Faculty of Engineering

Department of Textile Engineering

Project On

STUDY ON INDUSTRIAL ENGINEERING

Course Title: Thesis

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Submitted By

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Supervised By Mohammad Abdul Baset Assistant Professor

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The Report presented in Partial Fulfillment of the requirement for the degree of Bachelor of Science in Textile Engineering

Advance in Apparel Manufacturing Technology

Duration Time:

LETTER OF APPROVAL

To

The Head

Department of Textile Engineering Daffodil International University

102, Shukrabad, Mirpur Road, Dhaka 1207

Subject: Approval of Thesis Report of B.Sc. in TE Program

Dear Sir,

We only write to tell you that the student is holding Md. Abu Taher. This report is titled "Industrial Engineering." The final assessment is completed by ID: 163-23-4817 and Md. Fazla kabir ID: 163-23-4828 The entire study is drawn up on a proper investigation and disruption, by criticizing scientific evidence with appropriate objects, by engaging personally in project activities and by motivating the readers with many useful facts.

It would also be deeply appreciated if you accept this thesis study and regard it as a final assessment.

Yours Sincerely

……..

Mohammad Abdul Baset

Assistant Professor

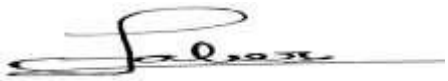
Department of Textile Engineering

Daffodil International University

DECLARATION

We hereby announce that, under Mohammad Abdul Baset, Assistant Professor of Textile Engineering, Department of Engineering of the Faculty of Engineering, Daffodil International University, we have made the industrial pledge. We also state that, except where suitable mention is made in the document, no industrial appendage or any portion of this industrial appendix is sent to another for graduation or diploma.

Submitted By:



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DEDICATION

We'd particularly like to thank Allah, Almighty. By the grace of Allah, our thesis paper is successful. We would like to thank Mohammad Abdul Baset, Department of Textile Engineering and the International University of Daffodil for their contribution and our progress. Our father in particular, who helps with the difficult exhaustion to do this. Frankly my friends, cousin or parents, all of us who should get the devotion would like to tell.

ACKNOWLEDGEMENT

In the first case, we extend our sincere thanks and appreciation to the all-powerful Allah because of his divine blessing. We thank Mohammad Abdul Baset (Assistant Professor of Textile Engineering at the International University of Daffodil) and would like our deep debt. we want to thank him. Deep data and our supervisor's passionate hobby inside the topic of textile production encouraged me to pursue this mission.

Its untold power, wise direction, consistent assistance and robust monitoring, good complaints, useful recommendations, analyzes and corrections in many lower drafts have all allowed it to achieve this mission.

The authority of Alim knit (BD) Ltd and Magpie Composite Textile limited are very much in our heart. For their kind support to finish my mission Ltd... A special path to the production plants, Mizanur Rahman (Sr. Merchandiser), Rahazul Amin Rafiz, who led us, with staff and people who have given us their precious time.

And also other school members and the Daffodil Worldwide College cloth engineering staff party.

We want to thank our entire course partner at Daffodil Global University, who participated to address this during the road work.

Finally, we must appreciate our parents' daily assistance and patients.

ABSTRACT

This paper is a general SMV method and a breakdown of the activity of the textile business. Alim knit (BD) Ltd and Magpie Composite textile Limited has been visited. SMV and the associated facts are gathered. In time, development, capacity, organizational breakdown, aim and general results, we have finalized our test.

After both of these have been used, we have compared hard work efficiency and live results before and after the case. The planned output format was sooner or later modeled and increased efficiency guaranteed.

In this paper a few Time, Power, Goal, SMV and Manufacturing approaches were quoted, and the various techniques were observed, evaluated and further discussed in this paper, including organizational breakdown and a different method and technique which consists of different experimental dialogues, test results and discussion. We're evaluating a rundown of three gadgets. The commodity SMV for T -shirt (5), T-shirt Efficiency (62.5%) are done.

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CHAPTER - 1: INTRODUCTION

1.1 Introduction:

Due to numerous factors, including competitiveness, rising production rates, reduced productivity/effectiveness and labor attribution, the apparel manufacturing industry faces many global challenges.

1.2 Nature of the work in IE:

Industry Engineering defines how a company can produce or process a product or manufacture a service in the most efficient manner by utilizing simple manufacturing elements – personnel, equipment, materiel, knowledge and resources. They are the link between management priorities and market success. The producer promises manufacturing capability and how to deliver on schedule. Cost reduction, SMV reporting, etc.

1.3 Objective of the project:

1. Improving efficiency
2. Improving the process by reducing vibrations.
3. Delete the barrier and minimize work in progress (WIP).
4. Improving operating quality
5. Decrease the computer ratio
6. Improvement of the mechanism for cost savings, waste and exclusion
7. Fill in the Main Predictor of Success (KPI) goal.

1.4 Daily Activities and Duties of an Industrial Engineer in the Apparel Industry:

1. Collect line charging proposal from the Department of Planning
2. Pre-Production Conference (PP) membership
3. Recollect sample size and generate appropriately working bulletin.
4. Collect and layout the Activity Bulletin
5. Discuss computer, folder, connection and technical workers for technical matters of In-kind Maintenance.
6. Discuss the configuration according to document layout with the floor accountable
7. Regular Non-productive Time (NPT) management and system downtime elimination.
8. Create a document layout layout
9. Make a line balance by goal and ability analysis for 2-3 days.
10 Looking and overcoming the bottleneck
11. If possible, carry out the production analysis for 1 hour.
12. Monitoring of daily input and output
13. Offer daily goals for production and track output efficiency.
14. Every hour follow-up production
15. Monitoring behaviors related to 5S dail

1.5 Importance of the project:

Combination of different papers, records and measurements between our general and practical teaching lines.

- The fabric and textiles industry exports significant volumes (80-85) of foreign currencies.
- In textile and its sub-sector, there are many industrial engineers.
- Bangladesh is a developed world and is heavily dependent on foreign exchange in developing countries.

1.6 Scope of the project:

• Wonderful chances in the IE Department of the clothing industry to do something.

• IE now requested a day of output progress.

• Nearly all RMG plants and recognize IE's role in improved production.

• Writers of RMG industries may satisfy actual request to increase their output in the IE segment.

CHAPTER – 2: LITERATURE REVIEW

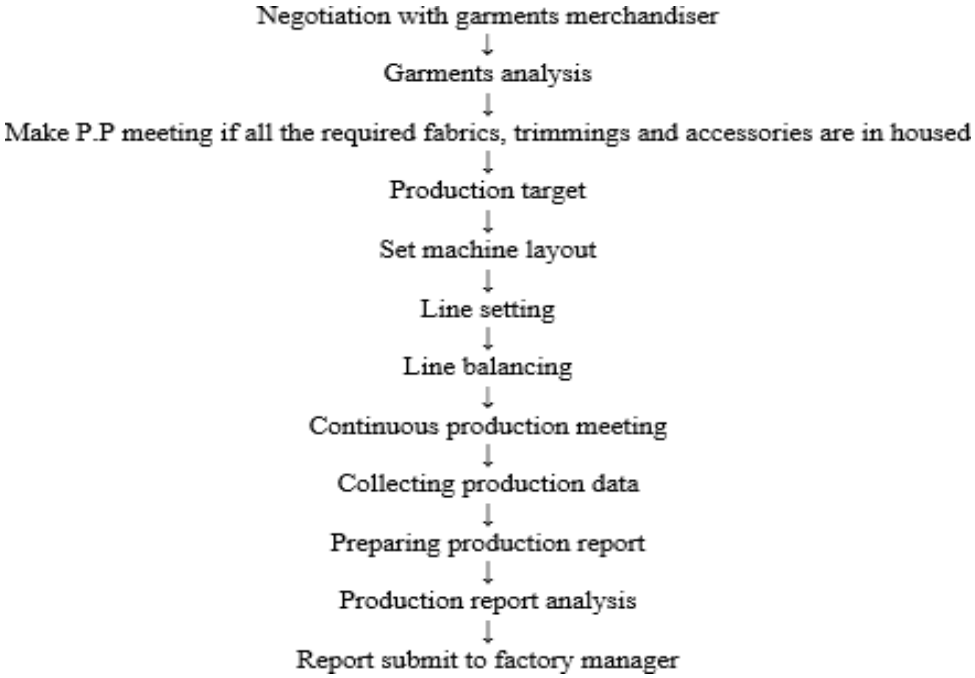
2.0 Definition:

Industrial engineering is an engineering sector related to the optimisation of dynamic structures or methods. It is obviously worried that, as well as technical, body and social sciences, the logical and structure principles of engineering design will be created, improved and applied in order to expect and analyze the outcomes to be gained from those design styles and that they will be assessed collectively.

2.1 Concept of IE:

The business way of making garments wants intensive production activity and at the same moment, certain considerations need to be combined, such as people, time, equipment and fabrics in an organized and rational framework. Technological clothing gadgets can allow the expected product quality, an important manufacturing scope and transport within the expected period of prepared clothes as well as the majority of use of capabilities at minimum rates.

2.1.1 Process Flow chart of IE:



2.1.2 Functions of IE:

- The best techniques of painting are created and a good way of producing paintings is coordinated. The requirements for performance according to standard techniques are organized.
- Designing sound reward and salary programs.
- Developing a rebate on charges and exploiting services and developing a trendy costing method.

2.1.3 Activities of IE:

• Method preference and strategy assembly.

• System of cost management.

• Task appraisal systems implementation and installation.

• Study on surgery.

• Study in algebra and statistics.

• Assessment of results.

• Processes and structure.

• Selection and appraisal of vendors.

2.1.4 Role of Industrial Engineer in Garment Industry:

1. Protection

2. Balancing of the rows

3. Perfect – manipulates process

4. Training – how to train new workers

5. Operator output - preserves surplus output and increases the capacity of low output operators.

6. Manipulate loss – minimize off-all loses.

7. Regulation of waste – in products, materials and appliance

8. in the office, within the stitching process, within the equipment, Normal requirements

As a leader, an outstanding way to demonstrate leadership is an excellent example. Each manager represents the organization and all of its movements is an extension of the company

- Maintenance For maintenance

- Work on consistency
- Charge efficiency Productivity

2.1.5 Techniques of IE:

Method study:

To hook up a new mode of operations after a detailed review of the work and to mount the scheme of manufacturing installations in order to provide a standard sleeve without monitoring again.

Time study (Work Measurement):

This is a means of scheduling a fashionable time for an action or a manner.

Motion Economy:

In this way, the operators used to evaluate the movements they employed. In mass production and for a short-cycle repeating process, the norms of movement economical machinery and movement analyses are very useful.

Financial and non-financial Incentives:

This help to boost the efforts of the people in a reasonable way.

Job Evaluation:

This is a means of assessing the Agency's relative good worth in balancing work and workers and obtaining a sound salary coverage.

Study of Materials Management:

To study the flow of material handling substances scientifically. to clear up unwanted steps through multiple divisions to assess total content efficiency.

Ergonomics (Human Engineering):

The research is very much concerned with dating the guy and his running circumstances to mitigate mental and physical pressure. The gadget computer is involved.

2.2 Line Balancing:

Line Balance equalizes the workload of all the operations of a mobile phone or value move to eliminate bottlenecks and surplus power. A restriction slows down the mechanism and leads to testing downstream operations and additional power effects at constant prices and absorption.

2.2.1 Objectives of Line Balancing:

Under any case, waste has been deleted at any price in compliance with the processing fee to the time of contact.

1. Continuous movement of content.

2. Man control and computer capability full applications.

3. The procedure time is small.

4. Slack time elimination.

5. The workstation is minimized.

6. At the desired moment, optimum performance.

7. Maintenance of standard of clothes.

8. Reduces cost of manufacturing.

2.2.2 Importance of Line Balancing:

1. It also helps to assess the need for jobs.
2. Strong mix decreases the time of output.
3. By proper line balance, the benefit of a factory can be assured.
4. Proper line balancing ensured that the negotiated standard would be optimal.
5. The final product eliminates errors.

2.2.3 Efficiency:

Leisture is another way to convey efficiency, but it is useful and broad in terms of output. Overall figures for success inform us how we reach a statistically established objective. Since the target is articulated like a period that corresponds to a clothing or a required production degree, the results are clean to quantify.

The output zone estimation method: efficiency % = performance % =

Overall minutes produced × 100

Toral houes labored × 60

2.2.4 Cycle checks:

A loop aims for a fast searching period and it is easy to set the target or whether an operator is willing to meet a modern day or not.

The time of the loop is the time spent by the operator for one cycle, i.e. the time between the collection and the disposal. Conduct a cycle test in compliance with the following steps:

• Pick your study operation/s and enter the best form detail.

• Watch five cycles each, nothing time for each cycle of the competition.

• Measure each operation's total cycle time.

• Assess cycle time for primary time released.

2.3 Standard Minute Value (SMV):

The period it is virtually allowed to do a hobby is determined by SMV because of fact. Generally speaking, the minute fee is far articulated. The Minute price MV term is especially used in the manufacturing organisation. The full production of SMV is required. The general minute is often referred to as the SMV (SAM).

2.3.1 Factors of Standard Minute Value in Garments:

- Types of garments.
- Types of fabrics.
- Garments size.
- Garment design.

2.3.2 SMV Calculation in Garments Industry:

The measurement of SMV in the clothes sector varies from the comprehensive type of operations without length, the kind of fabric, a wide variety of workers, average efficiency of the gadget, etc.

SMV = simple time + Allowance

Where primary time = determined time × score one hundred

Allowance = rest allowance + Contingency allowance + device postpone allowance.

Score = the pace or pace of the operator at which the operator is performing the challenge.

2.3.3 Bottleneck:

A bottle-end is a phenomenon which, by means of an unwed or restricted type of components or resources, limites overall output or power of a whole system

2.3.4 Bottleneck in the Production Line:

The low performance factor is referred to as a bottleneck within the production line. This is the bottleneck zone in which demand and supply are collected.

2.3.5 Aries of Bottleneck:

There are so many reasons to arise a bottleneck in the production line and it is describe bellow-

A. Bottleneck before input in line:

- Mistake Building.
- Supply Issue Wrong.
- If issue comes delay.
- Issue serial number mistake.
- Pattern problem.

B. Bottleneck in Line:

- Supply Lack.
- Non balance allocation of elements.
- Workers absenteeism.
- Machine disturbances / out of order.

2.3.6 Way of Reduce Bottleneck:

• Pick the best workers for the right job.

• Retain the serial code.

• Refuse garments should not be forwarded.

• Minimizing the sewing burst.

• Refining the process.

• The supply should be forwarded after authentication.

2.4 Pitch Time:

Pitch time is used for the positioning of the line and the measurement of the output intention for the route. Score of:

The definition of score (known in the US as grading) is essential in the time of the exam. The ability to price accurately separates an approved time-check professional from a novice.

The score is a gadget used by the economic engineer to analyze the operator's real average overall performance along with his/her high-brow idea of the ordinary overall performance of the operator.

2.5 Work study:

Sports of work take a look at the garment and fashion industries carried out through the economic engineering market. Without a question, paintings to look at are used to calculate paintings. The industrial engineering division is responsible for the observance of work in the textile industry. Looking at work is the most crucial method for managing output and maximizing efficiency. It's miles away from a new concept in the fabric and textile business. We're going to describe job look in the following way.

2.5.1 Purpose of work study:

In addition, the aims or objectives of the analysis of practice shall be:

1. Establish the most economical way to do the job.

2. Set the time needed for a job at a given level of efficiency.

3. Increase efficiency and profitability;

4 Making it easy to work.

5 Define equal roles for everyone.

2.5.2 Importance of work study:

1. Job research is a way of maximizing the quality of the company's production by eliminating excess and wasteful activities.

2. It is a methodology used to classify non-value-added activities by investigating all the variables impacting work.

2.5.3 Role of Job Study:

There are six potential lines of attack on efficiency problems, which can be listed as follows:

- Improve the fundamental procedures of research and production.
- Improving the current procedure and offering improved plant and machinery.
- Simplify, reduce and standardize the variety of goods.
- Improve job preparation and the utilization of human capital.
- Improve current plant operating procedures.
- Increase the productivity of all workers.

2.5.4 Goals of the study of work:

- Improvement in productivity.
- Improved consistency of the items.
- Pick the easiest way to do a task.
- Enhance the operating process.
- Less fatigue for technicians and staff.
- Successful management of the workforce.

2.6 Method study:

Method research is a computer for systematic documentation and important analysis of talents and proposed methods for conducting artwork, as a way of creating and utilizing less complicated and equally effective

techniques. Far has been extended to reduce rates. For greater efficiency in the apparel and textile market technique, take a look at the can to be really important. It is one of the keys to the productivity growth mission. Skills of scientific observation inside the fabric and textile company enterprise are finished with the resources of the industrial engineering division.

2.6.1 Main goals of the Process Study:

- Improved construction of plant and building machinery.
- Less fatigue or workmanship while preventing excessive manpower movements.
- Better working practices and the climate for staff and employees.
- More productive use of resources, machines, manpower and capital.
- Improved consistency.
- Reliable and fast machinery for handling items.
- Achieves standardization, rationalization, simplification and specialization.
- Effective segment preparation.
- Streamlined operating practices.
- More job satisfaction.
- Lower earnings.
- Enhance the architecture of the plant and the workplace.
- Lower fire and health requirements.
- Boost the flow of jobs.
- Efficient handling of products.
- Efficient process and process.
- Improving the proper use of the assets.
- Have the full production.
- Boost administration.
- Elimination in pollution.

2.6.2 Steps of Method Study:

Steps of Method Study

- Selection of work
- Recording information
- Examine information

- Develop the new process
- Install the new method
- Maintain new method

2.7 Time Study:

Time observe is a bit size approach for recording the time of acting a tremendous particular challenge or a detail of a method carried beneath targeted situations, and for analyzing the facts so one can gain the time important for an operator to keep it out at a described rate of performance.

2.7.1 Steps of Making Time Study:

1. The Traditional Form Analysis.

2. Recording the working and surrounding environments at the time of the analysis, which could influence the method of carrying out the work and therefore the time needed to conduct the work.

3. Record a complete summary of the task as it is being carried out and break down the work or operation into individual time-setting components.

4. Determining the size of the sample.

2.7.2 Notes on Time Study:

- Be kind and helpful, but don't speak to the operator needlessly.
- Do not stand in front of the operator, stand in a less discomfortable position, such as on the side or in the rear.
- Don't lie down during a time report.
- Always measure the results of the time study directly after the date of compilation.

2.7.3 Operator Performance:

Basically the operator performance can be monitored with the help of three efficiency factors.

1. Single cycle efficiency.
2. On-standard efficiency.
3. Global efficiency.

2.7.4 Off-standard Time:

The time spent by an operator at his work under a condition that is not considered as productive. Types of off-standard,

- Machine break down.
- Waiting time.
- Quality problems.
- No feeding.
- Unfamiliar job.
- Training.

2.8 Analysis of Capacity:

It's miles, the degree of the operator is the same as the capacity. It technique the operator is in a role, with the assistance of a look, to conduct a general overall output measure. The essential purpose of the functionality analysis is to set quotas, to inspire the operator and to calculate the potential of the output segment. The manager will settle on the general functionality of their phase by calculating the capability of the individual operator. It really is the amount of the functionality of the person.

2.8.1 Calculation Method of Sewing Line Capacity in Apparel Industry:

In order to measure the sewing line capability of the garment factory, the following information was required by the industrial engineers-

• No. of the line sewing machines.

• Employee absentee percentage of the rows.

• Daily operating hours of the plant.

• The line productivity of the plant.

• Regular approved minutes (SAM) for the production piece

2.9 Allowances:

It is not sufficient to include the number one time positive allowances faster than it is possible to complete the dilemma of the optimum timeframe for interest.

The reason for including those allowances is that the paintings take a look at the engineer who first considered the productiveness of the operator's paintings and has not now considered the duration of rest that would be required with the help of the operator to enable the operator to appreciate the time he/she wants to allow hobby to fulfill personal needs.

CHAPTER – 3: EXPERIMENTAL DETAILS

3.0 EXPERIMENTAL DETAILS

We collected this operation breakdown & format sheet from the Alim Knit BD Ltd. We finished a record by way of following steps like format have a look at, capacity, SMV, production target, etc.

3.1 Operation Breakdown of T- SHIRT:

Buyer Name: LIDL

Item: T - Shirt

Figure: 3. 1 Operation Breakdown of T- SHIRT

Alim Knit(BD) Ltd								
					Middle Floor		T-SHIRT	
Sl No.	Process Name	M/C	Cycle time					avg
1	pocket side Seam	H/P	4	4.5	5	4.5	3.5	4.3
2	pocket marking	P/M	15	15	17	16	15	15.6
3	Pocket join	P/M	50	51	49	48	51	49.4
4	Pocket join	O/L	75	51	53	48	50	55.4
5	Shoulder join	O/L	25	22	20	19	22	17.6
6	Sleeve hem	F/L	24	18	23	27	24	23.2
7	sleee join	OL	7	5	7	8	8	7
8	neck pipping	O/L	54	60	58	61	69	60.4
9	Neck Servicing	O/L	51	55	53	55	52	53.2
10	Tape Papin g	P/M	13	14	18	15	17	16.4
11	neck top stitch	O/L	30	31	30	35	30	30.8
12	Label top Stitich	F/L	17	16	11	15	14	14.4
13	size Numbering	F/L	18	11	19	15	16	15.2
14	Size numbering	P/M	13	17	17	16	15	15.2
15	Patch Label make	P/M	25	23	24	25	27	24.4
16	Body hem	P/M	22	24	23	21	23	22.8
17	Side Seam	F/L	16	14	15	16	18	15.8
18	Side Seam	O/L	14	13	13	16	15	14.2
19	side Seam	O/L	37	35	38	35	34	35.8
20	side touck	O/L	22	23	25	22	24	23.2
21	Side main Top stitch	P/M	25	25	23	23	22	23.6
22	Side main top Stitch	P/M	30	32	33	32	30	31
23	Quality checking	H/P	36	38	36	38	34	36

Table: 3. 1 Operation Breakdown of T- SHIRT

3.2 Operation Breakdown of –POLO SHIRT:

Buyer Name: LIDL

Item: Polo Shirt

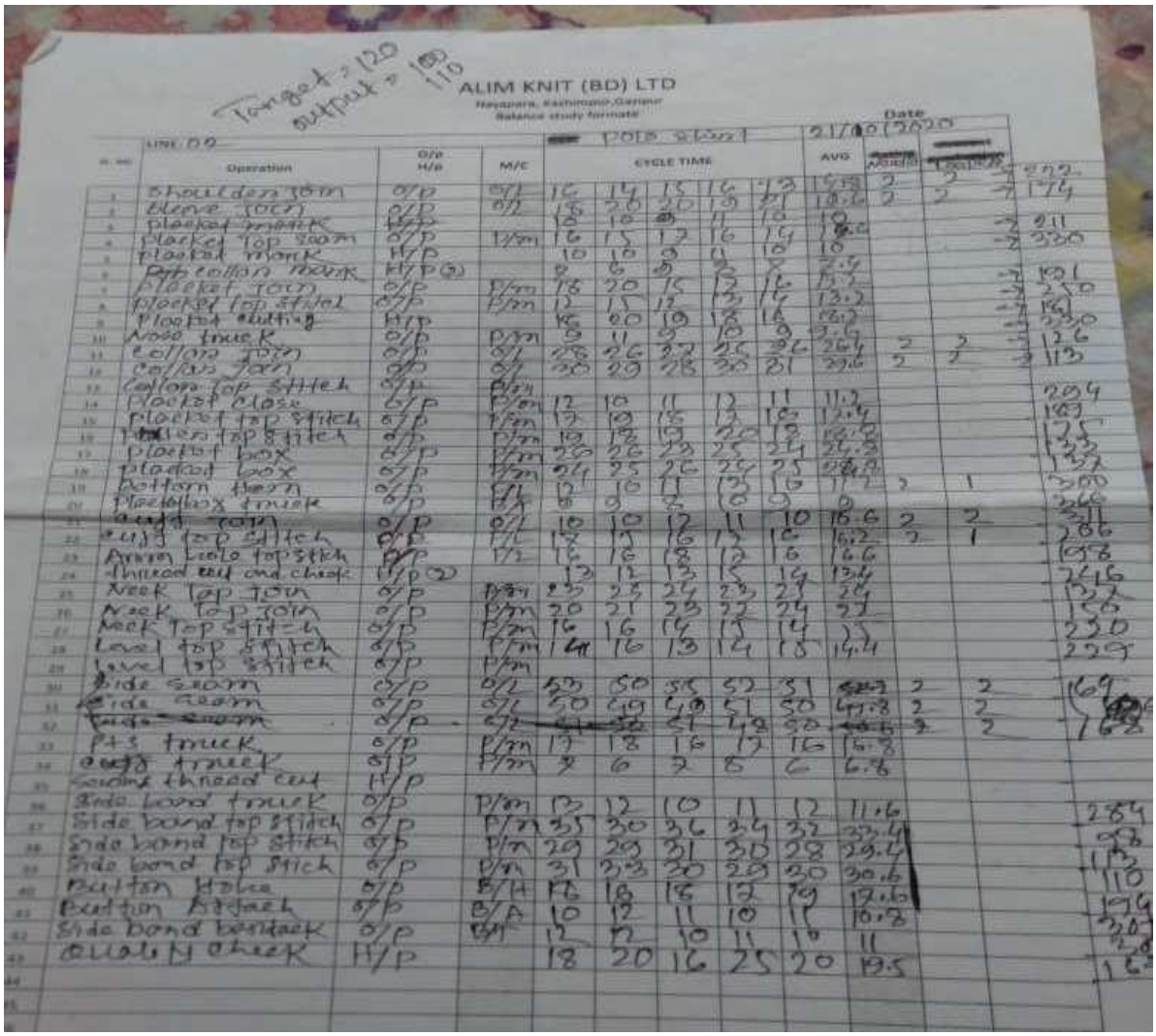


Figure: 3. 2 Operation Breakdown of –POLO SHIRT

					Alim knit (BD) Ltd				
					Middle Floor				Polo Shirt
SL No	Operation	M/c	Cycle Time					Avg	
1	shoulder Join	O/L	16	14	16	16	13	14.8	
2	Sleeve Jon	O/L	18	20	20	19	21	19.6	
3	placket top Seam	P/M	16	15	17	16	14	15.6	
4	placket marker	P/M	10	10	10	11	10	10	
5	Collar mark	P/M	7	6	9	8	7	7.4	
6	Placket join	P/M	18	20	15	12	13	13.2	
7	Placket top stitch	O/L	18	20	19	16	16	18.2	
8	Nose truck	O/L	9	11	9	10	9	9.6	
9	collar join	P/M	28	26	27	28	36	26.4	
10	Collar Join	P/M	30	29	28	30	31	29.6	
11	placket close	P/M	12	10	11	12	11	11.2	
12	placket top Stitch	P/M	17	18	19	18	16	17.4	
12	Packet top Stitch	P/M	12	10	13	15	13	12.6	
14	placket Box	F/L	17	16	13	14	18	15.6	
15	Placket Box	B/T	24	25	26	24	26	2.4	
16	Bottom Hem	F/L	12	10	11	10	12	11.4	
17	placket Box truck	F/L	9	9	8	7	10	9	
18	Cuff join	P/M	10	11	12	11	11	10.6	
19	Cuff top Sttch	P/M	15	17	16	18	15	16.2	
20	Arm hole top Sticth	P/M	15	18	18	14	16	16.6	
21	Thread Cutting	P/M	15	11	13	15	13	13.4	
22	neck tap Join	P/M	25	22	24	23	22	24	
23	Neck tap join	P/M	22	21	23	22	22	22	
24	Nack tap top Stitch	O/L	15	14	16	15	14	15	
25	label top stitch	O/L	14	15	14	13	15	14.4	
26	label top stitch	P/M	53	50	55	54	55	52.2	
27	Side seam	P/M	49	53	50	48	48	49.8	
28	side seam	P/M	58	56	55	59	58	56.6	
29	p& s truck	P/M	16	18	15	18	15	16.8	
30	Cuff truck	P/M	6	7	8	8	5	6.6	
31	sewing thread cuttin	H/P	11	12	13	10	12	11.6	
32	side band truck	P/M	35	32	29	31	30	33.4	
33	side band top stitch	P/M	29	29	31	30	28	29.4	
34	side band top stitch	P/M	31	33	30	29	30	30.6	
35	side band top stitch	P/M	18	16	18	17	19	17.7	
36	button hole	B/H	12	10	12	11	10	10.6	
37	buton attach	B/A	12	12	10	11	10	10.5	
38	button attach	B/A	10	12	11	10	11	10.8	
39	side band bartack	B/T	12	12	10	11	10	11	
40	quaclity check	H/P	18	20	16	25	20	19.6	

Table: 3. 2 Operation Breakdown of –POLO SHIRT

3.3. Operation Breakdown of T- SHIRT:

Buyer Name: LIDL

Item: T - Shirt

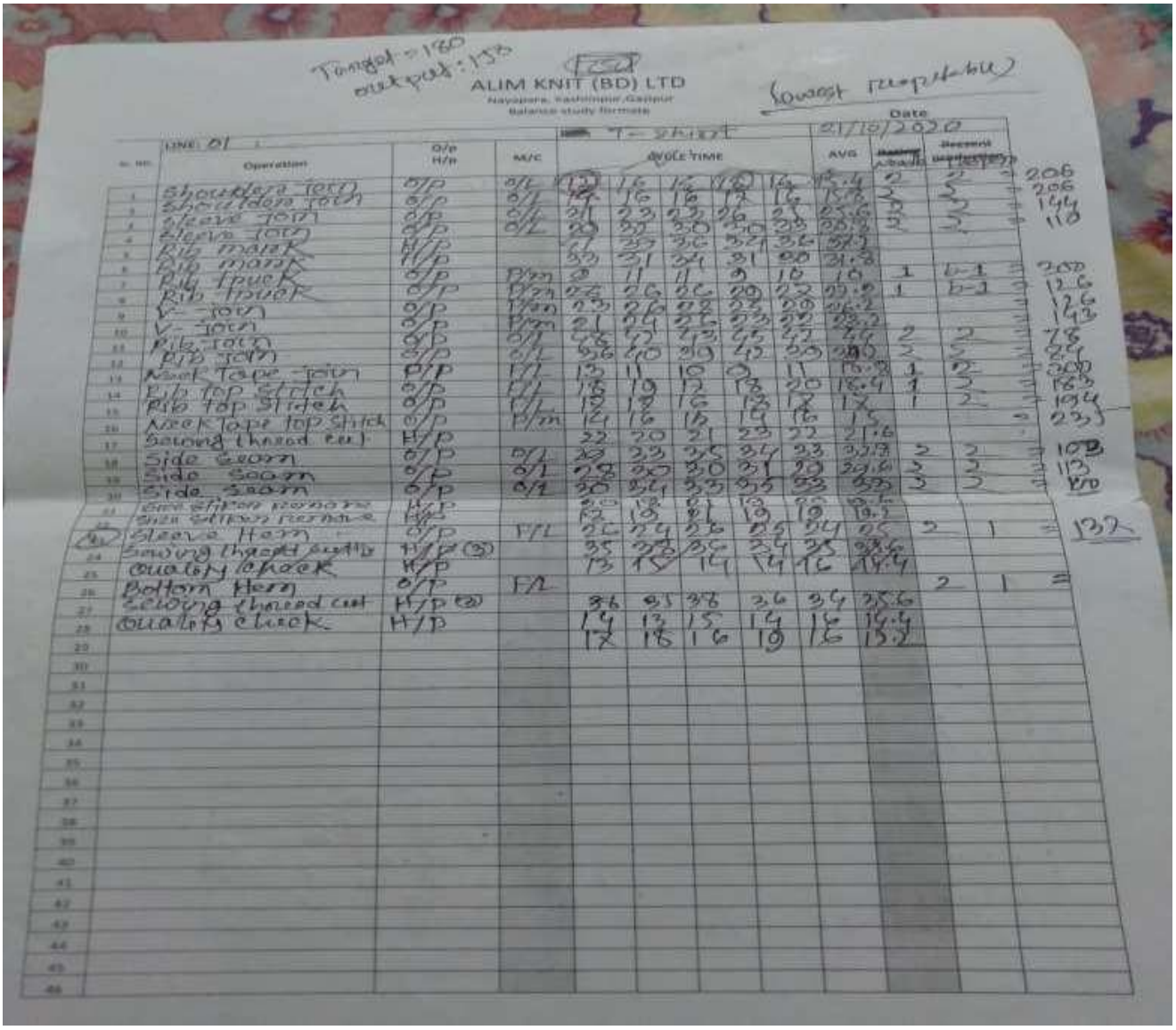


Figure: 3. 3 Operation Breakdown of T- SHIRT

				Alim Knit(BD) Ltd				
					Middle Floor		T-SHIRT	
Sl No.	Process Name	M/C	Cycle time					avg
1	pocket side Seam	H/P	4	4.5	5	4.5	3.5	4.3
2	pocket marking	P/M	15	15	17	16	15	15.6
3	Pocket join	P/M	50	51	49	48	51	49.4
4	Pocket join	O/L	75	51	53	48	50	55.4
5	Shoulder join	O/L	25	22	20	19	22	17.6
6	Sleeve hem	F/L	24	18	23	27	24	23.2
7	sleee join	OL	7	5	7	8	8	7
8	neck pipping	O/L	54	60	58	61	69	60.4
9	Neck Servicing	O/L	51	55	53	55	52	53.2
10	Tape Papin g	P/M	13	14	18	15	17	16.4
11	neck top stitch	O/L	30	31	30	35	30	30.8
12	Label top Stitich	F/L	17	16	11	15	14	14.4
13	size Numbering	F/L	18	11	19	15	16	15.2
14	Size numbering	P/M	13	17	17	16	15	15.2
15	Patch Label make	P/M	25	23	24	25	27	24.4
16	Body hem	P/M	22	24	23	21	23	22.8
17	Side Seam	F/L	16	14	15	16	18	15.8
18	Side Seam	O/L	14	13	13	16	15	14.2
19	side Seam	O/L	37	35	38	35	34	35.8
20	side touck	O/L	22	23	25	22	24	23.2
21	Side main Top stitch	P/M	25	25	23	23	22	23.6
22	Side main top Stitch	P/M	30	32	33	32	30	31
23	Quality checking	H/P	36	38	36	38	34	36

Table: 3. 3 Operation Breakdown of T- SHIRT

Calculation:

SMV calculation

SMV= Basic time+ Allowance of basic time

Basic Time = (Observe time x Observe rating %) /Standard rating

Observe time = Cycle time /No. of cycle

SMV Calculation for Side Seam

Observed Time=Cycle Time/No of Cycle

= (4+4.5+5+4.5+3.5)/5

=4.3

Basic Time== (Observe time x Observe rating %) /Standard rating%

= (4.3x70%)/100%

=3.01

=3.01 +15 %(Allowance)/60

=0.52

Other operation SMV can be calculated same way

Basic Pitch time calculation

Basic Pitch time=Total Garments SMV/ NO of Operation

Total Garments SMV= 5

NO of Operation=2

Basic Pitch time= 0.25 minute

Capacity Calculation

Capacity = 3500 /Operation time

=3500/31

=112

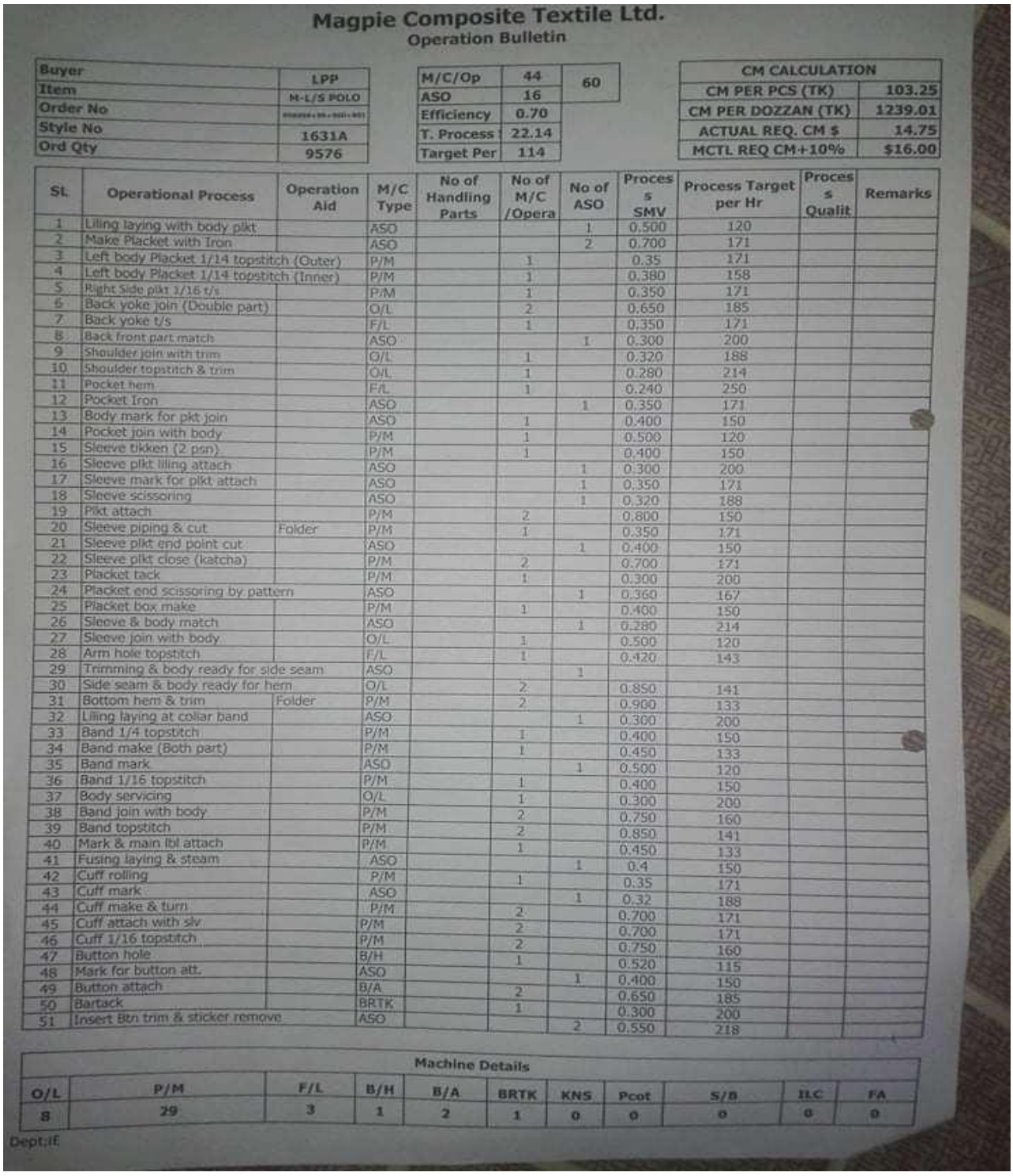
Efficiency Calculation

Efficiency = [(Production output x SMV) / (60 x Manpower x working hour)] x100

= [(150 x 5)/ (60 x 20 x 1)] x 100

= 62.5 %

3.4 Operation Breakdown of Polo Shirt:



Magpie Composite Textile Ltd.

Operation Bulletin

Buyer	LPP
Item	M-L/S POLO
Order No	[redacted]
Style No	1631A
Ord Qty	9576

M/C/Op	44	60
ASO	16	
Efficiency	0.70	
T. Process	22.14	
Target Per	114	

CM CALCULATION	
CM PER PCS (TK)	103.25
CM PER DOZZAN (TK)	1239.01
ACTUAL REQ. CM $	14.75
MCTL REQ CM+10%	$16.00

Sl.	Operational Process	Operation Aid	M/C Type	No of Handling Parts	No of M/C /Opera	No of ASO	Process SMV	Process Target per Hr	Process Qualit	Remarks
1	Lilling laying with body plkt		ASO			1	0.500	120		
2	Make Placket with Iron		ASO			2	0.700	171		
3	Left body Placket 1/14 topstitch (Outer)		P/M		1		0.35	171		
4	Left body Placket 1/14 topstitch (Inner)		P/M		1		0.380	158		
5	Right Side plkt 1/16 t/s		P/M		1		0.350	171		
6	Back yoke join (Double part)		O/L		2		0.650	185		
7	Back yoke t/s		F/L		1		0.350	171		
8	Back front part match		ASO			1	0.300	200		
9	Shoulder join with trim		O/L		1		0.320	188		
10	Shoulder topstitch & trim		O/L		1		0.280	214		
11	Pocket hem		F/L		1		0.240	250		
12	Pocket Iron		ASO			1	0.350	171		
13	Body mark for pkt join		ASO		1		0.400	150		
14	Pocket join with body		P/M		1		0.500	120		
15	Sleeve tikken (2 psn)		P/M		1		0.400	150		
16	Sleeve plkt lilling attach		ASO			1	0.300	200		
17	Sleeve mark for plkt attach		ASO			1	0.350	171		
18	Sleeve scissoring		ASO			1	0.320	188		
19	Plkt attach		P/M		2		0.800	150		
20	Sleeve piping & cut	Folder	P/M		1		0.350	171		
21	Sleeve plkt end point cut		ASO			1	0.400	150		
22	Sleeve plkt close (katcha)		P/M		2		0.700	171		
23	Placket tack		P/M		1		0.300	200		
24	Placket end scissoring by pattern		ASO			1	0.360	167		
25	Placket box make		P/M		1		0.400	150		
26	Sleeve & body match		ASO			1	0.280	214		
27	Sleeve join with body		O/L		1		0.500	120		
28	Arm hole topstitch		F/L		1		0.420	143		
29	Trimming & body ready for side seam		ASO			1				
30	Side seam & body ready for hem		O/L		2		0.850	141		
31	Bottom hem & trim	Folder	P/M		2		0.900	133		
32	Lilling laying at collar band		ASO			1	0.300	200		
33	Band 1/4 topstitch		P/M		1		0.400	150		
34	Band make (Both part)		P/M		1		0.450	133		
35	Band mark		ASO			1	0.500	120		
36	Band 1/16 topstitch		P/M		1		0.400	150		
37	Body servicing		O/L		1		0.300	200		
38	Band join with body		P/M		2		0.750	160		
39	Band topstitch		P/M		2		0.850	141		
40	Mark & main lbl attach		P/M		1		0.450	133		
41	Fusing laying & steam		ASO			1	0.4	150		
42	Cuff rolling		P/M		1		0.35	171		
43	Cuff mark		ASO			1	0.32	188		
44	Cuff make & turn		P/M		2		0.700	171		
45	Cuff attach with slv		P/M		2		0.700	171		
46	Cuff 1/16 topstitch		P/M		2		0.750	160		
47	Button hole		B/H		1		0.520	115		
48	Mark for button att.		ASO			1	0.400	150		
49	Button attach		B/A		2		0.650	185		
50	Bartack		BRTK		1		0.300	200		
51	Insert Btn trim & sticker remove		ASO			2	0.550	218		

Machine Details

O/L	P/M	F/L	B/H	B/A	BRTK	KNS	Pcot	S/B	ILC	FA
8	29	3	1	2	1	0	0	0	0	0

Dept:IE

Figure: 3. 4 Operation Breakdown of Polo Shirt

Byer name:LPP	Magpie composite Textile Ltd	Item: Polo Shirt

SL	Operational process	M/C Type	No of M/C /Operator	No of ASO	Process SMV	Process Target per HR
1	Lilting laying with body part	ASO		1	0.500	120
2	Make placket with iron	ASO		2	0.700	171
3	Left body placket 1/14 top stitch outer	P/M	1		0.35	171
4	Left body placket 1/14 top stitch inner	P/M	1		0.380	158
5	Right side 1/16/t/s	P/M	1		0.350	171
6	Back yoke join	O/L	2		0.650	185
7	Back yoke t/s	F/L	1		0.350	171
8	Back fr4ont part match	ASO		1	0.300	200
9	Shoulder join with trim	O/L	1		0.320	188
10	Shoulder top stich & trim	O/L	1		0.280	214
11	Pocket hem	F/L	1		0.240	250
12	Pocket iron	ASO		1	0.350	171
13	Body mark for pitch join	ASO	1		0.400	150
14	Pocket join with body	P/M	1		0.500	120
15	Sleeve token	P/M	1		0.400	150
16	Sleeve pocket lilting attach	ASO		1	0.300	200
17	Sleeve mark for pint attach	ASO		1	0.350	171
18	Sleeve scissoring	ASO		1	0.320	188
19	Pocket attach	P/M	2		0.800	150
20	Sleeve piping & cut	P/M	1		0.350	171
21	Sleeve piping & end point cut	ASO		1	0.400	200
22	Sleeve pocket close	P/M	2		0.700	167
23	Placket tack	P/M	1		0.300	150
24	Placket end scissoring by pattern	ASO		1	0.360	214
25	Placket box make	P/M	1		0.400	120
26	Sleeve and body match	ASO			0.280	143
27	Sleeve join with body	O/L	1		0.500	
28	Arm hole top stitch	F/L	1		0.420	141
29	Trimming and body ready for side seam	ASO		1	0.850	133
30	Side seam & body ready for hem	O/L	2		0.450	200
31	Bottom hem and trim	P/M	2		0.4	150

32	Color band laying	ASO		1	0.35	133
33	Band ¼ top stitch	P/M	1		0.32	120
34	Band make	P/M	1		0.700	150
35	Band mark	ASO			0.700	200
36	Band 1/6 topstitch	P/M	1		0.750	160
37	Body servicing	O/L	1		0.520	141
38	Band join with body	P/M	2		0.400	133
39	Band top stitch	P/M	2		0.650	150
40	Mark and main attach	P/M	1		0.300	171
41	Fusing laying & steam	ASO		1	0.550	188
42	Cuff rolling	P/M	1		0.700	171
43	Cuff mark	ASO		1	0.700	171
44	Cuff make & turn	P/M	2		0.520	160
45	Cuff attach with sleeve	P/M	2		0.400	115
46	Cuff 1/6 top stich	P/M	2		0.650	150
47	Button whole	B/H	1		0.460	185
48	Mark for button attach	ASO		1	0.659	200
49	Button attach	B/A	2		0.650	218
50	Barrack	BRTK	1		0.300	200
51	Insert bit trim sticker remove	ASO		2	0.550	2

Working Hour = 10

SMV = 22.14

Target = 141

Target Efficiency = 72%

No of operation = 44

No of operator = 44

Here,

Allowance is =10%

Total no off. Operator = 44

SMV calculation

SMV= Basic time+ Allowance of basic time

Basic Time = (Observe time x Observe rating %) /Standard rating

Observe time = Cycle time /No. of cycle

SMV Calculation for Side Seam

Observed Time=Cycle Time/No of Cycle

= (50+52+54+53+52)/5

=52.2

Basic Time== (Observe time x Observe rating %) /Standard rating%

= (52.2x70%)/100%

=36.54

=36.54 +15 %(Allowance)/60

=0.70

Other operation SMV can be calculated same way

Basic Pitch time calculation

Basic Pitch time=Total Garments SMV/ NO of Operation

Total Garments SMV= 22.14

NO of Operation=44

Basic Pitch time= 0.50 minute

Capacity Calculation

Capacity = 3300 /Operation time

=3300/52.2

=63.21

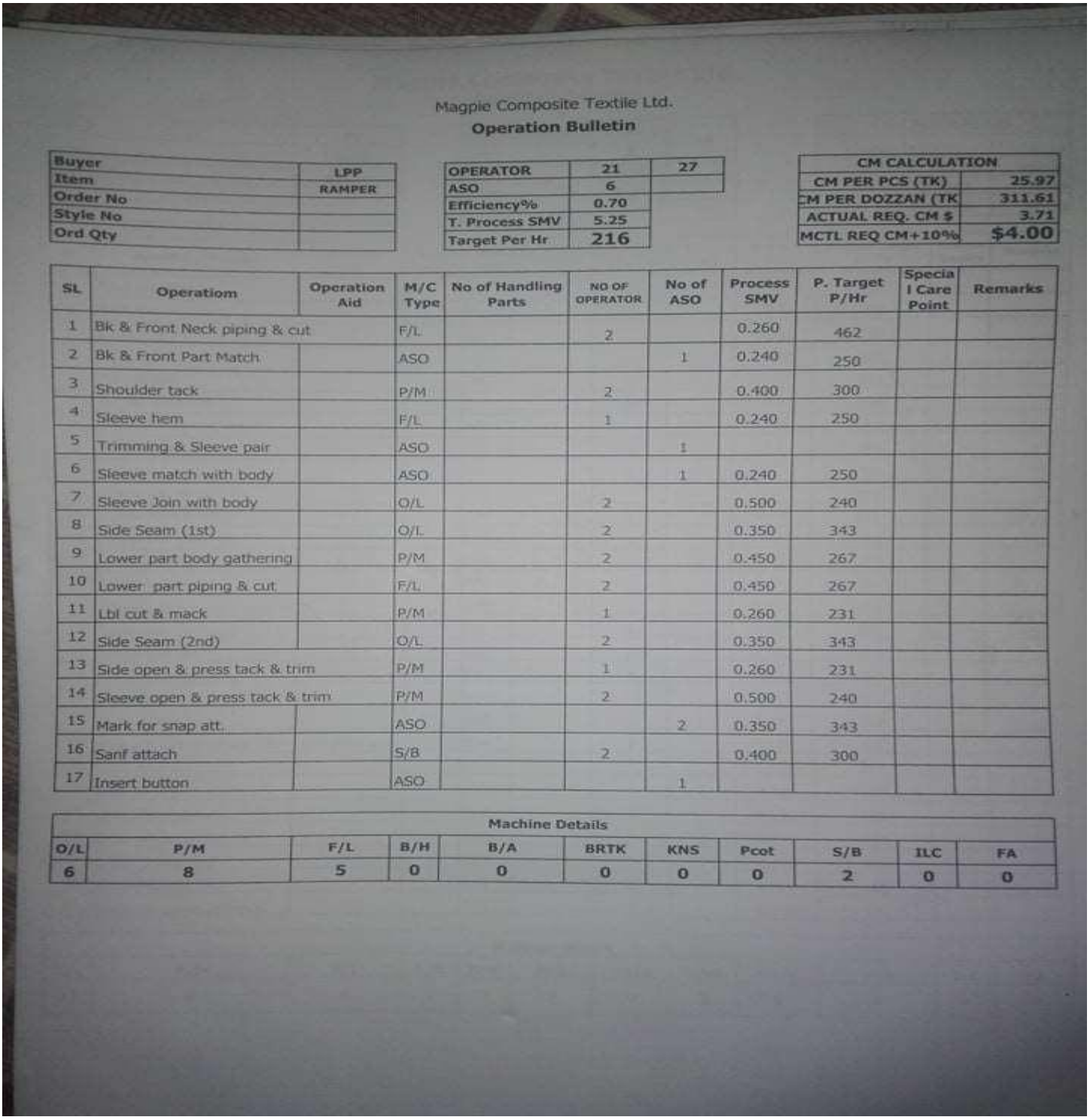
Efficiency Calculation

Efficiency = [(Production output x SMV) / (60 x Manpower x working hour)] x100

= [(79 x 22.14)/ (60 x 44 x 1)] x 100

= 66 %

3.5 Operation Breakdown Ramper



Magpie Composite Textile Ltd.

Operation Bulletin

Buyer	LPP
Item	RAMPER
Order No	
Style No	
Ord Qty	

OPERATOR	21	27
ASO	6	
Efficiency%	0.70	
T. Process SMV	5.25	
Target Per Hr	216	

CM CALCULATION	
CM PER PCS (TK)	25.97
CM PER DOZZAN (TK	311.61
ACTUAL REQ. CM $	3.71
MCTL REQ CM+10%	$4.00

SL	Operation	Operation Aid	M/C Type	No of Handling Parts	NO OF OPERATOR	No of ASO	Process SMV	P. Target P/Hr	Special Care Point	Remarks
1	Bk & Front Neck piping & cut		F/L		2		0.260	462		
2	Bk & Front Part Match		ASO			1	0.240	250		
3	Shoulder tack		P/M		2		0.400	300		
4	Sleeve hem		F/L		1		0.240	250		
5	Trimming & Sleeve pair		ASO			1				
6	Sleeve match with body		ASO			1	0.240	250		
7	Sleeve Join with body		O/L		2		0.500	240		
8	Side Seam (1st)		O/L		2		0.350	343		
9	Lower part body gathering		P/M		2		0.450	267		
10	Lower part piping & cut		F/L		2		0.450	267		
11	Lbl cut & mack		P/M		1		0.260	231		
12	Side Seam (2nd)		O/L		2		0.350	343		
13	Side open & press tack & trim		P/M		1		0.260	231		
14	Sleeve open & press tack & trim		P/M		2		0.500	240		
15	Mark for snap att.		ASO			2	0.350	343		
16	Sanf attach		S/B		2		0.400	300		
17	Insert button		ASO			1				

Machine Details										
O/L	P/M	F/L	B/H	B/A	BRTK	KNS	Pcot	S/B	ILC	FA
6	8	5	0	0	0	0	0	2	0	0

Figure: 3. 5 Operation Breakdown Ramper

Byer name:LPP	Magpie composite Textile Ltd	Item: Ramper	

SL	OPERATION	M/C TYPE	NO OF OPERATOR	NO OF ASO	PROCESS SMV	P.TARGETP/HRS
1	Bk & front neck piping and cut	F/L	2		0.260	462
2	Bk & front part match	ASO		1	0.240	250
3	Shoulder tack	P/M	2		0.400	300
4	Sleeve hem	F/L	1		0.240	250
5	Trimming & sleeve pair	ASO		1		
6	Sleeve match with body	ASO		1	0.500	250
7	Sleeve join with body	O/L	2		0.350	240
8	Side seam	O/L	2		0.450	343
9	Lower part body	P/M	2		0.450	267
10	Lower part piping & cut	F/L	2		0.260	267
11	level cut	P/M	1		0.350	231
12	Side seam	O/L	2		0.260	343
13	Side open & press tac k & trim	P/M	1		0.500	231
14	Sleeve open & press tack & trim	P/M	2		0.350	240
15	Mark for snap attach	ASO		2	0.400	343
16	Snap attach	S/B	2		0.240	300
17	Insert button	ASO		1		

Table: 3. 4 Operation Breakdown Ramper

Working Hour = 10

SMV = 5.25

Target = 216

Efficiency = 70%

No of operation = 21

SMV calculation

SMV= Basic time+ Allowance of basic time

Basic Time = (Observe time x Observe rating %) /Standard rating

Observe time = Cycle time /No. of cycle

SMV Calculation for Side Seam

Observed Time=Cycle Time/No of Cycle

= (30+32+31+33+29)/5

=31

Basic Time== (Observe time x Observe rating %) /Standard rating%

= (31x70%)/100%

=21.7

=21.7 +15 %(Allowance)/60

=0.41

Other operation SMV can be calculated same way

Basic Pitch time calculation

Basic Pitch time=Total Garments SMV/ NO of Operation

Total Garments SMV= 5.25

NO of Operation=21

Basic Pitch time= 0.25 minute

Capacity Calculation

Capacity = 3300 /Operation time

=3300/31

=106

Efficiency Calculation

Efficiency = [(Production output x SMV) / (60 x Manpower x working hour)] x100

= [(150 x 5.25)/ (60 x 21 x 1)] x 100

= 62.5 %

CHAPTER – 4: RESULT AND DISCUSSION

4.1 Operation Breakdown of T- SHIRT:

In This data table show that T- shirt full completed operation process. When a sewing line start sewing ,in this time before sewing start IE take some step to completed this garments sewing process. Such as at first IE take this layout and make a plane how much machine are need for sewing and how much process to need for this garments. Then IE make plane layout and in this process , they are setup the all machine which are nee for this process. In this table show that particular one operation time and show that how much time to take to completed one process. In this cycle time are different for different process Such as Pocket Side Sam need time is 4.3 sec and pocked join need 15.6sec & side seam need time 23.6 sec. So I this cycle time prove every worker per hour work efficiency and per hour production target,, In this per hour production target we can calculated how much time to need completed all total garments.

: 4.2 Operation Breakdown of –POLO SHIRT:

In This data table show that T- shirt full completed operation process. when a sewing line start sewing ,in this time before sewing start IE take some step to completed this garments sewing process. Such as at first IE take this layout and make a plane how much machine are need for sewing and how much process to need for this garments. Then IE make plane layout and in this process , they are setup the all machine which are nee for this process. In this table show that particular one operation time and show that how much time to take to completed one process. In this cycle time are different for different process Such as collar join need time is 26.4 sec and Shoulder join need 14.8 sec & side seam need time 11.6 sec. So I this cycle time prove every worker per hour work efficiency and per hour production target,, In this per hour production target we can calculated how much time to need completed all total garments.

4.3 Operation Breakdown of T- SHIRT:

In This data table show that T- shirt full completed operation process. when a sewing line start sewing ,in this time before sewing start IE take some step to completed this garments sewing process. Such as at first IE take this layout and make a plane how much machine are need for sewing and how much process to need for this garments. Then IE make plane layout and in this process , they are setup the all machine which are nee for this process. In this table show that particular one operation time and show that how much time to take to completed one process. In this cycle time are different for different process Such as Pocket Side Sam need time is 4.3 sec and pocked join need 15.6sec & side seam need time 23.6 sec. So I this cycle time prove every worker per hour

work efficiency and per hour production target,, In this per hour production target we can calculated how much time to need completed all total garments.

4.4 Operation Breakdown of POLO SHIRT:

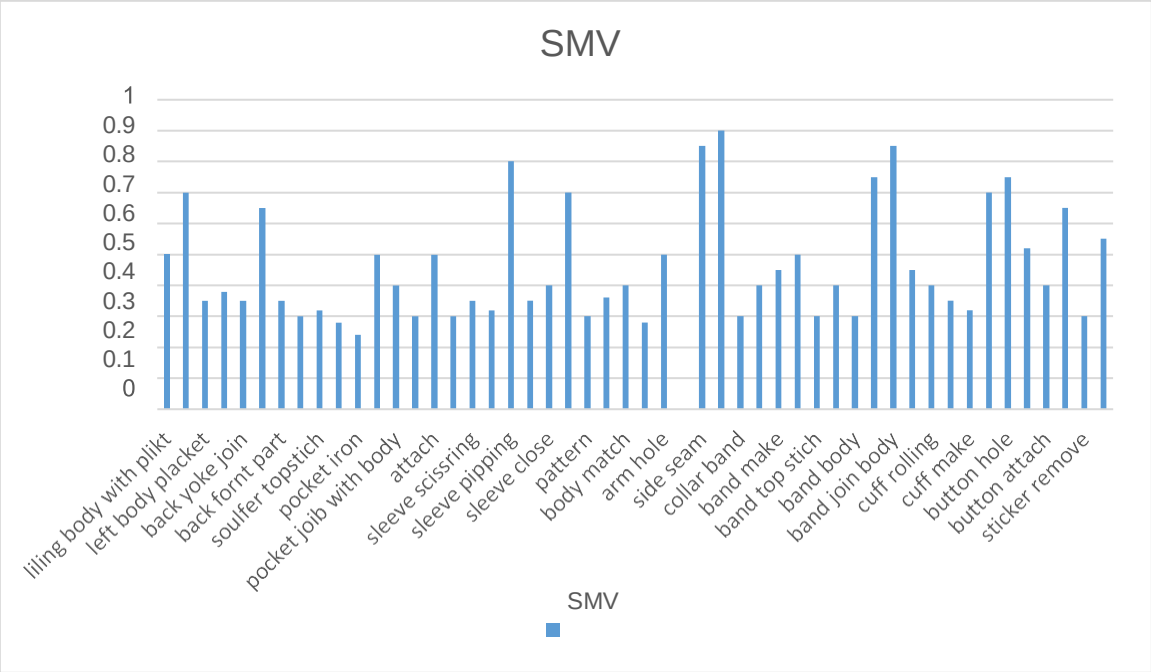


Figure: 4. 1 Operation Breakdown of POLO SHIRT

In This data table show that polo shirt full completed operation process. When a sewing line start sewing, in this time before sewing start IE take some step to complete this garments sewing process. Such as at first IE take this layout and make a plane how much machine are need for sewing and how much process to need for this garments. Then IE make plane layout and in this process, they are setup the all machine which are nee for this process. In this table show that particular one operation time and show that how much time to take to completed one process. In this cycle time are different for different process Side Seam is 22.14 this is the total smv of the garments.

4.5 Operation Breakdown of RAMPER:

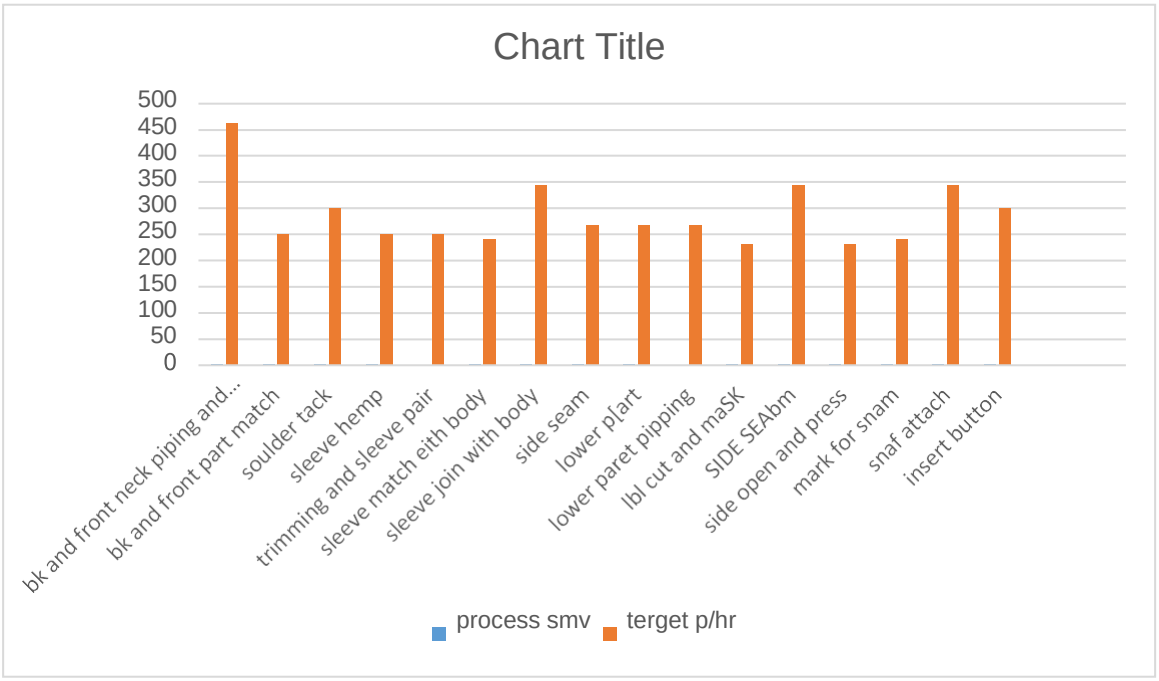


Figure: 4. 2 Operation Breakdown of RAMPER

. In This data table show that polo shirt full completed operation process. When a sewing line start sewing, in this time before sewing start IE take some step to complete this garments sewing process. Such as at first IE take this layout and make a plane how much machine are need for sewing and how much process to need for this garments. Then IE make plane layout and in this process, they are setup the all machine which are nee for this process. In this table show that particular one operation time and show that how much time to take to completed one process. In this cycle time are different for different process Side Seam is 5.25 this is the total smv of the garments.

CHAPTER – 5: CONCLUSION

5.0 Conclusion:

With the aid of SMV map and operations bulletin we have completed our project with the relevant Alim knit (BD) Ltd. manner documents. Ltd. & Magpie Composite textile Limited. This challenge helps one to learn about the manufacture; SMV time explores the relevant components and the rectified process additionally. From this business we gather details of numerous kinds of knitting machines: teinting method, writing, finishing, mercerizing, tweaking, denting, spinning, fabric, ETP factory, overlocks, undeniable system and many other applications.

6.0 Reference:

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