| | | | | Design FMEA | | | X | Process FMEA | | | | | Conf | nı fident | tia | | |
|-------------|--|------------------|--|---|-----------------------------|---|---------|---|----------------|---|---|--|-----------|--------------|-----|--|--|
| Part Certif | ication | | | | | | | | | | | | | | | | |
| | System | | Subsystem | Х | Component | | Pa 1 | ge | | FMEA Number RESISTOR (e-FMEA | DOC ID 55804 | 418) | | | | | |
| Part Numb | | | | Design or Process Responsibility RENTERIA, JUAN | | • | | epared by DRRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | | | |
| | ar(s)/Vehicle(s) | | | Key Date | | | Or | iginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 | | | | | _ | | |
| | A, JUAN, ME SUPERVIS ION SUPERVISOR +52 8 | 344 4389060 | CARDENAS, | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 O.MOLDEO 844 4389060 TORRES, ENRIQ | SUSUNA | GA, RICARDO, MOLDING & IN | ISEF | RT MOLDING - QUALITY ENGINEER +5 | 52 | Supervisor's Approve TORRES, ENRIQUE | | ults | | _ | _ | | |
| Item. | //Process Function Requirements | | Failure Mode | Potential Effect(s) of Failure | C S I e a v s s | Potential Cause(s)/ Mechanism(s) of Failure | 0 0 0 | Current Design/Process Controls | DR eP tN | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | e c | D e t | Ρ | | |
| | eive resin, resistor and nsert in receive | Termin Termin | nination,Bend als,Damage als,Damage e,Incorrect Id" | "Wrong compound could not be process if the resin is diferent,Non conformant parts,bloked gates in tool | 4 | "Bad Handle material,Mistake when the operator put the label" | e 2 | (P) "Handling material guide,Receiving Material Work Instruction,Reciving and assurement Quality direct material,Process certification,First sample release,Product audit,Process Inspection | 8 64 | None | | | | | | | |
| 20) Raw r | resin,resistor and Insert Inspection | specifica | terial out tion ,Release esistence code | "Process stop,scrap" | 4 | "Meassure equipment discalibrate or damage,Incorrect follow to instruction,Bad handle material" | 2 | (P) "Reciving and assurement Quality direct material, Process certification, First sample release, Product audit, Calibration program of measurement equipment, visual aids by part number, take measure of the resistor each box with multimeter and record to release | 8 64 | None | | | | | | | |
| | Raw Resin,resistor and ert to warehouse | "Pack Dama | age,spill material" | "Damage Material,scrap,process stop" | 4 | "Mistake to Drive Freight Elevator,Bad handle material" | 2 | (P) "Certificate drive freight Elevator, Handling material guide, Process certification, First sample release, Product audit, keep area and material respect" | 8 64 | None | | | | Ħ | | | |
| | Raw resin,resistor and sert in Location | package,V | cation,Damage Vet material by damage" | "Damage Material,Process Stop,Scrap" | 5 | "Mistake to Locating Material,Damage I.d,Not Identificated rack,Mistake when put material in rack" | 2 | (P) "MTMS system,certificate drive freight Elevator,Process certification,First sample release,Product audit,keep area and material respect,Preventive Build program,Store and Supply material | 8 80 | NONE | | | | | | | |
| | e insert and resistor to crimp station | Wron | g Material | "Process stop,scrap,Non conformat parts" | 6 | "Mistake to Identification Material | 2 | (P) "Operator method,Process certification,First sample release,Product audit,keep area and material respect | 8 96 | NONE | | | | | | | |
| 51) Mov | re resin to IM recycling area | Wrong | raw material | - Down time | 6 | -the operator doesn't follow the method -raw material wrong io | | (D) - Final Inspection - Operation method | 8 96 | None | | | П | П | | | |
| | 51.1) | | g material at rehouse | customer insatisfaction | 6 | inventory not updated | 2 | (P) material racks audits -operator visual inspection when remove the material with the scanner | 7 84 | None | | | | \prod | | | |
| 52) Move | runner to recycling area | | ng runner | non conformant part | 6 | wrong material handling | 2 | (P) - Operator method - Visual Aids | 8 96 | None | | | Ш | П | Ξ | | |
| | 52.1) | | inated runner | non conformant part | 6 | wrong material handling | 2 | | 8 96 | None | | <u> </u> | 4 | Щ | _ | | |
| 5 | 3) Grind runner 53.1) | Material co | ound material ntamination with | Brittle,NFO, Burns, Flash Degradation in | 7 | Damaged damage Wrong material handling | 2 | (P) - Maintenance routine (P) - Operation method - Visual aids | 8 96 7 98 | None None | | | ${\sf H}$ | Ħ | _ | | |
| 54) | Blender process | Excess of re | agent (metal) grind material on lender | pieces, Damage on grinder and tooling. Splash on pieces | 7 | Scale fails. Incorrect adjustment on scale | 2 | (P) Equipment preventive maitenance. Use of scale method. Operator method. Blender parameters.` | 7 98 | None | | | Ħ | \parallel | _ | | |

| | | | Design FMEA | | | X | Process FMEA | | | | | Confi | | ial |
|--|----------------------|--|--|-----------------------------|--|----------|--|----------------|--|---|--|-------|-------------|-----|
| Part Certification | | | | | | | | | | | | | | |
| System | S | Subsystem | X | Component | | Pag 1 | ge | | FMEA Number RESISTOR (e-FMEA | A DOC ID 55804 | 418) | | | |
| Part Number 15429045 | | | Design or Process Responsibility RENTERIA, JUAN | | • | | epared by PRRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | _ |
| Model Year(s)/Vehicle(s) MULTIPLE | | | Key Date | | | | iginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 | | | | | |
| NSPECTION SUPERVISOR +52 | 844 4389060 | CARDENAS, | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 O.MOLDEO 844 4389060 TORRES, ENRIQU | SUSUNA | GA, RICARDO, MOLDING & IN: | SER | RT MOLDING - QUALITY ENGINEER +5 | 52 | Supervisor's Approv TORRES, ENRIQUE | | ılts | | _ | |
| Item/Process Function Requirements | | Failure Mode | Potential Effect(s) of Failure | C S I e a v s s | Potential Cause(s)/ Mechanism(s) of Failure | O c c | Current Design/Process Controls | DR eP tN | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | ес | D e t | Р |
| 54.1) | | on with external or metal | Brittle,NFO, Burns, Flash Degradation in pieces | 7 | Bad follow to cleaning method. Device working with no guard. | 2 | (P) Cleaning routine. Trained Operator. Preventive maintenance. MFG and QC audits | 7 98 | None | | | Ī | | _ |
| 60) Feed Raw Resin to Dryer | Dryer o | dont Load | "Component Couldnt to be Produce,process stop" | 7 | The Dryer is Off or damage | 2 | (P) "Operator Method,Dryer Preventive Maintenance,Dryer alarms | 7 98 | NONE | | | | | |
| 70) Dry raw Resin and verify Moisture | Wet | Resin | "Flow lines,Brittle pieces,Flash,process stop,scrap " | 7 | "Dryer failure,Wrong parameters temperature dryer,Moisture tester failure" | 2 | (D) "Dryer alarm,Moisture test Program,First Sample release,Operator Method DryerPreventive Maintenance Dryer,Calibration program dryer,Process card,Process Inspection" | 7 98 | NONE | | | | | |
| 80) Store Resin in Dryer | | Material in ntamination" | "NFO,Contamination,brittle,Flash,Process Stop,scrap" | 4 | "Wrong Dryer Identification,Supply incorrect material,Wrong bag material" | 2 | (P) "Visual Identification Dryer,First Sample Release,Process Certification,Process Audit | 8 64 | None | | | Π | П | _ |
| 90) Feed injection molding machine of resin | Dryer dont Fe | eed to machine | Coumpound cant be processed | 4 | "The Dryer is Off or damage,damage fill sensor,Loader dryer damage" | 2 | (P) "Operator Method,Dryer Preventive Maintenance,Poka yoke sensor fill material " | 5 40 | None | | | | П | |
| 100) Move inserts and resistor to crimp Machine and load terminals reel in Work station | wrong Machine,Inc | nserts,Supply Inserts to correct load roll end terminals" | "Plastic terminals in connector, parts with out terminals,cant be assembly inserts in die,Bend terminals,scrap," | 4 | "Failure to Operathor Method,Incorrect Id in rack,Bad handle material,Not enoug Nyosil lubricant for terminals in crimping station | 2 | (P) perator method, First sample release, Process inspection, visual identifications | 8 64 | None | | | | | |
| 110) Crimp resistor and terminal to make assembly according to the resistance (first sample release) | | ninal and resistor mping | scrap, process stop, non-conformant part | 6 | Incorrect follow operator method, wrong material handling | 2 | (P) Set-up operator method, II0, set up check list, first sample release, MFG inspection | 8 96 | None | | | | | |
| 110.01) | Bad asse | embly crimp | Scrap, stop process, Customer insatisfaction | 6 | Incorrect feed of the terminals, Missing Nyosil lubricant, Stack terminals assembled, | 2 | (P) PM routine, Release fist sample, VPS, Process inspection, sensor to eliminate stack terminals conditions, release terminal report -Check list manufacturing | 8 96 | None | | | | | |
| 110.02) | Bad asse | embly crimp | Scrap, stop process, Customer insatisfaction | 6 | Press sensor misadjusted | 3 | (P) PM routine, Release first sample, Process sheet. Crimp monitor to measure CCH | 3 54 | NONE | | | П | | |
| 110.03) | Damag | e resistor | Scrap, Stop process, Customer dissatisfaction | 6 | Incorrect feed of the terminals, Misalignment resistor Vs terminals, Damage tool | 2 | (P) PM routine, Process inspection, Release first sample, VPS, crimp force monitor | 8 96 | None | | | | | |
| 110.04) | Crimp out | specification | Scrap, Stop process, Customer dissatisfaction | 6 FF:CCH Value | Mismatch Die | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual Aids, micrometer | 7 84 | None | | | | | |
| 110.05) | | | | 6 FF:CCH Value | Mismatch Die | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. CFM to monitor the crimp | 5 60 | none | | _ | | | |

| | | | | Design FMEA | | | | X | Process FMEA | | | | | Con | fiden | ntial | | |
|-----------------------|--|-------------|-------------------------------|--|-------------|-----------------------|--|----------|---|-------------------|--|---|--|---------|-------|-------|--|--|
| Part Certif | fication | | | | | | | | | | | | | | | | | |
| | System | | Subsystem | Х | Со | mponent | | Pa 1 | ge | | FMEA Number RESISTOR (e-FME | A DOC ID 5580 | 418) | | | | | |
| Part Numb 15429045 | | | | Design or Process Responsibility RENTERIA, JUAN | | | | | epared by DRRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | | | |
| MULTIPLE | | | | Key Date | | | | Or 20 | iginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 |) | | | | | | |
| | A, JUAN, ME SUPERVISION SUPERVISOR +52 | 844 4389060 | CARDENAS, | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 O.MOLDEO 844 4389060 TORRES, ENRIQU | 9 | SUSUNAC | SA, RICARDO, MOLDING & IN | SEF | RT MOLDING - QUALITY ENGINEER +5 | 2 | Supervisor's Approv TORRES, ENRIQUE | | | | | | | |
| Item | n/Process Function Requirements | | l Failure Mode | Potential Effect(s) of Failure | S e v | C l a s s | Potential Cause(s)/ Mechanism(s) of Failure | O c c | Current Design/Process Controls | D R e P t N | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | e d | D e t | Р | | |
| | 110.06) | | | | 6 | FF:CCH Value | Mismatch Die | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. CCH value from 1.25 to 1.10 | 7 84 | none | | | | | | | |
| | 110.07) | | | | 6 | FF:CCH Value | Mismatch Die | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. automatic part discrimination device | 5 60 |) none | | | | | | | |
| | 110.08) | | | | 6 | FF:CCH Value | Mismatch Die | 3 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards | 5 90 |) none | | | | | | | |
| | 110.09) | | | | 6 | FF:CCH Value | Mismatch Die | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. Implement Pre-Control chart | 8 96 | none | | | | | | | |
| | 110.1) | Bent term | inals and wires | Scrap, Stop process, Customer dissatisfaction | 6 | | Mismatch or damage Die, Stack terminals assemblied,core cavity blocked | 2 | (P) PM routine, release first sample, VPS, sensor to eliminate stack terminals conditions | 7 84 | None | | | П | | | | |
| | 110.11) | Incorr | ect resistor | Scrap, Stop process, Customer dissatisfaction | 6 | | Incorrect set-up,Mix material with diferent resistor | 2 | (P) First sample release, visual aid for resistor, IIO, Electrical Tester | 4 48 | None None | | | \prod | | | | |
| | 110.12) | | ut of the crimped area | Non functional part | 6 | | Press sensor misadjusted | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards Add the container to segregate parts during the set ups and or adjustments - Modify operation method and train personnel in order to include the use of set up container | 8 96 | none | | | | | | | |
| | 110.13) | | ut of the crimped area | Non functional part | 6 | | Press sensor misadjusted | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. Base in press place, in order to fix the sensor and avoid bad adjustment | 5 60 | none | | | | | | | |
| | 110.14) | | ut of the crimped area | Non functional part | 6 | | Press sensor misadjusted | 2 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards ajdust crimping process method. | 8 96 | none | | | | | | | |
| | 110.15) | | ut of the crimped area | Non functional part | 6 | | Press sensor misadjusted | 4 | (P) PM routine, Release first sample, IIO, MFG Inspections, Visual product standards. monitoring the crimp press force by CFM | 4 96 | 5 | | | | | | | |
| | 110.16) | | een resistor and rminal) | Non-functional part | 6 | | Filament fold touch terminal, wrong crimp | 2 | (D) Manufacturing Inspection, First samples release, electrical test in next station | 4 48 | None None | | | | | | | |
| | 110.17) | | veen resistor and erminal) | Non-functional part | 6 | | Missing sleeve | 2 | (D) Manufacturing Inspection, First samples release, electrical test in next station, vision system in part station | 4 48 | None | | | | П | | | |

| | | | | Design FMEA | | | | X | Process FMEA | | | | | Con | oni fiden | ntial |
|----------------------------------|---|----------------------------------|---|---|------------------------|------|---|-------|---|-------------------|---|---|------|-----|--------------|-------|
| Part Certif | ication | | | | | | | | | | | | | | | |
| | System | | Subsystem | X | | | | | | | FMEA Number RESISTOR (e-FME | A DOC ID 5580 | 418) | | | |
| Part Numb | | | | Design or Process Responsibility RENTERIA, JUAN | | | | Pre | epared by PRRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | |
| | ar(s)/Vehicle(s) | | | Key Date | | | | Ori | iginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 | | | | | |
| Core Tear RENTERIA NSPECTI | n A, JUAN, ME SUPERVIS ON SUPERVISOR +52 | 844 4389060 | CARDENAS, | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 | SUSI | UNAC | SA, RICARDO, MOLDING & INS | SEF | RT MOLDING - QUALITY ENGINEER +5 | 52 | Supervisor's Approv TORRES, ENRIQUE | | ults | | | |
| | /Process Function Requirements | | Failure Mode | O.MOLDEO 844 4389060 TORRES, ENRIQUE Potential Effect(s) of Failure | C S I e a v s | ; | Potential Cause(s)/ Mechanism(s) of Failure | O c c | Current Design/Process | D R e P t N | Recommended Actions | Responsibility & Target Completion Date | | e c | D D e e t | Р |
| | 110.18) | | een resistor and rminal) | Non-functional part | 6 | | Damage sleeve | 2 | (D) Manufacturing Inspection, First samples release, electrical test in next station, vision system in next station | 4 48 | None | | | | | |
| 120) Cri | mp assembly Process inspection | operator do | ect inspection,the esn't perform the tion routine | | 4 | | Doesn't follow correct the inspection routine | 2 | (P) Operator check-list,operator Inspection instructive | 8 64 | None | | | | | |
| 130) | Sleeves assembly | damage | ed assembly | Scrap, stop process, Customer insatisfaction | 4 | | Incorrcet follow to operator method | 3 | (P) Vision system, visual aid: resistence assembly method. | 4 48 | None | | | | | |
| | 130.1) | assembly | with out sleeve | Scrap, stop process, Customer insatisfaction, short circuit. | 4 | | Incorrcet follow to operator method | 3 | (P) Vision system, visual aid: resistence assembly method. | 4 48 | None | | | П | П | |
| | 130.2) | | with sleeve bad blaced | Scrap, Customer insatisfaction | 4 | | Incorrcet follow to operator method | 3 | (P) Visual Aid, Resistence assembly method ,vision system | 4 48 | None | | | | | |
| | assembly on device to ct sleeve on terminal | sleeve sea | ated improperly | Scrap, process stop, | 4 | | Incorrect follow to operator method, sleeve moves when is placed on device to contract sleeve | 6 | (P) Vision system, visual aid, resitence assembly method, visual inspection | 4 96 | None | | | | | |
| | 140.1) | | (different resistor) HINA ID381296 | Part cannot be processed | 7 | | -Bad handling of non- conforming material - Resistance mixture in preheated sleeve oven | 2 | (P) Elestrical test in next station. | 4 56 | | | | | | |
| | re assembly to injection olding machine | resis terminals Inserts to | ssembly,damage stence or ,Supply wrong Machine,Bend minals" | "Plastic terminals, parts with out terminals,cant be assembly inserts in tool,Bend terminals,scrap," | 4 | | "Failure to Operathor Method,Incorrect Id in rack,Bad handle material" | 2 | (P) Move material operator method,Layer audit, system to avoid mix material. | 8 64 | None | | | | | |
| put shippii | orm Start up inspection ng label on box material for molded connector | mater | set-up,Incorrect rial by part ap,Process stop" | "Non conformant parts,process stop,scrap" | 4 | | "Incorrect follow operathor method,don! t change resin for correct part number,bad handle material,Incorrect resistence | 3 | (P) "Operator Method,First sample Release,Calibration Program Machine,Process certification,Process Inspection,Material Id,CCA system,scanner station in electrical tester | 4 48 | None | | | | | |
| | anually subassembly nal/resistor to mold | | 't sit complette in vity tool | Expose resistor,low terminals,short circuit due that the wires of the resistence are in contact | 4 | | Incorrect follow to Operator Method, incorrect load terminals due to damage terminals, non ertificated operator, cavity tool blocked or damage that dont hold correct the terminal and was loose in caviy | | (D) "Operator Method,Operator traning,Preventive maintenance Tool,First sample release,Product Audit,vision system | 3 36 | None | | | | | |
| | 170.1) | Incorrect | load terminal | Terminal expose connector,expose resistor,short circuit on resistences terminals,resistenceIntermitence in molded connector | 7 | | "incorrect follow to Operator Method,incorrect load terminals,damage terminals,cavity tool blocked or damage that dont hold correct the terminal and was loose in | | (D) "Operator Method,Operator traning,Preventive maintenance Tool,First sample release,Product Audit", vision sistem | 3 63 | None | | | | | |

| | | | | Design FMEA | | | X | Process FMEA | | | | | Delp Con | hi fiden | tia | |
|--------------------------------------|---|---------------------------|--|---|---|--|-------------|--|----------------|---|---|--|-------------|-------------|-----|--|
| Part Certifi | ication | | | | | | | | | | | | | | | |
| | System | | Subsystem | X Component | | | | ge | | FMEA Number RESISTOR (e-FMEA | DOC ID 55804 | 418) | | | _ | |
| Part Numb | | | | Design or Process Responsibility | | • | | epared by RRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | | |
| | ar(s)/Vehicle(s) | | | RENTERIA, JUAN Key Date | | | Ori | ginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 | | | | | _ | |
| Core Tean | n A, JUAN, ME SUPERVIS | | | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 | | |), D | ANIA, RELIABILITY/INCOMING | :0 | Supervisor's Approva TORRES, ENRIQUE | al | | | | _ | |
| 344 43890 | | | | O.MOLDEO 844 4389060 TORRES, ENRIQU | JE, MOLDING | & INSERT MOLDING IE PLAN | IT 9 | 700 CENTEC 2 +52 844 4389060 | 12 | | Action Resu | ults | | | _ | |
| | /Process Function Requirements | Potential | Failure Mode | Potential Effect(s) of Failure | C S I e a v s s | Potential Cause(s)/ Mechanism(s) of Failure | O c c | Current Design/Process Controls | DR eP tN | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | e c | D e t | Р | |
| | 170.2) | Tool,Ind terminal,Fall | o present in the correct load en terminal over | "Connector Molded without terminal,Plastic terminals,Terminal expose connector,Damage Tool,expose resistor,Flash in connector | 7 | "incorrect follow to Operator Method,incorrect load terminals,damage terninels | 3 | (P) "Operator Method, Operator traning, Preventive maintenance Tool, First sample release, Product Audit, visual inspection, vision system | 3 63 | None | | | | | | |
| 180) Pr | remold Vision system inspection | | conformance d assembly | "Connector Molded without terminal,Plastic terminals,Terminal expose connector,expose resistor,short circuit in the connector | 7 | Vision system failure or incorrect calibration | 2 | (D) "Operator Method, Operator traning, Preventive maintenance vision sistem, Electrical Tester, use of master pieces on first sample release | 7 98 | None | | | | | | |
| 180.1) P | Premold Vision system inspection | | et up of vision /stem | Connctor molded with out terminals,Plastic terminals,Expose terminals,Resistor expose,short circuit in the connector | 7 | vision system failure or incorrect calibration due that tool set up variation position | 2 | (D) Operator method, Operator training, Preventive maintenance vision system, electrical tester, calibration samples test on first sample release, Guides for assure the tool position on the Machine table and the vision system | 7 98 | None | | | | | | |
| Machine | ufacture Parts on mold /Visual Inspection(first ample release) | 1 | NFO | "Process stop,scrap,Customer insatisfaction" | 6 PSD: Width of conn. 17.56 +/- 0.15 mm | "Contaminated resin, Injection Machine Failure, Wrong component Insertion, Blocked Mold or damage, incorrect heater bands en injection unit, shut off nozzle doesn't work or is blocked inside | 2 | (P) "Process Certification,Process Inspection,Product Audit,First sample release,Calibration Program injection molding machine and auxiliar equipment,preventive maintenance tool, visual inspection | 8 96 | NONE | | | | | | |
| molo Insper reManut Machine | Manufacture Parts on d Machine /Visual ection(first sample facture Parts on mold /Visual Inspection(first ple release)lease) | Termin | al exposse | scrap,low terminals in connector | 6 | incorrect load of crimp assembly on tool due to bad handle material,the operator doesn't follow correct the operator method | 2 | (P) Operator method,preventive maintenance tool,first sample release,process inspection, visual inspection, final audit | 8 96 | None | | | | | | |
| Machine | nufacture Parts on mold Visual Inspection(first ample release) | F | ilash | "Process stop,scrap,Customer insatisfaction" | 6 | "Injection Machine Failure,Mold cooling system failure,Demage Mold,resin contamination, incorrect heater bands ion injection unit,shut of nozzle doesn't work or is blocked inside | | (P) "Process Certification,Process Inspection,Product Audit,First sample release, Calibration Program injection molding machine,Preventive tool maintenance and auxiliar equipment, visual inspection, final audit, IIO | 8 96 | None | | | | | | |
| Machine sa | nufacture Parts on mold /Visual Inspection(first ample release) | | nce exposse | scrap,open circuit | 6 | incorrect load of crimp assembly on tool due to bad handle material,the operator doesn't follow correct the operator method | 3 | (P) Operator method,preventive maintenance tool,first sample release,,process inspection,visual inspection, final audit. | 3 54 | None | | | | | | |
| Machine | nufacture Parts on mold /Visual Inspection(first ample release) | Ejector | Pins Mark | "Process stop,scrap,Customer insatisfaction" | 6 | "Raised Ejector plate,Short pins,Brocken ejector pins" | 2 | (P) "Process Inspection,Product Audit,First sample release,Preventive tool maintenance, visual inspection | 8 96 | None | | | | | | |
| | nufacture Parts on mold /Visual Inspection(first | Bend | terminals | "Process stop,scrap,Customer insatisfaction" | 6 | "Bad Handling Product,Non conformant inserts,Incorrect | 2 | (P) "Process inspection, Product Audit, First sample release, tool design, | 8 96 | None | | | | | | |

| | | | | Design FMEA | | | X | Process FMEA | | | | | Delpl Conf | hi ider | ntia |
|----------------------|--|---|--|---|-------------|--|----------|--|-------------------|---|---|--|---------------|-------------|------|
| art Certific | cation | | | | | | | | | | | | | | |
| 4 | System | | Subsystem | Х | Component | | Paq 1 | ge | | FMEA Number RESISTOR (e-FMEA | DOC ID 55804 | 418) | | | |
| art Numbe 5429045 | er | | | Design or Process Responsibility RENTERIA, JUAN | | | | epared by RRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | _ | _ |
| | r(s)/Vehicle(s) | | | Key Date | | | Ori | ginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 | | | | | _ |
| NSPECTIO | A, JUAN, ME SUPERVIS ON SUPERVISOR +52 | 844 4389060 | CARDENAS, | 4389060 CASTRO, MIGUEL, SUPERVISOR BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 | SUSUNA | GA, RICARDO, MOLDING & IN: | SER | T MOLDING - QUALITY ENGINEER +5 | 52 | Supervisor's Approva TORRES, ENRIQUE | | .lt- | | | _ |
| 44 438906 | 60 RODRIGUEZ, SA | NTOS, COOI | RDINADOR MTT | O.MOLDEO 844 4389060 TORRES, ENRIQU | UE, MOLDING | & INSERT MOLDING IE PLAN | IT 97 | 700 CENTEC 2 +52 844 4389060 | | | Action Resu | iits | П | П | Г |
| | Process Function Requirements | Potential | Failure Mode | Potential Effect(s) of Failure | C I e s s | Potential Cause(s)/ Mechanism(s) of Failure | O c c | Current Design/Process Controls | D R e P t N | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | | D e t | |
| Machine / | nufacture Parts on mold /Visual Inspection(first ample release) | | erminals(Plastic rminals) | "Process stop,scrap,Customer Insatisfaction" | 6 | "donl t load terminal in tool,Broken terminal or bend terminals | 3 | (D) "Process inspection,Product Audit,Operator method,Operator certificated,Electrical tester, vision system | 4 72 | 2 none | | | | | |
| Machine / | nufacture Parts on mold Visual Inspection(first ample release) | В | rittles | "Process stop,scrap,Customer dissatisfaction" | 6 | "Resin material contaminated or diferent kind material,Degraded material due to failure to purge material" | 2 | (P) "Process inspection,First sample release,Process certification, visual inspection | 8 96 | 6 None | | | | | |
| Machine / | nufacture Parts on mold Visual Inspection(first ample release) | Conta | amination | "Process stop,scrap,Customer dissatisfaction" | 6 | "Lubricant excess in tool,Oil leak in machine | 2 | (P) "Process inspection,First sample release,Preventive Maintenance Tool,Operator Method,Preventiva maintenance machine" | 8 96 | 6 None | | | | | |
| Machine / | nufacture Parts on mold Visual Inspection(first ample release) | Dimension | ns out of spec | "Process stop,scrap,Customer dissatisfaction" | 6 | Damage Tool,Tool out of dimensions | 2 | (P) Preventive maintenance tool,First sample release,Inspection report on layout annual, IIO, final audit | 7 84 | 1 None | | | | | |
| Machine / | nufacture Parts on mold Visual Inspection(first ample release) | \ | /oids | Intermitence inside of the connector | 6 | High injection speed due to injection machine failure, High injection machine due to incorrect values process, High temperature in barrel due to failure machine, incorrect values process | 2 | (P) Preventive maintenance machine,Program calibration injection molding machine,process injection and temperatures parameters | 7 84 | None | | | | | |
| mold | Manufacture Parts on I Machine /Visual n(first sample release) | Resista | nces mixed | Short Cut | 7 | Sensor of electrical tester machine failure | 2 | (D) Operator method-first sample release, process inspection, visual inspection, final audit -The rack of raw material of resistances will be locked - Check List -QC audit of the raw material of resistance and rack of resistance after assembly on twice per sfith- program for validate the electrical test | 4 56 | S None | | | | | |
| 200) Put | t parts on Buffer area | | ns or damage nnector | "Process stop,scrap,Customer insatisfaction" | 4 | Connector fallen on floor or hit with work station | 2 | (P) "Process inspection,Product Audit,operator method" | 8 64 | None None | | | | П | |
| 210) Mo | olding parts Process inspection | process insp | s connector by pection,pass non nances parts | Possible send non conformant parts to customer | 6 | Incorrect follow to operator method,flow material was broken,damage parts with working station,Incorrcet VPS | 2 | (D) Inpection instructive operathor,operator method,Product audit | 8 96 | None | | | | | |
| of the res | rm electrical test, mark sistence value on the (from cavities 10 to 17) and packing | circuit,r tolerance standar pack Non c | circuit,short esitor out of s,incomplette t, bad handling of onformant led to customer) | "Scrap,Customer insatisfaction" | 6 | "Broken Terminal,Missing Terminal,Plastic Terminals,Terminal out of position,damage resistor, bad handling of NCP | 2 | (D) "Continuity testing, operator method, product audit, First sample release, electrical tester mark, certificated operator, preventive maintenance tester, automatic counter in electrical tester, Guard to prevent the bad handling of Non conformant parts, process sheet, release check- | 4 48 | We will implement a program for verification the sensor presence after cell is 1 hour inactivity or more | RENTERIA, JUAN 2012-09-07 00:00:00 | Implemented 2012-09-07 00:00:00 | 6 2 | 4 | 48 |

| | | | | Design FMEA | | | X | Process FMEA | | | | Del Cor | | | | | |
|-----------------------|---|---------------|--|--|-------------|--|----------|---|----------------|---|---|--|--|-------------------|---|--|--|
| Part Certif | ication | | | | | | | | | | | | | | | | |
| | System | | Subsystem | Х | Component | | Paq 1 | ge | | FMEA Number RESISTOR (e-FMEA | A DOC ID 55804 | 418) | | | _ | | |
| Part Numb 15429045 | | | | Design or Process Responsibility RENTERIA, JUAN | | | TO | pared by RRES, ENRIQUE | | Telephone # +52 844 4389060 | | | | | | | |
| MULTIPLE | | | | Key Date | | | | ginal FMEA Date 05-04-27 00:00:00 | | FMEA Revision Date 2022-08-01 00:00:00 |) | | | | _ | | |
| | A, JUAN, ME SUPERVIS ON SUPERVISOR +52 | 844 4389060 | CARDENAS, | BRENDA, PC&L SUP (844) 438 9060 Ext. 3779 | 9 SUSUNA | GA, RICARDO, MOLDING & IN | SER | ANIA, RELIABILITY/INCOMING T MOLDING - QUALITY ENGINEER +5 | 52 | Supervisor's Approva TORRES, ENRIQUE | | | | | _ | | |
| 344 43890 | 060 RODRIGUEZ, SA | NTOS, COO | RDINADOR MTT | O.MOLDEO 844 4389060 TORRES, ENRIQ | UE, MOLDING | & INSERT MOLDING IE PLAN | IT 9 | 700 CENTEC 2 +52 844 4389060 | | | Action Resu | ults | | _ | _ | | |
| | /Process Function Requirements | Potential | l Failure Mode | Potential Effect(s) of Failure | S e s s | Potential Cause(s)/ Mechanism(s) of Failure | 0 0 0 | Current Design/Process Controls | DR eP tN | Recommended Actions | Responsibility & Target Completion Date | Actions Taken & Completion Date | | D F e F t F | Р | | |
| | 220.1) | Wron | ng Resistor | "Scrap,Customer insatisfaction" | 6 | Wrong Material handling | 3 | (D) Electrical tester First sample release Operator method. Implement a sensor color to detect wrong resistor | 5 90 | none | | | | | | | |
| | 220.2) | | (different resistor) HINA ID381296 | Part cannot be processed | 7 | -Bad handling of non- conforming material - Resistance mixture in preheated sleeve oven | 3 | (P) - Operator method - Master pieces Electrical tester Place lock to pieces rejected during the electrical test | 3 63 | none | | | | | | | |
| 230) Pro | cess Inspection by Mfg | | s connector by s inspection | Process stop,scrap,Customer disatisfaction" | 6 | Incorrect follow Inspection instructive | 2 | (P) Instruction inspection operator,Process inspection,Process Audit, piece free of defects and parting line all around, AVP | 8 96 | None | | | | | | | |
| | love material to Final product area | damage pad | ck,damage labels | Packing rework,damage parts,scrap,process stop | 4 | Bad handle material,dont follow correct the packing method | 2 | (D) Product Audit,Layer Audit | 8 64 | None | | | | | | | |
| 250) P | erform Product Audit | parts,don | conformancess t pass parts by duct audit | Process stop,red tag,reprocess inspection | 4 | Bad handle material,incorrcet follow instruction of product audit | | instruction,Quality seal on box material | 8 64 | None | | | | | | | |
| | Move parts to care nment area (if apply) | Packaç | ge damaged | "Parts damage,damage labels,pack damage" | 4 | Bad handling material | 2 | (P) Operator method, -D-visual aids, - D-containment inspection | 8 64 | None | | | | | | | |
| 270) Care | e containment (if apply) | Material with | hout containment | Bad parts shipping to costumer | 4 | Bad handling material | 2 | (D) Containment W.I. AVP, green dot is apply in the external side of container to evidence | 8 64 | None | | | | | | | |
| 280) Mov | e parts to shipping area | | nnector,damage and packing | Packing rework,damage parts,scrap,process stop | 4 | Bad handle material,dont follow correct the packing method | 2 | (P) Process inspection, Process Audit, Layer Audit, Operator method | 7 56 | None | | | | | | | |
| 290 | 0) Shipping Audit | Inc | orrect Id | Material reject,don t have rastreability,Customer Dissatisfaction | 4 | Incorrect follow to Shipping audit WI | 2 | (P) Shipping Audit W.I | 8 64 | None | | | | Ì | | | |
| 300) SI | hipping to distribution center | Packa | ge Damage | Customer insatisfaction | 4 | Bad handling Material | 2 | (P) Certificated Drive Freight Elevator,Shipping final product operator method | 8 64 | None | | | | | _ | | |