

CHAPTER1

INTRODUCTION



1.1 Introduction

Nowadays, a business in Thailand is rapidly growing in every sectors by adopted technology, employees, production system, management, cost reduction and so on. It causes from many factors such as strong competition, new investor from overseas because of globalization. As these reasons, to improve in the business, product needs to meet customer requirement in outlook, quality and prices. Those are factors to be concerned for running a business in Thailand in order to improve rapidly.

A consumer –product business is a business that is likely to have a good future. Demand is depend on the amount of population especially in furniture and decor because it makes life so comfortably.

Castor wheel usually involved in many sectors of business and play a major role in many sectors such as industry, hospital, supermarket, furniture, bed, hotel or by any handling equipment means to make life easier in moving from place to place and it is save time. However it has to suit with workload in use, durability, price, shape therefore those factors are essential for company to consider. Caster wheel in different purpose has a different shape, structure, material, loading and outlook, for example, plastic wheel is good for light weight such as cabinet, chair

Steel sheet is one of a raw material to make wheel because it can handle in a different workload. A process is therefore commonly concerned with press working so die is a major tool that needs to be considered.

1.2 Company background and problem

The company in case study is a castor wheel manufacturing companies serving wide ranges of wheel products to nation wide and to export to other country nearby. It was established for over 30 years a current capacity 1500pieces per day for all products and 60 employees. Nowadays, labor cost is getting higher as well as more competitors. Therefore, the company needs to find the way to improve process in order to increase productivity, quality and lower cost of manufacturing. In making wheel frame, material is sheet metal. Metal is formed into shape by press working such as forming, piercing, deep draw, blanking. Therefore die has played a major role for making wheel and determined the step of process as well as expense of machine and labor and also lead-time to produce. Therefore this thesis is aimed to design die in order to improve process and expenses (economic study).

Currently, The major problem are listed below

1. Long lead time :

Because there are many process steps for making each components especially wheel frame and base frame such as forming, piercing, cutting, blanking, deep drawing. each process is performed by a single die , so that time is basically spent on die set up and transport

2. Volume order is increasing

Company expands product for OEM and export. Volume is a major factor to meet customer demand. According to order history record is 800,000 pieces within 1-month lead-time.

3. Work in process is increasing :

Work in process increase due to a bottom neck of each step process especially in process of assembly because it is done manually. Moreover process can not skip or swap process and the limitation of area.

4. Area of manufacturing process is limited.

Area of factory is about 900 square- meters. There are 22 machines located with 54 operators and assembly area and work in process of each station.

5. There are a limit of machines and operators

One operator in charge of 1 machine and 1 die produce part only 1 step process. These make a high cost.

6. Most Die are fabricated in-house with a low technical design.

It is lack of skill and knowledge of high technology of die design. Dies design and fabrication is relied on traditional skill so that there is no improvement therefore process step increase.

7. There are jam in transportation because plant layout is poor

8. Lack of skilled technician

When machine break down, there is only a temporary action. It is rarely find a root cause and solve in correct way. Maintenance is normally a corrective action rather than preventive action.

From a current production in this company case, it is found that the major problem that effect to productivity is the inefficiency of die design and technology. In a wheel manufacturing, die for press working is a major problem because it determines how efficient production is. Therefore this thesis is to analyze the replacement of die for improve productivity and the propose of improve in other business.

1.3 Objectives

To study the progressive die replacement in wheel manufacturing factory

1.4 Scope of thesis

1. To introduce a conceptual and progressive die design

2. To study an efficiency improvement by progressive die over single die
3. Concerned in one component part only (wheel frame)

Assumption

Assume machine is currently capable to use for progressive die.

1.5 Procedure

1. Study and collect problem in current die and processes
2. Research literature
3. Conceptual of progressive die
4. Economic analysis of the investment of progressive die
5. Summaries and suggestion
6. Thesis write up

1.6 Expected result

1. To propose an alternative decision on progressive die replacement to top manager
2. To propose an efficiency improvement on the comparison between single die and progressive die
3. To propose to apply in a similar type of industry