

[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) 237-4953

SUPPLIER APPROVALS:
General Plant Manager/Above:

Supplier/Loc. SEMS-Scottsville#5

04.10.14	Revised set-up operation & characteristics	D. Gillenwater
02.25.14	Revised terminology to match PFMEANCP	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
6/3/06	Removed the name of cleaning sub-contractor D. Kerfeskint	D. Kerfeskint
4/1/05	GLOBAL QUALITY & ORG UPDATES	D. Kerfeskint, K.
2/17/05	FORMAT CHANGES/UPDATED INFO	D. Kerfeskint
2/9/00	ISSUED WITH FORMAT CHANGES	T. DAY
6/04/99	ISSUED W/ FORMAT CHANGES/UPDATES	T. GRAVEL, D. LYONS.
DATE	CHANGE POINTS	CORE/DEV. TEAM

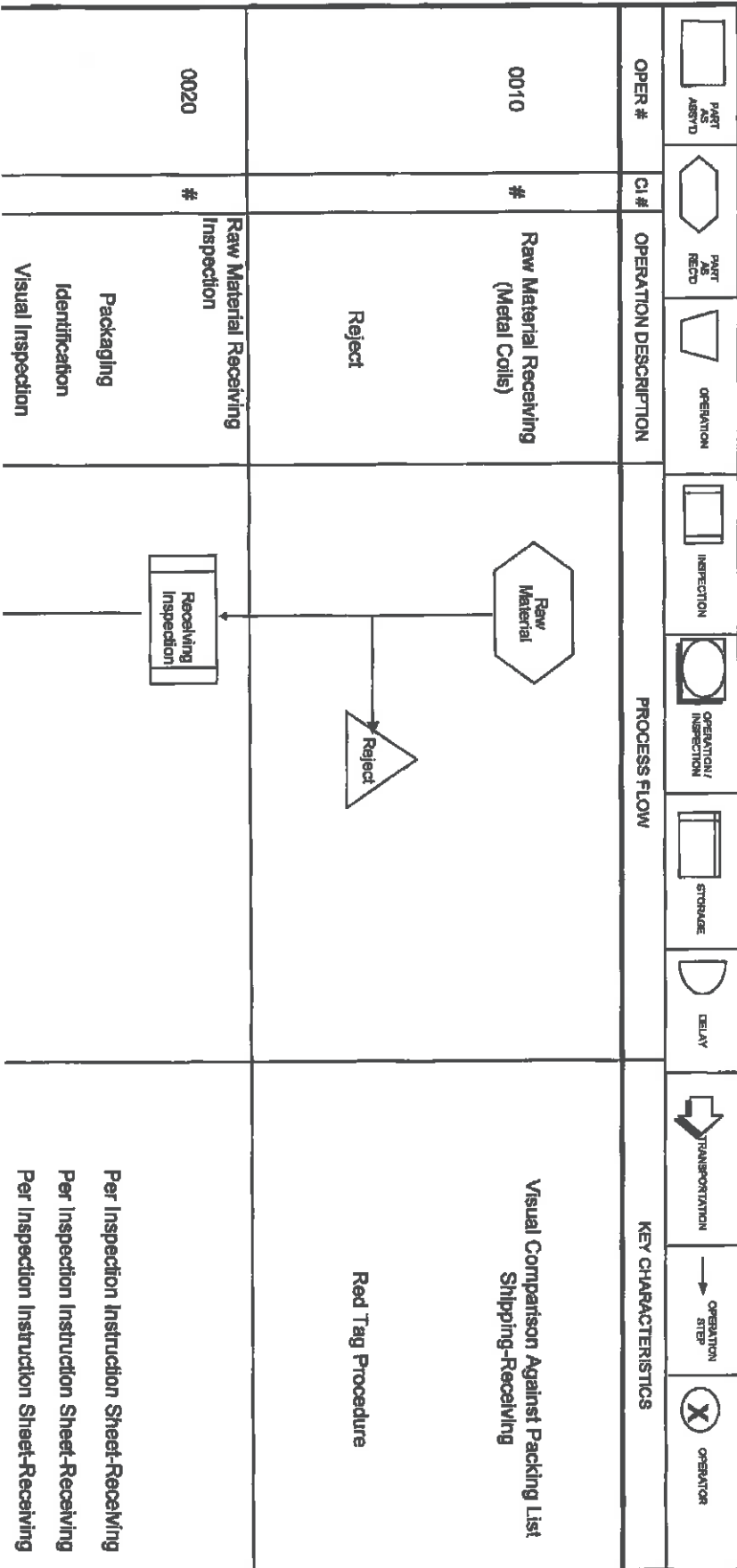
Manufacturing Manager/Above:
A.B. B...

Mfg. Sup.: K. Chapman

Quality Manager/Above:
K. Chapman

Prepared By: Dean Karfeskint QA Engineer

Customer Approval if required:
John A. Sullivan



Sumitomo Electric Wiring Systems,INC.-Components Divison

PART AS ASSTD		PART AS REQD		OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STD	OPERATOR						
OPER #	CI #	OPERATION DESCRIPTION				PROCESS FLOW					KEY CHARACTERISTICS						
		Characteristics	<pre>graph TD; A[Deliver to Raw Material Storage] --> B[Reject]; B --> C[Deliver to Metal Stamping Area];</pre>					Per Inspection Instruction Sheet-Receiving Red Tag Procedure									
0030		Raw Material Storage											Per Raw Material Lot Control Sheet				
0040		Metal Stamping Loading Raw Material															

Sumitomo Electric Wiring Systems,INC.-Components Division

PART AS ASS'D		PART AS REC'D		OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW						KEY CHARACTERISTICS		
0060		Metal Stamping Die/Machine Set-up Machine/Die PM Raw Material Machine Number Tool / Die Number Safety Checks Material Straightener Raw Material Vision System In-Line / Vision Inspection System Winder Set-Up	Machine Set-Up						Per Shop Order & Barcode scanning Per Maintenance Schedule Per Shop Order & Barcode scanning Per Production Schedule Per Shop Order Per Daily Machine Check Per Material Straightener set-up Per Raw Material Vision set-up Per In-Line Inspection Set-Up and Vision System Set-up Per Winder Set-up Sheet		
0060		Manufacturing Initial Inspection (Start Up)	Initial Inspection- Mfg.						# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets		

Sumitomo Electric Wiring Systems, INC.-Components Divison

PART AS ASSTO		PART AS RECD	OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR
OPER #	CI #	OPERATION DESCRIPTION		PROCESS FLOW						KEY CHARACTERISTICS
0070	#	Quality Assurance Inspection (Mass Production)		<pre> graph TD Start(()) --> QA[QA Inspection] QA --> Good{Good} Good --> Reject[/Reject/] Good --> MassProd[/Mass Production/] MassProd --> Operator[Operator Inspection] Operator --> Good2{Good} Good2 --> NoGood{No Good} NoGood --> End(()) </pre>						# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure
0080		Metal Stamping Production Checks (Manufacturing)		<pre> graph TD Start(()) --> MassProd[/Mass Production/] MassProd --> Operator[Operator Inspection] Operator --> Good{Good} Good --> NoGood{No Good} NoGood --> End(()) </pre>						# Part Appearance/Dimension/Function per Visual Inspection and Terminal 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		
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		
0130		Finished Goods Storage						Per BPCS Electronic System		

Sumitomo Electric Wiring Systems,INC.-Components Division

PART AS ASSTD		PART AS REC'D		OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR		
OPER #	CI #	OPERATION DESCRIPTION			PROCESS FLOW							KEY CHARACTERISTICS	
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 BPCS Electronic System	
0170		Annual Layouts			Part Layout							Per Customer Drawing/Request	

Sumitomo Electric Wiring Systems, Inc

Gage R&R Study

5/4/2015

1

Study Date 5/4/2015

Company Part No.: HW09-RET-06

Gage ID 0003437

Part No.:

Gage Desc 0 - 200 Caliper

Part Desc.: HW09-RET-06

Appraisers 3

Trials 3

Parts 10

Characteristic Length

Study Type Long-AIAG

Specification Limits Min 19.6 Max 20.2

MSA Version 4

☒ Approved

Pp (or Ppk) Target:

6-Sigma Proc Variation

	Appr A Karen			Appr B Tabitha			Appr C Toni		
1	20.05	20.03	20.05	20.04	20.04	20.04	20.03	20.03	20.03
2	20.01	20.01	20.01	20.01	20.02	20.01	20.03	20.03	20.03
3	19.61	19.63	19.61	19.63	19.62	19.63	19.62	19.64	19.64
4	20.04	20.05	20.05	20.04	20.01	20.04	20.05	20.05	20.06
5	19.75	19.77	19.74	19.76	19.73	19.73	19.75	19.75	19.75
6	20.04	20.04	20.02	20.04	20.03	20.04	20.04	20.05	20.05
7	20.03	20.05	20.05	20.05	20.05	20.06	20.04	20.05	20.06
8	19.64	19.62	19.62	19.61	19.62	19.62	19.62	19.63	19.63
9	20.04	20.05	20.03	20.03	20.04	20.06	20.08	20.06	20.08
10	19.62	19.61	19.61	19.62	19.63	19.62	19.63	19.62	19.62

		% Contribution	% TV	% Tol		
Repeatability (EV)	0.008271	0.37%	6.1%	8.3%	R bar	0.014000
Reproducibility (AV)	0.004643	0.12%	3.4%	4.6%	UCL-R	0.036120
Appraiser x Part (INT)					Study Variation	0.136308
GRR	0.009485	0.48%	7.0%	9.5%	Total Variation (TV)	0.136308
Part-to-Part (PV)	0.135977	99.52%	99.8%	99.5%	Tolerance/6 (Tol):	0.1
number of distinct categories			20.2	14.8		

* 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

[Signature]

Date

5/4/15

Gage R&R Study

Gage R&R Analysis Sheet

Study Date 5/4/2015 Gage ID 0003437 Gage Desc 0 - 200 Caliper Appraisers 3 Trials 3 Study Type Long-AIAG 4		Company Part No.: HW09-RET-06 Part No. Part Desc HW09-RET-06 Characteristic Length Specification Limits 19.6 20.2 6 Sigma Proc Var Pp (or Ppk) Target:																					
R bar A = 0.017000 X bar A = 19.882667 R bar B = 0.015000 X bar B = 19.882333 R bar C = 0.010000 X bar C = 19.891667 R bar = 0.014000 X bar Diff = 0.009333		Rp = 0.432222 Tol/6 = 0.100000																					
Measurement Unit Analysis		% Total Variation (TV)	% Tolerance																				
Repeatability - Equipment Variation (EV) $EV = R \text{ bar} \times K1$ $= 0.008271$ <table border="1" style="display: inline-table; margin-left: 20px;"> <tr><td>Trials</td><td>K1</td></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	$\% EV = 100 [EV / TV]$ $= 6.1\%$	$\% EV = 100 [EV / (Tol / 6)]$ $= 8.3\%$														
Trials	K1																						
2	0.8862																						
3	0.5908																						
Reproducibility - Appraiser Variation (AV) $AV = \sqrt{[(X \text{ bar Diff} \times K2)^2 - (EV^2 / n \times r)]}$ $= 0.004643$ <table border="1" style="display: inline-table; margin-left: 20px;"> <tr><td>Appraisers</td><td>2</td><td>3</td></tr> <tr><td>K2</td><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. n = number of parts r = number of trials		Appraisers	2	3	K2	0.7071	0.5231	$\% AV = 100 [AV / TV]$ $= 3.4\%$	$\% AV = 100 [AV / (Tol / 6)]$ $= 4.6\%$														
Appraisers	2	3																					
K2	0.7071	0.5231																					
Repeatability & Reproducibility (GRR) $GRR = \sqrt{(EV^2 + AV^2)}$ $= 0.009485$		$\% GRR = 100 [GRR / TV]$ $= 7.0\%$	$\% GRR = 100 [GRR / (Tol / 6)]$ $= 9.5\%$																				
Part Variation (PV) $PV = R_p \times K3$ $= 0.135977$	<table border="1"> <tr><td>Parts</td><td>K3</td></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	$\% PV = 100 [PV / TV]$ $= 99.8\%$	$\% PV = 100 [PV / (Tol / 6)]$ $= 99.5\%$
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																						
		$ndc = 1.41(PV/GRR)$ $= 20.2$																					
Total Variation (TV) $TV = \sqrt{(GRR^2 + PV^2)}$ $= 0.136308$		If the 6 sigma process variation is known, then $TV = [6 \text{ sigma process variation}] / 6.00$ and $PV = \text{SQRT}[(TV^2) - (GRR^2)]$.																					

Approved by

[Signature]

Date

5/4/15

Gage R&R Study

Sumitomo Electric Wiring Systems, Inc

Gage Linearity Study

4/27/2015

1

Study Date 4/27/2015

Company Part No.: Weight

Gage ID 329079

Part No.

Gage Desc Force Gage

Part Desc Weight (grams)

NIST No.:

Characteristic Weight

Study Type Linearity & Bias

Use Range Method for Bias No

Appraiser L. Roth

☒ Approved

MSA Version

4

Part Reference Values

Specification Limits

T
R
I
A
L
S

	1	2	3	4	5
	10	20	50	100	500.002
1	10	20	50	100	500
2	10	20	50	100	500
3	10	20	50	100	500.01
4	10	20	50	100	500
5	10	20	50	100	500
6	10	20	50	100.001	500
7	10	20	50	100	500
8	10	20	50	100	500
9	10	20	50	100	500.01
10	10	20	50.001	100	500
11	10	20	50	100	500
12	10	20	50	100	500
Avg. Bias/Part	0.000000	0.000000	0.000083	0.000083	-0.000333
Predicted Bias	0.000064	0.000056	0.000033	-0.000006	-0.000314

Min

Max

Pp (or Ppk) Target

6-Sigma Proc Var

			Coefficient	DF	t Stat	t Critical	
Goodness of Fit	0.007161	Intercept	0.000072	58.000000	.26164	2.00172	OK
Standard Error	0.001706	Slope	-0.000001	58.000000	-.64679	2.00172	OK
SE % of TV		Upper Fitted Confidence Limit at worst point				0.000498	OK
SE % of Tol		Lower Fitted Confidence Limit at worst point				-0.000509	OK

Gage Linearity Study

Bias

	1	2	3	4	5
1	0.000000	0.000000	0.000000	0.000000	-0.002000
2	0.000000	0.000000	0.000000	0.000000	-0.002000
3	0.000000	0.000000	0.000000	0.000000	0.008000
4	0.000000	0.000000	0.000000	0.000000	-0.002000
5	0.000000	0.000000	0.000000	0.000000	-0.002000
6	0.000000	0.000000	0.000000	0.001000	-0.002000
7	0.000000	0.000000	0.000000	0.000000	-0.002000
8	0.000000	0.000000	0.000000	0.000000	-0.002000
9	0.000000	0.000000	0.000000	0.000000	0.008000
10	0.000000	0.000000	0.001000	0.000000	-0.002000
11	0.000000	0.000000	0.000000	0.000000	-0.002000
12	0.000000	0.000000	0.000000	0.000000	-0.002000

Coefficient
Lower Upper

Avg. Bias	-0.000033	-0.000472	0.000405	DF	59.000000	EV % of TV	
Standard Error	0.000219	Acceptable		Std. Dev	0.001697	EV % of Tol	

UNCERTAINTY SETUP

Uncertainty Contributor	Type	Plus or Minus	Probability Distribution	Based On	DF	Include
Linearity						
Linearity Bias Corrected	A	0.008314	Rectangular	Maximum Residual	20.9	Yes
Only Bias corrected	A	0.008333	Rectangular	Maximum Residual	20.9	No
Uncorrected	A	0.008	Rectangular	Maximum Residual	20.9	No
Bias, corrected or not	A	0.000219	Normal(1)	Std. Err of Avg. Bia	59	Yes
Resolution	A	0	Rectangular	From Gage Table	Infinite	Yes
Repeatability or GRR	A	0.00175	Normal(1)	Pooled Std. Dev.	55	Yes

UNCERTAINTY BUDGET

Uncertainty Contributor	Type	Plus or Minus	Probability Distribution	Divisor	Sensitivity Coefficient	Uncertainty Contribution	DF	!
-------------------------	------	---------------	--------------------------	---------	-------------------------	--------------------------	----	---

t for 95% Confidence
Coverage Factor k 2

Combined Uncertainty
Expanded Uncertainty

Gage Linearity Study

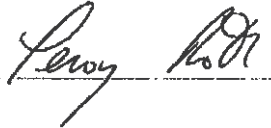


4/27/2015

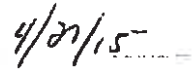
3

Comments

Approved by

A handwritten signature in black ink, appearing to read "Perry", written over a horizontal line.

Date

A handwritten date "4/27/15" in black ink, written over a horizontal line.



Production Part Approval Dimensional Test Results

[illegible]

Blanket statements of conformance are unacceptable for any test results.

5/20/2022

CERTIFICATE OF INSPECTION

ORDER
SHINSHO CORPORATION NAGOYA GROUP (C
U)
CUSTOMER
SUMITOMO ELECTRIC WIRING SYSTEMS, IN
C.

COMMODITY TRCA60 STRIP PN 8240-0477
DATE 2022-05-12

U99621

SPECIFICATION				MANUFACTURING No.		SIZE OF ARTICLE				ORDER QUANTITY		MASS	
5-4255G TRCA60 H				2-52995		0.3 X 33. XCOIL							
TEST ITEM	TEST PIECE (mm)	TENSION TEST		HARD- NESS HV	SPRING LIMIT (T)	BENDING (L)	BENDING (T)	ELECT. (MICRO) CONDUCT % IACS	TIN (MICRO) A B TEST	PEELING TEST			
		TENSILE STRENGTH (N/MM ²)	YIELD STRENGTH (N/MM ²)										
REQUIREMENT		MIN MAX	MIN MAX										
CHARGE No.	LOT No.												
C4993	96296 -1	50.		830. 580.	100. 100.	180 180	350 MIN	40.0 MIN	0.8 0.8				
"	" -2	50.		645	14.7	180 GOOD	358	44.7	1.1 1.1	GOOD			
"	"	50.		646	13.8	180 GOOD	358	44.7	1.0 1.0	GOOD			
CHEMICAL COMPOSITION (%)											APPEARANCE		
REQUIREMENT	NI	SI	ZN	SN	CU						MEASUREMENT	GOOD	
CHARGE No.	1.0 MIN 3.0 MAX	0.2 0.6 MAX	1.5 1.5 MAX	0.3 0.3 MAX	RE MAX						SURFACE	GOOD	
(6457)	1.84	0.40	1.10	0.10	RE								
C4993													

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Robin Casada 4/13/2015

PART Name/Desc: TER-US280F2S-SN

Design Rec. Change level/date:

PART NO (s): 8240-0477

EU5T-14474-EA  12/3/13

Mold #: TD078-2S

Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.50							
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30						
1	4.25		2.93		19.39							
2	4.26		2.93		19.38							
3	4.25		2.93		19.38							
4	4.26		2.93		19.39							
5	4.26		2.93		19.38							
6	4.25		2.93		19.38							
7	4.26		2.93		19.37							
8	4.26		2.93		19.39							
9	4.26		2.93		19.39							
10	4.26		2.93		19.38							
11	4.26		2.93		19.39							
12	4.26		2.93		19.39							
13	4.26		2.93		19.38							
14	4.26		2.93		19.39							
15	4.27		2.93		19.38							
16	4.26		2.93		19.39							
17	4.27		2.93		19.38							
18	4.26		2.93		19.37							
19	4.26		2.93		19.39							
20	4.27		2.92		19.39							
21	4.26		2.92		19.39							
22	4.26		2.93		19.40							
23	4.26		2.93		19.39							
24	4.27		2.93		19.38							
25	4.27		2.93		19.38							
26	4.26		2.93		19.38							
27	4.27		2.93		19.40							
28	4.27		2.93		19.40							
29	4.26		2.93		19.39							
30	4.27		2.93		19.39							

CPK MEAS DATA

ORIGINAL DATE: 11/18/02

LAST REVISION: 6/5/06

KK

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Robin Casada 4/13/2015

PART Name/Desc: TER-US280F2S-SN

Design Rec. Change level/date:

PART NO (s): 8240-0477

EU5T-14474-EA Δ DS 12/3/13

Mold #: TD078-2S

Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.50							
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30						
31	4.27		2.93		19.38							
32	4.26		2.93		19.40							
33	4.27		2.92		19.40							
34	4.26		2.93		19.38							
35	4.26		2.93		19.40							
36	4.27		2.93		19.39							
37	4.27		2.93		19.38							
38	4.27		2.93		19.39							
39	4.27		2.92		19.38							
40	4.27		2.92		19.38							
41	4.26		2.93		19.38							
42	4.27		2.93		19.38							
43	4.26		2.93		19.38							
44	4.27		2.93		19.39							
45	4.26		2.93		19.38							
46	4.27		2.93		19.39							
47	4.27		2.93		19.38							
48	4.27		2.93		19.37							
49	4.27		2.93		19.40							
50	4.27		2.93		19.40							
51	4.26		2.93		19.39							
52	4.27		2.92		19.39							
53	4.27		2.93		19.40							
54	4.27		2.92		19.40							
55	4.27		2.93		19.40							
56	4.27		2.93		19.38							
57	4.27		2.93		19.39							
58	4.27		2.93		19.40							
59	4.27		2.92		19.40							
60	4.26		2.92		19.39							

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Robin Casada 4/13/2015

PART Name/Desc: TER-US280F2S-SN

Design Rec. Change level/date:

PART NO (s): 8240-0477EU5T-14474-EA DS 12/3/13Mold #: TD078-2S

Eng. Change Documents: NA

CAVITY #:

SE1	4.30		2.95		19.50							
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30						
61	4.28		2.92		19.39							
62	4.27		2.93		19.40							
63	4.27		2.93		19.39							
64	4.26		2.93		19.40							
65	4.26		2.93		19.38							
66	4.27		2.93		19.39							
67	4.27		2.92		19.40							
68	4.26		2.93		19.39							
69	4.27		2.93		19.39							
70	4.27		2.93		19.39							
71	4.27		2.93		19.38							
72	4.27		2.93		19.38							
73	4.27		2.93		19.40							
74	4.27		2.92		19.39							
75	4.27		2.93		19.39							
76	4.28		2.93		19.38							
77	4.27		2.93		19.38							
78	4.26		2.93		19.38							
79	4.27		2.92		19.38							
80	4.27		2.93		19.38							
81	4.27		2.93		19.39							
82	4.27		2.93		19.40							
83	4.27		2.93		19.38							
84	4.27		2.92		19.38							
85	4.27		2.93		19.39							
86	4.27		2.93		19.40							
87	4.27		2.93		19.39							
88	4.26		2.93		19.39							
89	4.27		2.93		19.39							
90	4.26		2.93		19.39							

CPK DATA

Page 4 of 4

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Robin Casada 4/13/2015

PART Name/Desc: TER-US280F2S-SN

Design Rec. Change level/date:

PART NO (s): 8240-0477

EU5T-14474-EA Δ DS 12/3/13

Mold #: TD078-2S

Eng. Change Documents: NA

CAVITY #:

SE1	4.30 +0.20 -0.20	2.95 +0.20 -0.20	19.50 +0.30 -0.30						
91	4.27	2.93	19.39						
92	4.27	2.93	19.39						
93	4.27	2.93	19.40						
94	4.27	2.93	19.39						
95	4.27	2.93	19.39						
96	4.27	2.93	19.40						
97	4.27	2.93	19.38						
98	4.28	2.93	19.38						
99	4.26	2.92	19.39						
100	4.27	2.93	19.39						

average	4.27	2.93	19.39
minimum	4.25	2.92	19.37
maximum	4.28	2.93	19.40
range	0.03	0.01	0.03
std dev	0.01	0.00	0.01

LSL	4.10	2.75	19.20
NOM	4.30	2.95	19.50
USL	4.50	3.15	19.80

CPK	9.281960865	16.579807	7.83564519
-----	-------------	-----------	------------

2017		
Approval	Check	Charged
M.Mamura Manager	K.Motooka	Y.Hanebuchi
2017/3/31	2017/3/31	2017/3/31

[illegible]

Testing Items	Testing & Measurement Apparatus	Location		Instruction Manual No.	machine number	Capability of Testing & Measurement Apparatus	proof inspection
		Technical					
		1 F	3 F				
High temperature Exposure	Aging Oven	●		SCD-35AG079	15	Max. 500deg. C	OK
High-pressure washing test	High-pressure washing machine	●		SCD-35AG096	1	Max. 150deg. C Table O. 30. 60. 90 Reversal formula (angle 0~180) Nozzle angle Pressure MIN[Water pressure5Mpa→11.9L/min]: MAX[Water pressure 10Mpa→16.3L/min] Nozzle toSample 100mm φ (Width8mm, Vertical injection angle30) Water temperature Normal temperature to 80℃ temp. & humidity range:40deg. C 70RH to 98RH SO2 : Max. 500ppm H2S : Max. 0. 1ppm NO2 : Max. 0. 2ppm CL2 : Max. 0. 02ppm	OK
Corrosive gas test	Gas Corrosion Chamber	●		SCD-35AG103	2		OK
Dust resistance	Dust chamber	●		SCD-35AG123	1	blowing interval: 1 to 30sec. quantity of dust: 5kg. Max	OK
Frozen salt water test	Salt water immersion test machine	●		SCD-35AG172	1	Temperature low-temp-bath: -30℃~+100℃, high-temp-bath: ~+200℃, Immersion: +6~+80℃(150L) Concentration: 10%	OK
Fretting Corrosion	Fretting Corrosion Testing machine	●		SCD-35AG156	1	Temperature in a tank : normal temperature to 100℃ Movement frequency : 1 to 10Hz Movement distance : ±0.02mm to ±0.5mm	OK
Rotary drum drop and impact test	Rotary drum drop and impact testing Machine	●		SCD-35AG195	1	Rotational speed : 1~10rpm	OK
momentary shut-off	Power Supply, oscilloscope	●		SCD-35AG001	8	sensitivity :1mV to 5V/div Sampling Speed : 1ns	OK
Insertion & Retention force Terminal crimping force Terminal retention force Housing locking force Housing lock release force Twisting durability test Terminal strength Terminal to Terminal Engage/Disengage Force Terminal-Connector Insertion/Extraction Force Connector-Connector Mating/Unmating	Tensile & Comp. Tester/ Push-Pull Tester	●		SCD-35AG063	2	Tensile & Comp. Tester speed(mm/min) load(N) 1 to 1000 5,000	OK
	Voltage drop				5	Push-Pull tester speed(mm/min) load(N) 20,50,100,200 500	OK
Dry Circuit Resistance	Measurement System	●		SCD-35AG031	4	precision voltage : 1uV, current : 10uA	OK
Terminal Contact force	Terminal contact force meas. tester	●		SCD-35AG124	2	Load 0.1N to 100N, Speed 0.1mm/min to 1.0mm/min	OK
Insulation resistance	Insulation Resistance tester	●		SCD-35AG119	3	voltage : 10 to 1000V	OK
Waterproofness Pressure/Vacuum Leakage	Airleak Tester	●		SCD-35AG122	5	pressure : 1kPa to 500kPa, -10kPa to -200kPa	OK
Withstand voltage	Withstand voltage tester	●		SCD-35AG083	1	range :0 to 5KV	OK
Dimension	Projector	●		—	1	precision:1/1000mm magnification : 10	OK
Surface observation	stereomicroscope, metallurgical microscope	●		—	1	magnification : 1.5,5,10,20,40	OK
	Video microscope	●		—	1	magnification : 5-40, 25-175, 150-800	OK
Section cutting	cutting machine, grinder, polisher	●		—	1	—	OK
Leakage current	Power supply, resister, recorder	●		—	A lot	—	OK

PN 8240-0477

MESSRS

P. 1
2021/07/28 01:11:00

No. 2-3F7276- 10 (3)

CERTIFICATE OF INSPECTION

ORDER
SHINSHO CORPORATION NAGOYA SHITENCUSTOMER
SUMITOMO ELECTRIC WIRING SYSTEMS, IN

COMMODITY TRCA60 STRIP

DATE 2021-07-27

U99621

SPECIFICATION				MANUFACTURING No.		SIZE OF ARTICLE				ORDER QUANTITY		MASS
5-4255FA TRCA60 H				2-63455		0.3 X 33. XCOIL						
TEST ITEM	TEST PIECE (mm)	TENSION TEST		HARD- NESS	SPRING LIMIT (T)	BENDING (L)	BENDING (T)	ELECT. CONDUCT % IACS	TIN (MICRO) A B TEST	PEELING		
		YIELD STRENGTH (N/MM ²)	ELONGATION (%)									
REQUIREMENT		630. MIN 680. MAX	10.0 MIN 13.8 MAX	180 220	350 MIN	180 -0.6T	180 -0.6T	40.0 MIN	0.8 -1.5			
CHARGE No.												
N2142	50.	636	13.8	196	643	GOOD	GOOD	46.4	1.0 1.0	GOOD		
"	-2 50.	634	13.8	194		GOOD	GOOD		1.1 1.0	GOOD		
CHEMICAL COMPOSITION (%)												
REQUIREMENT	NI	SI	ZN	SN	CU						APPEARANCE	
CHARGE No.	MIN 0.2 MAX 0.6	MIN 0.5 MAX 1.5	MAX 0.3		RE						MEASUREMENT	GOOD
(6457)											SURFACE	GOOD
N2142	1.82	0.40	1.10	0.10	RE							

We certify that these products meet your specific requirements and this statements are correct and accurate.

KOBELCO
CHOFU PLANTManager of Quality Assurance Section
Y. Inoue

14-1 MINATOMACHI CHOFU SHIMONOSEKI JAPAN

