QFR No - 7000851996

## Defect Details

| | |
|---|---|
| **NC No.** | 7000851996 |
| **NC Date** | 27/07/2022 |
| **NC Submission Date** | |
| **Part No.** | S2KH01502B |
| **Part Name** | REBOUND SPRING K55G |
| **Supplier Name & Code** | 100185-HELICAL SPRINGS |
| **ETL Plant** | 1136-ETL Suspension Sanand |
| **Defect Details** | SHARP EDGE & BURR-sharp Edge at end coil Id |

## 1. Problem Description

| | |
|---|---|
| **Defect Description** | Sharp edge at end coil cutting edge towards ID |
| **Detection Stage** | Receipt |
| **Problem Severity** | Function |
| **NG Quantity** | 1384 |
| **Is Defect Repeatative?** | No |
| **Defect Sketch / Photo** | soaojfrmf1wdcyj03sjjik14.jpg |

## Supplier Communication Details

| | |
|---|---|
| **Quality Head Email ID** | Prabhat@helicalsprings.in |
| **Plant Head/CEO Email ID** | awadhwa@helicalsprings.in |
| **MD Email ID** | ataneja@helicalsprings.in |

## 2. Stock Details & action taken for NG parts

| Location | ETL End | Warehouse | Transit | Supplier FG | Supplier WIP | Total |
|---|---|---|---|---|---|---|
| **Total Qty** | 20000 | 15000 | 0 | 10000 | 0 | 45000 |
| **Check Qty** | 20000 | 15000 | 0 | 10000 | 0 | 45000 |
| **NG Qty** | 1384 | 0 | 0 | 0 | 0 | 1384 |

Action taken on NG part

| | |
|---|---|
| **Scrap** | 1384 |
| **Rework** | 0 |
| **Under Deviation** | 0 |

| **Containment Action** |
|---|
| Segregation of these material at customer end and our end. |

## 3. Process Flow

| Process Flow Description |
| --- |
| R/M Inspection->Coiling->SR-1->Grinding->Shot peening->SR-2->Final Inspection-> Packing /Despatch |

## 4. Process Details

| | |
| --- | --- |
| **Process / Operation** | Coiling |
| **Outsource** | No |
| **Machine / Cell** | Coiling Machine |
| **Machine / Cell No.** | HTC-45B |

## 5. Problem Analysis

| Type | Possible Cause | Fact Verification | Jud |
| --- | --- | --- | --- |
| Man | Competency level less | verify the skill matrix , competency level 4 | O |
| Machine | Setting problem | Verify the Set-up report found ok | O |
| Material | wire grade Ng | verify the setup report found ok | O |
| Method | checking method | verify the defect monitoring sheet | O |
| Tool | Shearing tool blunt | tool history card | X |
| Material | used wrong RM | verify the log found ok | O |
| Tool | feed roller was not working. | verify the history card found ok | O |
| Method | NG part handling was not adequate | Physically verify the NG part handling found ok | O |

## 6. Inspection Method Analysis (Current)

| | |
| --- | --- |
| **Inspection Method** | Gauge |
| **Other Inspection Method** | |
| **Check Point at Final Inspection** | Yes |
| **Checking Freq.** | 100% |
| **Sampling** | No |
| **Sample Size** | 0 |

## 7. Root Cause Analysis (Occurance)

| | |
| --- | --- |
| **Why 1** | Sharp edge at the End Coil ID |
| **Why 2** | Mandrill was not proper working. |
| **Why 3** | During Coiling mandrel was blunt. |
| **Why 4** | Operator was not check the mandrel Before completion of 50000 cycle. |
| **Why 5** | Mandrel Checking frequency was define 50000 cycle to cut spring after completion of 50,000 cycle than operator was checked the mandrel. |
| **Root Cause (Occurance)** | After simulation , during run the machine Observed the mandrel , mandrel was blunt before completion 50000 cycle. but here mandrel checking frequency define after completion of 50000 cycle. |

## Root Cause Analysis (Outflow)

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| --- | --- |
| **Why 1** | Sharp edge at the End Coil ID |
| **Why 2** | This type of defect inspector did not capture. |
| **Why 3** | Inspector was semi skilled . |

| | |
|---|---|
| **Why 4** | |
| **Why 5** | |
| **Root Cause (Outflow)** | After simulation observed the inspector negligence. |

## 8. Countermeasure ( Occurrence , Outflow & System side Actions )

| Type | Countermeasure Details | Responsibility | Target Date | Actual Date | Status |
|---|---|---|---|---|---|
| Occurance | Provided the training all concern person. | Arunesh | 29/07/2022 | 29/07/2022 | Completed |
| Outflow | Depute the skilled person | Bharat | 01/08/2022 | 29/07/2022 | Completed |
| Outflow | Poison test organised | Bharat | 03/08/2022 | 29/07/2022 | Completed |
| Occurance | Revised the mandril frequency. 50000 replace to 40000. | Sumer | 01/08/2022 | 29/07/2022 | Completed |
| Occurance | Displayed the Quality alert . | Bharat | 29/07/2022 | 29/07/2022 | Completed |

## 9. Inspection Method After Customer Complaint

| | |
|---|---|
| **Change In Inspection System** | No |
| **Change Details** | no |
| **Inspection Method** | Other |
| **Other Inspection Method** | Visual |
| **Check Point at Final Inspection** | Yes |
| **Checking Freq.** | 100% |
| **Sampling** | No |
| **Sample Size** | 0 |

## 10. Evidance of Countermeasure

| | |
|---|---|
| **Occurance (Before)** | Tool history card before customer complaint<br>210_Occurance_Before.jpg |
| **Occurance (After)** | Tool history card after complaint.<br>210_Occurance_After.jpg |
| **Outflow (Before)** | Was not fix the inspector<br>210_Outflow_Before.pptx |
| **Outflow (After)** | Fix the operator<br>210_Outflow_After.pptx |

## 11. Horizontal Deployment

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|---|---|
| **Horizontal Deployment Required** | Yes |
| **Applicable Machine / Model / Plant** | poison test monthly plan for critical parameter and customer complaint defect. |

## 12. Document Review

| | |
|---|---|
| **Documents** | ControlPlan, PFMEA, WISOP |
| **Specify Other Document** | NO |

## 13. Effectiveness Of Action

| | |
|---|---|
| **Reviewed Quantity** | 60000 |
| **Reason for submission** | 60000 nos. of Rebound spring K55G was checked 100% i.e. 2 lots in Nov 2022. No edge burr problem observed in both months of Nov 2022 & dec 2022. |