

REDUCTION IN REJECTION ON CNC LATHE MACHINE WITH THE HELP OF LOCATOR

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ABSTRACT

Root-cause identification for quality & productivity related problems are key issues for manufacturing process. It has been a very challenging engineering problem particularly in multistage manufacturing, where maximum number of processes & activities are performed. However, it may also be implemented with ease in each & every individual setup & activities in any manufacturing process. Conventional manufacturing thought limits the rejection plans to rejection which needs to be scrapped and implies direct loss. But present scenario in manufacturing industries, which is facing a very competitive environment, needs to consider not only rejection leading to scrap but also rejection which can be reworked or reuse.

This project focuses on reduction in the rejection due to improper loading of work piece on CNC lathe machine. Component resting on turbine side face, which is having more, casting variation so we provided special locator for loading of the work piece.

Keyword: *Design of Locator, Rib, Ring and Rejection Eliminated.*

1. INTRODUCTION

This is an Industrial project conducting in Birla Precision Technology Ltd. Aurangabad. This project focuses on reduce the rejection due to improper loading of work piece on CNC machine. Component resting on turbine side face, which is having more, casting variation so we provided special locator for loading of the work piece.

The investigation was done with the help of design & casting department within the industry. The various defects that occurs in the operation time. In this project, it describes remedial action that to be done in order to reduce the rejection. Problem analysis by using some technical methods and root cause analysis technique and further more. We implementing locator on CNC lathe machine to reduce the rejection due to dimension variation in casting parts & time required for loading & unloading of part, due to this human effort are reduced and saving manufacturing cost of product.

In real world, many people need a system to recover, designs, drawings, artworks etc. damage may be due to various reasons like scratches, overload, due to speed etc.

Jig and fixture was firstly found by Colvin & Haas 1938. A fixture is a device which is use for hold the work piece. It is widely used in manufacturing industry [1]. The concept of fixture was first introduced by Bertamio In the field of active fixture, research has focused so far on either flexibility/re-configurability [4],[5] enhanced fixture performance [6], or modelling the work piece fixture system [6].

2. RELATED WORK

- This is an industrial project conducted at Birla Precision Technology Ltd. Aurangabad.
- This project focuses on reduce the rejection due to improper loading of work piece on CNC machine. Component resting on turbine side face, which is having more, casting variation so we provided special locator for loading of the work piece.
- The various defects that occurs in the operation time. In this project, it describes remedial action that to be done in order to reduce the rejection.
- Problem analysis by using some technical methods and root cause analysis technique and further more.
- We implementing locator on CNC lathe machine to reduce the rejection due to dimension variation in casting parts & time required for loading & unloading of part, due to this human effort is reduced and saving manufacturing cost of product.

3. IDEA ABOUT THE PROJECT

Firstly, we observe there problems and defects happening in operations on CNC machines. After some days one defect occurs on CNC with chuck i.e. improper loading of job on CNC machine. Two to three times try out is required to placing the job on CNC machine and due to more casting variation job does not load properly so that during the operation the job variance are occurs.so the job goes under the rejection. Then we start thinking on that and start finding out the solution of the problem. Then we take the information of the problem with the help of research or journals. Similarly we take the guidance of production manager and finally we design the one new locator with the help of CREO. After implementing the locator in first attempts the job placed properly i.e. two or three times try out is not required. Thus finally we reduce the rejection occurring due the variation in the job.

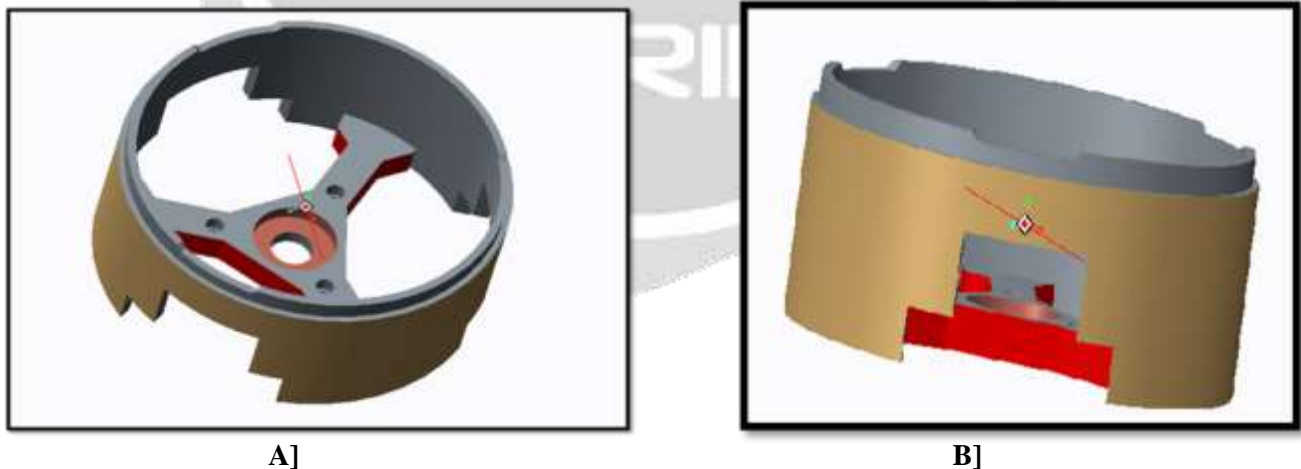


FIGURE A], B] – 3D SOFTWARE DIAGRAM OF LOCATOR

4. PICTURES



Figure a]- job without locator



Figure b] – Implementing locator on chuck



Figure c] - Job with locator

Dimensions of Locator

1. Material Used:- EN-24 GRADE

2. Part-1

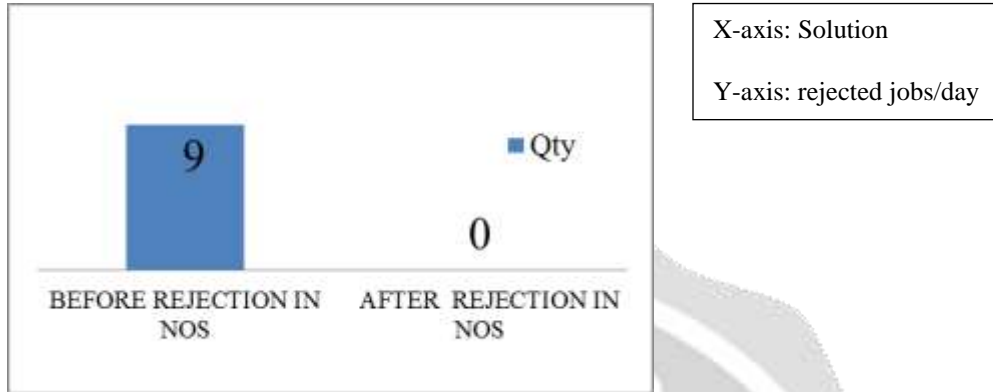
- a. Outer dia. = 153 mm
- b. Inner dia. = 138 mm
- c. Height = 98 mm

3. Part-2

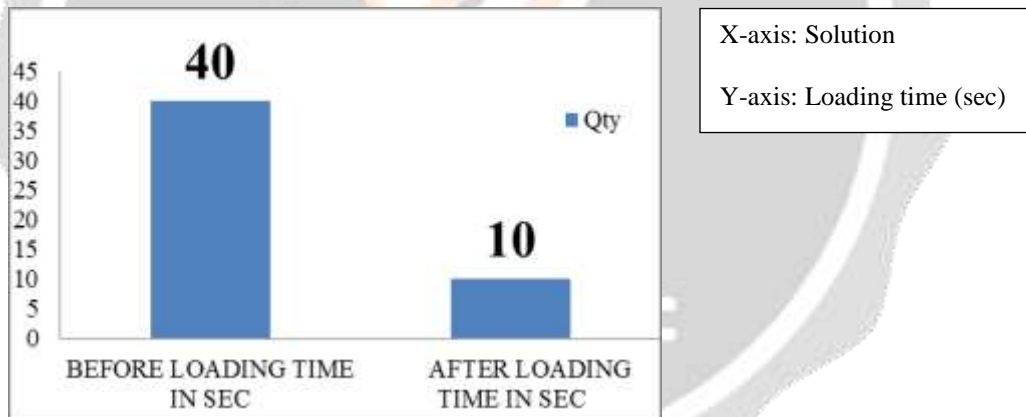
- a. Outer dia. = 38 mm
- b. Inner dia. = 26.30 mm
- c. Intersection angle = 120°
- d. Thickness = 19 mm
- e. Width of rib = 23 mm

4. EXPERIMENT RESULTS

A) Saving in rejection:-



B) Saving in loading time:-



5. CONCLUSION

In this way, we have conducted a Kaizen of providing a locator on CNC lathe machine so as to reduce the rejection of bearing housing during facing operation at Birla Precision Tech. Ltd. Aurangabad. Which is useful for proper loading of the work piece.

6. REFERENCE

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