

10	9	8	7	6	5	4	3	2	1	
H	APPLICABLE COMPONENTS			SUPPLIER COMPONENT PART NO.	ISOMETRIC VIEW SCALE 1:1					
	ITEM	DESCRIPTION	MANDATORY (YES/NO)		TERMINAL MIN/MAX OD	PLATING/MATERIAL	FORD COMPONENT PART NO.	ORIGINATOR	CHECKER	ENGR APP
	1	TRCB837 / 12mm (APPLICABLE CAVITIES 1-3)	NO		0/35x45	REFERENCE TRC	N/A	AELE-E-11783930-274	MSFENCER	JPTTENGGER
	2	WIRE SEAL	NO		N/A	SILICONE	HU5T-10C930-JA	AELE-E-11783930-274	MSFENCER	JPTTENGGER
	3	WIRE SEAL	NO		N/A	SILICONE	HU5T-10C930-GA	AELE-E-11783930-274	MSFENCER	JPTTENGGER
	4	WIRE SEAL	NO		N/A	SILICONE	HU5T-10C930-CA	AELE-E-11783930-274	MSFENCER	JPTTENGGER
5	SEAL PLUG	NO	N/A	SILICONE	AL5T-10C930-CA	A0412	AELE-E-11783930-274	MSFENCER	JPTTENGGER	
6	12mm DRESS COVER	NO	N/A	PBT/WSS-M99P23-B	LU5T-14N003-CLA	6911-6953	AELE-E-11783930-274	MSFENCER	JPTTENGGER	
G	FORD PART NUMBER - PIN OUT CHART									
	1	2	3	-	EU5T-14A464-EAB-001	6189-7458	EU5T-14A464-EAB-001	6189-7458	1507 C	TBD
	2	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-002	6189-8399	EU5T-14A464-EAB-002	6189-8399	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-7660	EU5T-14A464-EAB-001	6189-7660	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-7661	EU5T-14A464-EAB-001	6189-7661	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-7815	EU5T-14A464-EAB-001	6189-7815	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-002	6189-8022	EU5T-14A464-EAB-002	6189-8022	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-7678	EU5T-14A464-EAB-001	6189-7678	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
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G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	
	5	2	1	EU5T-14A464-EAB-001	6189-7814	EU5T-14A464-EAB-001	6189-7814	1507 C	TBD	
	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
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	6	2	1	EU5T-14A464-EAB-001	6189-8022	EU5T-14A464-EAB-001	6189-8022	1507 C	TBD	
G	1	2	1	EU5T-14A464-EAB-001	6189-8099	EU5T-14A464-EAB-001	6189-8099	1507 C	TBD	
	2	2	1	EU5T-14A464-EAB-001	6189-8338	EU5T-14A464-EAB-001	6189-8338	1507 C	TBD	
	3	2	1	EU5T-14A464-EAB-001	6189-7675	EU5T-14A464-EAB-001	6189-7675	1507 C	TBD	
	4	2	1	EU5T-14A464-EAB-001	6189-8023	EU5T-14A464-EAB-001	6189-8023	1507 C	TBD	

ITEM: INJECTED MOLDING COMPONENTS

MODEL / VEHICLE: AII

F.M.E.A. # SV5 #1

PREPARED BY: LEROY ROTH

NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT(S) OF FAILURE	DATE ISSUE/REVISION HISTORY			CHANGE POINTS		CROSS FUNCTIONAL TEAM			RESPONSIBILITY &TARGET COMPLETION DATE	ACTIONS TAKEN	S O D E C E V C T N		
				S E V	C L A S	P O T E N T I A L C A U S E S (S) O F F A I L U R E M E C H A N I S M S	O C C U R	C U R R E N T P R O C E S S C O N T R O L S	D E T E C T I O N	R E P O R T I N G						
0010	Raw Material Receiving	1. Incorrect Raw Material Quantity Received	Raw Material shortage causing interruption to Inj. Molding scheduled production, leading to: *Parts shortage *Customer part delivery performance degraded.	4		Incorrect quantity shipped by Supplier	2	P-Supplier confirms material quantity or weight, and creates packing list. D-Receiving Associate confirms BOL against Packing List (confirms each unit). Material is barcode scanned into system against open Purchase Order	6	48	NONE					
		2. Incorrect Raw Material Part Number Received	Raw Material shortage causing interruption to Inj. Molding scheduled production, leading to: *Parts shortage *Customer part delivery performance degraded.	4		Incorrect material part number shipped by Supplier	2	P-Supplier confirms material quantity or weight, and creates packing list. D-Receiving Associate confirms BOL against Packing List (confirms each unit). Material is barcode scanned into system against open Purchase Order	6	48	NONE					
		3. Damaged Containers	Material rejected, insufficient material for production. Component produced from contaminated material. * Quality problem * Customer complaint	4		Improper Handling at point of origin and / or transportation. Improper Packaging	2	P- Packaging is designed to prevent damage. D-Receiving associate visually confirms container for damage.	6	48	NONE					
0020	Quality Assurance Receiving Inspection	1. Raw Material Out of Specification	* Delay Scheduled Production * Brittle Parts * Customer part delivery performance degraded. * Customer complaint	7	IC	Insufficient Supplier Process Controls	2	P- Supplier tests each lot of material for proper mechanical and chemical properties. D- SQA Receiving associate verifies Material cert to standard, and test Melt Flow each PBT lot. (IC) * Molding machine monitors detect process variation *QA Lab verifies product function each run.	5	70	Raw Material is confirmed to meet spec by material supplier and Melt Flow testing. QA Receiving Inspection. Molding Machine monitors will detect material variations, and QA tests the function of each part to confirm it meets the specification. No other correction action needed.					
		2. Incorrect Raw Material Color	* Delay Scheduled Production * Customer part delivery performance degraded. * Customer complaint	3		Mislabeled Raw Material Container	2	P- Supplier confirms and matches color per their in process controls. D- QA Receiving associate visually confirms per shipment / lot referencing master samples.	7	42	NONE					
0030	Material Storage	1. Improper storage	*Difficulty in locating raw material *Raw material degradation	2		*Incorrect storage location *Improper storage method	2	Scanning system assign each part number to a specific warehouse location, controlling inventory and FFO	5	20	NONE					

NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT(S) OF FAILURE	S E V	C L A S	POTENTIAL CAUSE(S)/MECHANISM(S) OF FAILURE	Q C U R	C U R R E N T P R O C E S S C O N T R O L S	D E T E C T E E N	R P N	RECOMMENDED ACTION(S)	RESPONSIBILITY & TARGET COMPLETION DATE	ACTIONS TAKEN	S E V	O C C U R R E N C E	R P N
0040	Raw Material Loading	1. Incorrect Raw Material	* Discoloration of Parts * Brittle Parts * Impaired function of Part * Customer Complaint	7		Material handler selected incorrect raw material Mixed material Mixed material	2	P- Shop order specifies required raw material. Barcode system confirms raw material received against shop order to machine. Material received COA is confirmed to material spec. D- * Barcode system * Visual confirmation of Raw Material ID against shop order each Set-up and Each shift.	2	28	Barcode system 100% confirms that the correct material is loaded into the machine and visual material ID checks are conducted each set-up and shift start. No other action is needed.					
	Material Drying (if required)	Material not dried correctly	* Burn mark, or weld line * Brittle Parts-part breakage * Parts out of dimension	3		Set-up operator failed to set correct process parameters : Drying time Moisture Content	2	P- 1. Machine is interlocked n ot to operate if dryer is off. Feed Dryer will alarm if power goes off. P- 3. Set-up operator verifies and visually confirms correct process parameters. D- 1. Parameters are reconfirmed by coordinator/leader and operator.	4	24	NONE					
0050	Set-up Injection Molding Machine	1. Incorrect Raw Material	* Parts out-of-specification * Discoloration of Parts * Brittle Parts * Impaired function of Part * Customer Complaint	5		Set-up Associate used incorrect raw material.	2	P- 1. Barcode system confirms raw material matches shop order. Any mismatch prevents printing of labels. D-1: Barcode system will detect wrong material. 2. Verify against Mold Book Condition Sheet & record on Condition Sheet Form and P chart. Confirmed with Material color codes & barrel colors.	5	50	NONE					
				5		Setup Operator selected incorrect central feed system raw material.	2	P - 1: Central Feed System interlocks prevent incorrect material feed D -1: Barcode scan	5	50	NONE					
		2. Incorrect Mold placed in Machine	Incorrect Part Manufactured	2		Set-up Associate failed to use correct Mold	2	P-1. Barcode scan mold book to machine, any mismatch prevents printing of labels, order) & visual confirmation. D - Verify against Mold Book Condition Sheet & record on Condition Sheet Form, Mold set up book and Critical check sheet	5	20	NONE					
		3. Improper Machine Process Parameters	Parts out-of-specification (Dim. & appearance) Short Shot Discoloration of Parts Brittle Parts Impaired function of Part Customer Complaint	4		Set-up Associate failed to set correct process Parameters	3	P-1. Engineering established parameters selected by setup and automatically uploaded to machine. 2. Set-up Associate instructions (shop order) & visual confirmation. D - 1. Setup verify against Mold Book Condition Sheet & record on Condition Sheet Form 2. Leader/coordinator reverifies machine screen conditions match set up conditions.	5	60	NONE					

NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT(S) OF FAILURE	S E V	C A S	POTENTIAL CAUSE(S)/MECHANISM(S) OF FAILURE	Q C U R	CURRENT PROCESS CONTROLS	D T C	R P N	RECOMMENDED ACTION(S)	RESPONSIBILITY & TARGET COMPLETION DATE	ACTIONS TAKEN	S E V	O C C T	R P N
		7. Parts out-of-specification (QA Dimension Checks)	Inj. Molding scheduled production interrupted. Impaired function of Part Customer Complaint / Disatisfaction	4	CM / SWS	Machine Parameters (Over adjustment & under adjustment, limited range) Material Instability Age of Mold Incorrect Mold Design	2	P- Confirmation system for molding set-up parameters. Set-up Operator instructions (shop order) & visual confirmation per CPC. D- Verify against Mold Book Condition Sheet & record on Condition Sheet Form. 2. QA Dimensional measurement each SOP per GAU03 & Inspection Standard	6	46	SEWS strictly controls processing parameters and verifies part dimension and function at the start and end of production. No other action needed.					
		8. Mixed Parts	Mixed Parts delivered to the customer Customer Complaint / Disatisfaction	5		Trapped or scattered parts / start-up shots remaining in molding machine.	3	P- 1. Process Change System for evaluating chute/conveyor changes for start-up shots. D- 1. Set up checks at each change over.	5	75	SEWS performs checks of each machine prior to each SOP to ensure start up shots/previous product is not scattered in machine.					
0060	Mass Production Injection Molding	4. Parts out-of-specification (Operator appearance checks) Broken pins , Damaged mold pins, Flash, Voids, Sinks, Short Shot, Holes, Weld Lines, Robot Damage and other visual defects. Confirmation of parts for contamination/grease/oil	Inj. Molding scheduled production interrupted. Impaired function of Part Customer Complaint/Disatisfaction	3		Machine Parameters (Over adjustment & under adjustment, limited range) Material Instability Age of Mold Incorrect Mold Design Gate size, location, wear (affects material flow) Combination of above. Flow variation due to change of injection function components (bame),screw, nozzle type etc)	3	P- 1. Monthly PM by machine maintenance. 2. Confirmation system for molding set-up parameters. 3.Set-up Operator instructions (shop order) & visual confirmation per CPC. 4. Confirmation of correct gate size, location, wear D- 1. Verify parts against CPC. 2. Metal detector alarm (as applicable).	6	54	SEWS strictly controls processing parameters and tolerance levels and tool condition. QA also verifies part dimension and function at the start and end of production. No other action needed.					
	Inline Inspection	1. Parts out-of-specification (In-Line Roving Pinrol) Broken pins, Damaged mold pins, Flash, Voids, Sinks, Short Shot, Holes, Weld Lines, Robot Damage and other visual defects. Confirmation of parts for contamination/grease/oil	Inj. Molding scheduled production interrupted. Impaired function of Part Customer Complaint/Disatisfaction	3		Machine Parameters (Over adjustment & under adjustment, limited range) Material Instability Age of Mold Incorrect Mold Design Gate size, location, wear (affects material flow) or Combination of above. Flow variation due to change of injection function components (bame),screw, nozzle type etc)	3	P- 1. Monthly PM by machine maintenance. 2. Confirmation system for molding set-up parameters. 3.Set-up Operator instructions (shop order) & visual confirmation per CPC. 4. Confirmation of correct gate size, location, wear D- 1. Verify parts against CPC.	5	45	SEWS strictly controls processing parameters and tolerance levels and tool condition. QA also verifies part dimension and function at the start and end of production. No other action needed.					
0070	Quality Assurance Inspection Injection Molding	5. Parts out-of-specification (QA appearance checks) Broken pins, Flash, Voids, Sinks, Short Shot, Holes, Weld Lines and other visual defects	Inj. Molding scheduled production interrupted. Impaired function of Part Customer Complaint/Disatisfaction	3	IC / SWS / IM	Machine Parameters (Over adjustment & under adjustment, limited range) Material Instability Age of Mold Incorrect Mold Design Gate size, location, wear (affects material flow) or Combination of above. Flow variation due to change of injection function components (bame),screw, nozzle type etc)	3	P- 1. Monthly PM by machine maintenance. 2. Confirmation system for molding set-up parameters. 3.Set-up Operator instructions (shop order) & visual confirmation per CPC. 4. Confirmation of correct gate size, location, wear D- 1. Verify against Mold Book Condition Sheet & record on Condition Sheet Form. 2. QA Visual Inspection per CPC and QA IIS at MOP/EOP per GAU03 & Inspection Standard. 3.Engineering validation of injection function changes per internal robust test procedure.	5	45	SEWS strictly controls processing parameters and tolerance levels and tool condition. QA also verifies part dimension and function at the start and end of production. No other action needed.					
		6. Parts out-of-specification (QA function checks) : terminal insertion, terminal retention, retainer insertion, retainer retention, engagement with mating parts (clip, etc.), Hinge, Clip/lock, (where Applicable)	Inj. Molding scheduled production interrupted. Impaired function of Part Customer Complaint/Disatisfaction	3	IC / SWS / IM	Machine Parameters (Over adjustment & under adjustment, limited range) Material Instability Age of Mold Incorrect Mold Design Gate size, location, wear (affects material flow) or Combination of above. Flow variation due to change of injection function components (bame), screw, nozzle type etc)	2	P- 1. Condition adjustment restricted to engineering. 2. Confirmation system for molding set-up parameters. D-1. Verify against Mold Book Condition Sheet & record on Condition Sheet Form. 2. QA functional testing each MOP/EOP (QCS) against customer specification. 3. Engineering validation of injection function changes per internal robust test procedure.	5	30	SEWS strictly controls processing parameters and tolerance levels. QA also verifies part dimension and function at the start and end of production. No other action needed.					

NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT(S) OF FAILURE	SLAS	POTENTIAL CAUSE(S)/MECHANISM(S) OF FAILURE	QCUR	CURRENT PROCESS CONTROLS	DET C	R P N	RECOMMENDED ACTION(S)	RESPONSIBILITY & TARGET COMPLETION DATE	ACTIONS TAKEN	SEC V	ODCT	R P N
0090	Transfer packaged parts to storage	1. Incorrect Storage Location	Delay in locating material, possible delay of shipment.	3	Material Handler failed to place product in correct location.	2	D - Material Handler verifies correct location per electronically scanning Part number into system (BPCS)	5	30	NONE					
0100	Finished Goods Storage	1. Incorrect Storage Location 2. Deterioration of packaging.	Wrong Part delivered to customer Customer Complaint / Disatisfaction Damaged to box, potential delay of shipment.	3 3	Material Handler failed to place product in correct location. Environmental conditions, handling errors.	2 2	P- Material Handler verifies correct location per electronically scanning Part number into system (BPCS) P- Climate controlled warehouse, FIFO barcode controlled, monthly shelf life assessment D- Weekly audit and inventory assessment.	5 5	30 30	NONE NONE					
0110	Finished Goods Inventory (Shipping)	1. Finished Goods Storage	Int. Molding scheduled production interrupted & intermittent leading to: *Parts shortage *Customer part shortage & assembly/ line shutdown *Customer part delivery performance degraded. * Customer complaint	3	BPCS SYSTEM not 100% dependable	2	P- Inventory Control System Manual inventory taken, Operator manual/ visual inventory.	5	30	NONE					
0120	Finished Goods Dock Audit (Weekly Random box per skid)	1. Incorrect Part in box 2. Incorrect Quantity in box and/ or Damaged Box 3. Incorrect AIAG Label (where Applicable)	Customer Complaint / Disatisfaction Customer Complaint / Disatisfaction Customer Complaint / Disatisfaction	3 3 3	Operator failed to verify shipping label present, clear, correct and legible Shipping Operator failed to verify no damaged boxes & correct quantity shipped. Operator failed to verify AIAG label present, clear, correct and legible	2 2 4	P- Picking Barcode Scanning operation, confirming inventory label to shipping label. D - Operator visually confirms per instructions D - Operator visually checks for damage & scans label/ verifies correct quantity acceptance. D - Operator electronically scans Box Label number to Print AIAG part number, includes cross verification system	5 5 5	30 30 60	NONE NONE NONE					
0130	Shipping Finished Goods	1. Missing Box Label 2. Damaged Boxes 3. Incorrect AIAG Label (where Applicable)	Possible delayed shipment or shortage or parts. Customer Complaint / Disatisfaction Customer Complaint / Disatisfaction	3 3 3	Operator failed to verify shipping label is present, clear, correct and legible Shipping Operator failed to verify no damaged boxes shipped. Operator failed to verify AIAG label present, clear, correct and legible	2 2 3	D - Operator visually checks for damage & scans label/ verifies correct quantity acceptance. D - Operator visually checks for damage & scans label/ verifies correct quantity acceptance. P - Operator electronically scans Box Label number to Print AIAG part number.	5 5 5	30 30 45	NONE NONE NONE					

Sumitomo Electric Wiring Systems, Inc

Gage R&R Study

04/03/2019

Page 1 of 2

Study Date: 1/8/2019 12:00:00 AM

Company Part No.: Mold 268

Gage ID: 05476117

Part No.:

Gage Desc: 0 - 150 Caliper

Part Desc: HW09-RET-06F

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: T. Holland			Appr B: E Skaggs			Appr C: M Haddix		
1	20.1	20.09	20.09	20.09	20.09	20.09	20.09	20.09
2	20.03	20.02	20.02	20.02	20	20.03	20.03	20.03
3	19.68	19.67	19.67	19.67	19.68	19.68	19.68	19.67
4	20.08	20.07	20.07	20.07	20.07	20.08	20.07	20.07
5	19.81	19.81	19.8	19.8	19.81	19.8	19.8	19.8
6	20.04	20.03	20.03	20.03	20.04	20.05	20.05	20.04
7	20.09	20.09	20.09	20.09	20.1	20.08	20.09	20.1
8	19.64	19.64	19.65	19.63	19.63	19.64	19.63	19.64
9	20.08	20.08	20.08	20.07	20.08	20.07	20.08	20.08
10	19.67	19.67	19.68	19.68	19.68	19.68	19.67	19.68

	Std. Dev.	% Contribution	% TV	% Tol		
Repeatability (EV):	0.005317	0.1%	3.7%	8.0%	R bar:	0.009000
Reproducibility (AV):	0.001448	0.0%	1.0%	2.2%	UCL-R:	0.023220
Appraiser x Part (INT):					Study Variation:	0.143074
GRR:	0.005511	0.1%	3.9%	8.3%	Total Variation (TV):	0.143074
Part-to-Part (PV):	0.142968	99.9%	99.9%	99.7%	Tolerance/6 (Tol):	0.066667
number of distinct categories:			36.6	17.0		

* 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:

4/3/19

GRR Analysis Sheet

Study Date: 1/8/2019 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-06F Characteristic: Length Specification Limits: 19.7 20.1																					
R bar A = 0.008000 X bar A = 19.919000 R bar B = 0.010000 X bar B = 19.916667 R bar C = 0.009000 X bar C = 19.920000 R bar = 0.0090000 X bar Diff = 0.003333		6 Sigma Process Variation: Pp (or Ppk) Target: Rp = 0.454443 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	$\% EV = 100 [EV / TV]$ $= 3.7\%$	$\% EV = 100 [EV / (Tol / 6)]$ $= 8.0\%$														
Trials	K1																						
2	0.8862																						
3	0.5908																						
Reproducibility - Appraiser Variation (AV) $AV = \sqrt{[(X \text{ bar Diff} \times K2)^2 - (EV^2 / n \times r)]}$ $= 0.001448$ <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> <td>r = number of trials</td> </tr> </table>		Appraisers	2	3	K2	0.7071	0.5231	n = number of parts	r = number of trials	$\% AV = 100 [AV / TV]$ $= 1.0\%$	$\% AV = 100 [AV / (Tol / 6)]$ $= 2.2\%$												
Appraisers	2	3																					
K2	0.7071	0.5231																					
n = number of parts	r = number of trials																						
Repeatability and Reproducibility (GRR) $GRR = \sqrt{(EV^2 + AV^2)}$ $= 0.005511$		$\% GRR = 100 [GRR / TV]$ $= 3.9\%$	$\% GRR = 100 [GRR / (Tol / 6)]$ $= 8.3\%$																				
Part Variation (PV) $PV = R_p \times K3$ $= 0.142968$	<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, $PV = \text{SQRT} [(Tol / 6)^2 - (GRR)^2]$																					
		$ndc = 1.41(PV/GRR)$ $= 36.6$	$ndc = 1.41(PV/GRR)$ $= 17.0$																				
Total Variation (TV) $TV = \sqrt{(GRR^2 + PV^2)}$ $= 0.143074$		If the 6 sigma process variation is known, then TV $= [6 \text{ sigma process variation}] / 6.00$ and $PV = \text{SQRT}[(TV^2) - (GRR)^2]$.																					



Production Part Approval Dimensional Test Results

[illegible]

Blanket statements of conformance are unacceptable for any test results.

2/10/2020



Toray Resin Company, 821 W. Mausoleum Road, Shelbyville, Indiana 46176

Grade: {PBT Toraycon}	1401X34-TNA NATURAL
Lot:	R31344
Date:	01/22/20

Certification of Properties				
Test	Method	Unit	Specification	Result
Visual	.	.	Same as Std.	Good
Color	.	.	Same as Std.	Good
MFR	ISO 1133	g/10 min.	3.2~4.8	4.0
Tensile strength	ISO 527	MPa	Min. 49	57.9
Tensile elongation	ISO 527	%	Min. 24	55.6
Charpy - notched	ISO 179	kJ/m2	Min. 2.7	3.6
For the ship date, please see the BOL. For the ship quantity, please see the BOL. Original Lot R31398				
Toray Resin Company certifies the above results are in accordance with our Quality Management System				

This Certificate of Properties is generated by electronic means. No signature is required. This document may not be reproduced, except in full, without the written consent of Toray Resin Company.

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: CRYSTAL MACKIN 12/5/19

PART Name/Desc:

FOW120A03F

Design Rec. Change level/date:

6189-7458, 6189-7459, 6189-7660, 6189-7661, 6189-

7814, 6189-7815, 6189-8022, 6189-8023

EU5T-14A464-EAB



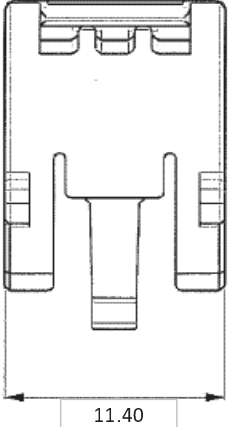
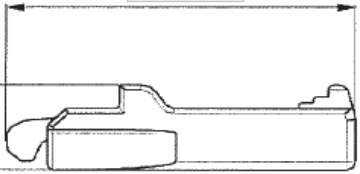
PART NO (s):

Mold #:

1786

Eng. Change Documents:

NA

CAVITY #:	SV5				FRANKLIN						
all	11.40		19.05		11.40		19.05				
	+3	-3	+3	-3	+0.5	-0.5	+0.5	-0.5			
1	11.36		19.05		11.35		19.06				
2	11.36		19.06		11.35		19.06				
3	11.34		19.05		11.36		19.07				
4	11.35		19.05		11.36		19.06				
5	11.35		19.04		11.37		19.06				
6	11.35		19.04		11.36		19.07				
7	11.36		19.05		11.35		19.06				
8	11.35		19.04		11.35		19.06				
9	11.36		19.04		11.36		19.07				
10	11.35		19.04		11.36		19.07				
11	11.36		19.04		11.36		19.06				
12	11.36		19.05		11.36		19.07				
13	11.33		19.04		11.35		19.06				
14	11.34		19.05		11.35		19.07				
15	11.33		19.04		11.35		19.07				
16	11.35		19.04		11.36		19.06				
17	11.35		19.04		11.35		19.06				
18	11.35		19.04		11.35		19.07				
19	11.36		19.05		11.35		19.06				
20	11.36		19.04		11.35		19.07				
21	11.36		19.04		11.35		19.07				
22	11.36		19.03		11.36		19.06				
23	11.36		19.05		11.36		19.06				
24	11.35		19.04		11.36		19.06				
25	11.36		19.03		11.35		19.06				
26	11.34		19.03		11.35		19.06				
27	11.36		19.06		11.35		19.05				
28	11.35		19.05		11.35		19.07				
29	11.34		19.05		11.35		19.07				
30	11.37		19.05		11.35		19.07				
31	11.36		19.06		11.35		19.06				
32	11.34		19.05		11.35		19.07				

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)
 PART Name/Desc: **FOW120A03F**
 6189-7458, 6189-7459, 6189-7660, 6189-7661, 6189-7814, 6189-7815, 6189-8022, 6189-8023
 PART NO (s):
 Mold #: **1786**

Tested by/Date: CRYSTAL MACKIN 12/5/19
 Design Rec. Change level/date:
 EU5T-14A464-EAB 
 Eng. Change Documents: NA

CAVITY #:	SV5				FRANKLIN						
all	11.40		19.05		11.40		19.05				
	+3	-3	+3	-3	+0.5	-0.5	+0.5	-0.5			
33	11.36		19.06		11.35		19.06				
34	11.34		19.06		11.36		19.06				
35	11.34		19.04		11.36		19.06				
36	11.34		19.05		11.36		19.06				
37	11.35		19.04		11.36		19.06				
38	11.36		19.06		11.36		19.06				
39	11.36		19.06		11.36		19.06				
40	11.36		19.05		11.35		19.06				
41	11.33		19.05		11.36		19.07				
42	11.34		19.06		11.36		19.06				
43	11.35		19.06		11.36		19.06				
44	11.34		19.04		11.36		19.07				
45	11.35		19.04		11.36		19.07				
46	11.36		19.06		11.35		19.07				
47	11.36		19.06		11.36		19.07				
48	11.36		19.05		11.35		19.06				
49	11.36		19.04		11.35		19.06				
50	11.36		19.04		11.35		19.06				
51	11.36		19.05		11.36		19.07				
52	11.36		19.06		11.35		19.07				
53	11.36		19.04		11.35		19.06				
54	11.33		19.05		11.35		19.06				
55	11.35		19.04		11.35		19.06				
56	11.34		19.04		11.35		19.07				
57	11.35		19.05		11.36		19.07				
58	11.33		19.06		11.36		19.07				
59	11.35		19.05		11.36		19.06				
60	11.34		19.05		11.36		19.07				
61	11.35		19.04		11.35		19.05				
62	11.34		19.05		11.35		19.06				
63	11.35		19.05		11.35		19.06				
64	11.35		19.04		11.35		19.06				
65	11.34		19.04		11.35		19.05				

CPK MEAS DATA

ORIGINAL DATE: 11/18/02
 LAST REVISION: 6/5/06

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: CRYSTAL MACKIN 12/5/19

PART Name/Desc:

FOW120A03F

Design Rec. Change level/date:

6189-7458, 6189-7459, 6189-7660, 6189-7661, 6189-

7814, 6189-7815, 6189-8022, 6189-8023

EU5T-14A464-EAB



PART NO (s):

Mold #:

1786

Eng. Change Documents:

NA

CAVITY #:	SV5				FRANKLIN						
all	11.40		19.05		11.40		19.05				
	+3	-3	+3	-3	+0.5	-0.5	+0.5	-0.5			
66	11.35		19.04		11.35		19.07				
67	11.36		19.05		11.36		19.06				
68	11.35		19.05		11.36		19.07				
69	11.36		19.04		11.35		19.06				
70	11.35		19.05		11.35		19.07				
71	11.36		19.05		11.37		19.06				
72	11.35		19.05		11.35		19.06				
73	11.35		19.04		11.35		19.07				
74	11.35		19.04		11.37		19.06				
75	11.34		19.04		11.36		19.07				
76	11.33		19.04		11.35		19.06				
77	11.34		19.04		11.36		19.06				
78	11.33		19.03		11.35		19.05				
79	11.35		19.06		11.35		19.05				
80	11.34		19.04		11.35		19.06				
81	11.35		19.03		11.35		19.05				
82	11.34		19.04		11.35		19.06				
83	11.35		19.06		11.35		19.06				
84	11.33		19.04		11.35		19.06				
85	11.34		19.05		11.35		19.06				
86	11.34		19.06		11.35		19.07				
87	11.35		19.04		11.35		19.08				
88	11.34		19.04		11.35		19.07				
89	11.36		19.05		11.35		19.07				
90	11.35		19.05		11.35		19.07				
91	11.35		19.05		11.35		19.06				
92	11.36		19.05		11.36		19.06				
93	11.35		19.05		11.35		19.06				
94	11.35		19.04		11.35		19.07				
95	11.36		19.06		11.36		19.06				

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: CRYSTAL MACKIN 12/5/19

PART Name/Desc:

FOW120A03F

Design Rec. Change level/date:

6189-7458, 6189-7459, 6189-7660, 6189-7661, 6189-

7814, 6189-7815, 6189-8022, 6189-8023

EU5T-14A464-EAB



PART NO (s):

Mold #:

1786

Eng. Change Documents: NA

CAVITY #:	SV5				FRANKLIN					
all	11.40		19.05		11.40		19.05			
	+3	-3	+3	-3	+0.5	-0.5	+0.5	-0.5		
96	11.36		19.06		11.36		19.07			
97	11.35		19.04		11.36		19.07			
98	11.33		19.06		11.36		19.05			
99	11.35		19.06		11.35		19.07			
100	11.36		19.06		11.35		19.07			

average	11.35	19.05	11.35	19.06
minimum	11.33	19.03	11.35	19.05
maximum	11.37	19.06	11.37	19.08
range	0.04	0.03	0.02	0.03
std dev	0.01	0.01	0.01	0.01

LSL	11.10	18.75	10.90	18.55
NOM	11.40	19.05	11.40	19.05
USL	11.70	19.35	11.90	19.55

CPK	8.500782377	11.56539836	27.27834235	26.03015521
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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			



Toray Resin Company, 821 W. Mausoleum Road, Shelbyville, Indiana 46176

Grade: {PBT Toraycon}	1401X34-TNA NATURAL
Lot:	R31344
Date:	01/22/20

Certification of Properties				
Test	Method	Unit	Specification	Result
Visual	.	.	Same as Std.	Good
Color	.	.	Same as Std.	Good
MFR	ISO 1133	g/10 min.	3.2~4.8	4.0
Tensile strength	ISO 527	MPa	Min. 49	57.9
Tensile elongation	ISO 527	%	Min. 24	55.6
Charpy - notched	ISO 179	kJ/m2	Min. 2.7	3.6
For the ship date, please see the BOL. For the ship quantity, please see the BOL. Original Lot R31398				
Toray Resin Company certifies the above results are in accordance with our Quality Management System				

This Certificate of Properties is generated by electronic means. No signature is required. This document may not be reproduced, except in full, without the written consent of Toray Resin Company.



Part Submission Warrant

Part Name FOW120A03F Cust. Part Number 6189-7458

Shown on Drawing No. EU5T-14A464-EAB Org. Part Number 6189-7458

Engineering Drawing Change Level Q3 Date _____

Additional Engineering Changes N/A Dated N/A

Safety and/or Government Regulation ☐ Yes ☒ No Purchase Order No. N/A Weight (kg) 0.0035

Checking Aid No. N/A Checking Aid Engineering Change Level N/A Dated N/A

ORGANIZATION MANUFACTURING INFORMATION

Sumitomo Wiring Systems, Inc. / SEWS
Organization Name & Supplier/Vendor Code

7500 Viscount Blvd. suite 192 / 2687 Old Gallatin Rd.
Street Address

EL Paso, TX 79925 / Scottsville Ky. 42164 USA

City Region Postal Code Country

CUSTOMER SUBMITTAL INFORMATION

SEWS-CE
Customer Name/Division

N/A
Buyer/Buyer Code

Automotives

Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported?

☒ Yes ☐ No ☐ n/a

Submitted by IMDS or other customer format:

IMDS ID: 468344163 / 4

Are polymeric parts identified with appropriate ISO marking codes?

☐ Yes ☐ No ☒ n/a

REASON FOR SUBMISSION (Check at least one)

- ☐ 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
☐ Supplier or Material Source Change
☐ Change in Part Processing
☐ Parts Produced at Additional Location
☐ Other - please specify below

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 ☒ material and functional tests ☐ appearance criteria ☒ statistical process package

These results meet all design record requirements: ☒ Yes ☐ NO (If "NO" - Explanation Required)

Mold / Cavity / Production Process MOLD 1786 (M129-M192) INJECTION MOLD / ASSEMBLY

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all reduction Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of 14,400 / 8 hours. I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below.

EXPLANATION/COMMENTS: SCR # 12-06 2020 / SV5 AND FRANKLIN PRODUCTION

Is each Customer Tool properly tagged and numbered? ☐ Yes ☐ No ☒ n/a

Organization Authorized Signature B J Vargas Date February 20, 2020

Print Name Javier Vargas/ Veronica de Santiago Phone No. (915) 843-3000 FAX No. (915) 843-3001

Title Q.A Supervisor / PPAP Coordinator E-mail j.vargas@us.sws.co.jp / s.veronica@us.sws.co.jp

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: ☐ Approved ☐ Rejected ☐ Other

Customer Signature _____ Date _____

Print Name _____ Customer tracking number (optional) _____