

# Application of Quality Tools in Manufacturing Industries in simple ways: A Case Study

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**Abstracts:** Nowadays to survive in a competitive market, improving and productivity of product is a must for any company. We need to have better understanding of quality. By improving the quality, the method of optimization reduces process operational cost and product variation. This study is to apply Quality control tools in production process to reducing the rejection and rework by identifying where highest rejection occur at and to go give suggestions for improvement. In this paper the complete study are done on quality tools such as Why Why analysis, Fishbone diagram which have been applied to improve the quality of the products and minimize rejections. The simple example of successful application of the quality tools are shown on this case study.

**Keywords:** Productivity, Why Why analysis, Fishbone diagram.

## 1. Introduction

Continuous quality improvement process assumes, and even demands that team of experts in field as well as company leadership actively use quality tools in their improvement activities and decision making process. Quality tools can be used in all phases of production process, from the beginning of product development up to product marketing and customer support. At the moment there are a significant number of quality assurance and quality management tools on disposal to quality experts and managers, so the selection of most appropriated one is not always an easy task. In the conducted research it is investigated possibilities of successful application of 7QC tools in several companies in power generating and process industry as well as government, tourism and health services [1, 4]. Manufacturing industry spend a lot of efforts in maintaining and improving quality of their products using a variety of Control tools and techniques. Quality concerns affect the entire organization in every competitive environment [2]. It is not only necessary to reduce the wastage, but also to satisfy customer's expectations, continuous cost reductions and continuous improvements to survive in highly competitive environment.

### 1.1 The tools and techniques most commonly used in process improvement are [8]:

- Process flowcharting
- Cause & effect diagrams
- Brainstorming
- Pareto analysis
- Control charts
- Check sheets
- Scatter diagrams
- Histograms

## 2. Methodology

The Objective of this paper is to identify the defect & provide solution to improve the quality by using quality tools:

### 2.1 Approach to research work

Identification of problem	quality tools	Analysis of result	Implement Action
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Table1

### 3. Identification of problems:

Sl No.	Concern Description	Part Name	Reported During
1	Cone Angle 119 <sup>0</sup> -124 NG	BPH	Line issue
2	Dowel Position Out	BPH	Part Validation

Table -2

#### 3.1. Fish bone diagram :

Fishbone diagram are frequently arranged into four major's categories. These categories can be anything: Manpower, Methods, Materials and Machinery.

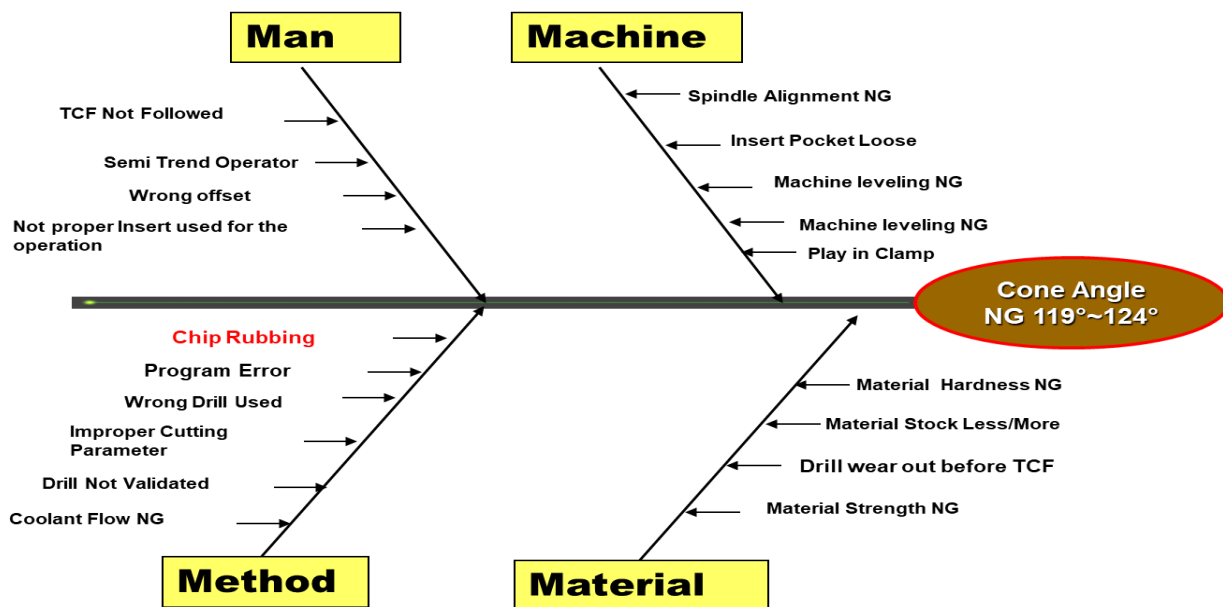


Fig -1: Fish bone Diagram

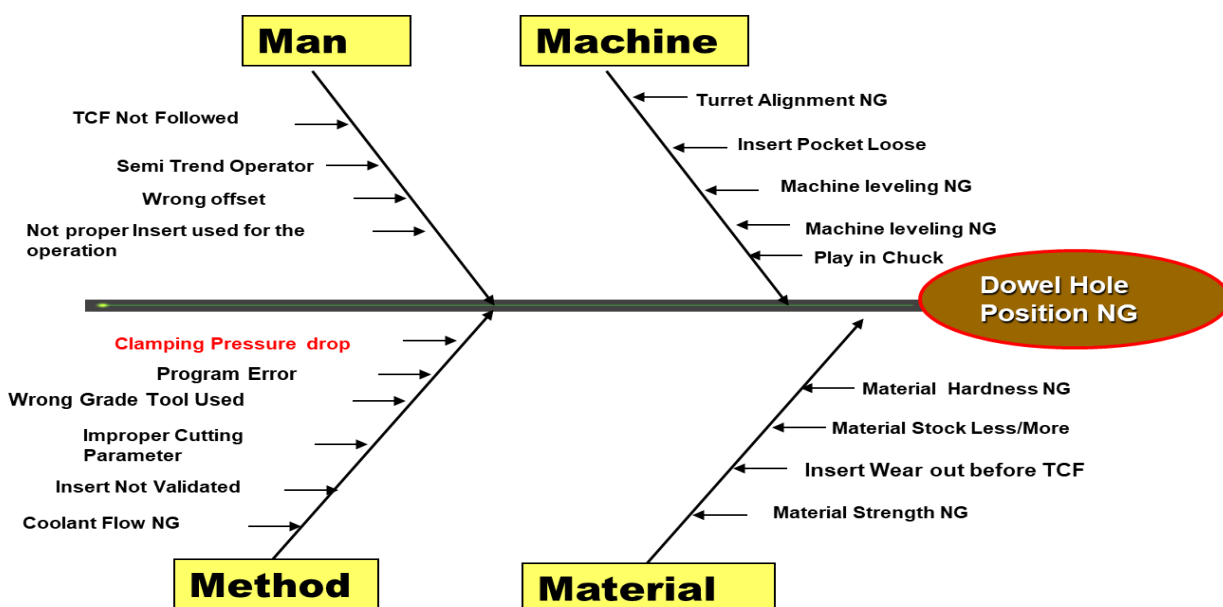


Fig -2: Fish bone diagram

**4 Root Cause Analysis & Action:**

Root Cause - Occurrence				
1 <sup>st</sup> Why	2 <sup>nd</sup> why	3 <sup>rd</sup> why	4 <sup>th</sup> why	5 <sup>th</sup> why
Cone Angle NG	Chips Accumulated in Drill Hole	Chips Rubbing During Ø 5.1 Drilling		

Table -3

Root Cause - Outflow				
1 <sup>st</sup> Why	2 <sup>nd</sup> why	3 <sup>rd</sup> why	4 <sup>th</sup> why	5 <sup>th</sup> why
Cone Angle NG	Part Checked in start of shift FOP	Angle not checked at final inspection	Check point not added in final inspection	

Table-4

Root Cause	Action	Status
Chip Rubbing During Dia 5.1 Drilling	Combination tool trial done	Done
	Through Coolant drilling process implemented	Done
Final Inspector skipped the angle visual at final inspection	100% Cone angle to be checked visually at final inspection	Done

Table -5

Root Cause - Occurrence				
1 <sup>st</sup> Why	2 <sup>nd</sup> why	3 <sup>rd</sup> why	4 <sup>th</sup> why	5 <sup>th</sup> why
Position Out	Part Loose from clamp	Power pack pressure drop due to power cut	No system for retain the pressure	

Table- 6

Root Cause - Outflow				
1 <sup>st</sup> Why	2 <sup>nd</sup> why	3 <sup>rd</sup> why	4 <sup>th</sup> why	5 <sup>th</sup> why
Position Out	Part Checked in start of shift during FOP			

Table-7

Root Cause	Action	Status
No System For Retain The Pressure	Non-Returnable Valve To Be Provided & Check Point Added in preventive Maintenance Sheet	Done
	Checking Frequency reviewed one per shift to twice per shift	Done
Part Checked in Start of shift during FOG	Training provided to all concerned	Done

Table -8

**4. Result**

The simple quality tools like Why Why analysis and cause and effect diagram the Root cause of problem identified and action taken taken to reduce the defect which is effective.

**5. Conclusion**

The main goal of this study is identify the defect and suggest a better solution to improve the production line performance on implementation of Quality control tools in manufacturing process in order to minimize the rejection and rework by the

help of Quality tools i.e. Why Why analysis and Cause and effect diagram are used to identify and evaluate different defects and causes for these defects responsible for rejection/rework of materials at different stages (In process, Final Stage) by the help of this two techniques identify the root cause after action taken the result found satisfactory.

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