



Faculty of Engineering
Department of Textile Engineering

Course Code: TE 431 Course Title: Industrial Attachment

A Report
On
Aristocrat Fashions (Pvt.) Ltd.

Submitted by

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Supervised by

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Faculty of Engineering

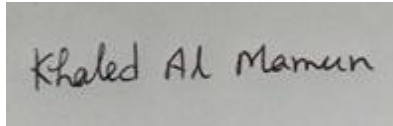
Daffodil International University

**(This report submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Textile Engineering)**

Summer, 2018

DECLARATION

We hereby declare that, this internship has been done by us under the supervision of **Asit Ghosh, Assistant Professor**, Department of Textile Engineering, Faculty of Engineering, Daffodil international University. We also declare that, neither this report nor any part of this has been submitted elsewhere for award of any degree or diploma.



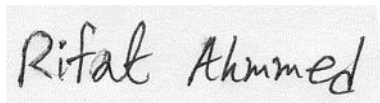
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Letter of Approval

16th April, 2018

To

The Head

Department of Textile Engineering

102, Sukrabad, Mirpur Road, Dhaka, 1207

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

Dear Sir,

I am just writing to let you know that this project report titled as “**Study on Overall Equipment Efficiency of Knitting Machine in different parameters**” has been prepared by the student bearing ID’s 142-23-3886 and 142-23-3899 are completed for final evaluation. This whole report is prepared based on the proper investigation and interruption through critical analysis of empirical data with required belongings. The students were directly involved in their project activities and the report become vital to spark of many valuable information for the readers. Therefore it will highly be appreciated if you kindly accept this project report and consider it for final evaluation.

Yours Sincerely

.....

Asit Ghosh

Assistant Professor

Department of Textile Engineering

Daffodil International University

ACKNOWLEDGEMENT

All pleasure goes to the Almighty Allah to give us strength and ability to complete our two months long industrial attachment at **Aristocrat Fashions (Pvt.) Ltd.** It was a great opportunity for us to complete the industrial attachment with the assistance of persons employed in Industry name.

We feel grateful to our academic supervisor **Asit Ghosh**, Assistant Professor, Department of Textile Engineering, Faculty of Engineering, Daffodil International University as well as our factory supervisor for their continuously guiding us about the development and preparation of this training report. They have enriched us with sharing necessary theoretical and practical ideas and supervised us to complete this report on time.

We would like to express our thanks to **Prof. Dr. Md. Mahbubul Haque**, Head, Department of Textile Engineering, Faculty of Engineering, Daffodil International University for his kind help to finish our training report.

We are also grateful to the supervisors, technicians, operators and all other staffs of **Aristocrat Fashions (Pvt.) Ltd**, who were most cordial and helpful to us during the tenure of internship.

Finally, we would like to express a sense of gratitude to our beloved parents and friends for their mental support, strength and assistance throughout writing the training report.

*This report is dedicated
To
My Beloved Family, Respected Teachers & All
of My Friends*

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Chapter 01
Executive Summary

Chapter 01

Executive Summary

Textile and garments sector is the greatest and quickest developing sector of Bangladesh. It is likewise the most astounding money gaining sector of Bangladesh. Bangladesh earns nearly US\$28.14 billion a year by exporting textile and garments products, mainly to Europe and the United States.

From the beginning of this project, we have to work a lot harder. We did our internship program group wise comprising 2 (two) members. Here, we have to approach each and every department. Every people help us of the industry to make our internship program easy. Actually limitation was that time was very much shorter. We tried to conduct our work sequentially. So we began our journey from knitting section and ended it at finishing department. We have worked in Knitting, Dyeing, Printing, Finishing, Garments & Merchandising Also.

Aristocrat Fashions (Pvt.) Ltd. is a 100% export oriented Knit & Woven garment factory situated in 109,Nayabari, Savar, Dhaka, Bangladesh. It was established in November, 2010 with the vision 'To provide high quality with on time delivery and Buyer's satisfaction is our prime motto. We aim to create a platform where buyer's can successfully complete their requirements with the quality they seek. We envision delivering and delighting our clients as a quality product provider and help to build their market reputation on a continuous basis.

Our internship period was between 16th *February, 2018 to 31st March, 2018* for one and half months in **Aristocrat Fashions (Pvt.) Ltd.**

Chapter 02

**General Information of Aristocrat
Fashions (Pvt.) Ltd.**

Chapter 02

General Information of Aristocrat Fashions (Pvt.) Ltd.

2.1 Company Profile:

Established : November 2010
Managing Director : Mohammad Abul Hasnat, MBA
Corporate Office : 109, Nayabari, Savar, Dhaka-1340
Factory Address : 109, Nayabari, Savar, Dhaka-1340

Company Logo :



Floor Space : 40, 000 square feet (all together).
Annual Turn Over : US\$ 80 Million
Total area : 700, 000 square feet
Production Capacity : 18,000 Dzn of T-shirt.(Knit Department); 8,500 Dzn of Denim Pant.(Woven Department)
Total Manpower : 750
Nature Of Business : 100% Export-Oriented Knit & Woven Garments Factory
Nature of Company : Private Limited Company

2.2 Missions Statement:

Our Mission is to provide high quality with on time delivery and Buyer's satisfaction is our prime motto. We aim to create a platform where buyer's can successfully complete their requirements with the quality they seek. We envision delivering and delighting our clients as a quality product provider and help to build their market reputation on a continuous basis.

* Satisfying our client is fundamental to our business and we do strongly believe that this is the only factor leading our growth.

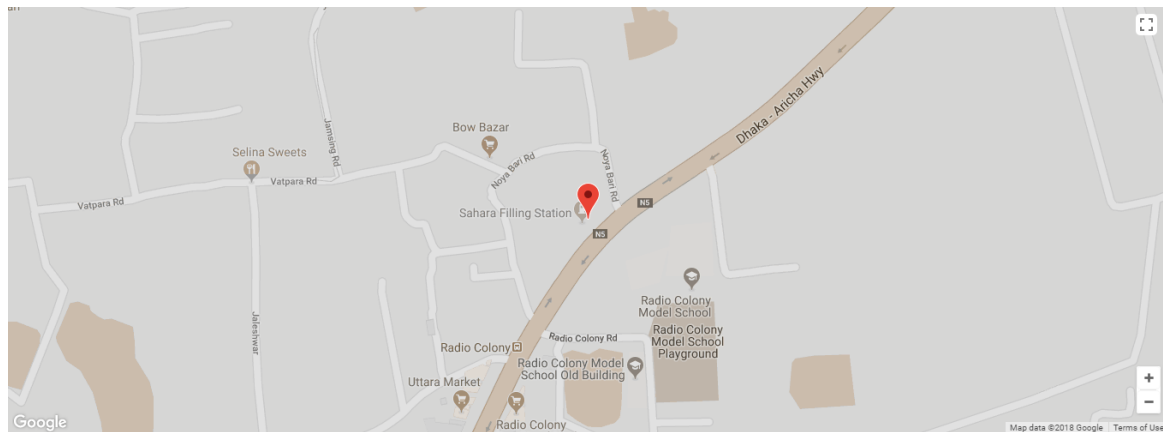
* To provide the World's most complete End-to-End solution to our clients through well defined systems, process and strategic initiatives.

* We aim to build a strong and healthy business relationship with our buyer's as a strategic partner.

2.3 Values:

- ❖ Customer Satisfaction
- ❖ Inspiring creativity
- ❖ Integrity
- ❖ Corporate Social responsibility
- ❖ Healthy Work Environment
- ❖ Commitment & Teamwork
- ❖ Equal Opportunity Employer
- ❖ Greener Environment Specialties

2.4 Site Direction from Dhaka:



Courtesy: Google Map

2.5 Garments produced in Aristocrat Fashions (Pvt.) Ltd:

- ❖ T-shirts
- ❖ Vest
- ❖ Singlet
- ❖ Polo
- ❖ Tank top

- ❖ Sweat shirt
- ❖ Fleece jacket

2.6 Major Departments:

To ensure smooth running of various activities, some departments are given bellow:

1. Garments department:

- ❖ Merchandising
- ❖ Cutting
- ❖ CAD Section
- ❖ Sewing
- ❖ Embroidery
- ❖ Sample
- ❖ Printing
- ❖ Packaging

2.7 Important Clients:



VEGOTEX

INTERNATIONAL



medicine
EVERYDAY THERAPY



Chapter 03

Details of Attachment

3.1 Knitting Section

3.1 Knitting Section

3.1.1 Introduction:

The Process in which fabrics are produced by set of connected loops from a series of yarn in weft or warp direction is called knitting. Knitting is a method by which thread or yarn may be turned into cloth or other fine crafts. Knitted fabric consists of consecutive loops, called stitches. The loops are also held together by the yarn passing from one to the next. The process in which fabrics are produces by set of connected loops from a series of yarns in weft or warp direction is called knitting.

In textile knitting, there are two types of stitch used by the manufacturer to produce a knitted product. These are,

- Warp Knitting
- Weft knitting

Warp knitting:

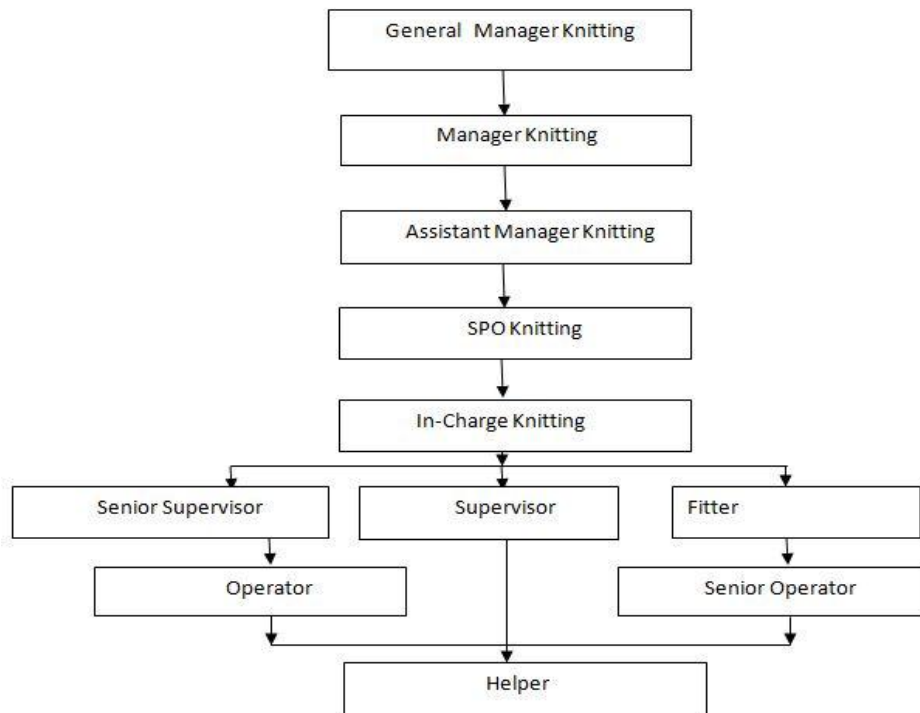
When fabric is produced by this method in warp direction then it is called Warp knitting.

Weft knitting:

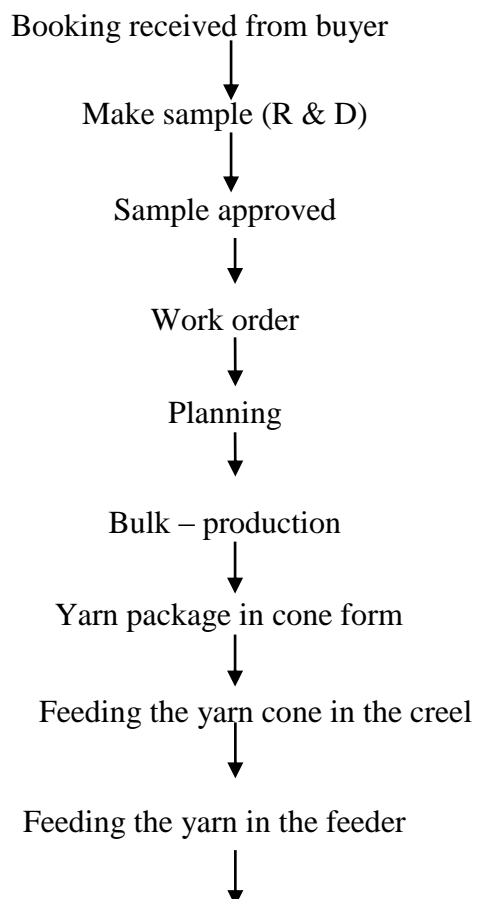
When fabric is produced by this method in weft direction then it is called Weft knitting.

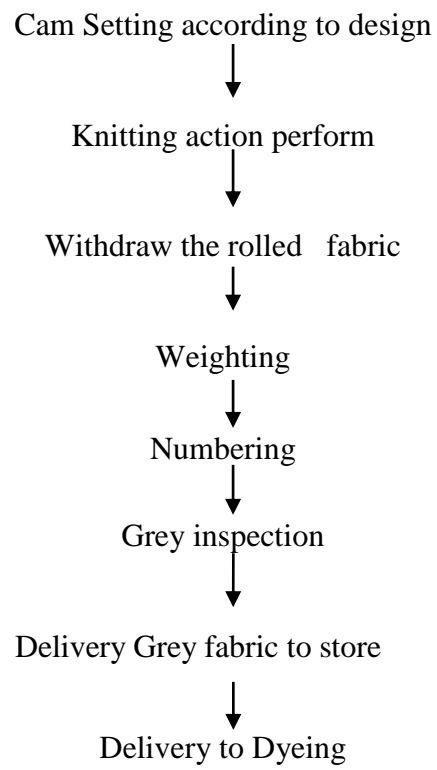
Aristocrat Fashions (Pvt.) Ltd. does not have a knitting section. It gives sub contract for fabric to other factories. The one we have observed is named Habib Apparels Ltd.

3.1.2 Flow Chart of Knitting Section:



3.1.3 Sequence of operations in knitting section:





3.1.4 Specification of machines in knitting section:

<p>Machine no : 01</p> <p>Machine type : Single jersey Circular knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles : 3000</p> <p>No of feeders : 120</p> <p>Gauge :24</p> <p>Diameter : 40"</p>	<p>Machine no : 02</p> <p>Machine type: Single jersey Circular knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles :2712</p> <p>No of feeders :108</p> <p>Gauge :24</p> <p>Diameter :36"</p>	<p>Machine no : 03</p> <p>Machine type : Single jersey knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles :2544</p> <p>No of feeders :102</p> <p>Gauge :24</p> <p>Diameter :34"</p>
<p>Machine no : 04</p> <p>Machine type: Single jersey circular knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles :2400</p> <p>No of feeders :96</p> <p>Gauge :24</p> <p>Diameter :32"</p>	<p>Machine no : 05</p> <p>Machine type: Single jersey Circular knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles :2136</p> <p>No of feeders :76</p> <p>Gauge :18</p> <p>Diameter :38"</p>	<p>Machine no : 06</p> <p>Machine type : Single jersey Circular knitting m/c</p> <p>Brand name : JIUNN LONG MACHINE CO. LTD.</p> <p>Origin : Taiwan</p> <p>No of needles :2756</p> <p>No of feeders :80</p> <p>Gauge :18</p> <p>Diameter :40"</p>

Machine no : 07 Machine type: Single jersey circular knitting m/c Brand name : JIUNN LONG MACHINE CO. LTD. Origin : Taiwan No of needles :2136 No of feeders :76 Gauge :18 Diameter :42"	Machine no : 08 Machine type: Rib Circular knitting m/c Brand name : JIUNN LONG MACHINE CO. LTD. Origin : Taiwan No of needles :2484 No of feeders :88 Gauge :18 Diameter :44"	Machine no : 09 Machine type : Single jersey circular knitting m/c Brand name: JIUNN LONG MACHINE CO. LTD. Origin : Taiwan No of feeders :90 Gauge :24 Diameter :30"
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Machine no : 10 Machine type : Single jersey circular knitting m/c Origin: Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :1968 No of feeders :76 Gauge :24 Diameter :26"	Machine no : 11 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2112 No of feeders :84 Gauge :24 Diameter :28"	Machine no : 12 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. Dia. : 30" Gauge : 24 No. of feeders :90 no of needle: 2256
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<p>Machine no : 13 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2400 No of feeders :96 Gauge :24 Diameter :32"</p>	<p>Machine no : 14 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2136 No of feeders :102 Gauge :20 Diameter :34"</p>	<p>Machine no : 15 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2262 No of feeders :108 Gauge :20 Diameter :36"</p>
<p>Machine no : 16 Machine type: Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2880 No of feeders :114 Gauge :24 Diameter :38"</p>	<p>Machine no : 17 Machine type : Single jersey circular knitting m/c Origin : Japan Brand name: FUKUHARA No of needles :1884 No of feeders :90 Gauge :20 Diameter :30"</p>	<p>Machine no : 18 Machine type: Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :3000 No of feeders :120 Gauge :24 Diameter :40"</p>
<p>Machine no : 19 Machine type :Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :3168 No of feeders :120 Gauge :24 Diameter :42"</p>	<p>Machine no : 20 Machine type : Single jersey circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :3312 No of feeders :132 Gauge :24 Diameter :44"</p>	<p>Machine no : 21 Machine type :Rib circular knitting machine Origin : Germany Brand name: MAYER AND CIE No of needles :1696 No of feeders :66 Gauge :18 Diameter :30"</p>

Machine no : 22 Machine type : Rib circular knitting m/c Origin: Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2040 No of feeders :72 Gauge :18	Machine no : 23 Machine type :Rib circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :1800 No of feeders :64 Gauge :18 Diameter :32"	Machine no : 24 Machine type : Rib circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. Dia. : 42" Gauge: 18 No. of feeders :84 No of needle : 2376
Machine no : 25 Machine type: Rib circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2256 No of feeders :80 Gauge :18 Diameter :40"	Machine no : 26 Machine type : Rib circular knitting m/c Origin : Taiwan Brand name: JIUNN LONG MACHINE CO. LTD. No of needles :2136 No of feeders :76 Gauge :18 Diameter :38"	

Remarks:

All the machines are well arranged and availability of sufficient spaces among the machines facilitates the movement of personnel and smooth production.

3.1.5 End Products of circular Knitting m/c:

1. Single Jersey M/C:

- ❖ Single jersey
- ❖ Elastane Single Jersey
- ❖ Yarn Dyed Single jersey
- ❖ Polo Pique
- ❖ Single Lacoste
- ❖ Double Lacoste
- ❖ Three Thread Fleece
- ❖ Three Thread Elastane Fleece
- ❖ Two Thread Elastane Fleece

2. Double Jersey m/c:

- ❖ (1*1) Rib
- ❖ (1*1) Elastane Rib
- ❖ Yarn Dyed Rib
- ❖ (2*2) Rib
- ❖ (2*2) Elastane Rib
- ❖ Interlock
- ❖ Mesh

3.1.6 Factors concerned with Knitting:

- ❖ Machine gauge
- ❖ Machine dia.
- ❖ Yarn count
- ❖ Lycra % (if necessary)
- ❖ Finished GSM
- ❖ Finished width
- ❖ Stitch length
- ❖ Yarn tension during feeding

3.1.7 Different parts of knitting m/c:

- ❖ Creel: Creel is used to place the cone.
- ❖ Feeder: Feeder is used to feed the yarn to needle.
- ❖ Positive feeder: To store the yarn.
- ❖ Needle: To hold the formation of loop. Generally latch needle is used.
- ❖ Tensioning device: Tensioning device is used to give proper tension to the yarn.
- ❖ VDQ pulley: VDQ pulley is used to control the GSM by controlling the stitch length.
- ❖ Guide: Guide is used to guide the yarn.
- ❖ Sensor: Sensor is used to see if any yarn has been torn out & the machine stops when any problem occurs.
- ❖ Spreader: Spreader is used to spread the knitted fabric before take up roller.
- ❖ Take up roller: Take up roller is used to take up the fabric.
- ❖ Sinker: It mainly performs three functions such as holding down, knocking over & loop formation.
- ❖ Cam: Mainly three types of cams are used in knitting production such as miss cam, knit cam & tuck cam. To bring variations in knitting production they play a vital role.
- ❖ Cam box: To store the cam.
- ❖ Motor: To help the running machine.
- ❖ Cylinder: Vertical needle and cam arrangement.
- ❖ Oil Box: To help the machine Smooth the machine.
- ❖ Tension meter: To control the yarn tension.
- ❖ Suction fan: To clean the dust, dirt & other impurities.
- ❖ Air gun: To pass through the yarn into the tube.

3.1.8 Types of yarn Used:

- ❖ Combed
- ❖ Carded
- ❖ CVC(60% Cotton+40% Polyester,65% cotton + 35% Polyester,70% cotton +30% Polyester)
- ❖ PC

Melange:

- ❖ Anthra: (5% Viscose +95% Cotton)
- ❖ Ecu: (2% Viscose + 98% Cotton)
- ❖ Normal: (10% Dyed +90% Undyed)
- ❖ 100% Cotton Melange: (10% Dyed + 90% Undyed)

3.1.9 Production Calculation of Knitting:

A. Production/shift in kg at 100% efficiency

$$= \frac{RPM \times \text{No. of Feeder} \times \text{No. of Needle} \times SL(mm)}{3527.80 \times \text{Yarn count}}$$

B. Production/shift in meter

$$= \frac{\text{Course / min .}}{\text{Course / cm}}$$
$$= \frac{RPM \times \text{No. of Feeder} \times 60 \times 12 \times \text{Efficiency}}{\text{Course / cm} \times 100}$$

C. Fabric width in meter:

$$= \frac{\text{Total no. of wales}}{\text{Wales / cm} \times 100}$$
$$= \frac{\text{Total no. of Needles used in knitting}}{\text{Wales / cm} \times 100}$$

3.1.10 Fabric Inspection (Four Point System):

Defect length	Penalty Point
Less than 3 inch/75 mm	01
Less than 3-6 inch/75-149 mm	02
Less than 6-9 inch/149-229 mm	03
Less than 9 inch/230 mm	04
Any hole	04

3.1.11 Knitting Check List:

- ❖ Buyer
- ❖ Order no
- ❖ Roll no
- ❖ Operator name
- ❖ M/C dia, M/C no, Finished dia
- ❖ Yarn count and yarn check
- ❖ Fabrication check
- ❖ Patta check
- ❖ Lycra tension
- ❖ Thick and thin check
- ❖ Lycra cotton catta
- ❖ Needle mark check
- ❖ Sinker mark check
- ❖ Dia mark check
- ❖ Crease mark check
- ❖ Wheel mark check
- ❖ Yarn contamination
- ❖ GSM
- ❖ Other faults

3.1.12 Faults, Causes & Their Remedies in Knitting:

1. Hole Mark:

Causes:

- Holes are the results of yarn breakage or yarn cracks.
- During loop formation the yarn breaks in the rejoin of the needle hook.
- If the yarn count is not correct on regarding structure, gauge, course and density.
- Badly knot or splicing.
- Yarn feeder badly set.

Remedies:

- Yarn strength must be sufficient to withstand the stretch as well as uniform.
- Use proper count of yarn.
- Correctly set of yarn feeder.
- Knot should be given properly.

2. Needle Mark

Causes:

- When a needle breaks down then needle mark comes along the fabrics.
- If a needle or needle hook is slightly bends then needle mark comes on the fabrics.

Remedies:

- Needle should be straight as well as from broken latch.

3. Sinker Mark

Causes:

- When sinker corrodes due to abrasion then sometimes cannot hold a new loop as a result sinker mark comes.
- If sinker head bend then sinker mark comes.

Remedies:

- Sinker should be changed

4. Lycra Catta

Causes:

- Lycra catta is the result of due to the containing of dust in the feeders.

Remedies:

- Clean feeders before feeding the yarn.

5. Lycra out

Causes:

- During running machine if Lycra fall down from Lycra pulley, as a result scruver doesn't work well and Lycra out occurs.

Remedies:

- Lycra should be set well on Lycra pulley.
- Ensure that Scruver does work well.

6. Star

Causes:

- Yarn tension variation during production.
- Buckling of the needle latch.
- Low G.S.M fabric production.

Remedies:

- Maintain same Yarn tension during production.
- Use good conditioned needles.

7. Set Up:

Causes:

- If yarn is not properly fed during loop formation i.e. not properly laid on to the needle hook.
- If yarn is broken during running.
- If yarn quality is low.
- If RPM of m/c is excessively high.

Remedies:

- Yarn has to be properly fed.
- Limited RPM of m/c.

8. Oil stain

Causes:

- When oil lick through the needle trick then it pass on the fabrics and make a line

Remedies:

- Ensure that oil does not pass on the fabrics.
- Well maintenance as well as proper oiling.

9. Crease mark:

Causes:

- If belt setting of roller is low

Remedies:

- Proper setting of belt as well as proper maintenance

10. Patta:

Causes:

- If Yarn lot mix, Count mix be un adjustable with each other Patta fault would be occurred

Remedies:

- Yarn lot mix, count mix should be avoided and cam should be adjusted.

3.1.13 Photos of knitting machine:



Circular Knitting m/c



Flat bed knitting m/c



Knit Fabric Inspection m/c

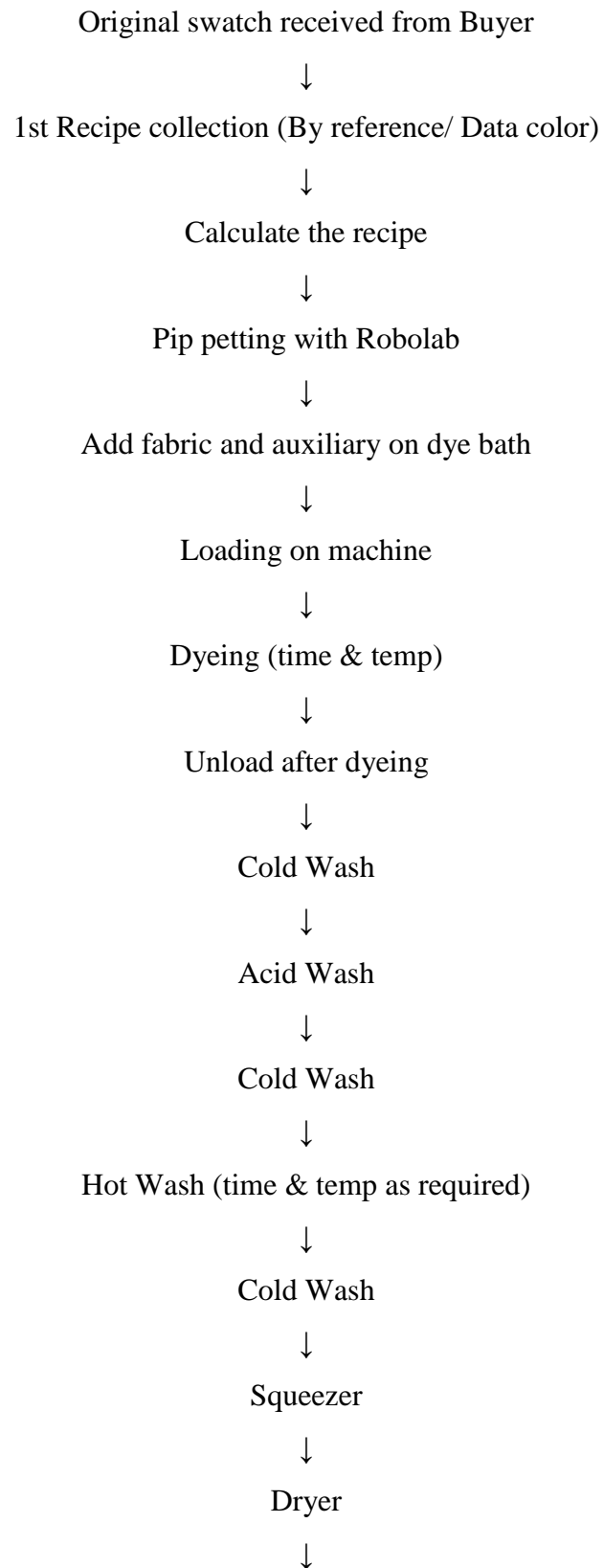
3.1.14 Attachment of different knit fabric sample:



3.2 Dyeing laboratory section

3.2 Dyeing laboratory section

3.2.1 Flow Chart of Dyeing Color Lab process:



Machine No.09	Machine No.10	Machine No.11	Machine No.12
Data Color Origin: Taiwan	Robolab Machine Origin: Europe Weight: 800 Kg Pay load: 2 Kg	Washing machine Capacity -16 sample ATAC -YK	Drying Machine

3.3 Batching Section

3.3 Batching Section

3.3.1 Introduction

Batching preparation is the process where visually inspected grey fabrics are divided into different batches with reasonable quality in order to make them suitable for the further operation.

During batching following factors are considered:

- ❖ Ordinary priority.
- ❖ Yarn type.
- ❖ Yarn Dyed.
- ❖ Fabric quality.
- ❖ Capacity of available machines.

3.3.2 Function or purpose of the batch:

1. To receive the grey fabric roll from knitting section or other source.
2. To prepare the batch of fabric for dyeing according to the following parameter:
 - Order Sheet (Received from buyer)
 - Dyeing shade (color or white, light or dark)
 - Machine Capacity.
 - Fabric structure
 - Yarn type
 - Etc.
3. To send the grey fabric to the dyeing floor by trolley with batch card.
4. To keep records for previous dyeing.

3.3.3 Process Sequence of Batch Preparation:

Receive batch card from grey in-charge

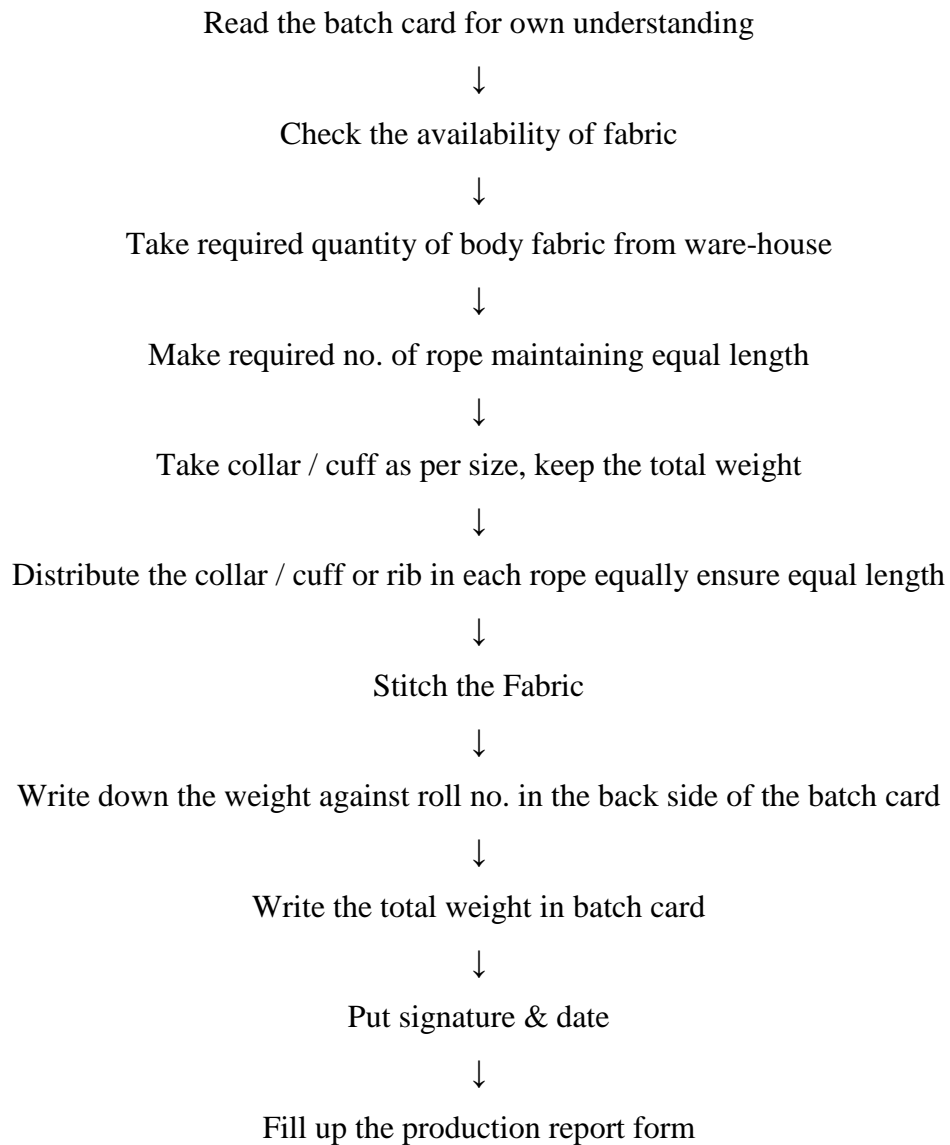


Make the priority as per dyeing plan



Take one specific batch card





3.3.4 Machine used in Batch section in knitting dyeing industries:

- 1. Back Sewing Machine:** Lycra /Single jersey fabric is turned into tube form,
- 2. Turning Machine:** It makes the face side into back and back side into face.

3.3.5 Photos of batch section:

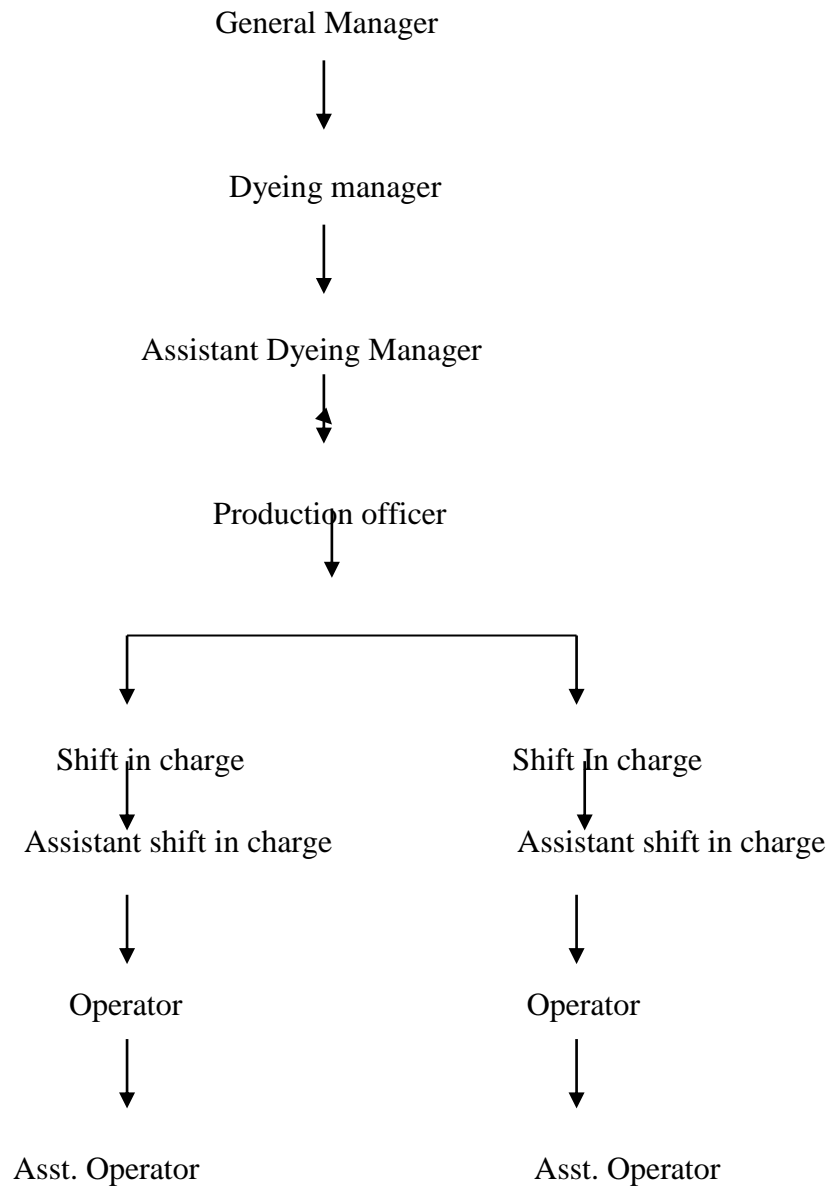


Fig: Batch Section

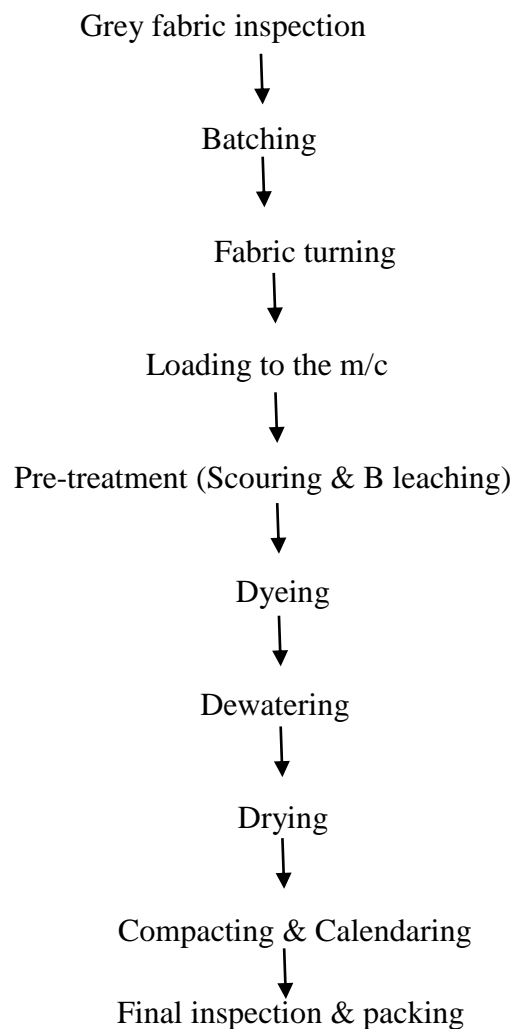
3.4 Dyeing Section

3.4 Dyeing Section

3.4.1 Flow Chart of Dyeing Section:



3.4.2 Process Sequence of Dyeing Section:



3.4.3 Dyeing in Alliance Dyeing Ltd.

In Aristocrat Fashions (Pvt.) Ltd., dyeing process mainly occurs in discontinuous process. That's why here process is very easy and can be described with easy manner. Here order is mainly comes for knitted fabric dyeing like single jersey, double jersey, Lycra single jersey, terry or locust fabric, mainly produced from cotton or polyester. That's why here mainly two dyes are used.

1. Reactive dyes for Cotton
2. Disperse dyes for Polyester.

Besides this pigment dyeing is done for garment dyeing.

3.4.4 Dyeing Machineries in Alliance Dyeing Ltd.

In Aristocrat Fashions (Pvt.) Ltd. there mainly two types of machines .One is winch dyeing and another is jet dyeing machines. There are two floors or two section of dyeing. Such as

Dyeing floor 1: This floor consists of 13 machines of well equipped high-tech such as ATYC from Spain, THIES from Germany, FONGS from China, and AK from Taiwan.

Dyeing floor 2: This floor also consists of 9 machines including sample dyeing machine with mentioned company made. Here total capacity 25000 kg/day.

3.4.5 Machine Specification of Dyeing machine

Dyeing Floor -01				
SL	Brand	Origin	Capacity(kg)	Max.Temp
1	ATYC	SPAIN	300	135
2	ATYC	SPAIN	600	135
3	ATYC	SPAIN	600	135
4	ATYC	SPAIN	900	135
5	Fong's	CHINA	1000	98
6	Fong's	CHINA	1000	98
7	AK	TAIWAN	200	98
8	AK	TAIWAN	200	98
9	Fong's	CHINA	1500	98
10	Fong's	CHINA	1500	98
11	Thies	Germany	480	98
12	Thies	Germany	300	98
13	Thies	Germany	700	98
S2	ATYC	SPAIN	80	135
S3	Fong's	CHINA	100	130
S4	Fong's	CHINA	30	130

<u>Dyeing Floor 02</u>				
SL	Brand	Origin	Capacity(kg)	Max.Temp
1	Thies	German	150	130
2	Thies	German	300	130
3	Thies	German	300	130
4	Thies	German	500	130
5	Thies	German	500	130
6	Thies	German	800	130
7	Thies	German	600	130
	Thies			
8	imaster	German	1600	130

3.4.6 Different Dyes Used in Alliance Dyeing Ltd. :

1. Reactive Dyes:

Sunsol Black EPHC	Sun fix Blue SNR	Sunsol Orange SRN
Sunsol Black EPHC	Sun fix Yellow SPR	Sunsol Yellow SRN
Sun fix Yellow S3R	Sun fix Red SG	Sunsol Red SBN
Sun fix Red S3B 150%	Sun fix Blue SBRN	Sunsol Blue BB 133%
Sun fix Navy SBF	Sun fix Red MFD	Sunsol Blue SRN
Sunsol Black B	Sun fix Yellow MF-3RD	Bezaktive Black S Max
Sun fix Yellow SN2R	Sun fix Yellow SPD conc.	Bezaktive Red S3B
Sun fix Red SN2BL	Sun fix Red SPD	Bezaktive Yellow S3R
Sun fix Blue SNR	Sun fix Navy SPD	Bezaktive Red SLF

2. Disperse Dyes:

Disperse Yellow 8GFF200%
Taicron Black HWTECO
Taicron Black WW-GST
Taicron Blue2RHWT
Taicron Blue EACT
Taicron Blue XFT
Taicron Brill Blues-GLT
Taicron Deep Red XF-T
Taicron Golden yellow WRST
Taicron Navy Blue HWT
Taicron Navy Blue XF-T
Taicron Red E-ACT

3.4.7 Different Chemicals & Agent Used in Alliance Dyeing Ltd. :

Chemical:

- ❖ Acetic Acid
- ❖ Cautic Soda
- ❖ Glauber Salt
- ❖ Oxalic Acid
- ❖ Soda Ash

Agent:

- ❖ Leveling Agent
- ❖ Reactive Fixing Agent
- ❖ Sequestering Agent
- ❖ Soaping Agent
- ❖ Bleaching Agent
- ❖ Anti Creasing Agent
- ❖ Reducing Agent
- ❖ Oxidizing Agent

3.4.8 Different Production Parameter in Dyeing in Alliance Dyeing Ltd.:

PH:

During peroxide bleaching & scouring:	9-12
During enzyme treatment	: 4.5-5
Before addition of levelling	: 6-6.5
During addition of salt	: 6-6.5
Reactive Dyeing	: 10.5-12
Disperse Dyeing	: 4.5-5.5

Temperature:

For cotton Scouring	: (95-100) ⁰ c
For cotton Bleaching	: (50-60) ⁰ c
For cotton hot wash	: (70-80) ⁰ c
For cotton acid Wash	: (60-70) ⁰ c
For cotton Dyeing	: For hot Brand 80 ⁰ c & For cold Brand 60 ⁰ c

Time:

For scouring and Bleaching	: (95-98) min.
For reactive dyeing	: 60 min.
For disperse Dyeing	: 45 min.

M:L Ratio:

1:6 to 1:10 for reactive Dyeing

3.4.9 Photos of Machine used in Dyeing Floor:



Dyeing machine

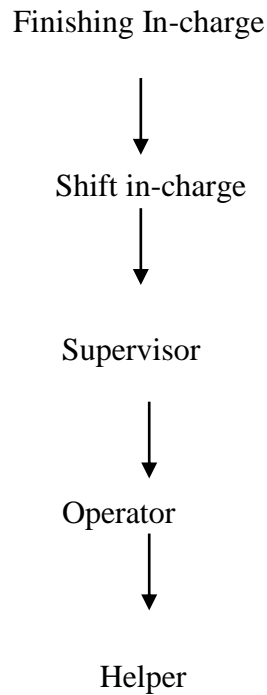


Sample Dyeing m/c

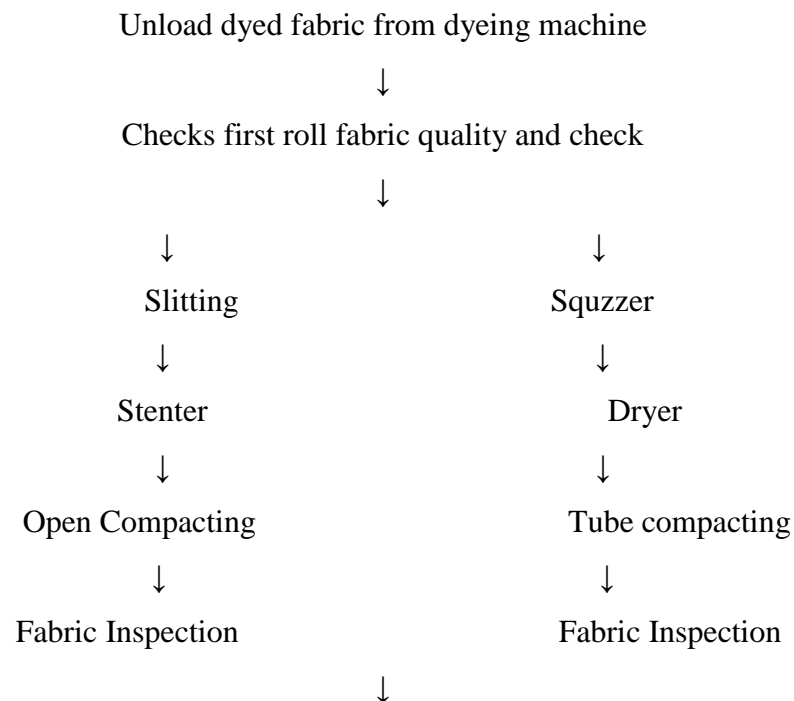
3.5 Finishing Section

3.5 Finishing Section

3.5.1 Flow Chart of finishing section:



3.5.2 Finished Fabric Process Flow Chart:



Fabric physical and chemical test



Finished Fabric Store



Finished fabric Delivery to Cutting

3.5.3 Machine Description of Finishing Section:

1. Tubular Dewatering & De-twisting:

Type	Tubular Dewatering & De-twisting
Manufacturer Name	Corino
Country	Italy
No. of Set	01

2. De Twisting slitting:

Type	Slitting & De-twisting
Manufacturer Name	Un-apex
Country	Taiwan
No. of Set	01

3. Dryer:

Type	Dryer
Manufacturer Name	Muzzi
Country	Italy
No. of Set	01

4. Stenter (2) 9 & 6 Chamber:

Type	Stenter
Manufacturer Name	Muzzi
Country	Italy
No. of Set	01

5. Open Width Compactor:

Type	Open Width Compactor
Manufacturer Name	Muzzi
Country	Italy
No. of Set	01

5. Tubular Compactor:

Type	Tubular Compactor
Manufacturer Name	Falcon
Country	USA
No. of Set	01

3.5.4 Different Finishing Process:

For Tubular Fabric Following Sequence is followed:

Tube Fabric, Any rib without body fabric



Hydro-extractor

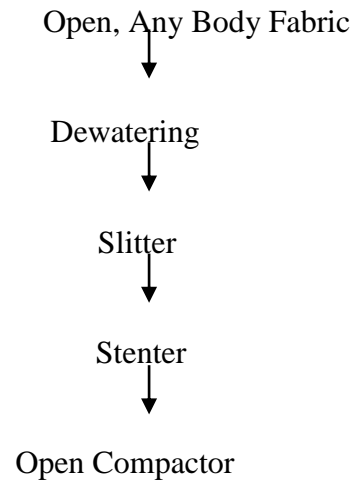


Dryer



Tube Compactor

For Open Fabric Following Sequence is follows:



3.5.5 Functions of Machine in Finishing Section:

Dryer Machine:

Function:

- ❖ To Dry The fabric
- ❖ To control the overfeed system
- ❖ To control the vibration which increase the G.S.M

Dryer Machine (tube)

Function:

- ❖ To Dry the fabric
- ❖ To control the overfeed System
- ❖ To control the vibration which increase the G.S.M

Name: Slitting Machine:

Function:

- ❖ To open tube fabric
- ❖ Slitting of tubular fabric
- ❖ To remove water
- ❖ To control fabric Dia

Name: Stenter Machine:

- ❖ To control the G.S.M
- ❖ To control dyeing Shade
- ❖ Moisture of the fabric is controlled.
- ❖ Width of fabric is controlled
- ❖ Heat setting is done by the Stenter for Lycra fabric, synthetic and blended fabric.
- ❖ Fabric is dried by Stenter

Name: Squeezing Machine:

Function:

- ❖ To remove water from fabric.
- ❖ To increase & decrease the fabric diameter by the spreader.

Name: Compacting Machine:

Function:

- ❖ To control the Shrinkage of the fabric
- ❖ To control the shade of the fabric
- ❖ To control the diameter
- ❖ To control the G.S.M

The following defects are found in the final inspection:

- Uneven shade
- Oil spot
- Naps
- Crease mark
- Machine Stoppage Mark
- Line Mark
- Pick missing
- Dead cotton

3.5.6 Photos of Finishing Section:



Slitting m/c



Squeezer m/c



Stenter m/c

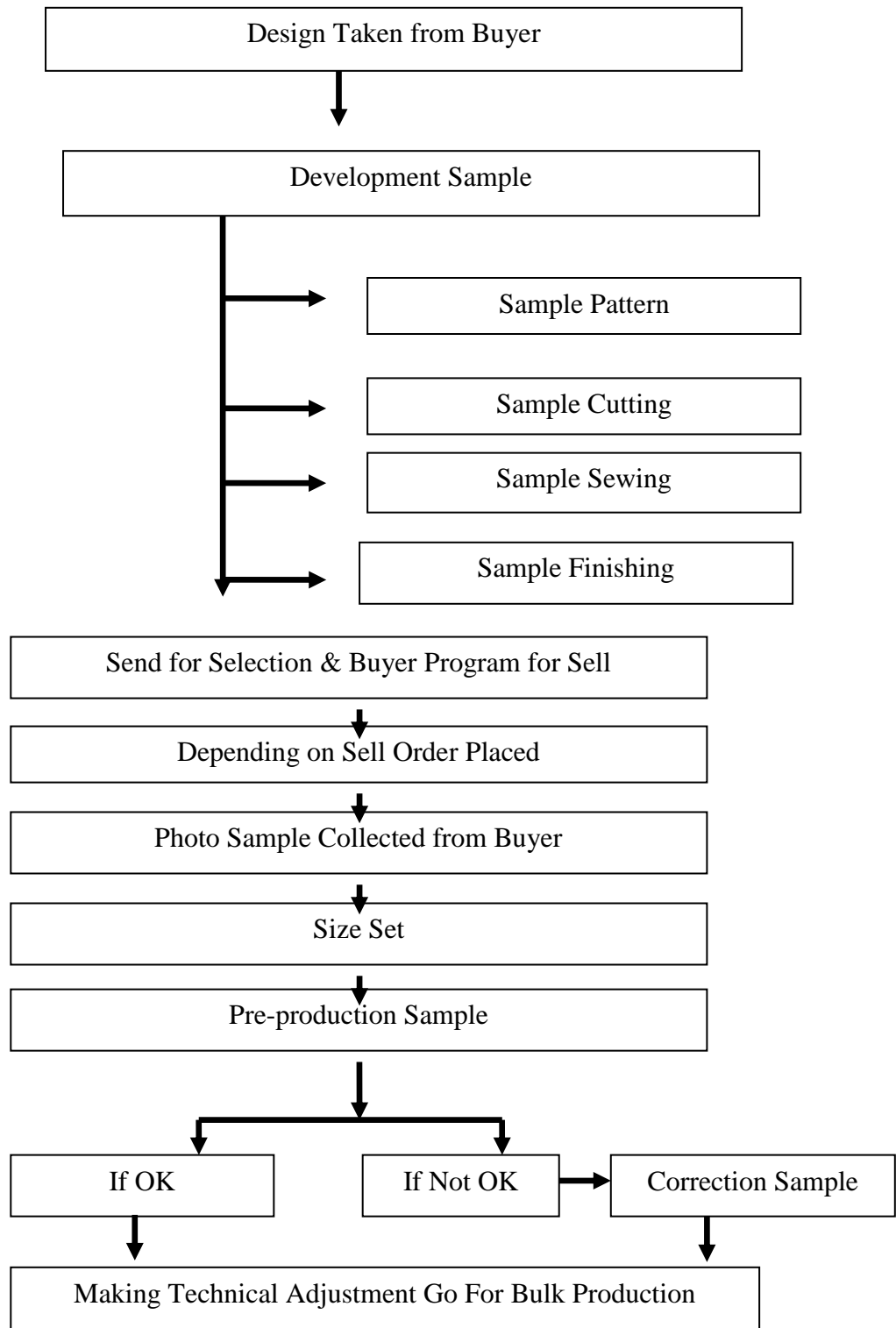


Compactor m/c

3.6 Garments Section

3.6 Garments Section

3.6.1 Sequence of Sample Garments Section Operation:



3.6.2 Different operation of sewing machine in Aristocrat Fashions Ltd.:

Lock stitch m/c or plain stitch m/c:

- It is the most common m/c which is extensively used in garments industry.
- More secured sewing
- No of needle: one or two.
- Stitch density variable(maximum 5mm)

Chain stitch:

- The machine which from chain stitch with one or more threads are called chain stitch m/c.
- No of needle: One or more.
- Stitch length:1.5mm-4.5mm
- Different types of feed mechanism can be used.

Over lock:

- No of needle: One or multiple needle can be used.
- No of thread: 2-5 threads are used.
- Maximum stitch length is 4mm,but it can easily be adjusted by using push button system.
- SPM:6500-8500

Flat lock m/c:

- This is special type of m/c.
- Up to four needles can be used.
- Stitching can be done by using 4-9 threads.
- Stitch density:8-16 per inch.
- SPM:6000

Blind Stitch m/c:

- Special type of sewing m/c and very expensive.
- Special type of sewing is formed.
- Curved needle used.
- Stitch length:3-8mm
- SPM:2500
- This m/c is used for attaching hemming where the less force is required.

Button hole machine:

- Brand name: Juki.
- Origin: Japan.
- Model: LBH-1790SS
- Needle type: DP×5
- Stitch type: lock stitch.
- Stitch design: 19.
- Rpm: 800-4000.

Button attach machine:

- Brand name: Juki.
- Origin: Japan.
- Model: LK-1903A-SS.
- Needle type: DP×5, DP×17.
- Stitch type: lock stitch.
- Needle: 01.
- Rpm: 400-2700.

3.6.3 Garment faults:

- ❖ Oil spot
- ❖ Rib uneven
- ❖ Label side
- ❖ Open seam
- ❖ Dirty spot
- ❖ Pocket hi-low
- ❖ Point up-down
- ❖ Skipped stitch
- ❖ Box uneven
- ❖ Fabric hole
- ❖ Part shading
- ❖ Lycra out
- ❖ Needle hole
- ❖ Twisting
- ❖ Broken stitch
- ❖ Displace button

3.6.4 Photos of Garments Section:



Plain lock M/C



Overlock M/C



Flat lock M/C



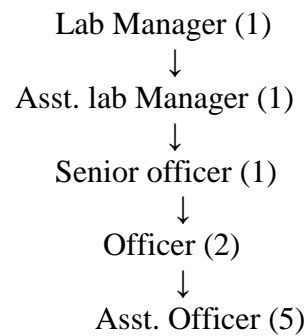
Button attaching M/C



3.7 Quality control Section

3.7 Quality control Section

3.7.1 Flow Chart of Quality laboratory:



3.7.2 Different Types of Test:

Three types of test are available in Aristocrat Fashions (Pvt.) Ltd..

1. Physical Test
2. Color fastness Test

Physical Test

1. Fabric width (Diameter)
2. Fabric weight (GSM)
3. Dimensional Stability (Shrinkage)
4. Twisting (Spirality)
5. Pilling Resistance
6. Fabric strength
7. Flammability
8. Abrasion Resistance

Color fastness Test:

1. Light Fastness
2. Wash Fastness
3. Rubbing
4. Perspiration Test
5. Water Fastness

3.7.3 Assessment of Aristocrat Fashions Ltd.:

Change in color:

From uncovered portion of sample change in color is compared with the untreated dyed sample on contrast basis with the help of grey scale. The grade of contrast in grey scale is the wash fastness of the sample.

Staining:

The staining is measured by staining grey scale. It is also measured on the basis of contrast.

3.7.4 Machine of Quality Control department in Aristocrat Fashions Ltd.:

Fig : Pilling tester



Fig: Machine of Formaldehyde tester

Fig: Pilling tester



Fig: Yarn Evenness Tester



Fig: Xenon lamp tester of light source



Fig: Crock meter or Rubbing fastness tester



Fig: Drying m/c

3.8 Utilities of Aristocrat Fashions (Pvt.) Ltd.

3.8 Utilities of Aristocrat Fashions (Pvt.) Ltd.

3.8.1 Available utilities of Aristocrat Fashions (Pvt.) Ltd.:

The following utility facilities are available at Aristocrat Fashions (Pvt.) Ltd..

- ❖ Water.
- ❖ Steam.
- ❖ Electricity.
- ❖ Gas.
- ❖ Compressed air.
- ❖ Covered Van for Transportation.

3.8.2 Sources of utilities:

Water	: Natural water by own supply pump
Steam	: Own supply from Boiler
Electricity	: Generator & PDB
Gas	: Titas Gas Transmission & Distribution Co. Ltd.
Compressed Air	: Own supply from Air compressor

3.8.3 Water supply:

Water is supplied by pump. Pump supplies water on the basis of pressure. Pump pressure ranges 0-10 bar. The pump is operated at 2-4-bar pressure. 3 motors are used for uniform water supply. These are automatic on-off system motor. When the pressure is reduced to the desired level (2 bars) then the motor is turned on. Similarly when the pressure is above the desired level (4 bars) then the motor is turned off. So, it has variable water supply capacity & supplies water as required. The water, which is used for cooling, is brought to a tank & again supply by a pump.

3.8.4 Operation Procedure of Boiler:

These two types of boiler are horizontal fire boiler. At first the boilers take NTA (Natural gas) from the gas line and suck air. Then through the air and gas inside the boiler. For this reason the water is boiled water and produce steam. The steam is supplied by the steam line in the different section.

3.8.5 Electricity supply:

It is totally impossible to continue the production without electricity. A frequent supply of electricity is very essential for soundless production. Here all the machines in washing and dyeing section are provided electricity by the govt. electricity with own standby generator of the industry. Fakir Apparels has two generators for power supply to ensure continuous dyeing & knitting operation and help to fulfill their target production. One is gas generator & other is diesel generator.

Chapter 04

Impact of Internship

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Impact of Internship

As a part of course curriculum of Daffodil international university, students are sent for industrial attachment for two months in related field. During the attachment students worked as a trainee textile engineer and had to attend the official working days in general working times i.e. 9 am to 5 pm.

4.1 Knitting section:

1. Here we enhance our University learning experience of knitting through involvement in practical field, thus enabling me to relate theoretical concepts with practical situations.
2. In knitting department we learn many things. Like the floor layout, machine specification, Flow Chart of knitting department, yarn count, fabric type, machine type, production capacity, production calculation, count wise GSM, cam arrangement, derivative of single & double jersey, grey fabric inspection process, types of knitting machine , the total procedure of knitting etc.
3. Here, We first introduce with industrial manner. Like how the staff communicate with each other, higher management & the worker.
4. It appreciated us the relevance of my academic work and now we can apply this to new situations.
5. And now we are fully confident that all of these knowledge that we have gained from knitting sector obviously influence our future carrier to make us an efficient engineer.

4.2 Dyeing section:

1. In dyeing department we learn many things. Like the floor layout, machine specification, Flow Chart of dyeing department, Dyes, pigment, machine type, production capacity, stock solution calculation, how to control P^H, How to remove hardness, and batch card reading.
2. Here, We first introduce with industrial manner. Like how the staff communicate with each other, higher management & the worker.

3. It appreciated us the relevance of our academic work and now we can apply this to new situations.

4. And now we are fully confident that all of these knowledge that we have gained from dying section will influence our future carrier to make us an efficient engineer.

4.3 Garments Section:

1. As we hope to make our carrier in merchandising department, it was a very much important section for us to enhance us with knowledge & we hope that we make the fulfillment of it. It develops our ability to evaluate issues and situations critically and propose well considered options and solutions.

2. In the garments department it included with many sub department. These are sample section, cutting section, sewing section, printing, embroidery, finishing and industrial engineering & merchandising section. As it is a knit composite we visit all of these very luckily. We learned there how to make pattern & marker, working sequence of pattern & marker making, working sequence of cutting & sewing section, various types of sewing machine & their operation, sewing sequence of basic t-shirt & polo shirt, working sequence of finishing section, printing section, types & way of printing, embroidery, merchandising section and their work like follow up process & gain a clear concept all about that.

3. Here we improve our problem solving activities in the workplace because in merchandising Department we see some types of matter like printing fault in floor & their solution by the merchandiser.

4. We think, we develop our communication skills by staying in the floor of merchandising section & understand this is the key to success.

5. We think it enhance our ability to accept responsibility, work independently, manage our own time and schedule our work.

Chapter 05

Conclusion

Chapter 05

Conclusion

We have completed our Industrial Training successfully by the grace of Allah. Industrial Attachment sends us to the expected destiny of practical life. **Aristocrat Fashions (Pvt.) Ltd.** is one of the best factories in the textile field of Bangladesh. The completion of the six weeks industrial attachment at Aristocrat Fashions (Pvt.) Ltd. gave us the inspiration that factory is one of the appropriate destiny to implement the theoretical knowledge. From this industrial attachment we got the details idea about the factory environment, production process, total management, store & inventory process, maintenance, utility etc.

Aristocrat Fashions (Pvt.) Ltd. is well equipped and the working environment is excellent. The relation between top management to bottom level is so nice. We are lucky to get the opportunity of having training in this mill. The factory runs by a number of efficient Textile Engineers, Skilled technical & Non-technical persons.

All the Textile Engineers, technical & Non-technical persons are very sincere, co-operative and helpful. We wish good luck to them and also for this factory.