar Diff = 0.001667		6 Sigma Process Variation: Pp (or Ppk) Target: Rp = 0.447777 Tol/6 = 0.066667																					
Measurement Unit Analysis		% Total Variation (TV)	% Tolerance																				
Repeatability - Equipment Variation (EV) $EV = R \text{ bar} \times K1$ $= 0.005317$ <table border="1"> <tr> <th>Trials</th> <th>K1</th> </tr> <tr> <td>2</td> <td>0.8862</td> </tr> <tr> <td>3</td> <td>0.5908</td> </tr> </table>		Trials	K1	2	0.8862	3	0.5908	$\% EV = 100 [EV / TV]$ $= 3.8\%$	$\% EV = 100 [EV / (Tol / 6)]$ $= 8.0\%$														
Trials	K1																						
2	0.8862																						
3	0.5908																						
Reproducibility - Appraiser Variation (AV) $AV = \sqrt{[(X \text{ bar Diff} \times K2)^2 - (EV^2 / n \times r)]}$ $= 0.000000$ <table border="1"> <tr> <th>Appraisers</th> <th>2</th> <th>3</th> </tr> <tr> <th>K2</th> <td>0.7071</td> <td>0.5231</td> </tr> </table> Note: If a negative value is calculated under the square root sign, AV defaults to zero. <table border="1"> <tr> <td>n = number of parts</td> </tr> <tr> <td>r = number of trials</td> </tr> </table>		Appraisers	2	3	K2	0.7071	0.5231	n = number of parts	r = number of trials	$\% AV = 100 [AV / TV]$ $= 0.0\%$	$\% AV = 100 [AV / (Tol / 6)]$ $= 0.0\%$												
Appraisers	2	3																					
K2	0.7071	0.5231																					
n = number of parts																							
r = number of trials																							
Repeatability and Reproducibility (GRR) $GRR = \sqrt{(EV^2 + AV^2)}$ $= 0.005317$		$\% GRR = 100 [GRR / TV]$ $= 3.8\%$	$\% GRR = 100 [GRR / (Tol / 6)]$ $= 8.0\%$																				
Part Variation (PV) $PV = R_p \times K3$ $= 0.140871$	<table border="1"> <tr> <th>Parts</th> <th>K3</th> </tr> <tr> <td>2</td> <td>0.7071</td> </tr> <tr> <td>3</td> <td>0.5231</td> </tr> <tr> <td>4</td> <td>0.4467</td> </tr> <tr> <td>5</td> <td>0.4030</td> </tr> <tr> <td>6</td> <td>0.3742</td> </tr> <tr> <td>7</td> <td>0.3534</td> </tr> <tr> <td>8</td> <td>0.3375</td> </tr> <tr> <td>9</td> <td>0.3249</td> </tr> <tr> <td>10</td> <td>0.3146</td> </tr> </table>	Parts	K3	2	0.7071	3	0.5231	4	0.4467	5	0.4030	6	0.3742	7	0.3534	8	0.3375	9	0.3249	10	0.3146	$\% PV = 100 [PV / TV]$ $= 99.9\%$	$\% PV = 100 [PV / (Tol / 6)]$ $= 99.7\%$
Parts	K3																						
2	0.7071																						
3	0.5231																						
4	0.4467																						
5	0.4030																						
6	0.3742																						
7	0.3534																						
8	0.3375																						
9	0.3249																						
10	0.3146																						
		In MSA4, for % Tolerance, PV = SQRT [(Tol / 6)^2 - (GRR)^2]																					
		$ndc = 1.41(PV/GRR)$ $= 37.4$	$ndc = 1.41(PV/GRR)$ $= 17.6$																				
Total Variation (TV) $TV = \sqrt{(GRR^2 + PV^2)}$ $= 0.140971$		If the 6 sigma process variation is known, then TV = [6 sigma process variation] / 6.00 and PV = SQRT[(TV^2) - (GRR)^2].																					

DaimlerChrysler



Production Part Approval Dimensional Test Results

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS							PART NUMBER: 8240-0424						
SUPPLIER/VENDOR CODE:							PART NAME: TER-US280FM-SN						
NAME OF INSPECTION FACILITY:							DESIGN RECORD CHANGE LEVEL: EU5T-14474-EA H4 02/24/20						
Sumitomo Electric Wiring Systems Plt. 5							ENGINEERING CHANGE DOCUMENTS: NA						
ITEM	DIMENSION / SPECIFICATION	SPECIFICATION / LIMITS		TEST DATE	QTY. TESTED	ORGANIZATION MEASUREMENT RESULTS (DATA)						OK	NOT OK
						SE3	SE3	SE3	SE4	SE4	SE4		
1	4.20	-0.20	0.20	2/25/21	6	4.14	4.14	4.14	4.14	4.14	4.14	○	
2	1.25	-0.15	0.15			1.33	1.34	1.35	1.34	1.31	1.33	○	
3	4.70	-0.20	0.20			4.76	4.76	4.77	4.79	4.79	4.80	○	
4	1.125	-0.15	0.15			1.160	1.140	1.190	1.140	1.150	1.180	○	
5	1.20	-0.20	0.20			1.15	1.15	1.15	1.15	1.16	1.15	○	
6	2.50	-0.20	0.20			2.50	2.50	2.50	2.49	2.49	2.49	○	
7	2.00	-0.20	0.20			1.98	1.97	1.98	1.98	1.97	1.98	○	
8	14.60	-0.30	0.30			14.60	14.61	14.60	14.60	14.60	14.61	○	
9	3.50	-0.10	0.00			3.50	3.50	3.50	3.48	3.48	3.48	○	
9	3.50	-0.10	0.00			3.48	3.48	3.48	3.49	3.50	3.50	○	
10	2.95	-0.20	0.20			2.95	2.95	2.95	2.95	2.95	2.94	○	
11	4.30	-0.20	0.20			4.29	4.29	4.29	4.30	4.30	4.29	○	
12	19.20	-0.30	0.30			19.20	19.20	19.21	19.20	19.20	19.21	○	
13	6.60	-0.20	0.20			6.55	6.55	6.55	6.55	6.55	6.55	○	
14	3.50	-0.20	0.20			3.50	3.49	3.50	3.50	3.50	3.50	○	
15	1.40	-0.20	0.20			1.30	1.30	1.30	1.30	1.30	1.30	○	
16	9.60	-0.20	0.20			9.51	9.51	9.50	9.51	9.51	9.51	○	
17	3.00	-0.20	0.20			3.00	3.01	3.01	3.00	3.00	3.01	○	
18	2.20	-0.20	0.20			2.21	2.21	2.20	2.21	2.21	2.22	○	

Blanket statements of conformance are unacceptable for any test results.

MARCH
2006

CFG-1003

SIGNATURE

TITLE

DATE

Mary Jo Mackin

PPAP Operator

2/25/2021

TERMINAL TO TERMINAL FUNCTION DATA

Specification: see below

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

PART Name/Desc: **TER-US280FM-SN**

PART NO (s): **8240-0424**

Mold #: **TD108-M**

Tested by/Date: Tracy Holland 3-3-2021

Design Rec. Change level/date: EU5T-14474-EA H4 2/24/20

Eng. Change Documents: NA

TERMINAL INSERTION DATA

Specification: 5.7 N MAX

	SE3	SE4
Sample#	DATA	
1	0.28	0.30
2	0.35	0.29
3	0.32	0.24
4	0.29	0.34
5	0.40	0.25

Average	0.328	0.28
Min.	0.28	0.24
Max.	0.40	0.34

TERMINAL RETENTION DATA

Specification: Ref only

	SE3	SE4
Sample#	DATA	
1	0.47	0.40
2	0.38	0.36
3	0.38	0.45
4	0.54	0.33
5	0.34	0.36

Average	0.422	0.38
Min.	0.34	0.33
Max.	0.54	0.45

Ter. to Ter. Insertion
Original Date:11/08/01
Latest Revision:6/5/06

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Mary Jo Mackin 2/26/21

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**EU5T-14474-EA Δ H4 2/24/20Mold #: **TD108-M**

Eng. Change Documents: NA

CAVITY #: ↓

SE3	4.30		2.95				SE4	4.30		2.95			
	+0.20	-0.20	+0.20	-0.20				+0.20	-0.20	+0.20	-0.20		
1	4.30		2.95					4.30		2.95			
2	4.29		2.95					4.30		2.95			
3	4.29		2.95					4.30		2.93			
4	4.29		2.95					4.30		2.95			
5	4.29		2.95					4.30		2.93			
6	4.29		2.95					4.30		2.94			
7	4.29		2.94					4.30		2.95			
8	4.29		2.95					4.29		2.94			
9	4.29		2.94					4.30		2.95			
10	4.29		2.95					4.30		2.94			
11	4.30		2.95					4.29		2.93			
12	4.29		2.95					4.30		2.93			
13	4.29		2.95					4.29		2.93			
14	4.29		2.95					4.29		2.94			
15	4.29		2.95					4.30		2.93			
16	4.29		2.95					4.30		2.93			
17	4.29		2.95					4.29		2.93			
18	4.29		2.95					4.30		2.93			
19	4.29		2.95					4.30		2.93			
20	4.29		2.95					4.29		2.93			
21	4.29		2.95					4.29		2.93			
22	4.29		2.95					4.29		2.93			
23	4.28		2.95					4.29		2.94			
24	4.29		2.95					4.29		2.93			
25	4.29		2.95					4.29		2.93			
26	4.28		2.95					4.29		2.93			
27	4.28		2.95					4.29		2.93			
28	4.28		2.95					4.29		2.94			
29	4.29		2.95					4.29		2.93			
30	4.29		2.95					4.29		2.93			

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Mary Jo Mackin 2/26/21

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**EU5T-14474-EA ^{H4} 2/24/20Mold #: **TD108-M**

Eng. Change Documents: NA

CAVITY #: ↓

SE3	4.30		2.95				SE4	4.30		2.95			
	+0.20	-0.20	+0.20	-0.20				+0.20	-0.20	+0.20	-0.20		
31	4.29		2.95					4.30		2.93			
32	4.28		2.95					4.29		2.93			
33	4.28		2.95					4.29		2.93			
34	4.29		2.95					4.29		2.93			
35	4.29		2.94					4.29		2.93			
36	4.28		2.95					4.28		2.93			
37	4.28		2.95					4.28		2.93			
38	4.29		2.94					4.29		2.93			
39	4.28		2.95					4.29		2.93			
40	4.28		2.95					4.28		2.94			
41	4.28		2.95					4.28		2.94			
42	4.29		2.94					4.30		2.93			
43	4.28		2.95					4.28		2.93			
44	4.29		2.95					4.29		2.93			
45	4.28		2.95					4.29		2.93			
46	4.29		2.95					4.29		2.93			
47	4.28		2.95					4.29		2.93			
48	4.29		2.95					4.30		2.93			
49	4.28		2.95					4.28		2.94			
50	4.29		2.95					4.29		2.93			
51	4.29		2.95					4.29		2.94			
52	4.29		2.95					4.29		2.93			
53	4.28		2.95					4.29		2.93			
54	4.29		2.95					4.29		2.93			
55	4.29		2.95					4.29		2.93			
56	4.29		2.95					4.29		2.93			
57	4.28		2.95					4.28		2.93			
58	4.29		2.95					4.28		2.93			
59	4.28		2.95					4.29		2.93			
60	4.29		2.95					4.29		2.93			

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Mary Jo Mackin 2/26/21

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**EU5T-14474-EA Δ H4 2/24/20Mold #: **TD108-M**

Eng. Change Documents: NA

CAVITY #: ↓

SE3	4.30		2.95				SE4	4.30		2.95			
	+0.20	-0.20	+0.20	-0.20				+0.20	-0.20	+0.20	-0.20		
61	4.29		2.95					4.29		2.93			
62	4.28		2.95					4.29		2.94			
63	4.29		2.95					4.29		2.93			
64	4.29		2.95					4.28		2.93			
65	4.29		2.95					4.30		2.93			
66	4.29		2.95					4.29		2.93			
67	4.28		2.95					4.29		2.94			
68	4.28		2.95					4.30		2.93			
69	4.29		2.95					4.28		2.93			
70	4.28		2.95					4.29		2.93			
71	4.28		2.95					4.29		2.93			
72	4.28		2.95					4.29		2.94			
73	4.28		2.95					4.30		2.93			
74	4.28		2.95					4.29		2.93			
75	4.29		2.95					4.30		2.94			
76	4.28		2.95					4.28		2.93			
77	4.29		2.95					4.28		2.93			
78	4.28		2.95					4.29		2.94			
79	4.29		2.95					4.28		2.93			
80	4.28		2.95					4.29		2.93			
81	4.29		2.95					4.29		2.93			
82	4.29		2.94					4.29		2.93			
83	4.28		2.95					4.28		2.93			
84	4.28		2.95					4.29		2.93			
85	4.28		2.95					4.30		2.94			
86	4.28		2.95					4.29		2.94			
87	4.28		2.95					4.28		2.93			
88	4.29		2.95					4.29		2.93			
89	4.28		2.95					4.29		2.93			
90	4.28		2.95					4.29		2.93			

CPK DATA

Page 11 of 12

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Mary Jo Mackin 2/26/21

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**EU5T-14474-EA ^{H4} 2/24/20Mold #: **TD108-M**

Eng. Change Documents: NA

CAVITY #: ↓

SE3	4.30		2.95				SE4	4.30		2.95			
	+0.20	-0.20	+0.20	-0.20				+0.20	-0.20	+0.20	-0.20		
91	4.28		2.94					4.29		2.93			
92	4.28		2.95					4.29		2.93			
93	4.28		2.95					4.29		2.93			
94	4.28		2.95					4.29		2.93			
95	4.28		2.95					4.29		2.93			
96	4.28		2.95					4.30		2.93			
97	4.28		2.95					4.29		2.93			
98	4.28		2.95					4.29		2.93			
99	4.28		2.95					4.30		2.94			
100	4.28		2.95					4.29		2.93			

average	4.29	2.95	4.29	2.93
minimum	4.28	2.94	4.28	2.93
maximum	4.30	2.95	4.30	2.95
range	0.02	0.01	0.02	0.02
std dev	0.01	0.00	0.01	0.01
LSL	4.10	2.75	4.10	2.75
NOM	4.30	2.95	4.30	2.95
USL	4.50	3.15	4.50	3.15

CPK 11.50238256 25.90676269 10.24536516 11.03968967

WORK INSTRUCTION

AREA:	QUALITY ASSURANCE LAB
TITLE	LABORATORY SCOPE - SCOTTSVILLE (SV5, SV5-2, SV5-Franklin)

PURPOSE: To summarize the testing capabilities available at Scottsville Plant (SV5, SV5-2, SV5-Franklin), and to clarify the equipment, tests performed, standards, recording method and reaction plan.	APPLICATION: Scottsville (SV5, SV5-2, SV5-Franklin)
	RULE ENFORCER: QA Coordinator / Above

SV5 Tests Performed

TESTS PERFORMED	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Melt Flow Rate	Tinius Olsen Extrusion Plastometer	QRW - MELTFLOW	Melt Index Record	Reject Tag Procedure
Waterproof Test	Waterproof Tester	QAW - WATERPROOFTTEST	Inspection Data Sheet	Reject Tag Procedure
Moisture Analysis (Reference Only)	Moisture Tester	F-A-SV5-010	Moisture Test Data Sheet	Reject Tag Procedure
Insertion / Retention Test	Force Gage Instron Tester	QAW - INSERTRETPROC QAW - InstronOperation	Inspection Data Sheet Data storage	Reject Tag Procedure
Dimensional Measurement	Profile / Caliper / Micrometer / Depth Gage / Keyence Measurement System	Inspection Instruction Sheet	Inspection Data Sheet	Reject Tag Procedure
Part Weight	Scale	Inspection Instruction Sheet	Inspection Data Sheet	Reject Tag Procedure
Freeze Test	Freezer	SWS Inspection Standard	Inspection Data Sheet	Reject Tag Procedure

SV5 - Franklin Tests Performed

TESTS PERFORMED	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Melt Flow Rate	Tinius Olsen Extrusion Plastometer	QRW - MELTFLOW	Melt Index Record	Reject Tag Procedure
Waterproof Test	Waterproof Tester	QAW - WATERPROOFTTEST	Inspection Data Sheet	Reject Tag Procedure
Insertion / Retention Test	Force Gage Instron Tester	QAW - INSERTRETPROC QAW - InstronOperation	Inspection Data Sheet Data storage	Reject Tag Procedure

WORK INSTRUCTION

AREA:	QUALITY ASSURANCE LAB			
TITLE	LABORATORY SCOPE - SCOTTSVILLE (SV5, SV5-2, SV5-Franklin)			
Dimensional Measurement	Caliper / Micrometer / Depth Gage / Keyence Measurement System	Inspection Instruction Sheet	Inspection Data Sheet	Reject Tag Procedure
Part Weight	Scale	Inspection Instruction Sheet	Inspection Data Sheet	Reject Tag Procedure
Freeze Test	Freezer	SWS Inspection Standard	Inspection Data Sheet	Reject Tag Procedure

SV5 (Building 2) Tests Performed

TESTS PERFORMED	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Hardness Test	Hardness Tester	H-A-001	Hardness Test Data Sheet	Reject Tag Procedure
Dimensional Measurement	Profile / Caliper / Micrometer / Depth Gage / Nikon MM-400	Inspection Instruction Sheet	Inspection Data Sheet	Reject Tag Procedure
Contact Force Test	Contact Force Gage	MSW-Force Gage	Inspection Data Sheet	Reject Tag Procedure
Dimensional Measurement	Profile / Keyence System / OGP / Caliper / Micrometer / Depth Gage / Slip Gages	SWS Inspection Standard	Inspection Data Sheet	Reject Tag Procedure

Equipment Calibrations

	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Calipers, Micrometers, Depth Gages, Weigh Scales, other process tools/jigs.	Certified Gages (Gage Blocks & Weights)	Per Calibration Procedure	Calibration Record and Gagetrak	Reject Tag Procedure
Keyence Microscope	Certified Gages			
Force Gages	Certified Weights			
Freezer	Certified Meter			
Melt Indexer	Outside Vendor			
Moisture Analyzer	Outside Vendor			
Water Pressure Gage	Outside Vendor			
Hardness Tester	Outside Vendor			
Optical Comparator (Profile)	Outside Vendor			
Keyence Measurement Scope	Outside Vendor			
OGP	Outside Vendor			
NIKON MM-400	Outside Vendor			
INSTRON Tensile Tester	Outside Vendor			

