

CHAPTER 1

INTRODUCTION



1.1 Statement of Problem

Thailand's paper industry is now at a stage of high competition from both domestic and international trade.

It is, therefore, necessary for the manufactures to develop, improve and reform the company's strategy to their productivities and sales as well as quality and service to meet the new challenge circumstance and to be able to benefit or even just survive in a more competitive environment in the world market.

By doing that, production process has become one of the most crucial issues of consideration as product quality and production capacity could bring up more sales to the companies. Normally, quality of finished paper depends on quality of raw materials and technology of each machine in production process.

Papermaking process is continuous process which beginning from stock preparation go to paper machine, reeler, coater machine, super calendar machine, converting, sorting, packing and stock into warehouse. Breakdown of only one machine could obstruct the overall process in which leads to company's losses such as time loss, production loss, sale loss, and manpower loss including many unforeseen losses.

One of the problems that cause breakdown in the production process comes from the breakdown of Coater Machine. The reason under this situation is the paper break in which comes from many factors such as hole in paper, paper break at the edge, paper web break from adjusting the tension, etc. Whenever paper break, the paper will be wrapped up the backing roll. This damages the backing roll and make

stopping the production process due to removal of paper from backing roll or backing roll changing which lead to production loss and time loss.

Hence, solving the breakdown of coater machine problem could reduce tremendous damages to the production process.

The method used to reduce paper wrapped up backing roll and backing roll damage, today, is to break the paper sheet by the operators that will probably get worse and this is unsafe action for the operators. The possible procedure to reduce the damage is to apply web cutter in order to cut paper before getting into the backing roll.

Therefore, the machine is to develop via installation of the Photo Switch that provides signal air pneumatic cylinder in order to control the knife to cut paper before getting into the backing roll. With the appropriate setting position and cutting speed of the knife that is controlled by web cutter system, the damage of backing roll and loss time of removal paper from backing roll could be possibly reduced.

1.2 Objective of the Study

The objective of the study is to reduce sheet break loss time of Coater Machine.

1.3 Scope of the Study

The scopes of the study are listed as follows:

1. To design and set-up Web Cutter System for Coater Machine.
2. To compare the result before and after implementation of Web Cutter System.

1.4 Research Methodology

The methodology of this study is to:

1. Define the problem
2. Surveys and study the documents related
3. Collect data
 - 3.1 Prepare the log sheet for collecting data
 - 3.2 Collect time loss and number of time from paper web wrapped up backing roll
4. Study and design the installation point of web cutter system (Before paper web passing through backing roll)
5. Design and Select equipment
 - 5.1 Design support of web cutter system
 - 5.2 Design frame of web cutter system
 - 5.3 Design the piping for pneumatic equipment
 - 5.4 Design safety guard of web cutter system
 - 5.5 Select air cylinder, solenoid valve and other pneumatic equipment
 - 5.6 Select photoelectric switch.
6. Manufacture & Purchase parts of equipment
 - 6.1 Manufacture support of web cutter system
 - 6.2 Manufacture frame of web cutter system.
 - 6.3 Manufacture the piping for pneumatic equipment
 - 6.4 Manufacture safety guard of web cutter system
 - 6.5 Purchase air cylinder, solenoid valve and other pneumatic equipments
 - 6.6 Purchase photoelectric switch
7. Set-up the equipment and test
8. Analysis
 - 8.1 Collecting data after installation
 - 8.2 Compare and conclude the results
9. Write up and submit the report

1.5 Expected Benefits

The expected benefits of this study are listed as follows:

1. To reduce sheet break loss time of Coater Machine.
2. To reduce number of time from paper wrapped up backing roll.
3. To prevent the backing roll failure when the paper wraps up backing roll.
4. To save the maintenance cost and man power for repairing backing roll.
5. To prevent the accident from the operators break the paper sheet.
6. To improve productivity.