



**Daffodil**  
*International*  
**University**

Faculty of Engineering

Department of Textile Engineering

Report on Industrial Attachment at  
**Robintex Group**

Vulta, Ruggong, Narayangong

Course Title: Industrial Attachment Course code: TE-431

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This Industrial Attachment submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Textile Engineering  
**Advance in Fabric Manufacturing Technology**

Duration: 01-09-2018 to 29-11-2018

## **DECLARATION**

We hereby declare that, this report has done by Md. Abu Sayed, Md. Robiul Hasan, Md. Hasem Ali under the supervisor of **Asit Ghosh**, Assistant Professor, Department of Textile, Daffodil International University. We also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any degree.

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## ACKNOWLEDGMENT

At first our gratefulness goes to almighty Allah to give me strength and ability to complete the industrial training and this report. You have made our life more beautiful. May you name be exalted, honored and glorified.

Now we wish to take this excellent opportunity to thank a lot of people who have assisted and inspired us in the completion of our training period:

**MD. Mahabub Haque**, Our industrial supervisor, to whom we are extremely indebted for his tremendous support and guidance throughout our training period. Being working with him we have not only earned valuable knowledge but was also inspired by his innovativeness, which helped enrich us experience to a greater, extends. His ideas and way of working was truly remarkable.

At the begging we would like to pay our gratitude to **Professor Dr. Mahbubul Haque**, HEAD, Department of Textile Engineering, Daffodil International University, **Prof. Dr. S.M. Mahbubul Haque Majumder**, Dean, Faculty of Science & Information Technology, Daffodil International University & Our Academic Supervisor **Assistant Professor Asit Ghosh** for giving us all the academic facilities we needed.

We would like to thank all the management of the Robintex Group for giving us the opportunity to do the industrial training successfully and also their valuable suggestion. Our deepest appreciation goes to **Md.Mahbub haque, H.M SHIPONUZZAMAN (TIPU), Mr. Zulfikar, Mr. Masud, Mr. Mizanur Rahman Gazi, Mr. Iqbal, Mr. Shamim, Comptex Bangladesh Ltd & Robintex Bangladesh Ltd** for their permission to conduct our industrial training without which it would be uncompleted. The generous support is greatly appreciated. We would also like to thanks all Asst. Manager, Sr. Executive, Executive and other officials of Robintex Group for helping us to complete industrial training successfully. Our graduate also goes to all the employers of Robintex Group for their sincere co-operation, support and valuable advice.

## **DEDICATION**

Our parents are our life. We love them very much. For completing our study they place very important role. It's a great pleasure for us. Without their help it is quite impossible for us to complete. So we are very grateful to them. Our parents were very helpful to ready this attachment. And our honorable teacher & academic supervisor, Assistant Professor, **Asit Ghosh**, Department of Textile Engineering, Daffodil International University, give us a very good support & guideline to ready this attachment. We dedicate this report to our beloved parents.

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# CHAPTER 1

## EXECUTIVE SUMMARY

The Industrial Attachment is the most effective way for Textile Engineering student to be achieved the knowledge about the practical field of the Textile Manufacturing. It brings an opportunity to all the learners to enrich their academic knowledge by practicing with the experts of the practical field of textile.

It is my pleasure that I had an opportunity to complete my two months internship at **Robintex Group**, which is one of the most modern industries of the country.

**Robintex Group** is one of the major garments manufacturing organization in Bangladesh. This organization increasingly reducing its rejection and rework rate in process and final garments in order to ensure product quality and delivery time as per buyer requirement and increase profitability. It will ensure sufficient training and suitable work to increase productivity and skills of the employee. Now Robintex Group has a 50 Acres. Its production capacity is around Knitting – 18 tons/day, Dyeing-24ton/day, Finishing-24ton/day, Sewing1,00,000 pcs. Number of employees at least 8000.

In this report, I tried to cover a short profile of this factory and major customers of **Robintex Group** and their different activities.





## CHAPTER 2

### INFORMATION ABOUT FACTORY

## 2.1 Introduction

The term “TEXTILE” derived from the Latin Textiles and the French Textiles “to weave” and it originally referred only to woven fabrics. It has however, come to include fabrics produced by other methods. Thus, threads, cords, ropes, braids, lace, embroidery, nets and fabrics made by weaving, knitting, bonding, felting or tufting are textiles. Some definitions of term textile would also include those products obtained by the papermaking principle that have many of the properties associated with conventional fabrics. In addition to clothing and home furnishings, textile are used for such industrial products as filters to air condoners, life rafts, conveyor belts, tents, automobile tires, swimming pools, safety helmets and mine ventilators.

From fiber to fabric, Robintex Group is truly integrated undertaking. The Robintex Group has the capability to offer a complete product range for the export textile markets. The goal of Robintex Group is to become the preferred partner for sourcing high quality fabrics and clothing from Bangladesh. With highly advanced technology and an emphasis on developing local human resources. Robintex Group has the potential to make an important contribution to the nation’s growing ready made garments export sector.

The rational behind the existing structure and future expansion of Robintex Group is to capture value-added at each stage of textile manufacturing process.

Despite Bangladeshi’s lack of indigenous cotton production capability. Robintex Group has leveraged Bangladeshi’s labor cost advantages and export competitiveness to the maximum.



## 2.2 History of the Factory

**In 1994** Mr. Firoz-Al Hasan & Shakawat Abu Khair Mohammed **establishes** the Robintex Knit Dyeing Industry. **After then 1st June 2000** they were **establish** Comptex BD Ltd. **In 2005** they were **divided into two groups**. Mr. Firoz-Al Hasan Youth Group Ltd. & Shakawat Abu Khair Mohammed **bought the share of** Comptex BD Ltd from Mr. Firoz-Al-Hasan. **Then he becomes only one owner of the company. Periodically 2006** establish Printing Section of Robintex Group. **And in 2008** new Comptex BD Ltd



## 2.3 Founder & Directors

01. Founder & Chairman : Sakhawat Abu Khair Mohammed

02. Managing Director : Sakhawat Abu Khair Mohammed

03. Director : Robin Razon Sakhawat



Managing Director



Director



Other members

## 2.4 General Information about Factory

**Robintex Bd. Ltd.** the very first concern of the Group. The company currently employs over 8000 skilled employees. In all the different production with the workers have to go through a process of continuous and rigorous training to maintain a high standard of production set by the management. The group also caters this driving force by ensuring facilities that exceed the minimum set by international regulators. It maintains medical and day care services, scholarship programs and other benevolent initiatives for the employees and their family members. As part of their commitment towards the society, the group has established a medical service station open for all. **Robintex Group** distributes relief materials including cash to the victims in any part of the country during natural adversities.



## 2.5 Sister Concerns:

# **Robintex Bd. Ltd.**

# **Robintex Knitwear Ltd.**

# **Comptex Bd. Ltd.**



## 2.6 Factory Profile

Name of the Company	: <b>Robintex Group</b> <b>(Comptex BD Ltd &amp; Robintex BD Ltd)</b>
Address Head Office	: TK Vhaban (8 <sup>th</sup> floor) 13, karwan bazar, kazi nazrul islam Avenue, Dhaka-1215, Bangladesh Tel: +88-02-9138162 Fax: +88-02-9117751
	E-mail: <a href="mailto:mail@robintex.com">mail@robintex.com</a> : <a href="mailto:info@comptexbd.com">info@comptexbd.com</a> : <a href="http://www.robintexbd.com">www.robintexbd.com</a>
Factory	: Vulta, Rupgonj, Narayangonj
Type of the project	: 100% Export Oriented Knit Industry (German-Bangladesh Joint Venture)
Year of Establishment	: Robintex 1994 Comptex 2004
Investor	: Sakhawat Abu Khair Mohammad
Factory Area	: 50 Acres
Total Employees	: 8000
Annual turnover	: 2000 core TK
Certification & Awards	: ISO 9001 certified; Control Union Certified OEKOTEX Certified; Organic Cotton Certified
Main Product	: Basic T-Shirt, Tank Top, Long Sleeve, T-Shirt  Polo Shirt, Polo Trouser, Ladies & Kids all kind of  knit garments & Knit Fabrics.
Production Capacity	: Knitting – 18 tons/day  Dyeing – 24 tons/day



Finishing – 24 tons/day

Sewing - 1, 06.000 pcs

## 2.7 Product mix

Basic T-Shirt

Tank Top

Long Sleeve

T-Shirt

Polo Shirt

Trouser

Ladies, kids Knitwear all kinds of knit garments & knit fabric

## 2.8 Main Buyers



## 2.9 Certification

- ISO 9001 Certified
- Control Union Certificate
- OEKOTEX Certificate
- Organic Cotton Certificate





B.I.D. BUSINESS INITIATIVE DECLARATION  
Principles of the QC100 Total Quality Management Model

**Commitment of  
Robintex (Bangladesh) Ltd.  
to Quality**

Our company accepts quality as a factor of development to become more competitive. Robintex (Bangladesh) Ltd. is committed to publicizing this Quality Culture with employees, suppliers, clients and the community, supported by the QC100 Total Quality Management Model, the principles of which are the following:

- 1** Quality is a consequence of valuing customer satisfaction and obtaining positive business results.
- 2** Meet the quality levels established in the company in accordance with the QC100 Points of Quality.
- 3** Encourage participation and teamwork for decision making.
- 4** Satisfy the needs of our clients and meet their expectations.
- 5** Provide human resources, both technical and economic, to achieve continuous improvement and respect for the environment.
- 6** Manage human resources in our company to achieve the maximum potential.
- 7** Make employees aware of the importance of concentration on the most profitable areas of activity, to achieve the best business results.

The achievement of these seven principles by Robintex (Bangladesh) Ltd. will foster improvement for clients, employees, suppliers and all of the other persons who make up the company.

Paris, October 29, 2012

**QC  
100**

General Manager  
Robintex (Bangladesh) Ltd.

The content expressed in this document is the ideological support of the International World Quality Commitment, administered by B.I.D. Business Initiative Directions and endorsed by the QC100 Total Quality Management Model. General: Yagüe, 11 - 28020 Madrid-Spain - T. +34 91 597 53 69 - www.bid-ori.com

## 2.10 Mission & Vision

**Mission:** Robintex Group believe that the final analysis it is accountable to each of constituents with whom it interact, namely, its employees, customer, business associates, fellow and citizens.

**Vision:** To be one of the best leading composite mill in Bangladesh. To build a true marketing lead enterprise with motivates workforce, innovative mission and understanding global market.

## CHAPTER 3

### LIST OF THE ATTACHMENT

1. Knitting
2. Dyeing
3. Finishing
4. Garments
5. Laboratory
6. Maintenance

## CHAPTER 4

## KNITTING

4.1 Lay out Plan of Knitting Floor





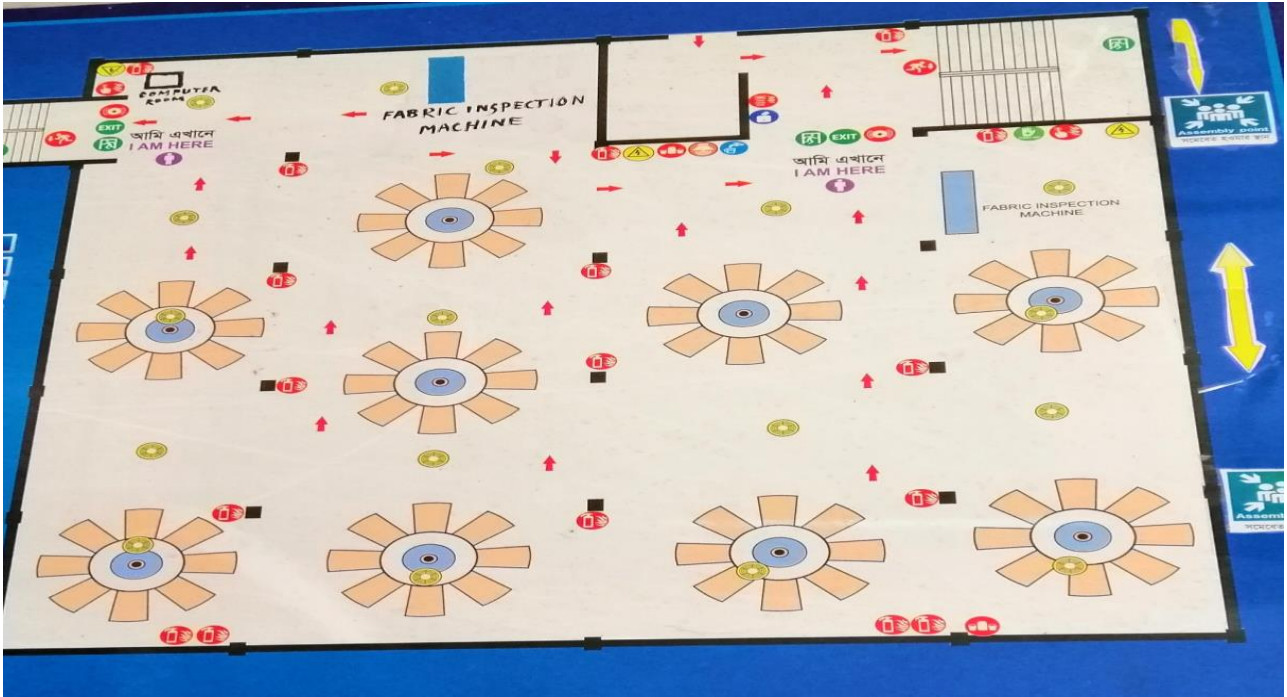
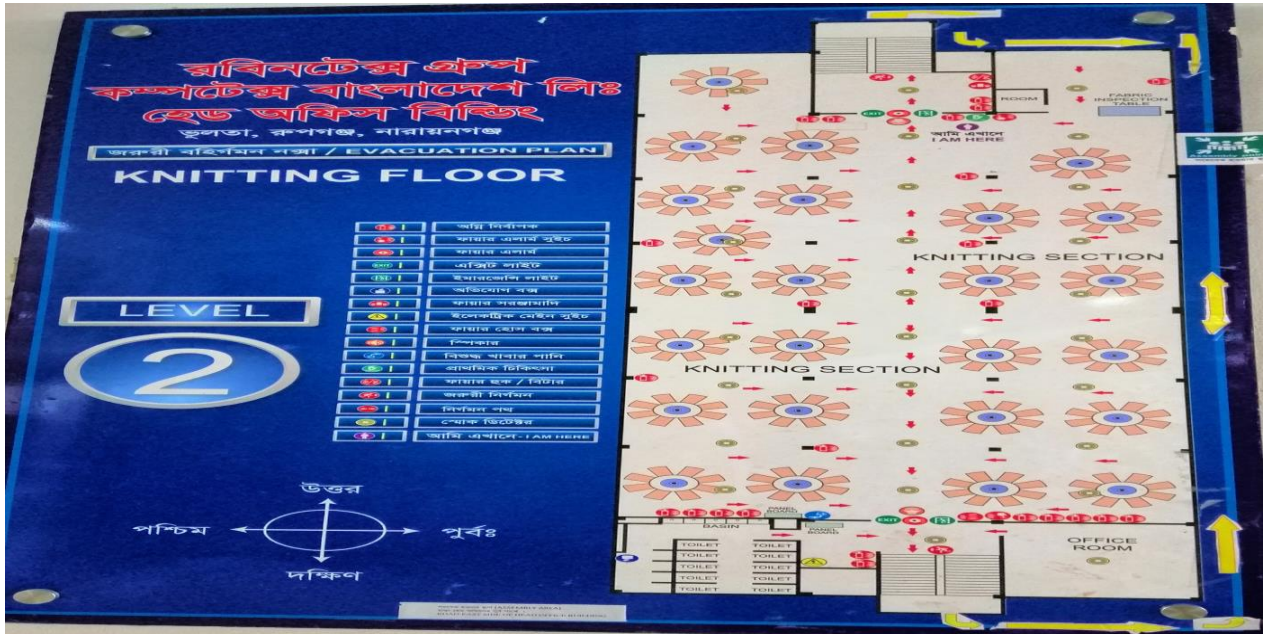


Fig 1: Lay out of Knitting Section

#### 4.2. Organogram of Knitting Section:





### 4.3. Machine Specification of Knitting Section:

ROBINTEX GROUP BANGLADESH LIMITED										
Vulta rupgonj Narayangonj										
MACHINE PROFILE										
COMPTEX KNITTING FLOOR										
S/L-NO	M/C-NO	M/C-DIA	M/C-G.G	M/C-FEDDER	M/C TYPE	M/C-BRAND	TOTAL M/C Q.T.Y	Remarks		
1	18	36"	24	108	S/J LYCRA ATT	B C M 04 Pcs	36" 25.Pcs			
2	19									
3	20									
4	21									
5	31	36"	24	114	S/J LYCRA ATT	Mayer & Cie 05 Pcs		36" 25.Pcs		
6	32									
7	33									
8	34									
9	35	36"	24	115	S/J LYCRA ATT	TERROT 04 Pcs			36" 25.Pcs	
10	27									
11	28									
12	29									
13	30	36"	28	115	S/J LYCRA ATT	TERROT 12 Pcs	36" 25.Pcs			
14	68									
15	69									
16	70									
17	71									
18	72									
19	73									
20	74									
21	75									
22	76									
23	77	34"	28	115	S/J LYCRA ATT	TERROT 08 Pcs	34" 18.Pcs			
24	78									
25	79									
26	64									
27	65									
28	66									
29	67									
30	80									
31	81									
32	82									
33	83	34"	24	109	S/J LYCRA ATT	TERROT 05 Pcs	34" 18.Pcs			
34	22									
35	23									
36	24									
37	25	34"	24	108	S/J LYCRA ATT	Mayer & Cie 05 Pcs		34" 18.Pcs		
38	26									
39	36									
40	37									
41	38	30"	28G.7pcs 24G.4pcs 20G.3pcs	90	S/J LYCRA ATT + 3 FLEECE	ORIZIO 07 Pcs			30" 10 Pcs	
42	39									
43	40									
44	5									
45	6	30"	24G.3pcs 28G.3pcs	90	S/J LYCRA ATT	ZENTEX 03 Pcs	30" 10 Pcs			
46	7									
47	8									
48	9									
49	10	30"	24G.3pcs 20G.3pcs	60	RIB + INTERLOK	ORIZIO		30" 10 Pcs		
50	11									
51	15									
52	16									
53	17	36"	24G.3pcs 18G.3pcs	78	RIB + INTERLOK	ZENTEX			36" 03 Pcs	
54	12									
55	13									
56	14									
57	1	30"	24G.3pcs 20G.3pcs	60	RIB + INTERLOK	ORIZIO	30" 04 Pcs			
58	2									
59	3									
60	4									

**NOTE**

MAYER & CIE = 10 PCS  
 TERROT M/C = 29 PCS  
 B.C.M. = 04 PCS  
 ORIZIO = 11 PCS  
 ZENTEX = 06 PCS

**TOTAL = 60 Pcs**

H.M.SHIPONUZZAMAN (TIPI)  
S.V.P (Knitting & Stor)

Fig 2: M/C Specification of Knitting

#### 4.4. Description of knitting M/C:

**Brand Name** : **BCM**  
Origin : TAIWAN  
Model No : 060341104  
No of feeder : 102  
M/C Dia : 34  
M/C gauge : 24  
No of needle : 2564

**Brand Name** : **BCM**  
Origin : TAIWAN  
Model No : 91158  
No of feeder : 108  
M/C Dia : 36  
M/C gauge : 24  
No of needle : 2716

**Brand Name** : **ATLAS HS**  
Origin : CHINA  
Model No : A000099  
No of feeder : 102  
M/C Dia : 34  
M/C gauge : 28  
No of needle : 3428

**Brand Name** : **ATLAS HS**  
Origin : CHINA  
Model No : A000092  
No of feeder : 94  
M/C Dia : 30  
M/C gauge : 28  
No of needle : 2640

**Brand Name : ATLAS HS**

Origin : CHINA

Model No : A000096

No of feeder : 94

M/C Dia : 30

M/C gauge : 24

No of needle : 2640

**Brand Name : ATLAS HS**

Origin : CHINA

Model No : A000098

No of feeder : 94

M/C Dia : 30

M/C gauge : 28

No of needle : 2640

**Brand Name : TERROT**

Origin : GERMANY

Model No : 389603

No of feeder : 112

M/C Dia : 36

M/C gauge : 28

No of needle : 3168

**Brand Name : TERROT**

Origin : GERMANY

Model No : 368601

No of feeder : 102

M/C Dia : 34

M/C gauge : 24

No of needle : 2568

**Brand Name** : ZENTEX  
Origin : SINGAPORE  
Model No : ZN3x5J  
No of feeder : 90  
M/C Dia : 30  
M/C gauge : 24  
No of needle : 3024

**Brand Name** : ZENTEX  
Origin : SINGAPORE  
Model No : ZN2-1xDU  
No of feeder : 78  
M/C Dia : 36  
M/C gauge : 18  
No of needle : 2160

**Brand Name** : PAOLO ORIZIO  
Origin : ITALY  
Model No : CM0AL  
No of feeder : 60  
M/C Dia : 30  
M/C gauge : 20  
No of needle : 1860

**Brand Name** : PAOLO ORIZIO  
Origin : ITALY  
Model No : JOHN/C  
No of feeder : 90  
M/C Dia : 30  
M/C gauge : 28  
No of needle : 2580

## 4.5. Raw Materials

Raw material is a unique substance in any production oriented textile industry. It plays a vital role in case of continuous production & for high quality fabric. KKIL takes yarn as its raw materials for its initial production of knitted fabric to make garments from different spinning mills. Maximum amount of raw cotton is collected from **Maksons Spinning Mills Ltd, AA Yarn Mills, Metro Spinning Ltd, AA Coarse Spun Limited**. So it depends on different of spinning mills of home and abroad to collect other type of yarn as it requires.



Fig 3: Different types of yarn



#### 4.5. Types:

Natural and synthetic, Cellulosic and non-cellulosic all kind of yarn are used as raw materials in this mill. Generally, Cotton, Polyester, Viscose are mostly used in knitting departments.

#### 4.6. Raw Materials Used:

Table-1: Different types of raw materials

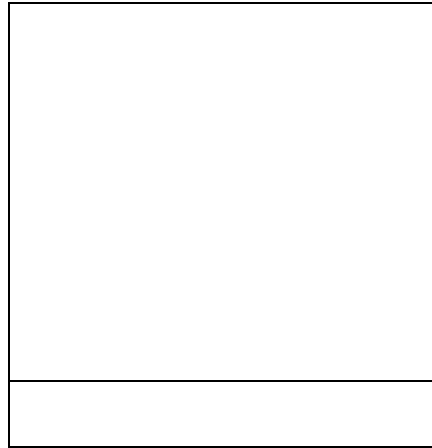
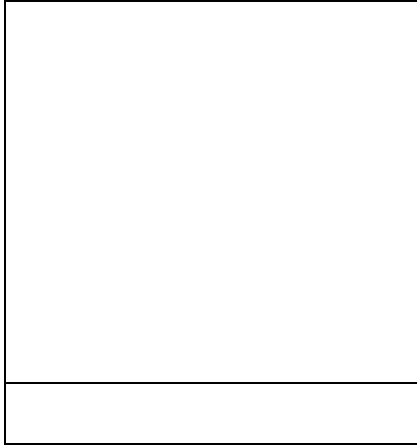
<b>Fiber composition</b>	<b>Count</b>	<b>Yarn Type</b>
Cotton	28,30,32,34,36,40	Combed
PC	20,30,45	Carded or combed
CVC	20,30,38,40	Combed
Spandex	20D,40D	
Viscose	15.20,30	Combed
Polyester	70D,75D,100D	



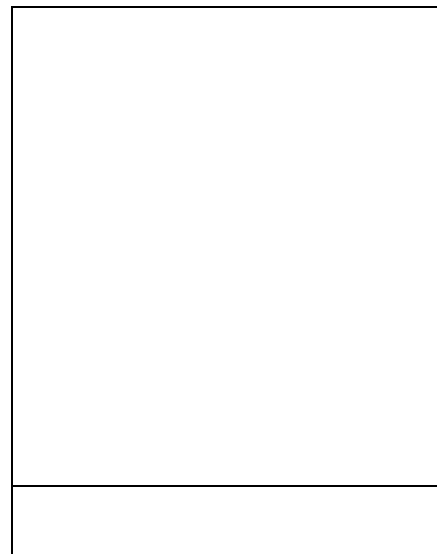
Fig 4: Yarn Cone

## 4.7 Attachment of the fabric:

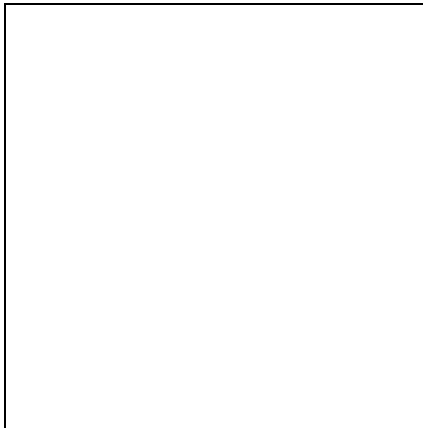
Fabric: Terry Fleece



Fabric: Single jersey



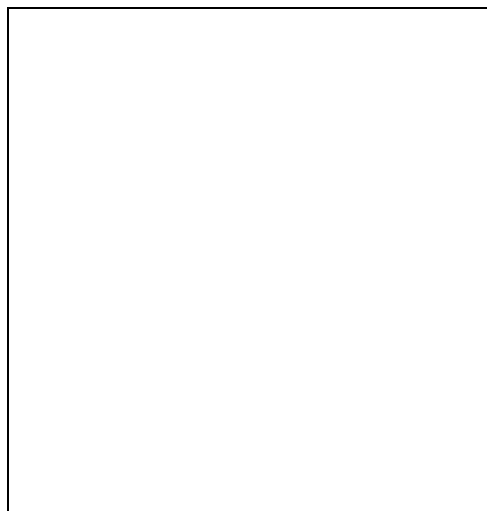
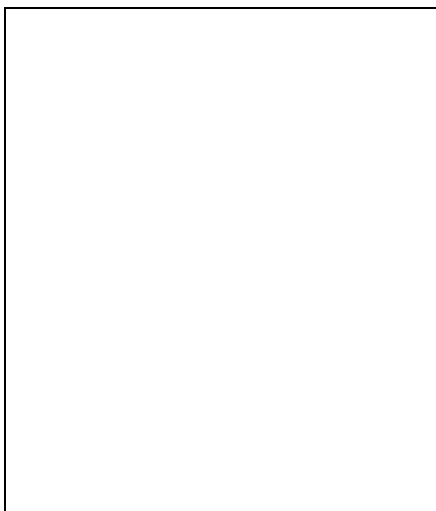
Fabric: Rib (2x2)



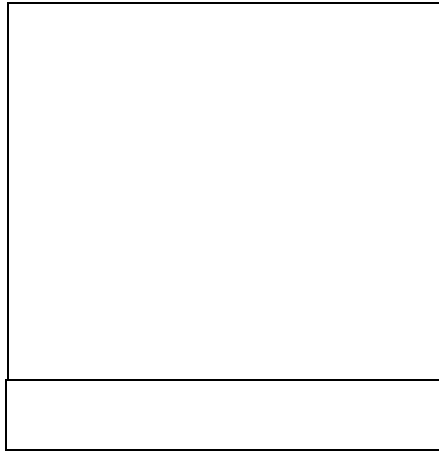
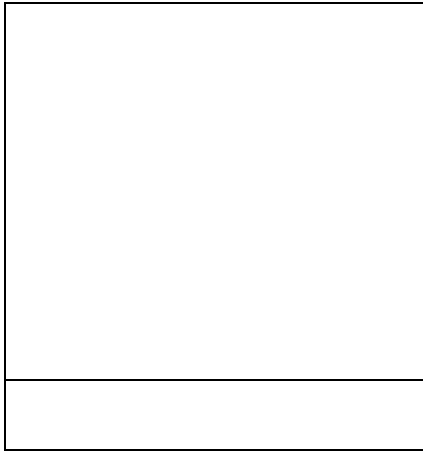
Fabric: Rib (1x1)



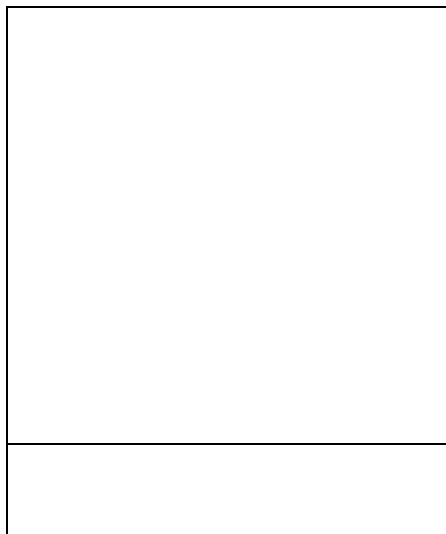
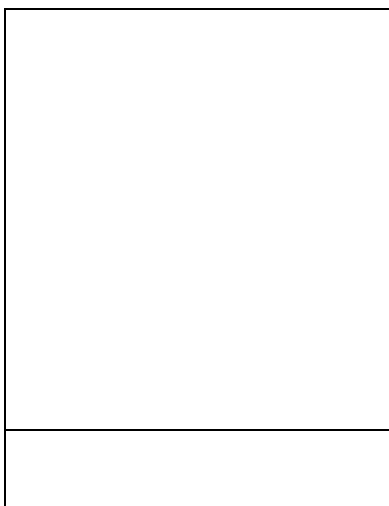
Fabric: Interlock (1x1)



Fabric: Single jersey With Lycra



Fabric: Pique



4.8. Yarn Path from creel to needle:

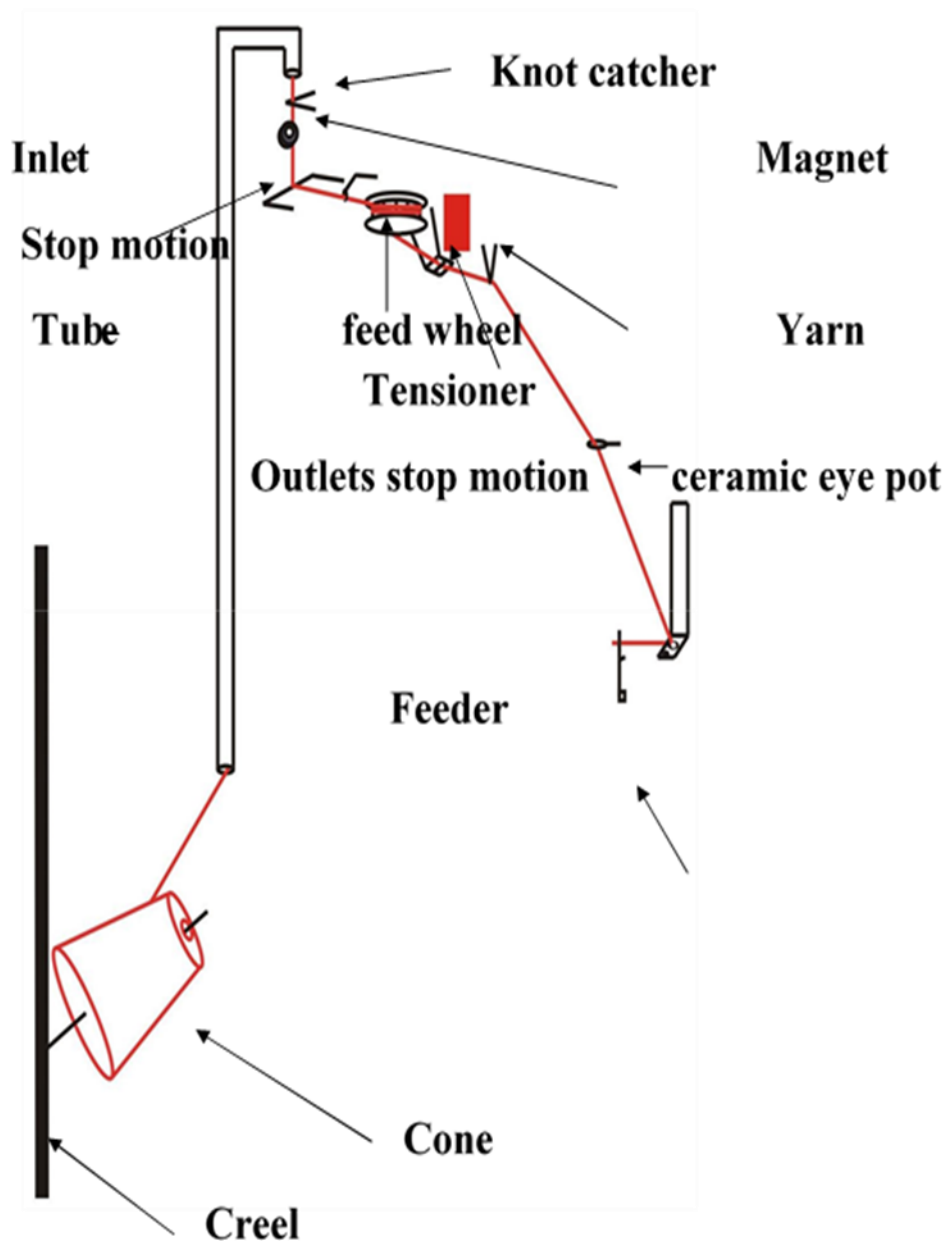
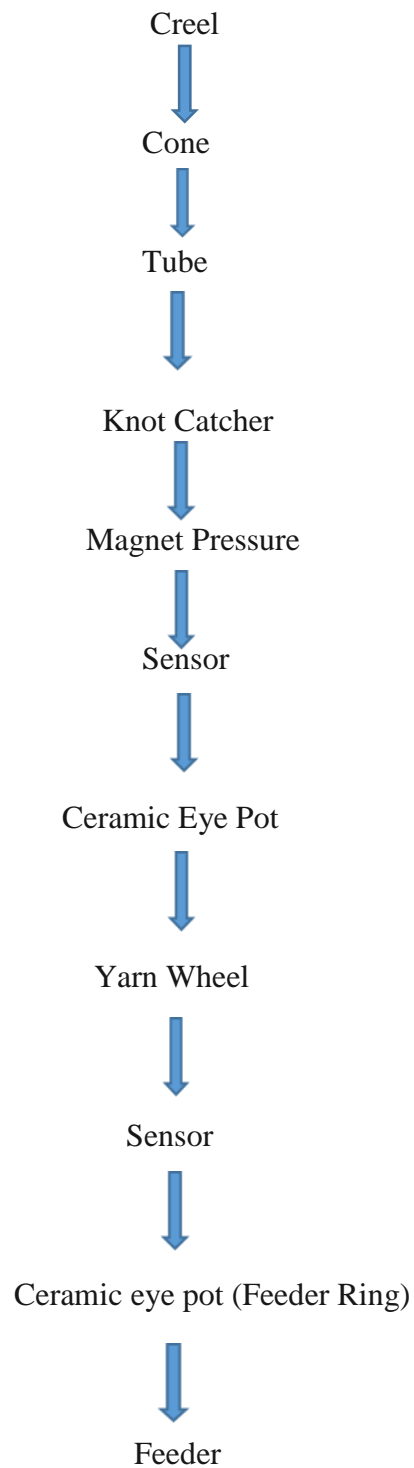
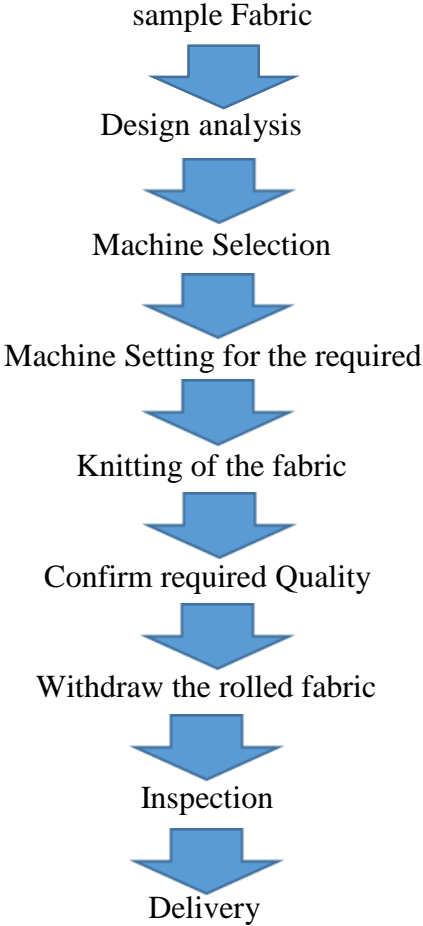


Fig 5: yarn path from creel to needle

#### 4.9. Passage of yarn in circular knitting machine:



4.10. Process flow chart of knitting section of Robintex group



#### 4.11. Description of Production Process:

In every mill, there maintains a sequence in production processing. It is also followed in the mill where we were in industrial attachment. The process sequences are in list below:

1. Firstly, knitting manager gets a production sheet from merchandisers as accordance as consumer requirements. Then he informs or orders senior production officer about it.
2. Senior production officer informs technical in charge and knows about m/c in which the production will be running.
3. Technical in charge calls for leader of mechanical fitter troops, they two take decision about m/c for production considering m/c condition, production capacity, maintenance complexity etc.
4. Production officer with experienced mechanical fitter adjusts required stitch length and grey GSM (gram per square meter) for required final GSM.
5. Supervisor check daily production regularity and make operators conscious about finishing in due time.
6. Operators operate machine in highly attention as if there were no faults in the fabrics. If he is sure about any fabric fault, then he call for mechanical fitter in duty. Mechanical fitter then fixes it if he can or he informs technical in-charge. He then comes in spot.
7. After required production and final inspection in 4-point system, they are sent in dyeing section.



#### 4.12. Production parameters

During production of fabric in circular knitting machine following parameters must be maintain:

1. Machine Dia
2. Machine RPM
3. No of feeds or feeder in use
4. Machine Gauge
5. Count of yarn
6. Required time
7. Machine running efficiency

#### 4.13. Relation between knitting parameters

1. If stitch length increase then fabric width increase and WPI decrease
2. If machine, gauge increase then fabric width also increases
3. If yarn count increase (coarser) then fabric width increase.
4. If shrinkage increases then fabric width decrease but GSM and WPI increase
5. For finer gauge, finer count yarn should use.
6. Grey GSM should be less than finish GSM.

#### 4.14. Relation between fabric diameter and machine diameter:

Table 2: Relation between fabric diameter and machine diameter:

Count	Finished GSM	Grey fabric diameter increase than machine diameter
32	142	5-8%
30	155	8-12%
28	165	12-15%
24	180	15-20%

#### 4.15. DIFFERENT PARTS OF CIRCULAR KNITTING MACHINE

1. Chassis
2. Main foot
3. Side foot
4. Supporting ring
5. Needle cylinder
6. Guide
7. Yarn carrier
8. Cam box
9. Yarn feed device
10. Yarn feeder
11. Central machine axis
12. Protective cover
13. Holding rods

#### 4.16. The Knitting Action of a Latch Needle and Holding-Down Sinker during the Production of a Course of Plain fabric:

- (a) Tucking in the hook or rest position. The sinker is forward, holding down the old loop whilst the needle rises from the rest position.
- (b) Clearing. The needle has been raised to its highest position clearing the old loop from its latch.
- (c) Yarn feeding. The sinker is partially withdrawn allowing the feeder to present its yarn to the descending needle hook and also freeing the old loop so that it can slide up the needle stem and under the open latch spoon.
- (d) Knock-over. The sinker is fully withdrawn whilst the needle descends to knock over its old loop on the sinker belly.
- (e) Holding-down. The sinker moves forward to hold down the new loop in its

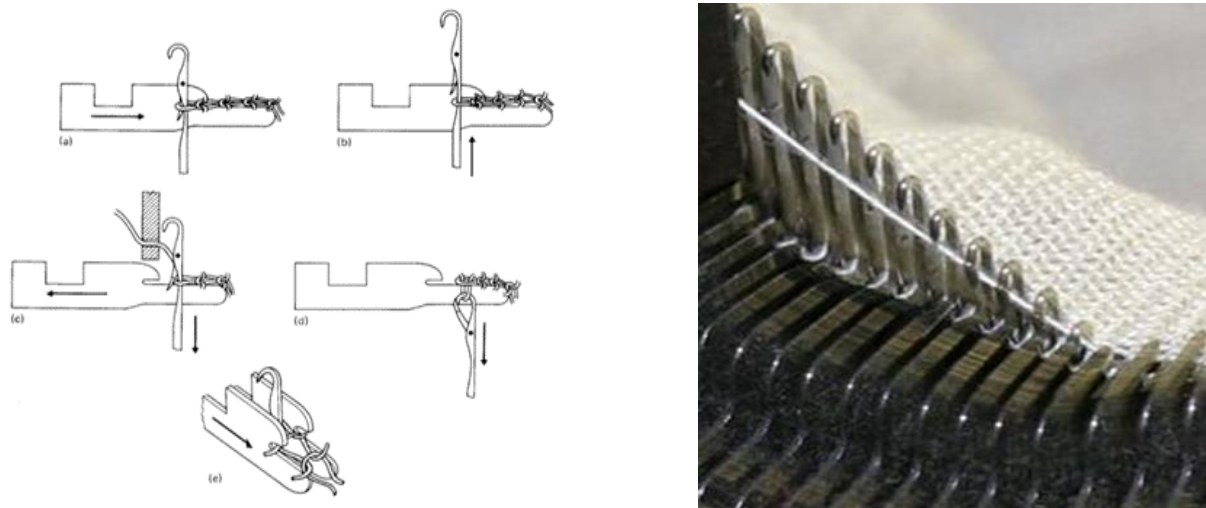


Fig 6 : Knitting action

#### 4.17. SINKERS OPERATION:

1. The held loop is positioned in the throat of the sinker when the sinker moves forward and the needle moves upward for clearing. The throat holds the held loop and hence its movement along the needle is restricted.
2. The sinker remains at its forward position when the needle attains its clearing position.
3. The sinker retracts when the needle comes down after feeding. At this stage, due to sinkers retraction, fabric or held loop is eased out. In addition, the sinker belly supported the fabric or held loop and hence its movements along the needle is prevented.
4. Sinker remains in backward position and the needle descends to its lowest position drawing the new loop through the old one.
5. Before the needle ascends, the sinker moves forward to push the knitted fabric a little and to hold the old loop away from the head of the needle and to be in a position to control the fabric.

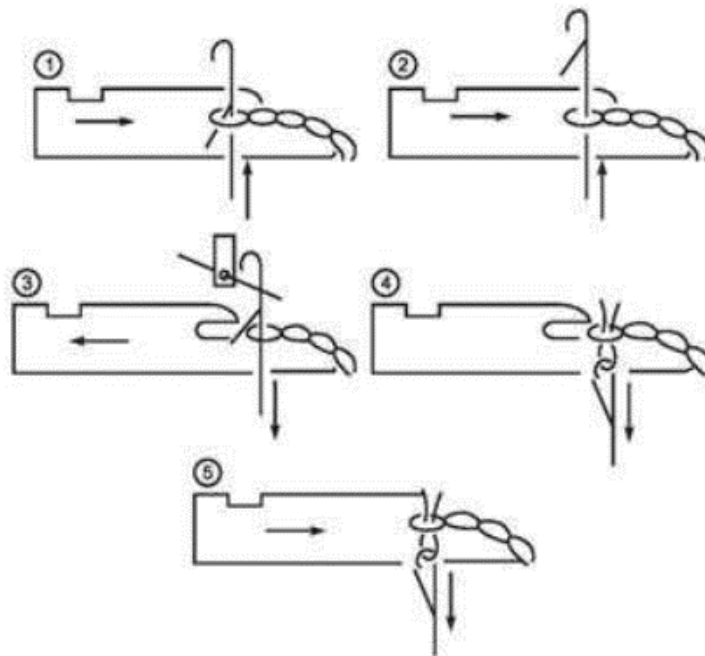


Fig 7: Sinker Operation

#### 4.18. OILING SYSTEM:

1. For avoiding needle breakage and relative frictional problem oiling is necessary.
2. By air pressure, oil is supplied from a can to cam, sinker and needle as a lubricant.
3. Oiling amount depend on Machine RPM. When RPM is raised then oiling speed is increased.
4. The used oil is come back in another can which are used for machine maintenance.

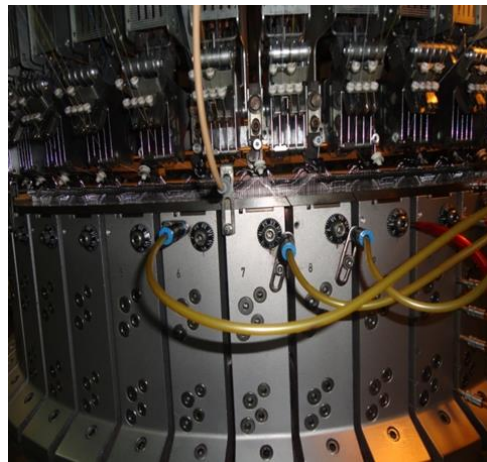


Fig 8: Different oil system

#### 4.18. Cost Analysis of Knitted Fabric:

In Robintex cost analysis includes the following terms:

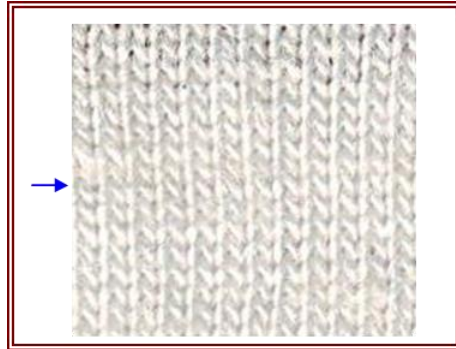
1. Yarn Price
2. Knitting cost of different types of fabric.

Table 3: Cost Analysis of Knitted Fabric:

Serial No.	Fabric Type	Knitting Price (Tk/Kg)
1.	Single jersey	8-10
2.	Lacoste / PK	14
3.	Terry	14
4.	Fleece	18-20
5.	1x1 Rib	14
6.	Interlock	18
7.	Single jersey E. stripe	100

#### 4.19. Different types of faults and causes:

##### A) Thick yarn course:



##### Causes:

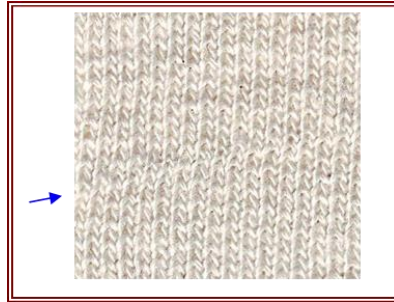
1. Lot mixing
2. Negligence of worker etc.

##### B) Hole



##### causes:

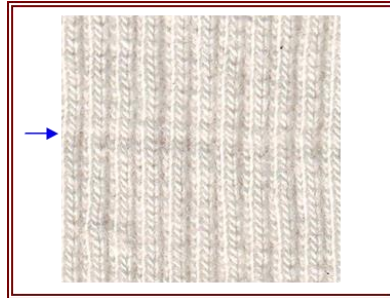
1. bad needle knots in yarn
2. Take down mechanism too tight
3. High tension on the yarn
4. Bad yarn etc.



### **C) Missing yarn:**

#### **Causes:**

1. Yarn breakage
2. Faulty Yarn
3. Stop motion



### **D) Lycra out**

#### **Causes:**

1. Incorrect Position of Yarn guide
2. Improper sinker ring setting

### **E) Barre/patta:**





**Causes:**

1. uneven dial & cylinder relationship
2. Lot mixing
3. Yarn count mix etc.

**F) Sinker Mark:**



**Causes:**

1. Old Sinker
2. Sinker Mixing
3. Dust in sinker ring

**G) Drop stitch:**



**causes:**

1. Bad needle Latch
2. Incorrect feeder setting

Fig 9: Different types of fault

#### 4.20. Process of grey fabric inspection:

Set fabric roll in machine



Run the machine



Check the faults



Record the fault



Accept/Reject



Send for next process



To detect and identify the fault in fabric by the knitting, visual assessment on inspection



Fig 10: Fabric Inspection Machine

#### 4.21. Following faults are detected:

##### Faults

H= Hole	OS= Oil stain	BN= Broken needle
DS= Drop stitch.	WD=Wrong Design	PH= Pin Hole
NL = Needle line.	S = Stripe	TC= Tight Course
TT = Thick & Thin yarn.	S = Slub	MY= Missing Yarn
SM = Sinker Mark.	WP=Wrong Ply, etc.	

#### 4.22. 4- Point System:

Table 4: 4-point system

Size of defects	Penalty
3 inches or less	1 Points
over 3 but not over 6	2 Points
Over 6 but nor over 9	3 Points
Over 9 inches	4 Points

#### Acceptance Calculation:

Any Hole – 4 Point

Up to 20P/100m = Class “A”

Up to 20-30P/100m = Class “B”

Up to 30-40P/100m = Class “C”

More than 40P/100m = Reject.

**CHAPTER 5**

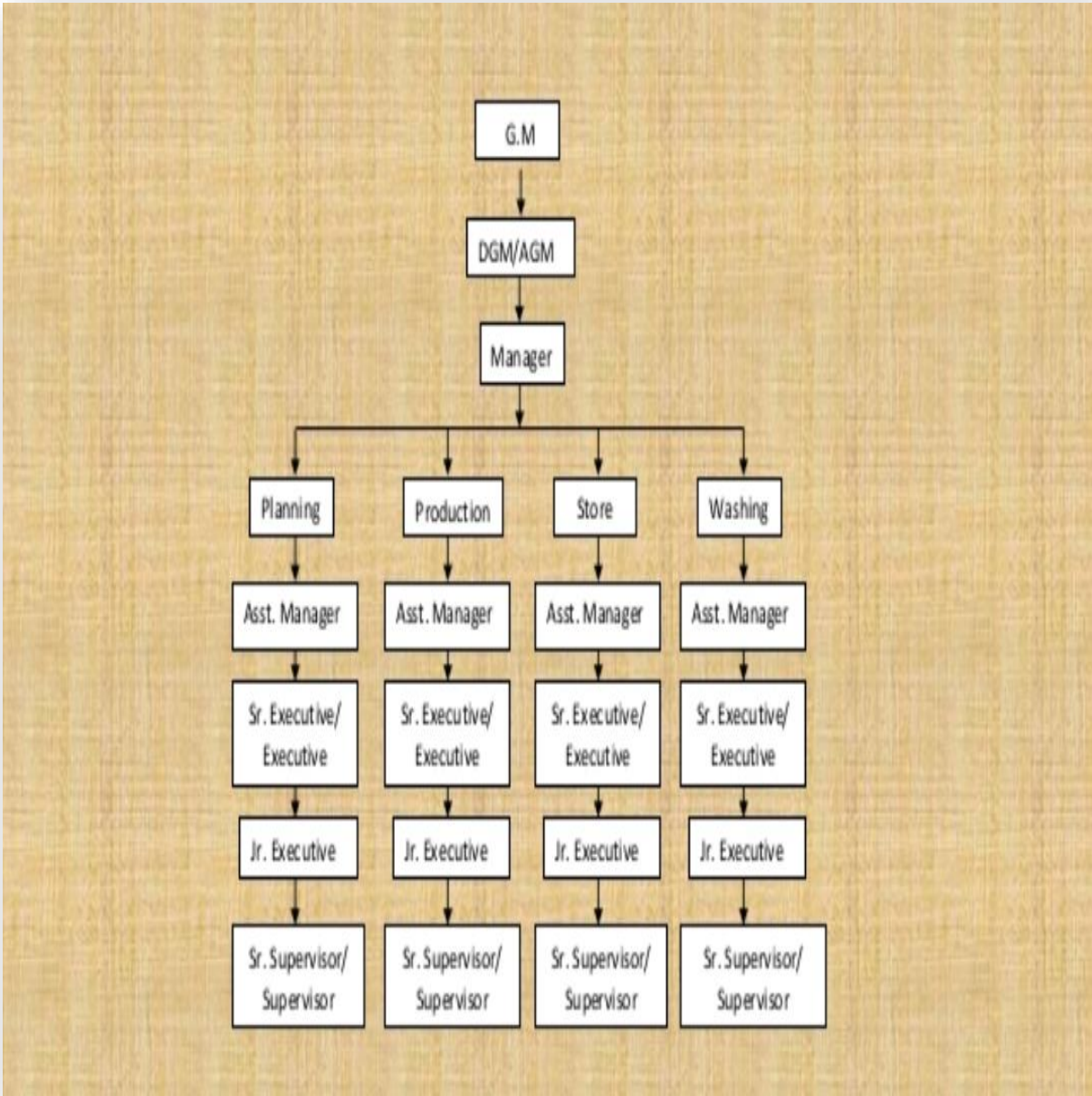
**DYEING & FINISHING**

### 5.1 Lay out plan of Dyeing & Finishing:



Fig 11: Lay out of Dyeing & Finishing

5.2 Organogram:



### 5.3 Machine Description:

Total no of M/C: 22

Sample dyeing M/C : 9

Bulk dyeing M/C : 13

There are only one brand of dyeing machine in Robintex that is:

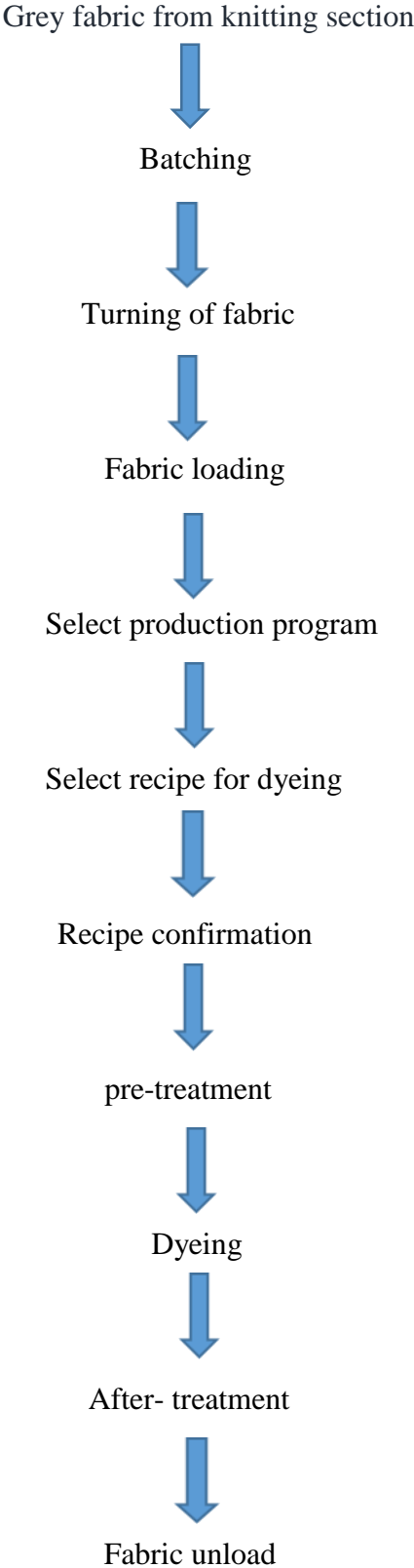


Fig 12: Thies Dyeing machine



Fig 13: Dilmenler Sample dyeing machine

5.4 Dyeing Process flow chart:





## 5.5 Dyeing Parameter for bulk production:

Table 5: Dyeing Parameter for bulk production

Process	Temp	pH	Time min	M: L ratio
Scouring & bleaching	98	11.5-12	60	1:6
Enzyme wash	55	4.5-5	60	1:8
Enzyme Deactivation	70	.....	10	.....
Reactive dyeing (light)	60	10.2-10.8	60	1:8
Reactive dyeing (Dark)	60	10.9-12	60	1:8
White Shade	98	10.5-11.5	20	1:8
Polyester Dyeing	130	4-4.5	45	1:8

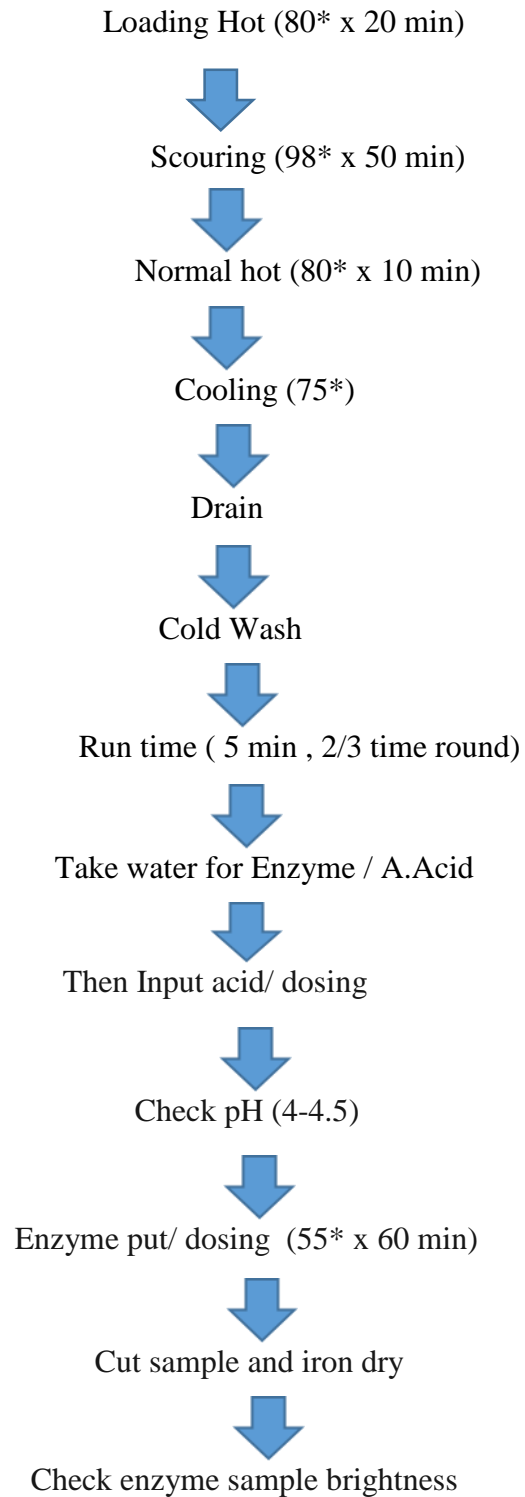
## 5.6 Dyeing cost along with dyes and chemical:

Table 6: Dyeing cost along with dyes and chemical:

SL No	Types of shade	Type of finishing	Price/ Kg
1	Light color	Tube Finish	65 Tk
2	Light color	Open Finish	75 Tk
3	Medium color	Tube Finish	75 Tk
4	Medium color	Open Finish	85 Tk
5	Dark color	Tube Finish	85 Tk
6	Dark color	Open Finish	95 Tk
7	Black color or extra dark	Tube Finish	110 Tk
8	Black color or extra dark	Open Finish	125 Tk
9	Deep black or deep royal	Tube Finish	115 Tk
10	Deep black or deep royal	Open finish	125 Tk
11	White	Tube Finish	40 Tk
12	White	Open Finish	50 Tk

## 5.7 Different Dyeing Process

### White Process:





Softener



Sample



Unload

## 5.8 Dyeing M/C parts:

### Elements:

1. Winch reel
2. side tank
3. stock tank
4. Monitor
5. Motor
6. Air pressure
7. Nozzle
8. Steam, bulb, water input bulb, output bulb, Fill bulb
9. Net
10. Delivery roller
11. Indicator light

### Side Tank:

1. Water fill pipe
2. Mixture rod
3. Net
4. Chemical pipe
5. Adding Chemical

### Winch reel speed

For single jersey - 200/240

T.F - 140

Air pressure - 70

## 5.2.1 Finishing:

### Finishing process Route Card

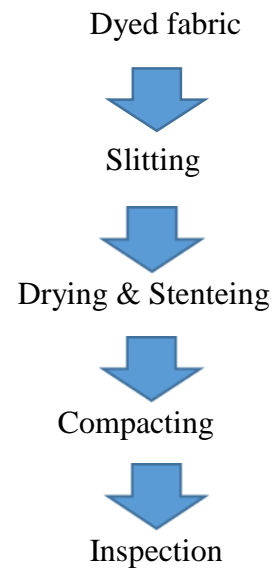


Fig 14: Stenteing Machine

## 5.2.2 Finishing Cost:

Table 7: Finishing Cost

SL No	Price quotation of finishing	Price
01	Only Stenter	20 Tk/Kg
02	Only open Compacting	15 Tk/Kg
03	Stenter + Open Compacting	30 Tk/Kg
04	Only tube dry	8 Tk/Kg
05	Tube Compacting	8 Tk/Kg
06	Sueding + Stenter + Open Compacting	15-20 Tk/Kg

### 5.2.3 Finished fabric Inspection:

4 point system numbering system is followed for finished fabric inspection.

Defects found in the final inspection:

1. Uneven Shade
2. Oil Spot
3. Neps
4. Crease mark
5. Machine Stoppage mark
6. Joint
7. Abrasion mark
8. Stenter pin hole
9. Dirty Soil/ Stain
10. Finishing shrinkage hole
11. Finishing GSM hole
12. Inspector GSM hole



Fig 15: Compacting Machine

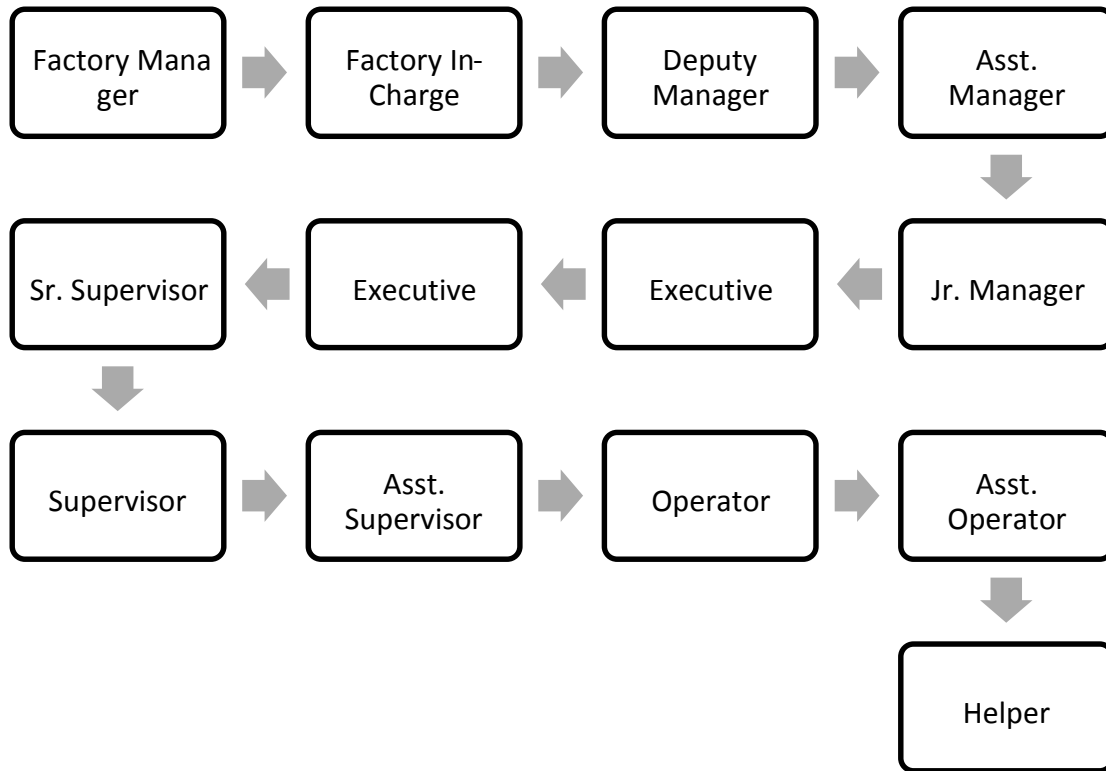


# **CHAPTER 6**

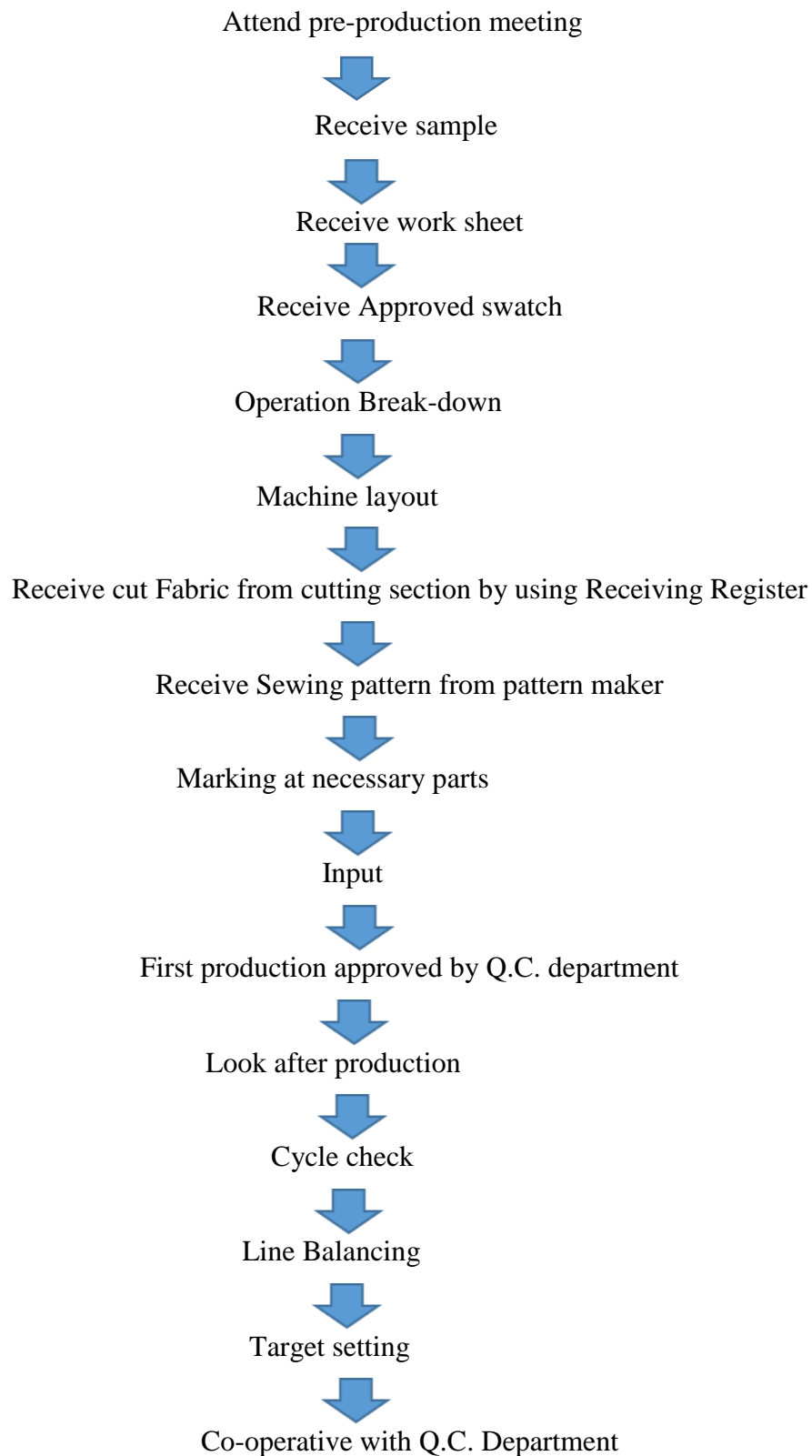
## **GARMENTS**

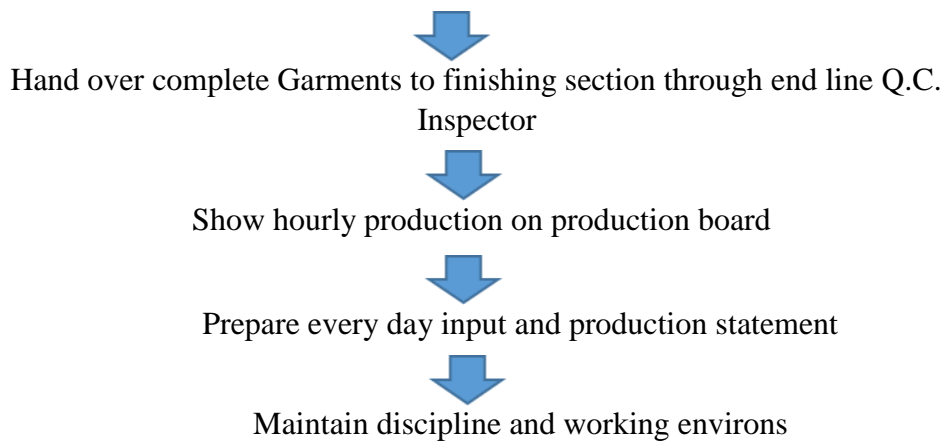
# SEWING

## 6.1 Organogram:



## 6.2 Process Flow Chart:





### 6.3 Machineries:

- Over lock
- Single needle
- Flat lock
- Button stitch
- Button holing
- Piping cutter
- Bartek
- Kansai
- Snap button



Fig 16: Plain machine



Fig 17: Over lock machine



Fig 18: Bartek machine

#### 6.4 Major operations carried out by the section:

- Collect counter sample
- Take cut panel measurement
- Front / back matching
- Start sewing
- Use mockup for critical operation
- Process wise thread trimming & cutting sticker remove
- Process quality check
- End table quality check

#### 6.5 Product evaluations carried out by the process:

- Calculate the production capacity
- To establish proper layout of the sewing floor
- To provide accurate guideline for the floor supervisor ,floor quality ,line chief and other person of the floor
- To solve any problem of the floor, it may production problem, worker problem etc.
- To provide production report and other information in the floor of the higher authority
- To look after the floor
- To maintain the line chief line quality ,line supervisor and other persons of the floor
- To solve any problem of any line in the sewing floor
- To maintain line input and output materials
- To find out per line production capacity of the sewing floor

### 6.2.1 Finishing:



Fig 19: Finishing section

### 6.2.2 Machineries:

1. Heat iron
2. Steam iron
3. Metal detector
4. Neck press
5. Thread sucker

### 6.2.3 Major operations:

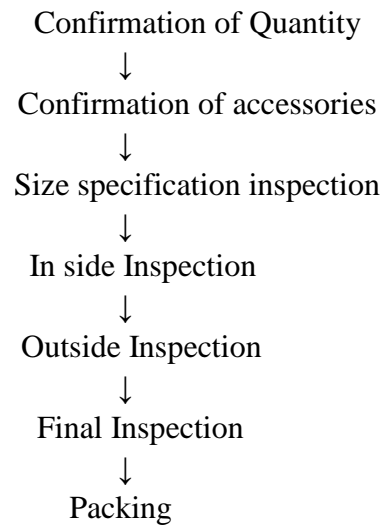
1. Thread Suction (Thread Sucker M/c)
2. Ironing
3. Quality Check
4. Metal detection
5. Accessories Attach (Hang Tag, Price Tag, Hanger, Sticker, Security Alarm etc.)
6. QA Inspection
7. Folding/Rolling
8. QA Supervision
9. Cartooning/Packaging

### 6.2.4 Product evaluation process:

1. Getup check
2. Measurement check
3. Final garments inspection
4. Ratio wise packing inspection

## 6.2.5 Garment Inspection:

### Flow Chart of Garment Inspection





# CHAPTER 7

## MAINTENANCE



Fig 20: Maintenance Section

## 7.1 Machineries:

1. Combination tools / spanner
2. Socket ratchet set
3. Slide range
4. Monkey pliers
5. Pipe thread cutting tools
6. Bearing puller
7. Pipe range
8. Pipe cutting tools
9. Hole punch
10. Divider
11. Easy opener
12. External thread die
13. Heavy scissor
14. Oil can
15. Drill machine and drill bit.
16. Grease gun
17. Grinding m/c
18. Welding m/c
19. Spirit leveler
20. File
21. Hammer
22. Circlip tools
23. Hacksaw blade
24. Handsaw (wood)

## 7.2 Major Operations:

1. Metal cutting.
2. Scaling & right angling.
3. Perfect leveling.
4. Welding & cutting.
5. Grinding & cutting of mild steel.
6. Greasing of moving parts of m/c.
7. Drilling.
8. Oiling of moving parts.
9. Tightening & loosening of nuts & bolts.
10. Tightening of nuts & bolts
11. Tightening & loosening of nuts & bolts.
12. Tightening & loosening of nuts & bolts.
13. Cut the threat in pipe.
14. Cutting of gasket & steel sheet.
15. External threat cutting.
16. Open the broken head bolt.
17. Circle marking on metal & wood.
18. Punching the hole.
19. Assist the opening of bearing from shaft.
20. Tightening & loosening of pipe joint.
21. Pipe cutting.

### 7.3 Product Evaluation Process:

1. By keeping the factory plants, equipment's, machine tools in an optimum working condition.

By ensuring specified accuracy to product and time schedule of delivery to customer.

2. By keeping the downtime of machines to the minimum thus to have control over the production program.

3. By keeping the production cycle within the stipulated range.

4. By modifying the machine tools to meet the need for production

5. By improving productivity of existing machines and to avoid sinking of additional capital.

6. By reducing the maintenance cost as far as possible thereby leading to reduction in factory overhead

7. By prolonging the useful life of the factory plant and machinery by retaining their acceptable level of accuracy of performance.

# CHAPTER 8

## IMPACT OF INTERNSHIP

The main purpose of the internship is to learn about textile & garments process. This helps us to improve our practical knowledge on textile. During this time, we learn about knitting, dyeing, finishing, cutting, sewing, laboratory, maintenance and inspection.

### 8.1 Knitting:

- \* Different type of knitting machine
- \* Different knitting Process
- \* Mechanism of knitting process
- \* To learn about needle, Cam arrangement
- \* To learn about Fabric Construction.
- \* Different type of knit fabric
- \* Fabric inspection system
- \* Fault of knitting

### 8.2 Dyeing:

- \* Different dyeing machine
- \* Different dyeing process
- \* flow chart of dyeing
- \* Fault of dyeing
- \* Dyeing lab

### 8.3 Finishing:

- \* Different finishing process
- \* Flow chart of finishing
- \* Fault of finishing

### 8.4 Impact of Sewing Section

# Learned about different parts of a shirt (i.e. Upper front, Lower front, and back part, Facing, Collar and Sleeve etc.).

# Observed different sewing or joining process of different body parts of a shirt.

# Learned about different type of machines used in a sewing floor (i.e. Single or double needle lock stitch machine , Multi needle chain stitch machine, Over lock machine, Feed of the arm machine etc.).

# Observed the ironing and fusing process for different body parts (i.e. Collar, Placket, Facing Interlining etc.).

# Learned about Standard Minute Value (SMV) of different sewing process.

# Cleared the conception about production of a sewing floor (line by line and total floor).

# Observed and realized the importance of final inspection at the end of every sewing line.

### 8.5 Impact of Maintenance Section:

# To learn about the accuracy to product and time schedule of delivery to customer.

# understood how to modify the machine tools to meet the need for production

# Learned about the production cycle

# Understood how to improve productivity of existing machines

# Understood the way to reduce the maintenance cost as far as possible

## **CHAPTER 9**

### **CONCLUSION**

The industrial training gives us the first opportunity to work in mills. It was a practical experience beyond the normal academic learning. This training gave us actual picture about man, machine, money, material, method and market and interdependence. We have earned the direct practical knowledge about the raw materials, actual running condition of the machine, works of technologist, administration. Industrial training is an essential part for textile education because it minimizes the gap between theoretical and practical knowledge and also increases our thinking level about textile technology.

We have completed our industrial attachment from Robintex Group during two-month long industrial training at Robintex Group. We got the impression that this factory is one of the modern export oriented composite knit garments industry in our Bangladesh. This factory does not compromise in case of quality. Due to this, it has earned a “very good reputation” in foreign market for its quality product over many other export oriented textile mills. It has very well educated and technically experienced manpower to get rid of any defect in production process. It has also organizational hierarchy.

