QFR No - 8000805728

Defect Details

NC No.	8000805728
NC Date	26/09/2022
NC Submission Date	
Part No.	520AM01202
Part Name	BALL RACE
Supplier Name & Code	100264-SAI INDUSTRIES
ETL Plant	1117-ETL K-228/9 Suspension
Defect Details	NOT AS PER SPECIFICATION-CORE DEPTH AND SURFACE HARDNESS NOT OK

1. Problem Description

Defect Description	Case depth and surface hardness found not ok
Detection Stage	Receipt
Problem Severity	Function
NG Quantity	2060
Is Defect Repeatative?	No
Defect Sketch / Photo	

Supplier Communication Details

Quality Head Email ID	info@sai-industries.com
Plant Head/CEO Email ID	info@sai-industries.com
MD Email ID	umesh.honap@gmail.com

2. Stock Details & action taken for NG parts

Location	ETL End	Warehouse	Transit	Supplier FG	Supplier WIP	Total
Total Qty	2060	0	0	0	0	2060
Check Qty	2060	0	0	0	0	2060
NG Qty	2060	0	0	0	0	2060

Action taken on NG part

Scrap	2060
Rework	0
Under Deviation	0

Containment Action
Verified in ETL found 60 nos. crack during assly. in 1200 Nos. After received in Sai will be scraped. In Logistic and in house No finish stock verify for crack. Information has been given to heat treatment supplier for minimize case depth and core hardness.

3. Process Flow

Process Flow Description
R/M - Cutting - Drilling - CNC Turning - Heat Treatment-C`less Grinding-Track & I/D Finish-Final Inspection-Packing & Dispatch.

4. Process Details

Process / Operation	Heat Treatment
Outsource	Yes
Machine / Cell	Furnace
Machine / Cell No.	Furnace

5. Problem Analysis

Type	Possible Cause	Fact Verification	Jud
Man	-	-	X
Tool	-	-	X
Method	Carburising cycle time and quenching temperature excess than specification found.	Carburising cycle time and quenching temperature excess than specification found.	O
Material	-	-	X
Machine	-	-	X

6. Inspection Method Analysis (Current)

Inspection Method	Instrument
Other Inspection Method	
Check Point at Final Inspection	Yes
Checking Freq.	Sampling
Sampling	No
Sample Size	One\Lot

7. Root Cause Analysis (Occurance)

Why 1	Ball Race crack during assly. "
Why 2	In destructive testing case depth and core harness is above specification.
Why 3	Case depth found 1.20 and core hardness found 57RC.
Why 4	In heat treatment cycle not followed by supplier.
Why 5	Carburizing cycle time and quenching temperature excess than specification observed.
Root Cause (Occurance)	Carburizing cycle time and quenching temperature excess than specification found.

Root Cause Analysis (Outflow)

Why 1	Ball Race crack during assly.
Why 2	In Final Inspection above defect not detect.
Why 3	Due to destructive testing parts not verify before frequency.
Why 4	Destructive testing frequency not adequate. Currently is once In Six Month.
Why 5	
Root Cause (Outflow)	Destructive testing frequency not adequate. Currently is once In Six Month.

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

Type	Countermeasure Details	Responsibility	Target Date	Actual Date	Status
Occurance	Revised heat tretament control plan for to minimize Carburizing cycle time and quenching low temperature implemented . Carburising cycle(soaking) time changed 70 to 60 Minutes.Quenching temperature changed 860 to 850°C.Trial conducted for one lot & supplied with green dot mark on o/d 48 as identification.	Supplier & Sai	25/09/2022	26/09/2022	Completed
Outflow	One piece test quarterly in NABL lab for Case depth & Core Hardness started. Corrected one lot 500 nos.supplied to ETL with green dot on o/d 48 as a indetification mark.NABL lab report submitted along with lot.	Sai	26/09/2022	26/09/2022	Completed

9. Inspection Method After Customer Complaint

Change In Inspection System	No
Change Details	-
Inspection Method	Instrument
Other Inspection Method	
Check Point at Final Inspection	Yes
Checking Freq.	Sampling
Sampling	No
Sample Size	One\Lot

10. Evidance of Countermeasure

Occurance (Before)	CHT Cycle Carburizing cycle time - 70 Minutes. Quenching teperature - 860°C 264_Occurance_Before.pdf
Occurance (After)	CHT Cycle Carburizing cycle time - 60 Minutes. Quenching teperature - 850°C 264_Occurance_After.pdf
Outflow (Before)	3 rd Party inspection Frequency 6 month 264_Outflow_Before.pdf
Outflow (After)	3 rd Party inspection frequency 3 Month 264_Outflow_After.pdf

11. Horizontal Deployment

Horizontal Deployment Required	Yes
Applicable Machine / Model / Plant	Ball Race Regular

12. Document Review

Documents	ControlPlan
Specify Other Document	-

13. Effectiveness Of Action

Reviewed Quantity	100
Reason for submission	ok