

PROCESS QUALITY CONTROL TABLE

SUMITOMO ELECTRIC WIRING SYSTEMS, INC. - COMPONENTS DIVISION

4/27/2021

Revised document per Open Operations Audit. Added child parts supply and master samples to section 0050. Added PFO label to release product in section 0020. Added box weight check to 0070 for Franklin

L. Roth, L. Stuart

2/25/2021

Updated: QA Receiving Inspection: Subcontractor assembled parts product section. Setup Assembly machines (automatic) Good / No-Good master check samples to clarify missing component (seal). Shipping and finished goods to add correct and matching AUGS labels

L. Roth, L. Stuart

6/4/2020

Added tracing In-Line pallet, reference to slip crack confirmation, etc.

L. Roth

4/27/2020

Updated process machine checklists to match actual process, added box weigh process, combined M. Ryan

L. Stuart, P. Keith, B. Melton, N. Walker,

9/4/2019

Updated 30 - 80, 100 to match actual process

L. Stuart, P. Keith, B. Thompson, J. Riffe

4/26/2018

Annual review

R. Gonzalez, P. Keith, L. Higdon

1/6/2015

Update process 70 to include changeover using autobagger to cycle at changeover

L. Roth, L. Higdon

6/6/2014

Update process 50 to match actual process.

L. Roth, J. Frain, M. Ryan

5/1/2014

Updated for threaded insert assembly process.

L. Roth, J. Frain, M. Ryan

4/6/2014

Added reference to Hopper / Lock system (0040), Bag Lifter (0070)

L. Roth, B. Thompson

9/17/2012

Improved description of child part warehousing / staging process

L. Roth, P. Keith

5/9/2011

Clarify control method 0010.

L. Roth, A. Bomar, P. Keith, D. Hall

6/18/2010

Removed reference to Life Skills, added detail for bag to box scan, updated as applicable

L. Roth, A. Bomar, P. Keith, D. Hall

8/29/2008

Revised 0050 with correct visual inspection. Revised 0070 with correct bar code instructions.

D. Gillenwater, P. Keith, D. Hall, K. Keen

9/14/2007

Revised the frequency of QA inspection #60 from end of lot to QA-003. GA003 is the detailed MODIFIED TO INCLUDE 6184572

T. GRAVUT / RAINBOW / T. STEIGER / D. LYONS / N. YAMAMOTO / T. WIX

3/15/2001

T. GRAVUT / STEIGER / LYONS / YAMAMOTO / T. WIX

3/5/2001

T. GRAVUT / STEIGER / LYONS / YAMAMOTO / T. WIX

2/9/2001

Created a separate PQCT for Assembly Process

T. GRAVUT / STEIGER / LYONS / YAMAMOTO / T. WIX

9/4/1997

Issued with format changes

A. MATHIAS, L. VONCE, J. WALKER, S. DODDSON, B. HARRISON, T. HALL, J. WALKER, S. HARRISON, P. HARRISON

DATE

CHANGE POINTS

CORE/DEVELOPMENT TEAM

ISSUE / REVISION HISTORY

CHARACTERISTICS

No.

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CI

RESPONSIBILITY

0010

COMPONENTS, SEAL, TERMINALS, ASSEMBLY PROCESS

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SHIPPING / RECEIVING OPERATOR

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2. NO DEFECTS PER
3. NO CONTAMINATION
4. CORRECT PART NUMBER
5. CORRECT COLOR (WHERE APPLICABLE)

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FREQUENCY

EACH RECEIPT

CONTROL METHOD

W/IL SRW-RECFLOW, BPCS

REACTION PLAN

NOTIFY LEADER / COORDINATOR / QA ENGINEER AS NEEDED
1. RETURN TO SUPPLIER
2. RECTIFY / HOLD TAG PROCEDURE
3. INITIATE PIR AS NEEDED

PART/PROCESS NUMBER

0010

0020

PROCESS NAME/OPERATION DESCRIPTION

MATERIALS RECEIVING PURCHASED MATERIAL (COMPONENTS, SEAL, TERMINALS, METAL CLIPS)

QUALITY ASSURANCE: RECEIVING INSPECTION WHERE APPLICABLE

MACHINE DEVICE/JIG TOOLS FOR ASSEMBLY

N/A

SCANNER

CHARACTERISTICS

No.

PRODUCT

PROCESS

CI

RESPONSIBILITY

0010

COMPONENTS, SEAL, TERMINALS, ASSEMBLY PROCESS

RECEIVING COMPONENT PARTS

SHIPPING / RECEIVING OPERATOR

0020

1. NO PACKAGING / SHIPPING DAMAGE
2. NO DEFECTS PER
3. NO CONTAMINATION
4. CORRECT PART NUMBER
5. CORRECT COLOR (WHERE APPLICABLE)

QA RECEIVING INSPECTION

RECEIVING QUALITY ASSURANCE OPERATOR

METHODS

EVALUATION MEASUREMENT TECHNIQUE

VISUAL INSPECTION PER INSTRUCTION SHEET - QA RECEIVING WHERE APPLICABLE

SIZE

100% VISUAL EACH CONTAINER

FREQUENCY

EACH RECEIPT

CONTROL METHOD

W/IL SRW-RECFLOW, BPCS

REACTION PLAN

NOTIFY LEADER / COORDINATOR / QA ENGINEER AS NEEDED
1. RETURN TO SUPPLIER
2. RECTIFY / HOLD TAG PROCEDURE
3. INITIATE PIR AS NEEDED

PART/PROCESS NUMBER

0010

0020

PROCESS NAME/OPERATION DESCRIPTION

MATERIALS RECEIVING PURCHASED MATERIAL (COMPONENTS, SEAL, TERMINALS, METAL CLIPS)

QUALITY ASSURANCE: RECEIVING INSPECTION WHERE APPLICABLE

MACHINE DEVICE/JIG TOOLS FOR ASSEMBLY

N/A

SCANNER

CHARACTERISTICS

No.

PRODUCT

PROCESS

CI

RESPONSIBILITY

0010

COMPONENTS, SEAL, TERMINALS, ASSEMBLY PROCESS

RECEIVING COMPONENT PARTS

SHIPPING / RECEIVING OPERATOR

0020

1. NO PACKAGING / SHIPPING DAMAGE
2. NO DEFECTS PER
3. NO CONTAMINATION
4. CORRECT PART NUMBER
5. CORRECT COLOR (WHERE APPLICABLE)

QA RECEIVING INSPECTION

RECEIVING QUALITY ASSURANCE OPERATOR

METHODS

EVALUATION MEASUREMENT TECHNIQUE

VISUAL INSPECTION PER INSTRUCTION SHEET - QA RECEIVING WHERE APPLICABLE

SIZE

100% VISUAL EACH CONTAINER

FREQUENCY

EACH RECEIPT

CONTROL METHOD

W/IL SRW-RECFLOW, BPCS

REACTION PLAN

NOTIFY LEADER / COORDINATOR / QA ENGINEER AS NEEDED
1. RETURN TO SUPPLIER
2. RECTIFY / HOLD TAG PROCEDURE
3. INITIATE PIR AS NEEDED

PART/PROCESS NUMBER

0010

0020

PROCESS NAME/OPERATION DESCRIPTION

MATERIALS RECEIVING PURCHASED MATERIAL (COMPONENTS, SEAL, TERMINALS, METAL CLIPS)

QUALITY ASSURANCE: RECEIVING INSPECTION WHERE APPLICABLE

MACHINE DEVICE/JIG TOOLS FOR ASSEMBLY

N/A

SCANNER

CHARACTERISTICS

No.

PRODUCT

PROCESS

CI

RESPONSIBILITY

0010

COMPONENTS, SEAL, TERMINALS, ASSEMBLY PROCESS

RECEIVING COMPONENT PARTS

SHIPPING / RECEIVING OPERATOR

0020

1. NO PACKAGING / SHIPPING DAMAGE
2. NO DEFECTS PER
3. NO CONTAMINATION
4. CORRECT PART NUMBER
5. CORRECT COLOR (WHERE APPLICABLE)

QA RECEIVING INSPECTION

RECEIVING QUALITY ASSURANCE OPERATOR

METHODS

EVALUATION MEASUREMENT TECHNIQUE

VISUAL INSPECTION PER INSTRUCTION SHEET - QA RECEIVING WHERE APPLICABLE

SIZE

100% VISUAL EACH CONTAINER

FREQUENCY

EACH RECEIPT

CONTROL METHOD

W/IL SRW-RECFLOW, BPCS

REACTION PLAN

NOTIFY LEADER / COORDINATOR / QA ENGINEER AS NEEDED
1. RETURN TO SUPPLIER
2. RECTIFY / HOLD TAG PROCEDURE
3. INITIATE PIR AS NEEDED

PART/PROCESS NUMBER

0010

0020

PROCESS NAME/OPERATION DESCRIPTION

MATERIALS RECEIVING PURCHASED MATERIAL (COMPONENTS, SEAL, TERMINALS, METAL CLIPS)

QUALITY ASSURANCE: RECEIVING INSPECTION WHERE APPLICABLE

MACHINE

PROCESS QUALITY CONTROL TABLE

PART / PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE DEVICE / UTILITY FOR ASSEMBLY	CHARACTERISTICS			RESPONSIBILITY	METHODS		SAMPLE			SAMPLE RESULTS FORMAT	REACTION PLAN
			No.	PRODUCT	PROCESS		CI	PRODUCT/ PROCESS SPECIFICATIONS	EVALUATION MEASUREMENT TECHNIQUE	SIZE	FREQUENCY		
0025	QA RECEIVING INSPECTION. SUB-ASSEMBLY PARTS ASSEMBLED PARTS	NA		1. CORRECT PART / IDENTIFIED LOCATION	QA RECEIVING INSPECTION		RECEIVING / INSPECTION ASSURANCE OPERATOR	PER APPLICABLE QA RECEIVING INSPECTION SHEET	VISUAL OR AS SPECIFIED ON APPLICABLE QA RECEIVING INSPECTION SHEET	PER QRV- RAINBOW QA SAMPLE PLAN	EACH INCOMING SHIPMENT	APPLICABLE INSPECTION SHEET- QRV- RAINBOW QA RECEIVING	NOTIFY LEADER / COORDINATOR / QA ENGINEER AS NEEDED- 1. REJECT / HOLD TAG PROCEDURE 2. REJECT / HOLD TAG PROCEDURE 3. INITIATE PIR AS NEEDED
			0025	COMPONENTS, SEALS FOR FRANKLIN ASSEMBLY PROCESS	TRANSFER OF COMPONENTS TO FRANKLIN		SHIPPING / RECEIVING OPERATOR AT COMPONENTS WAREHOUSE	TRANSFER ITEMS TO FRANKLIN ON TRUCK FOR STOCKING AT FRANKLIN WAREHOUSE LOCATION	RFSEALS- NO DOCUMENT IS USED TO IDENTIFY PARTS FOR TRANSFER TO FRANKLIN	NA	NA	EACH UNIT	2. BARCODE SCAN. PIRFO LABELS
0030	COMPONENTS MATERIAL STORAGE (BOTH HOUSE & PURCHASES)	SCANNER	0030	1. CORRECT PARTS / IDENTIFIED LOCATION	STORAGE OF CHILD PARTS HOUSINGS / SEALS, ETC)		SHIPPING / KANBAN OPERATOR	CORRECT STORAGE WAREHOUSE LOCATION	VISUAL JUDGEMENT BY TRAVELLER / BOX LABEL SCAN TO LOCATION	PER CONTAINER	EACH RECEIPT	BARCODE SCANNING.	NOTIFY SHIPPING / RECEIVING LEADER, SUPERVISOR & QA IF NEEDED
0040	SET UP ASSEMBLY MACHINES (AUTOMATIC)	AUTOMATIC ASSEMBLY MACHINE		1. CORRECT PARTS / IDENTIFIED LOCATION	PULLING OF CHILD PARTS HOUSINGS / RETAINERS / SEALS, ETC)		SHIPPING / KANBAN OPERATOR	CORRECT PARTS. AWW - ASSY KANBAN	GENERATE PICKLIST FROM BARCODE SCANNING, PICK PARTS	PER CONTAINER	EACH REQUEST	BARCODE SCANNING.	NOTIFY SHIPPING / RECEIVING LEADER, SUPERVISOR & QA IF NEEDED
				1. CORRECT PARTS / IDENTIFIED LOCATION	STAGING OF CHILD PARTS IN ASSEMBLY		KANBAN / JIT OPERATOR	CORRECT STAGING LOCATION	VISUAL VERIFICATION PER PICKLIST	PER CONTAINER	EACH RECEIPT	BARCODE SCAN TO ACP LOCATION	NOTIFY ASSEMBLY LEADER / SUPERVISOR IF NEEDED
			0040	CHILD PARTS	SET UP ASSEMBLY MACHINES (AUTOMATIC / SEMI AUTOMATIC PROCESS PARAMETERS)		ASSEMBLY LEADER / SETUP	PER APPLICABLE WORK INSTRUCTION	VISUAL COMPARISON PER APPLICABLE WORK INSTRUCTION	EACH MACHINE	PER SHOP ORDER	a) DAILY REPORT CHANGEOVER CHECKSHEET c) DAILY MACHINE CHECK SHEET d) DAILY MACHINE SET-UP CHECK SHEET	NOTIFY LEADER / COORDINATOR / QA / MAINTENANCE OF ANY ABNORMALITY
0050	ASSEMBLY PRODUCTION	AUTOMATIC/SEMI AUTOMATIC ASSEMBLY MACHINES		CHILD PARTS	SUPPLY CHILD PARTS TO ASSEMBLY MACHINE		LEADER / SETUP / ASSEMBLY OPERATOR	PER SHOP ORDER	SCAN CHILD COMPONENTS TO ASSEMBLY MACHINE WHEN HOPPER LOCK OPENS, LOAD CHILD PARTS INTO MACHINE.	EACH UNIT	EACH UNIT	DAILY REPORT. BARCODE SCAN.	NOTIFY LEADER / COORDINATOR / QA / MAINTENANCE OF ANY ABNORMALITY
			0050	ASSEMBLED PARTS	ASSEMBLY MACHINE VERIFICATION		ASSEMBLY LEADER	PER MACHINE SPECIFIC SAMPLE CHECK WORK INSTRUCTION. CONFIRM MACHINE INSPECTION EQUIPMENT IS OPERATING CORRECTLY AND WILL DETECT: 1. MISSING COMPONENT (SEAL / RETAINER / CPA / MBS / LEVER / CLIP) 2. CORRECT KEYWAY (HOUSING / CLIP) 3. COMPONENT POSITION (RETAINER / CPA / MBS / SEAL / LEVER / CLIP) 4. MISSING COMPONENT (SEAL / RETAINER / OTHER COMPONENTS AS APPLICABLE) 5. COLOR (HOUSING / SEAL / RETAINER / OTHER COMPONENTS AS APPLICABLE) 6. DAMAGED PARTS 7. DAMAGED PARTS IDENTIFIED BY ENGINEERING ON MACHINE SPECIFIC SAMPLE CHECK SHEET	RUN EACH MASTER CHECK WORK INSTRUCTION TO CONFIRM DETECTION	PER EACH MACHINE	EACH SOP	SAMPLE CHECKSHEET	NOTIFY QA (SEWS) OR MAINTENANCE AS NEEDED- 1. REJECT / HOLD TAG PROCEDURE
0050	ASSEMBLY PRODUCTION	AUTOMATIC/SEMI AUTOMATIC ASSEMBLY MACHINES	0050	ASSEMBLED PARTS	AUTOMATIC ASSEMBLY		ASSEMBLY OPERATOR	PER APPLICABLE WORK INSTRUCTION	AUTOMATED ASSEMBLY EQUIPMENT.	100%	CONTINUOUS	100% AUTOMATED INSPECTION	NOTIFY LEADER / COORDINATOR / QA AS NEEDED- 1. REJECT / HOLD TAG PROCEDURE

PROCESS QUALITY CONTROL TABLE

PART/ PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE, JIG, TOOLS FOR ASSEMBLY	CHARACTERISTICS		RESPONSIBILITY	METHODS		SAMPLE		SAMPLE RESULTS FORMAT	REACTION PLAN
			PRODUCT	PROCESS		PRODUCT PROCESS SPECIFICATIONS	EVALUATION MEASUREMENT TECHNIQUE	SIZE	FREQUENCY		
			ASSEMBLED PARTS	SUPPLY CHILD PARTS	CI	ASSEMBLY OPERATOR	LOAD CHILD PARTS INTO HOPPER	EACH UNIT	EACH UNIT	DAILY REPORT BARCODE SCAN	NOTIFY LEADER / COORDINATOR / QA AS NEEDED.
			ASSEMBLED PARTS	MACHINE CHECKS	ASSEMBLY OPERATOR	PER APPLICABLE WORK INSTRUCTION	CONFIRM EACH ITEM PER THE DAILY MACHINE CHECK BOX. CONFIRM NUMBER OF BAGS IN BOX. CONFIRM SCRAP BIN IS CLEAN. CONFIRM ALL NESTS ARE FULL OF PARTS. CONFIRM AIR PRESSURE, ETC.	PER EACH AUTOMATIC MACHINE	EACH SHIFT	MACHINE CHECK SHEET	NOTIFY QA OR MAINTENANCE AS NEEDED 1. REJECT / HOLD TAG PROCEDURE
			ASSEMBLED PARTS	VISUAL INSPECTION	ASSEMBLY OPERATOR	1. CORRECT COMPONENTS (RETAINER / SPACER / MBS / SEAL, ETC) 2. CORRECT COMPONENT POSITION (RETAINER / SPACER / MBS / SEAL / LEVER, ETC) 3. INSPECTION MARK PRESENT 4. CORRECT PART NUMBER 5. CORRECT BAG / TRAY QUANTITY	VISUAL INSPECTION AGAINST CRITICAL POSITION CHECK SHEET	1 PC (1 UP MACHINE) 2 PC (2 UP MACHINE)	SOS and Start of Every Box	DAILY REPORT	NOTIFY LEADER / COORDINATOR / QA AS NEEDED 1. REJECT / HOLD TAG PROCEDURE
			ASSEMBLED PARTS	AUTOMATED INSPECTION	AUTOMATIC	ASSEMBLY FIT & FUNCTION 1. MISSING COMPONENT (SEAL / RETAINER / CPA / MBS / LEVER / CLIP) 2. CORRECT KEYWAY (HOUSING / RETAINER / ETC) 3. COMPONENT POSITION (RETAINER / CPA / MBS / SEAL / LEVER / CLIP) 4. MISSING COMPONENT (SEAL / MBS / RETAINER) 5. COLOR (HOUSING / SEAL / RETAINER / OTHER COMPONENTS AS APPLICABLE) 6. MISSING INSPECTION MARKS 7. OTHER FAILURE MODES AS IDENTIFIED BY ENGINEERING ON MACHINE SPECIFIC SAMPLE CHECK SHEET	AUTOMATED INSPECTION (INSPECTION SENSORS, CAMERA INSPECTION SYSTEMS)	100%	CONTINUOUS	* 100% AUTOMATED INSPECTION / REJECTION * DAILY REPORT	NOTIFY LEADER / COORDINATOR / QA AS NEEDED 1. REJECT / HOLD TAG PROCEDURE
			ASSEMBLED PARTS	ASSEMBLY VERIFICATION	ASSEMBLY OPERATOR	Note: Inspection mark etched on each part if passed automatic testing. **L-20 uses blue/black dot	RUN EACH MASTER CHECK SAMPLE THROUGH ASSEMBLY INSPECTION MACHINE TO CONFIRM DETECTION	PER EACH AUTOMATIC MACHINE	EACH SHIFT (END OF SHIFT & CHANGEOVER), SOME SPECIFIED MACHINES ARE DAILY	SAMPLE CHECKSHEET	NOTIFY QA OR MAINTENANCE AS NEEDED 1. REJECT / HOLD TAG PROCEDURE
			ASSEMBLED PARTS	INSPECTION (ROVING PATROL)	INLINE INSPECTOR	1. NO DAMAGE (FROM GRIPPERS / INSERTION JIGS, ETC) 2. COMPONENT PRESENCE (SEAL / RETAINER / MBS / LEVER / CLIP, ETC) 3. COMPONENT POSITION (RETAINER / CPA / MBS / SEAL / LEVER / CLIP, ETC) 4. COMPONENT COLOR (HOUSING / RETAINER / ETC) 5. CORRECT KEYWAY (HOUSING / RETAINER, ETC) 6. INSPECTION MARK LEGIBLE	VISUAL INSPECTION PER MACHINE SPECIFIC CRITICAL POSITION CHECKSHEET (CPC) AND/OR APPLICABLE WORK INSTRUCTION	1 PC (UP MACHINE) 2 PC (2UP MACHINE) EACH INSPECTION ROUND	ROVING PATROL	DAILY REPORT	NOTIFY LEADER / COORDINATOR / QA LEADER AS NEEDED.

PROCESS QUALITY CONTROL TABLE

PART/ PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE, JIG, TOOLS FOR ASSEMBLY	CHARACTERISTICS		RESPONSIBILITY	METHODS		SAMPLE		SAMPLE RESULTS FORMAT	
			PRODUCT	PROCESS		PRODUCT PROCESS SPECIFICATIONS	EVALUATION MEASUREMENT TECHNIQUE	SIZE	FREQUENCY	CONTROL METHOD	REACTION PLAN
0000	QA ASSEMBLY INSPECTION	N/A	ASSEMBLED PRODUCT	PER QA INSPECTION INSTRUCTION SHEET ASSEMBLY	QA OPERATOR	ASSEMBLY APPEARANCE, FUNCTION AND MOLDING DEFECTS (TEST PER QAW-QA-003) VISUAL INSPECTION INCLUDES: 1. NO DAMAGE (FROM GRIPPERS / INSERTION JIGS, ETC) 2. COMPONENT PRESENCE (MISPLACED / MISSING / CLIP, ETC) 3. COMPONENT POSITION (RETAINER / CPA / MBS / SEAL / LEVER / CLIP, ETC) 4. COLOR (HOLDING HOUSING / SEAL, RETAINER, ETC) 5. CORRECT KEYWAY (HOUSING / RETAINER, ETC) 6. INSPECTION MARK LEGIBLE	VISUAL: VERIFY RETAINER / SEAL INSERTED / MACHINE INSPECTION MARK. FUNCTION: WATERPROOF OTHER: AS APPLICABLE PER INSPECTION STANDARD.	ONE PIECE	PM QAW-QA-003	QA ASSEMBLY DATA ENTRY PROGRAM	NOTIFY SET-UP / LEADER / COORDINATOR 1. REJECT / HOLD TAG PROCEDURE
0070	ASSEMBLY PACKING / LABELING,	MACHINE BAGGER (IF APPLICABLE), MACHINE COUNTER, LABELS & SCANNER, BAG LIFTER (IF APPLICABLE)	0070 1. CORRECT QUANTITY IDENTIFICATION 2. NO MIXED BAGS/PRODUCT	PACKING FINISHED PARTS	MACHINE OPERATOR	1. CORRECT LABEL (PART NUMBER) 2. NO MIXED BAGS IN BOX 3A. BAG QUANTITY MATCHES LABEL QUANTITY 3B. CORRECT BOX QTY (CORRECT NUMBER OF BAGS IN BOX) 4. CORRECT PARTS IN BAG / BOX	1. CONFIRM LABELS MATCH SHOP SYSTEM 2. SCAN EACH BAG LABEL TO BOX (SYSTEM DETECTION) 3A. MANUALLY COUNT FIRST BAG OF SHOP ORDER / COMPARE CORRECT QUANTITY PER BAG 3B. SCAN EACH BAG LABEL TO BOX 4. CYCLE BAGGER / BOX FILL AT CHANGEOVER TO DROP PARTIAL BAGS (AS REQUIRED)	EACH BAG / CARTON	EACH BAG/BOX	BARCODE SCANNING SCANBAGTOBOX	NOTIFY SET-UP / LEADER / COORDINATOR, 1. REJECT TAG PROCEDURE
	BOX WEIGHT (MACHINES WITH PRINT ON LABELS) @ FRANKLIN	SCALE	ASSEMBLED PRODUCT	WEIGH FINISHED GOODS BOX	MACHINE OPERATOR	5. CORRECT BAG/BOX QUANTITY (FRANKLIN)		EACH UNIT	EACH UNIT	ASSEMBLY DAILY REPORT SCANBAGTOBOX	NOTIFY LEADER / COORDINATOR
0080	FINISHED PRODUCT STAGING	N/A	ASSEMBLED PRODUCT	FINISHED PRODUCT STAGING	JIT OPERATOR	REPORT PRODUCTION, STAGE FINISHED GOODS	ELECTRONIC BPCS SYSTEM (SCANNING SYSTEM)	EACH CARTON / BOX	CONTINUOUS	ELECTRONIC BPCS SYSTEM (SCANNING SYSTEM)	NOTIFY LEADER / COORDINATOR REJECT TAG PROCEDURE
0085	BOX WEIGH	MACHINES & BAGGERS WITH PRINT ON BAG LABELS	ASSEMBLED PRODUCT	WEIGH FINISHED GOOD BOX	TRAINED ASSOCIATE	PER WORK INSTRUCTION	CONFIRMATION OF BOX WEIGHT PER WORK INSTRUCTION	EACH BOX	CONTINUOUS	AYF - DAILY INSPECTION, CALIBRATED SCALE	NOTIFY LEADER / COORDINATOR 1. REJECT TAG PROCEDURE
0090	FINISHED GOODS STORAGE	N/A	ASSEMBLED PRODUCT	WAREHOUSE / SHIPPING	WAREHOUSE / SHIPPING OPERATOR	1. TRANSFER TO MILK RUN TRUCK 2. CORRECT STORAGE LOCATION	ELECTRONIC BPCS SYSTEM (SCANNING SYSTEM)	EACH BOX	CONTINUOUS	ELECTRONIC BPCS SYSTEM (SCANNING SYSTEM)	NOTIFY: SHIPPING / RECEIVING LEADER, SUPERVISOR & QA IF NEEDED
0100	SHIPPING DOCK AUDIT	N/A	1. LABEL 2. CARRIER 3. DELIVERY 4. PARTS 5. PACKAGING 6. SKID 7. REQ. / PO# 8. CORRECT AIAG LABEL / BOX LABEL	SHIPPING DOCK AUDIT	RECEIVING / SHIPPING OPERATOR OR HIGHER	1. CORRECT LABEL 2. CORRECT CARRIER 3. CORRECT DELIVERY 4. CORRECT PARTS 5. NO PACKAGING DAMAGE 6. SKID OF MATERIAL 7. CORRECT REEL / PO#	VISUAL COMPARISON	RANDOM BOX / PART / SHIPMENT	WEEKLY	SVS SHIPPING DOCK AUDIT SHEET	NOTIFY: SHIPPING / RECEIVING DEPARTMENT, SUPERVISOR & QA IF NEEDED
0110	SHIPPING FINISHED ASSEMBLED GOODS	N/A	1. PROPER LABEL 2. PROPER PART NUMBER	LABELING AND SHIPPING FINISHED GOODS	SHIPPING / RECEIVING OPERATORS	1. PRESENT, CORRECT, CLEAR AND LEGIBLE LABELS 2. CORRECT PART NUMBER 3. CORRECT PART QTY 4. CORRECT AIAG SHIPPING LABELS (for customers requiring 2 AIAG labels)	BAR-CODE SCANNER-BPCS SYSTEM	EACH BOX / CONTAINER	EACH BOX / CONTAINER	ELECTRONIC BPCS SYSTEM-OPERATOR SCANNING	NOTIFY SHIPPING LEADER
	ANNUAL LAYOUT		PER CUSTOMER DRAWING		PPAP GROUP	PER CUSTOMER DRAWING	PER CUSTOMER REQUIREMENTS	PER CUSTOMER REQUEST	PER CUSTOMER REQUEST	CUSTOMER PPAP	NOTIFY QA ENGINEER / MANAGER

Sumitomo Electric Wiring Systems, Inc

Gage R&R Study

05/19/2021

Page 1 of 2

Study Date: 5/18/2021 12:00:00 AM

Company Part No.: Mold 268

Gage ID: SN1000104

Part No.:

Gage Desc: Profile Projector

Part Desc: HW09-RET-06

Appraisers: 3

Trials: 3

Parts: 10

Characteristic: Length

Study Type:

Specification Limits: Min 19.6 Max 20.02

MSA Version: 4

☒ Approved

Pp (or Ppk) Target

6-Sigma Proc Variation

Appr A: S. Disman			Appr B: M. Haddix			Appr C: T. Holland		
1	20.01	20.02	20.02	20.01	20.02	20.02	20.01	20.01
2	20.05	20.06	20.05	20.05	20.04	20.06	20.04	20.05
3	19.72	19.73	19.71	19.71	19.71	19.72	19.72	19.73
4	20.09	20.08	20.08	20.09	20.09	20.09	20.08	20.08
5	19.85	19.84	19.86	19.86	19.85	19.86	19.85	19.85
6	20.08	20.06	20.07	20.06	20.07	20.08	20.07	20.07
7	20.02	20.02	20.01	20.03	20.03	20.02	20.02	20.01
8	19.72	19.72	19.7	19.72	19.71	19.72	19.72	19.71
9	20.01	20.01	20	20.01	20.01	20	20.01	20
10	19.67	19.67	19.67	19.67	19.67	19.67	19.68	19.67

	Std. Dev.	% Contribution	% TV	% Tol		
Repeatability (EV):	0.006893	0.3%	5.3%	9.8%	R bar:	0.011667
Reproducibility (AV):	0.000000	0.0%	0.0%	0.0%	UCL-R:	0.030100
Appraiser x Part (INT):					Study Variation:	0.130217
GRR:	0.006893	0.3%	5.3%	9.8%	Total Variation (TV):	0.130217
Part-to-Part (PV):	0.130035	99.7%	99.9%	99.5%	Tolerance/6 (Tol):	0.070000
number of distinct categories:			26.6	14.2		

* 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:

5/19/21

GRR Analysis Sheet

Study Date: 5/18/2021 12:00:00 AM Gage ID: SN1000104 Gage Desc: Profile Projector Appraisers: 3 Trials: 3 Study Type: Long-AIAG 4		Company Part No.: Mold 268 Part No.: Part Desc: HW09-RET-06 Characteristic: Length Specification Limits: 19.6 20.02																					
R bar A = 0.013000 X bar A = 19.920000 R bar B = 0.011000 X bar B = 19.919333 R bar C = 0.011000 X bar C = 19.920667 R bar = 0.0116670 X bar Diff = 0.001333		6 Sigma Process Variation: Pp (or Ppk) Target: Rp = 0.413334 Tol/6 = 0.070000																					
Measurement Unit Analysis		% Total Variation (TV)	% Tolerance																				
Repeatability - Equipment Variation (EV) EV = R bar x K1 = 0.006893 <table border="1" style="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] = 5.3%	% EV = 100 [EV / (Tol / 6)] = 9.8%														
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" style="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] = 0.0%	% AV = 100 [AV / (Tol / 6)] = 0.0%														
Appraisers	2	3																					
K2	0.7071	0.5231																					
Repeatability and Reproducibility (GRR) $GRR = \sqrt{(EV^2 + AV^2)}$ = 0.006893		%GRR = 100 [GRR / TV] = 5.3%	% GRR = 100 [GRR / (Tol / 6)] = 9.8%																				
Part Variation (PV) PV = Rp x K3 = 0.130035	<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] = 99.9%	% 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																						
		In MSA4, for % Tolerance, PV = SQRT [(Tol / 6)^2 - (GRR)^2]																					
		ndc = 1.41(PV/GRR) = 26.6	ndc = 1.41(PV/GRR) = 14.2																				
Total Variation (TV) $TV = \sqrt{(GRR^2 + PV^2)}$ = 0.130217		If the 6 sigma process variation is known, then TV = [6 sigma process variation] / 6.00 and PV = SQRT[(TV^2) - (GRR)^2].																					



Production Part Approval Dimensional Test Results

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS	PART NUMBER: 6189-8624		
SUPPLIER/VENDOR COE	PART NAME: FOW120A07FA-2		
NAME OF INSPECTION FACILITY:	DESIGN RECORD CHANGE LEVEL: MU5T-14A464-AGB	B1	01/13/22
Sumitomo Electric Wiring Systems Plt. 5	ENGINEERING CHANGE DOCUMENTS:	NA	

[illegible]

Blanket statements of conformance are unacceptable for any test results.

MARCH
2006

CFG-1003

SIGNATURE

Christi Cornwell

TITLE

Ppap Operator

DATE _____

12/13/2021

TO SUMITOMO ELECTRIC WIRING SYSTEMS

Polyplastics

DAICEL Group

POLYPLASTICS CO., LTD.
JR SHINAGAWA EAST BLDG. 13
2-18-1, KONAN
MINATO-KU, TOKYO, 108-8280 JAPAN

CERTIFICATE OF ANALYSIS

WE HEREBY CERTIFY THAT THE UNDERMENTIONED LOT WAS DULY
INSPECTED AND PASSED BY OUR QUALITY CONTROL DEPARTMENT.

POLYBUTYLENE TEREPHTHALATE
DURANEX(R)

GRADE; COLOR NO. CK7816 ED3003
LOT NO. B12572
JUDGMENT PASS

ITEM	TESTING METHOD	UNIT	<<< SPEC >>>	VALUE
MFR	ISO 1133	g/10min	4.0 -- 14.0	9.1
Ash Content	ISO 3451	%	15.0 -- 19.0	17
Tensile strength	ISO 527-1, 2	MPa	>= 75.0	101.2
Tensile strain	ISO 527-1, 2	%	>= 2.0	3.8

2021/08/12
Approved By



※according to EN 10204-3.1

※This lot complies with RoHS requirements.

DURANEX(R) is a registered trademark of Polyplastics Co., Ltd. in Japan and other countries.

QUALITY ASSURANCE DEPARTMENT
YOICHI KUROKAWA

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

PART Name/Desc: **FOW120A07FA-2**PART NO (s): **6189-8624**Mold #: **1874-A2**Tested by/Date: Christi Cornwell 12/13/21

Design Rec. Change level/date:

MU5T-14A464-AGB B1 1/13/2022Eng. Change Documents: NA

CAVITY #:	M1		M2		M3		M4	
	36.60	19.18	36.60	19.18	36.60	19.18	36.60	19.18
	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3
1	36.566	19.351	36.53	19.353	36.512	19.343	36.548	19.339
2	36.551	19.362	36.52	19.373	36.518	19.348	36.553	19.343
3	36.550	19.355	36.52	19.315	36.523	19.313	36.558	19.364
4	36.562	19.328	36.52	19.342	36.523	19.307	36.558	19.322
5	36.546	19.347	36.51	19.338	36.518	19.348	36.568	19.337
6	36.549	19.330	36.51	19.342	36.527	19.341	36.561	19.342
7	36.552	19.357	36.53	19.343	36.512	19.320	36.538	19.312
8	36.567	19.341	36.52	19.335	36.520	19.328	36.549	19.354
9	36.551	19.341	36.51	19.351	36.520	19.341	36.557	19.321
10	36.552	19.360	36.52	19.337	36.528	19.343	36.565	19.338
11	36.559	19.349	36.53	19.339	36.525	19.331	36.554	19.339
12	36.562	19.356	36.52	19.350	36.517	19.330	36.540	19.339
13	36.553	19.365	36.52	19.345	36.528	19.339	36.558	19.345
14	36.566	19.339	36.53	19.335	36.521	19.373	36.556	19.345
15	36.556	19.369	36.55	19.342	36.520	19.318	36.552	19.340
16	36.563	19.358	36.51	19.340	36.507	19.342	36.541	19.333
17	36.551	19.341	36.52	19.334	36.517	19.347	36.554	19.344
18	36.558	19.351	36.47	19.342	36.518	19.348	36.548	19.352
19	36.558	19.375	36.51	19.360	36.517	19.336	36.558	19.361
20	36.551	19.351	36.53	19.335	36.518	19.317	36.551	19.364
21	36.557	19.359	36.51	19.327	36.511	19.339	36.560	19.356
22	36.553	19.352	36.53	19.343	36.504	19.343	36.547	19.337
23	36.557	19.371	36.53	19.337	36.524	19.329	36.559	19.333
24	36.560	19.351	36.53	19.335	36.508	19.337	36.559	19.326
25	36.554	19.371	36.52	19.336	36.518	19.327	36.559	19.340
26	36.554	19.362	36.52	19.356	36.511	19.353	36.552	19.340
27	36.548	19.357	36.52	19.328	36.518	19.334	36.555	19.329
28	36.552	19.364	36.52	19.335	36.514	19.335	36.561	19.344
29	36.559	19.367	36.52	19.346	36.504	19.355	36.568	19.351
30	36.544	19.354	36.52	19.333	36.522	19.358	36.566	19.333

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

PART Name/Desc: **FOW120A07FA-2**PART NO (s): **6189-8624**Mold #: **1874-A2**Tested by/Date: Christi Cornwell 12/13/21

Design Rec. Change level/date:

MU5T-14A464-AGB B1 1/13/2022Eng. Change Documents: NA

CAVITY #:	M1		M2		M3		M4	
	36.60	19.18	36.60	19.18	36.60	19.18	36.60	19.18
	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3
31	36.547	19.372	36.53	19.337	36.524	19.342	36.555	19.358
32	36.548	19.375	36.53	19.333	36.518	19.356	36.549	19.345
33	36.551	19.362	36.53	19.329	36.526	19.346	36.560	19.351
34	36.540	19.364	36.52	19.331	36.525	19.341	36.545	19.366
35	36.551	19.335	36.52	19.327	36.519	19.331	36.554	19.352
36	36.562	19.352	36.52	19.343	36.516	19.310	36.561	19.366
37	36.548	19.348	36.52	19.351	36.519	19.348	36.561	19.354
38	36.567	19.361	36.52	19.342	36.520	19.341	36.546	19.330
39	36.543	19.356	36.52	19.358	36.508	19.349	36.563	19.355
40	36.542	19.355	36.52	19.362	36.514	19.319	36.555	19.335
41	36.549	19.362	36.52	19.347	36.534	19.341	36.547	19.327
42	36.555	19.360	36.52	19.347	36.516	19.329	36.553	19.320
43	36.557	19.366	36.53	19.340	36.523	19.353	36.546	19.349
44	36.554	19.357	36.51	19.331	36.512	19.350	36.550	19.342
45	36.547	19.367	36.53	19.337	36.527	19.362	36.550	19.335
46	36.548	19.354	36.52	19.329	36.515	19.348	36.548	19.344
47	36.553	19.362	36.52	19.337	36.521	19.354	36.555	19.336
48	36.557	19.373	36.52	19.345	36.510	19.332	36.549	19.342
49	36.546	19.357	36.53	19.336	36.524	19.343	36.561	19.350
50	36.558	19.362	36.54	19.329	36.508	19.345	36.557	19.331
51	36.550	19.353	36.53	19.337	36.525	19.347	36.560	19.341
52	36.553	19.365	36.54	19.319	36.510	19.366	36.557	19.338
53	36.553	19.358	36.53	19.327	36.518	19.319	36.551	19.346
54	36.550	19.364	36.52	19.338	36.517	19.351	36.557	19.352
55	36.550	19.347	36.53	19.327	36.516	19.339	36.548	19.328
56	36.563	19.351	36.51	19.333	36.524	19.361	36.562	19.359
57	36.546	19.368	36.53	19.339	36.511	19.340	36.564	19.359
58	36.548	19.369	36.53	19.324	36.522	19.336	36.558	19.342
59	36.552	19.356	36.53	19.357	36.519	19.362	36.555	19.345
60	36.555	19.343	36.53	19.317	36.521	19.351	36.553	19.346

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

PART Name/Desc: **FOW120A07FA-2**PART NO (s): **6189-8624**Mold #: **1874-A2**Tested by/Date: Christi Cornwell 12/13/21

Design Rec. Change level/date:

MU5T-14A464-AGB B1 1/13/2022Eng. Change Documents: NA

CAVITY #:	M1		M2		M3		M4	
	36.60	19.18	36.60	19.18	36.60	19.18	36.60	19.18
	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3	+3 -30	+3 -3
61	36.567	19.363	36.53	19.336	36.522	19.361	36.550	19.343
62	36.550	19.371	36.52	19.327	36.522	19.366	36.564	19.351
63	36.545	19.368	36.53	19.328	36.514	19.366	36.552	19.344
64	36.547	19.331	36.52	19.340	36.511	19.339	36.555	19.340
65	36.568	19.330	36.52	19.350	36.524	19.363	36.558	19.362
66	36.549	19.340	36.52	19.336	36.527	19.343	36.561	19.340
67	36.551	19.326	36.53	19.336	36.520	19.340	36.554	19.317
68	36.550	19.334	36.53	19.332	36.522	19.342	36.552	19.342
69	36.549	19.320	36.51	19.333	36.517	19.351	36.545	19.340
70	36.552	19.347	36.53	19.333	36.522	19.354	36.550	19.338
71	36.557	19.337	36.53	19.339	36.513	19.350	36.546	19.352
72	36.566	19.352	36.52	19.342	36.522	19.351	36.552	19.350
73	36.572	19.354	36.51	19.334	36.516	19.339	36.553	19.356
74	36.547	19.358	36.53	19.326	36.517	19.299	36.550	19.354
75	36.541	19.353	36.53	19.332	36.521	19.354	36.564	19.343
76	36.551	19.375	36.52	19.339	36.514	19.350	36.550	19.356
77	36.557	19.367	36.57	19.328	36.529	19.356	36.538	19.352
78	36.551	19.359	36.52	19.320	36.529	19.326	36.560	19.366
79	36.557	19.350	36.55	19.322	36.525	19.351	36.555	19.344
80	36.543	19.332	36.54	19.337	36.520	19.354	36.539	19.366
81	36.550	19.339	36.52	19.331	36.503	19.368	36.565	19.342
82	36.548	19.331	36.52	19.345	36.518	19.340	36.555	19.341
83	36.560	19.351	36.53	19.322	36.520	19.354	36.551	19.348
84	36.554	19.353	36.52	19.358	36.521	19.364	36.559	19.340
85	36.561	19.324	36.54	19.339	36.528	19.339	36.555	19.338
86	36.554	19.319	36.51	19.360	36.520	19.339	36.544	19.369
87	36.541	19.348	36.53	19.356	36.535	19.347	36.560	19.349
88	36.543	19.357	36.52	19.350	36.513	19.350	36.552	19.361
89	36.562	19.360	36.53	19.337	36.512	19.321	36.546	19.333
90	36.561	19.356	36.53	19.357	36.516	19.339	36.544	19.346

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

PART Name/Desc: **FOW120A07FA-2**PART NO (s): **6189-8624**Mold #: **1874-A2**Tested by/Date: Christi Cornwell 12/13/21

Design Rec. Change level/date:

MU5T-14A464-AGB B1 1/13/2022Eng. Change Documents: NA

CAVITY #:	M1		M2		M3		M4	
	36.60 +.3 -.30	19.18 +.3 -.3	36.60 +.3 -.30	19.18 +.3 -.3	36.60 +.3 -.30	19.18 +.3 -.3	36.60 +.3 -.30	19.18 +.3 -.3
91	36.555	19.365	36.51	19.357	36.514	19.341	36.552	19.366
92	36.544	19.371	36.52	19.339	36.513	19.294	36.565	19.360
93	36.544	19.371	36.53	19.331	36.520	19.332	36.544	19.349
94	36.548	19.347	36.53	19.349	36.528	19.348	36.557	19.364
95	36.562	19.359	36.53	19.344	36.531	19.335	36.554	19.360
96	36.553	19.368	36.53	19.354	36.524	19.357	36.554	19.353
97	36.549	19.367	36.54	19.343	36.526	19.323	36.547	19.357
98	36.544	19.355	36.52	19.363	36.524	19.331	36.562	19.333
99	36.543	19.358	36.53	19.346	36.515	19.335	36.557	19.342
100	36.549	19.372	36.51	19.363	36.537	19.332	36.555	19.347

average	36.55	19.35	36.52	19.340	36.52	19.34	36.55	19.35
minimum	36.54	19.32	36.47	19.315	36.50	19.29	36.54	19.31
maximum	36.57	19.38	36.57	19.373	36.54	19.37	36.57	19.37
range	0.03	0.06	0.10	0.06	0.03	0.08	0.03	0.06
std dev	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

LSL	36.30	18.88	36.30	18.88	36.30	18.88	36.30	18.88
NOM	36.60	19.18	36.60	19.18	36.60	19.18	36.60	19.18
USL	36.90	19.48	36.90	19.48	36.90	19.48	36.90	19.48

CPK 12.07456641 3.171205949 7.013854686 4.161748713 10.96622119 3.10101756 12.58186683 3.774661092

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	QAW-ABNORMALPROC
Waterproof Test	Waterproof Tester	QAW - WATERPROOFTST	Inspection Data Sheet	QAW-ABNORMALPROC
Moisture Analysis (Reference Only)	Moisture Tester	QAW - LABSCOPE	Moisture Test Data Sheet	QAW-ABNORMALPROC
Insertion / Retention Test	Force Gage Instron Tester	QAW - INSERTRETPROC QAW - InstronOperation	Inspection Data Sheet Data storage	QAW-ABNORMALPROC
Dimensional Measurement	Profile / Caliper / Micrometer / Depth Gage / Keyence Measurement System	Inspection Instruction Sheet	Inspection Data Sheet	QAW-ABNORMALPROC
Part Weight	Scale	Inspection Instruction Sheet	Inspection Data Sheet	QAW-ABNORMALPROC
Freeze Test	Freezer	SWS Inspection Standard	Inspection Data Sheet	QAW-ABNORMALPROC

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	QAW-ABNORMALPROC
Waterproof Test	Waterproof Tester	QAW - WATERPROOFTST	Inspection Data Sheet	QAW-ABNORMALPROC
Insertion / Retention Test	Force Gage Instron Tester	QAW - INSERTRETPROC QAW - InstronOperation	Inspection Data Sheet Data storage	QAW-ABNORMALPROC

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	QAW-ABNORMALPROC
Part Weight	Scale	Inspection Instruction Sheet	Inspection Data Sheet	QAW-ABNORMALPROC
Freeze Test	Freezer	SWS Inspection Standard	Inspection Data Sheet	QAW-ABNORMALPROC

SV5 (Building 2) Tests Performed

TESTS PERFORMED	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Hardness Test	Hardness Tester	QRF-IDSRM	Hardness Test Data Sheet	QAW-ABNORMALPROC
Dimensional Measurement	Profile / Caliper / Micrometer / Depth Gage / Measurement Microscope/ Keyence System/ OGP	SWS Inspection Standard / Inspection Instruction Sheet	Inspection Data Sheet / Excel Data Files	QAW-ABNORMALPROC
Contact Force	Contact Force Gage	MSW-Force Gage	Inspection Data Sheet	QAW-ABNORMALPROC
Insertion / Retention Test	Push / Pull Gage	MSW-InsertRetention	Inspection Data Sheet	QAW-ABNORMALPROC

Equipment Calibrations

	EQUIPMENT USED	TEST METHODS / STANDARD	RECORDING METHOD	REACTION METHOD
Micrometers, Depth Gages, Weigh Scales, other process tools/jigs.	Certified Gages (Gage Blocks & Weights)	Per Calibration Procedure	Calibration Record and Gagetrak	QAW-ABNORMALPROC
Assembly Master Samples	Calipers, Profile			
Caliper	Gage Block, Profile, Measuring Microscope			
Slip Gages	Micrometer			
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	Gage Pins			
OGP	Outside Vendor			
NIKON Measurment Microscope	Outside Vendor			
INSTRON Tensile Tester	Outside Vendor			