



Daffodil
International
University

REPORT ON

Industrial Attachment

Beximco Textile Limited

Sarabo, Kashimpur, Gazipur

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“Industrial training”

The result submitted in this report is entirely of the candidate’s own investigations.

Approved By

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General Manager

Weaving

Beximco Textiles Ltd.

Beximco Industrial Park, Sarabo, Kashimpur, Gazipur

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

DECLARATION

We hereby declare that the work which is being presented in this thesis entitled, “**Industrial Attachment**” is original work of us, has not been presented for a degree of any other university and all the resource of materials uses for this thesis have been duly acknowledged.

Golam Morshed

Date

This is to certify that the above declaration made by the candidates is correct to the best of my knowledge.

Mohammad Hosain Reza

Supervisor

Date

CHAPTER-1

INTRODUCTION

1.1 Executive Summary:

Since independence Bangladesh has come a long way, and the Beximco Group of Companies is honored to have had a role in the development of its parent nation. The Group has worked with a simple philosophy; identify an important need and then do everything possible to successfully satiate that need, in a manner, which best facilitates the well being of the nation. As a result Beximco has focussed on those industries, which give Bangladesh a competitive advantage in the global market place in many cases creating the industries for the first time in the region.

Presently Beximco Group comprises twenty one companies of which five are listed with the Dhaka Stock Exchange employing over 35,000 personnel and is the largest private sector industrial conglomerate in the nation. . In the course of its growth, it has created industrial and management capabilities that will serve the country for generations to come. It was the first local conglomerate to embrace an international corporate structure which is the foundation of its success. BEXIMCO's industrial businesses include jute, textiles, basic chemicals, pharmaceuticals, and ceramics

Beximco Textiles Ltd. (the "Company") was incorporated in Bangladesh as a Public Limited Company with limited liability on 8 March 1994 and commenced commercial operation in 1995 and also went into the public issue of shares and debentures in the same year. The shares of the Company are listed in the Dhaka and Chittagong Stock Exchanges of Bangladesh.

Bextex Ltd. is the most modern composite mill in the region. Bextex Ltd. has an installed capacity of 299 high-speed air-jet looms in its weaving section and a high-tech dyeing and finishing section with a capacity of 100,000 yards of finished fabric per day. This company is located at the Beximco Industrial Park.

Strong business ethics, excellences in business, creating a productive work environment, continuous improvement through sound corporate governance and dynamic employee Engagement have been at the function of the organization to become the leading composite factory in Bangladesh.

1.2 Introduction:

Internship is the mandatory for all Textile students to fulfill his Bachelor Degree because it gives first hand experience of the complexities of practical life. As a result it benefits the students to relate our acquired knowledge with practical job life. The prime objective of the internship program is to work under organizational environment so that, we can turn up ourselves as professionals with practical experience and can get a opportunity to reconcile the theoretical knowledge with real life situation. The technical education & practical experience is the most important as well as the theoretical knowledge.

The main object of this project is to acquire knowledge about weaving & present condition of weaving market in Bangladesh. It also enables us to orient ourselves with the partial environment that wills works in future we systematically learned about various steps of fabric process & market.

Beximco Textile Ltd. Is a truly integrated undertaking. The textile division has the capability to offer a complete product range for the Export & domestic textile market. The goal of textile division is to become the preferred partner for high quality fabric & clothing from Bangladesh with high advance technology & an emphasis on developing local human resource. Textile division has a potential to make and important contribution to the nation's growing readymade garments Export sector.

1.3 Objectives of the study:

The study attempted to explore and examine the present market situation of Textile and the Marketing Implications in Textiles Industry specially the objective of the study as follows:

- 1) To know the present scenario of the market of BexTex Ltd.
- 2) To identify the marketing objectives of BTL.
- 3) To analysis the marketing mix strategies of BTL.
- 4) To learn about the product manufacturing policies of BTL.
- 5) To know the quality control system of BTL.
- 6) To know the market controlling policies of BTL.
- 7) To find out the operational procedure of BTL.
- 8) To learn about the different challenging segment of BTL.
- 9) To know about the marketing environment of BTL.

CHAPTER- 2

COMPANY PROFILE

2.1 Company Profile:

BEXIMCO Group is the largest private sector industrial conglomerate in Bangladesh engaged in diverse business areas. BEXIMCO comprises of five publicly listed companies and sixteen private companies. Bextex Ltd. is the most modern composite mill in the region. Bextex Ltd. has an installed capacity of 288 high-speed air-jet looms in its weaving section, and a high-tech dyeing and finishing section with a capacity of 100,000 yards of finished fabric per day. Beximco Weaving Ltd. produces specialized finishes of fabric for ex-port in finished as well as cloth only form.

Factory Name: Beximco Textiles Limited (BTL)

Owners of the mill:

1. A S F Rahman
Chairman.
2. Salman F Rahman
Vice Chairman.
3. M A Qasem
Director.
4. A B Siddiqur Rahman
Director.

Location: Beximco Industrial Park,
Chokroborty,
(5 km north from DEPZ)

Operational HQ

Beximco Textiles Limited,
Beximco Industrial Park,
Sarabo, Kashimpur, Gazipur.

Corporate HQ

17 Dhanmondi R/A, Road No. 2
Dhaka -1205, Bangladesh
Phone: 880-2-8611891-5, 8618220-7
9677701-5, 7701165

E-mail: beximchq@bextex.net

Web Site: www.bextex.net

2.2 History of Beximco Group:

To describe the history of Beximco Ltd. we would like to clarify the establishment of Beximco Group

1965-1975	Beximco was born
1965	New Dacca Industries Ltd.-Jute yarn Manufacturer, founded by Late Fazlur Rahman.
1972	Bangladesh Export Import Co. Ltd.-Private STA"s & International Trading.
1973	Beximco U.K. Branch.
1976-1989	Beximco Diversifies
1978	Beximco Foods Ltd.-Marine Food processing & Export
1979	Beximco Pharmaceuticals Ltd. – Pharmaceuticals Drug Formulation &Marketing
1980	Beximco Fisheries Ltd. - Shimp Farming & Export
1982	Expansion of jute Yarn Manufacturing-Shinepukur Jute Spinners Ltd.
1984	Beximco Computers Ltd.-Exclusive Dealers in IBM Computers & Software Development
1985	Beximco Apparels Ltd.-Garments Manufacturer& Export
1990 -1995	Beximco Expands
1990	Padma Textile Mills Ltd. (Phase i)
1991	Beximco Infusion Ltd.
1992	Beximco Synthetics Ltd.
1992	Padma Textile Mills Ltd. (Phase ii)
1995	Padma Textile Mills Ltd. (phase iii)
1996-1999	Beximco Preparing for the New Millennium
1996	Beximco Textiles Ltd.Beximco Knitting Ltd.Beximco Denims Ltd.
1998	Beximco Fashions Ltd.
1999	Shinepukur Ceramic Ltd.

2.3 BEX TEX PROFILE:

Date of incorporation	: 30 May, 1984
Commercial production	: 1990
Business line	: Manufacturing & Marketing of high Quality fabric.
Listing status	: Public listed company
Stock Exchange listing	: Dhaka & Chittagong
Authorized capital in Taka	: 3000 million Taka
Paid up capital	: 1,882.50 Million Taka
Factory Equipment	: Different types of weaving, Knitting, Dyeing, Cutting,

	Sewing, Finishing and Generator machines Supplied by mostly Germany, Italy, U.K, U.S.A., Japan, Taiwan etc.
Number of Shareholders	: 37,929
Number of Woven loom installed	: 293
Number of spindled installed	: 119,520
Number of Denim loom installed	: 56
Number of circular knit machine installed	: 30
Production Capacity	: 28 Million LM
Number of employees	: 5181

Sponsors:

World Bank, M Arubeni

CDC, DEG.

Sonali Bank

Local office- Motejheel C/A, Dhaka-1000.

City Bank N.A.

Chamber Building,

122-124, Motijheel C/A, Dhaka-1000.

State Bank of India,

24-25, Dilkusha C/A, Dhaka.

Standard Chatard Bank,

18-20, Motijheel C/A, Dhaka-1000.

Management Team:

1. Syed Naved Husain, Chief Executive Officer.
2. Sardar Ahmed Khan, Chief Operating Officer.
3. Ajay Pratap Singh, Chief Financial Officer.

Company Secretary:

Md. Asad Ullah, FCS

Different department:

Production oriented department:

1. Production planning & control
2. Yarn
3. Weaving
4. Knitting
5. Batch preparation
6. Dyeing
7. Finishing
8. Lab & Quality assurance
9. Garments (woven & knit fabrics)

10. Denim
11. Washing plant
12. Section wise rearch & development

Maintenance

Utility

Supporting department:

Personal administration
Marketing
HRD
Finance & accounting
IT

Total Turnover:

Mission:

BEX TEX Ltd. is a full service vendor with strong vertically integrated production facilities as well as creative & analytical capabilities which clearly set us apart from most other South Asian vendors. Each of their activities must benefit and add value to the Common wealth of our Society. We firmly believe that, in the final analysis we are Accountable to each of the Constituents with whom we interact; namely: our Employees, our valued Customers, our suppliers, our business associates, our Shareholders and our fellow Citizens.

Vision:

- Gain market leadership in high value added apparel in USA & Europe.
- Use “Innovation” & “Speed” as prime drivers, rather than cotton & cheap labor.
- Dominate these markets in high quality:
- Men’s, Women’s, Children dresses.
- Shirts (formal & Casual)
- Blouses (formal & casual), Skirts, Jackets.
- Jeans & Casual non – denim bottoms.
- Knitted tops & bottoms.

2.4 Location Lay Out



2.5 List of Buyers:





c



IZOD



Decree



ST. JOHN'S BAY®

2.6 All kinds of Products

Yarn Products :

- **Count** - Ranging from 6 – 120
- **Fiber** - Cotton (super – combed, combed, carded)
- **CVC** - 60% cotton, 40% polyester
- **TC** - 65% polyester-35% cotton; 100% polyester both regular and sewing thread

Lyocell, Tencel, Modal, Rayon, Viscose etc.

Fabric Products:

Solid Dyed	Yarn Dyed	Finishing
<ul style="list-style-type: none"> ☐ Poplins ☐ Twills ☐ Dobbies ☐ Oxfords ☐ Seersuckers ☐ Canvas ☐ Ribstops in 100% Combed Cotton ☐ CVC and CVS/TC ☐ Stretch ☐ Satten 	<ul style="list-style-type: none"> ☐ Ginghams ☐ Stripes ☐ Fil-a-fils/End-on-ends ☐ Chambrays ☐ Seersuckers ☐ Pinpoint ☐ Oxfords ☐ Dobbies ☐ Plaids in 100% Combed Cotton ☐ CVC and CVS/TC ☐ Stretch ☐ Satten 	<ul style="list-style-type: none"> ☐ Wrinkle Free ☐ Easy Care ☐ Peach ☐ Chintz ☐ Paper Touch ☐ Teflon Coated ☐ Water Repellent ☐ Water Resistance ☐ Rubberized

Dobby Designs

- ☐ Herringbones
- ☐ Bedford Cords/Coteles
- ☐ Waffles and various structures in 100% Combed Cotton
- ☐ CVC and CVS/TC

Yarn Count

- ☐ Ranging from 7 to 120

Knit Products

- **Jersey** : In 100% Combed Cotton, CVC, CVS/TC, and Lycra mix
- **Polo Pique** : In 100% Combed Cotton, CVC and CVS/TC
- **Back Pique** : In 100% Combed Cotton, CVC and CVS/TC
- **Herringbone** : In 100% Combed Cotton and CVS/TC
- **Popcorn** : In 100% Combed Cotton and CVS/TC

- **Bubble Knit** : In 100% Combed Cotton, CVC and CVS/TC
- **Crepe** : In 100% Combed Cotton and CVS/TC
- **Engineering Stripe** : In 100% Combed Cotton and CVS/TC
- **Feeder Stripe** : In 100% Combed Cotton and CVS/TC
- **Auto Stripe** : In 100% Combed Cotton and CVS/TC
- **Rib** : In 100% Combed Cotton and CVS/TC
- **Jacquard** : In 100% Combed Cotton and CVS/TC

Denim Products

- **Chambray** : In classic indigo colors ranging from 4oz to 5.5oz/Yd2
- **Denim (blue)** : In classic indigo colors ranging from 4oz to 15oz/ Yd2
- **Denim (black)** : In sulfur black colors ranging from 4oz to 15oz/ Yd2
- **Colored Denim** : In a variety of colors - both in sulfur & reactive dyes(warp dyed)
- **Over dyed Denim** : In a variety of colors on indigo blue & sulfur black
- **Bull Denim** : In a variety of reactive colors ranging from 10oz to 13oz/ Yd2 (piece dyed)
- **Stretch Denim** : In classic indigo colors ranging from 4.5 oz to 13.75 oz/Yd2

Special Yarn Products:

Plied Yarn, Fancy Yarn, Slub Yarn (7's to 20's), Stretch both Lycra (10's to 40's) and Spandex and other Core Spun, Multi count, Multi Twist etc.

Unique Wrinkle-Free product:

CORTEK-2000

Embedded filament core, which makes it permanently wrinkle-free. No resins or chemicals are used making the fabric ecologically friendly as well as highly durable.

The technology provides the soft, natural comfort of cotton and the wrinkle-free convenience and strength of synthetic fibre. Beximco is the manufacturer and exclusive licensee in bangladesh of Cortex-2000, USA.

COTRA DP 3.5 +

This is a 100% cotton fabric, which is chemically, treated in a hi-tech precure process which is safe, clean and ecologically friendly. The result achieved meets a durable press rating of dp 3.5+ (aatcc - 124).

Previously, this result could only be achieved by ammonia processing which is rapidly becoming obsolete, as it is hazardous to health and environment.

Beximco is the manufacturer and exclusive licensee in bangladesh of Cotra dp 3.5 +, USA.

CHAPTER-3

WEAVING PREPETORY

3.1 Flow chart of textile processing:

INPUT	PROCESSING STEPS	OUTPUT
Fibers	Yarn manufacturing	Yarn
Yarn	Fabric manufacturing (weaving/knitting)	Grey fabric
Grey fabric	Wet processing (dyeing, printing, finishing)	Finished fabrics
Finished fabrics	Garment manufacturing	Garments

3.2 Fabric:

Fabric is a flexible planar substance constructed from solutions, fibres, yarns or fabrics, in any combination. Textile fabrics can be produced directly from webs of fibres by bonding, fusing or interlocking to make non-woven fabrics and felts, but their physical properties tend to restrict their potential end-usage. The mechanical manipulation of yarn into fabric is the most versatile method of manufacturing textile fabrics for a wide range of end-uses.

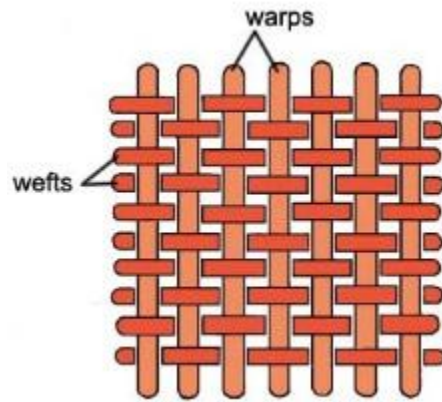
3.2.1 TYPES O FABRIC:

There are various types of fabric but the main classification of fabric is done on the basis of manufacturing process. The classification of fabric is shown below:

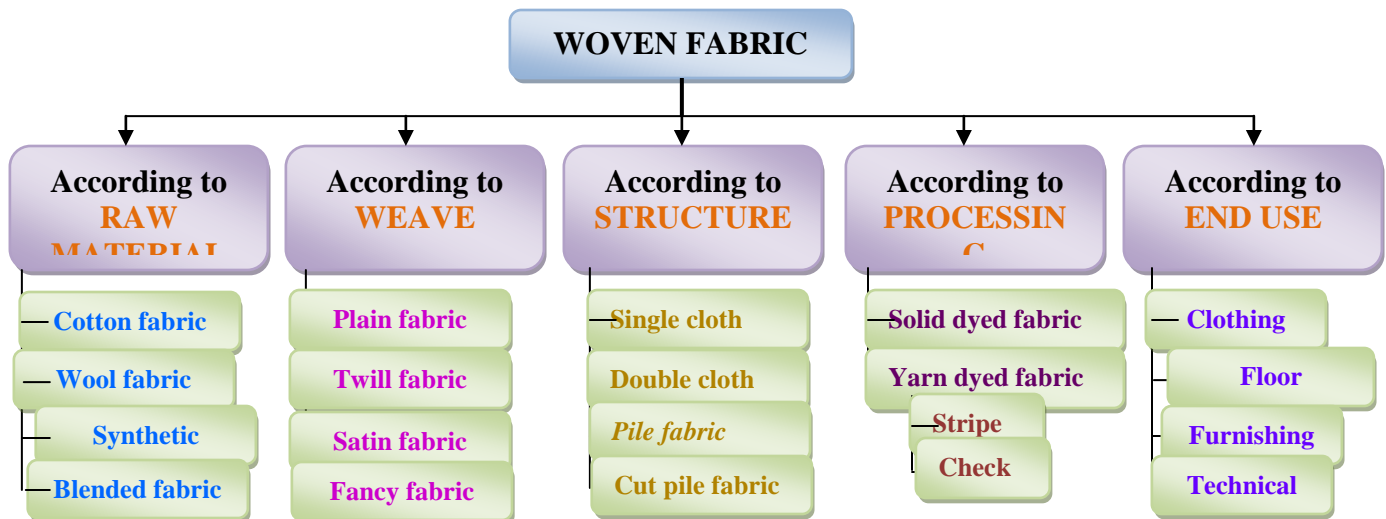
- ❖ **Woven fabric:** Woven fabric is produced in the weaving machine. In length direction of fabric is called warp yarn & the laid direction of fabric is called weft yarn. The warp & weft yarn are bound together by their interlacement called fabric structure.
- ❖ **Knitted fabric:** Knitted fabric is produced by knitting machine. In knitting machine on set of yarn is used. Loop of yarn are bound together by passing one series of loop through other series of loop & form fabric. Its 2 types 1. Warp knit 2. Weft knit
- ❖ **Felted or bonded fabric:** This type of fabric is directly produced from textile fiber. The fiber is laid on sheet form of regular thickness of fiber. Then the fiber is bound together by felting or bounding method.

3.3 Weaving:

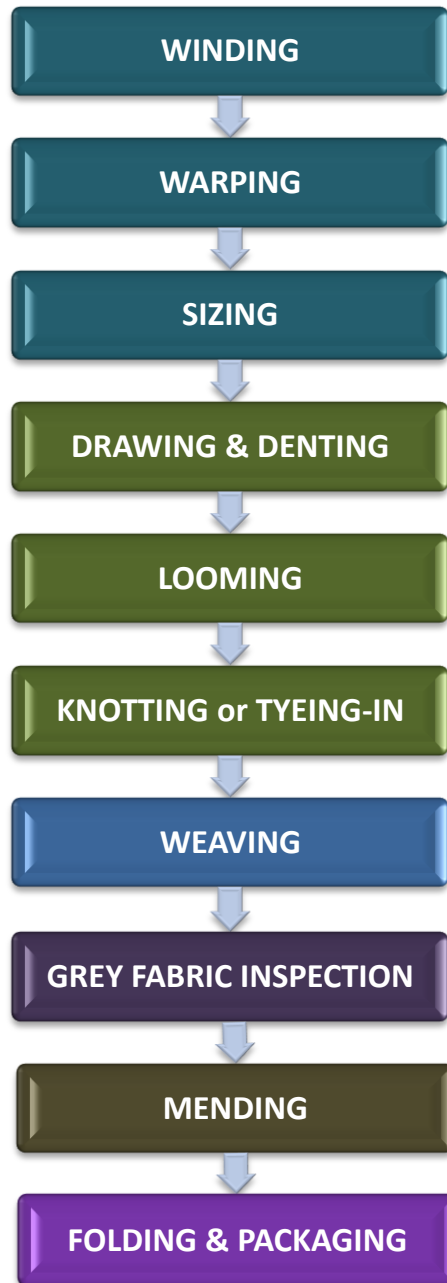
Weaving is the process of fabric manufacturing by interlacing at least one set of warp and one set of weft yarn at an angle of 90° or 30°-60° according the design.



3.3.1 Classification of Woven Fabric:



3.4 Flow chart of weaving



CHAPTER-4

WINDING

4.1 Definition:

Winding is the process of transferring yarns from ring, bobbin, hank etc into a suitable package is called winding. It may be electrical or mechanical. Winding provides an opportunity of cleaning and rewinding the package to a suitable package size, shape and build maintaining a sufficient tension to give the package a required density and stability.

4.1.1 Objects:

- To make a soft package for Yarn Dyeing, so that dyes can penetrate easily in the yarn.
- To produce a Hard Package for warping process or weft for Yarn Dyeing fabric production.
- To make a suitable package for specific end use i.e. warping beam.

4.1.2 Types of Winding:

SOFT WINDING:

- ✓ Grey yarn is wound on a special *Perforated Plastic* or suitable *Steel Spring Bobbin*.
- ✓ The package are made soften and bulkier to make it suitable for dye liquor penetration in yarn dyeing.

HARD WINDING:

- ✓ Yarn dyed package are converted to *cone/cheese* by rewinding on paper or plastic bobbin.
- ✓ Yarn package are comparatively hard.

4.1.3 Requirements of Winding:

- To maintain the size & shape of the package for end use.
- To build the package as much as economical.
- To build the package with appropriate tension.
- Winding speed should be uniform.
- The fault level in the yarn must be reduced to an acceptable level

4.2 MACHINE SPECIFICATION:

TOTAL WINDING MACHINE : 26

❖ M/C NAME	: R J K Winder.
Origin	: India.
Type	: Soft & hard winding.
No. of head	: 60X2.
RPM	: 650 m/min
No of m/c	: 04
Volt	: 440v

- ❖ M/C NAME : HARISH Winder.
Origin : Switzerland
Type : Soft & hard winding.
No. of head : 60X2.
RPM : 650m/min.
No of m/c : 04
Volt : 440v

- ❖ M/C NAME : FADIS Winder.
Origin : Switzerland.
Type : Soft Winding.
No. of head : 42X2.
RPM : 650m/min.
No of m/c : 02
Volt : 440v

- ❖ M/C NAME : Mettler.
Origin : Swizerland.
Type : Soft /Hard Winding.
No. of head : 60X2.
RPM : 600 (depends on **yarn count**).
No of m/c : 02
Volt : 440v

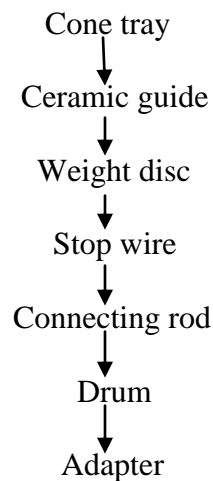
- ❖ M/C NAME : TEXTTOOL Winder.
Origin : Switzerland
Type : Hard Winding.
No. of head : 60X2.
RPM : 650m/min
No of m/c : 10
Volt : 440v

- ❖ M/C NAME : Kamitsu Winder.
Origin : Japan.
Type : Hard Winding.
No. of head : 60X2.
RPM : 650m/min
No of m/c : 04
Volt : 440v



Fig: Cone Winding M/C

4.3 Winding flow chart:



4.4 Winding Procedure:

The batch of soft spools after being dyed & dried is carried back to the winding section with a different identification paper each showing customer name, order no, yarn count, lot no, dyed shade, number of packages & weight. Quality control officers check the dyed yarn for correct shade, any variation in shade within the package or within the batch. Winding section record all the information from the form upon their register on order on basis. Supervising officers check the form for specific order no & find out the warping the requirement for yarn from the already worked out warp pattern scheme, where they require pieces of cone per each color is shown. The program is made to make desired pieces of cones per each color in the hard winding m/c either by-One to One rewinding or One to Two (or more as require) rewinding. After a batch of warp yarn of a specific order number is being ready it is placed in the carton as per color and a Batch Card is placed over the cartoon showing customer name, order no, yarn count, lot no, dyed shade, number of packages & weight. Thus it is ready to deliver in warping m/c. After warping card is made the rest of yarn of the specific order is rewarded color wise for use as weft which is also packed & leveled as before. Moreover the left over yarn that is found.

4.4.1 Operation Staff:

- PRODUCTION MANAGER.
- SUPERVISOR OFFICER.
- OPERATORS

4.4.2 Winding Faults:

- Formation of patches on to the yarn.
- Incorrect winding speed.
- Tension variation.
- Soft bobbin.
- Tight bobbin.
- No. of less removal of slubs, neps, dirt loose fibers.
- Incorrect shape of packages.
 - The faulty shape may be due to-
 - Faulty traverse motion.
 - Faulty yarn guide.
 - Faulty drum guide.
 - Faulty building device.
- Too much knot in the yarn.
- Excessive full bobbin.
- Two end winding.
- Slack knots or knots with long tail.
- Overlapping.
- Mixing of yarn of difference linear density.
- Ribbon formation.
- Stitching or jail formation.
- Snarl.
- Wild yarn.
- Entanglement of yarn.

4.5 Calculation:

➤ Production Per Spindle = $\frac{\text{no.of spindle} \times 60 \times 24 \times \text{RPM}}{1.6933 \times \text{count} \times 1000}$ Kg/day

➤ Production = $\frac{\pi \times \text{drum dia (inch)} \times \text{RPM} \times \text{no.of drum} \times 60 \times 24 \times \text{efficiency}}{36 \times 840 \times \text{count} \times 2.2046}$ Kg/ day

CHAPTER-5

WARPING

Lay Out of Warping:



5.1 Definition:

The parallel winding of a set of warp yarns from many yarn packages cone/cheese on a flanged bobbin (warp beam) at uniform specific tension and length is called warping.

5.1.1 Objects:

1. Wind the warp yarns on the warping beam to make it suitable for sizing.
2. In case of designable fabric wind the yarns section wise by sectional warping.

5.1.2 Types of Warping:

Direct Warping: for solid dyed grey production.

Sectional Warping: for yarn dyed grey production.

5.2 MACHINE SPECIFICATION:

TOTAL WARPING MACHINE : 06
SECTION : 03

- M/C MAME : KAWAMOTO
ORIGIN : Japan
CREEL CAPACITY : 550
CREEL TYPE : v shape
WARPING SPEED : 550m/min
REED TYPE : Zigzag reed.
M/C type : Direct

- M/C MAME : BENINGER
MODEL : Zc-R-1800
ORIGIN : Switzerland
CREEL CAPACITY : 640
CREEL TYPE : v shape
WARPING SPEED : 600m/min
REED TYPE : Zigzag reed.
M/C type : Direct
No. of m/c : 02

- M/C MAME : BENINGER
MODEL : Supertronic-2200
ORIGIN : Switzerland
CREEL CAPACITY : 720
CREEL TYPE : v shape
WARPING SPEED : 600m/min
REED TYPE : Plain reed.
M/c type : Sectional
No. of m/c : 03

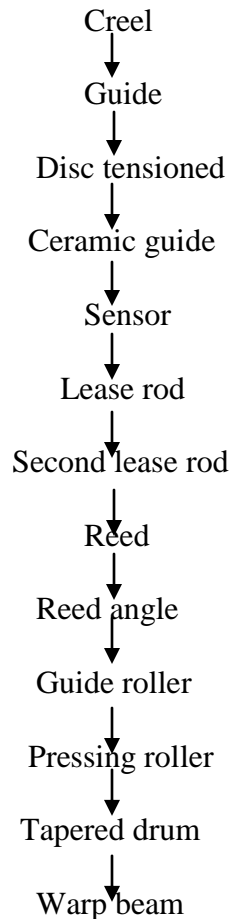


Fig: Direct Warping Machine



Fig: Sectional Warping Machine

5.3 Flow chart of warping process:



5.4 Warping Procedure:

- Based on weave plan supervising officer and/or senior operator receive the required dyed yarn from winding section of specific customer order no. as per color and quantity.
- As per worked out warp pattern scheme senior operator arrange the yarns on the creel following the color pattern. Quality control officer will check any shade variation within the same color. If any variation is found, necessary steps should be taken to use them lot by lot. Quality control officer will sign on the warping program register.
- The operator & creel man draw the yarn through feeler wire on creel & splits of the leasing reed & then through guide reed & tie in.
- Then the main switch of main control panel is turned on & cone alignment is done by respective switch.
- Senior operator will put necessary data entry on the warping data sheet by taking some figure from yarn warped record register & by calculating some values as per prescribed

formula in the m/c manufacturers operating instruction book. He will also input these required figures in the control data unit of the m/c.

- Hook warps section on to the drum by opening & closing the guide roller.
- Start warping by pressing foot pedal at the head stock. Machine will run slowly at crawl speed. After 15 meter being wound on, stop the m/c and insert leasing threads. Then again start m/c with run switch at the head stock and finish warping of the section.
- Then by section alignment switch set the m/c ready for next section. Repeat step-7, and 8 to finish the warping.
- All the section that are wounded up over the drum is doffed in the beam from by beaming process as follows:
 - ❑ Turn the switch from warping to beaming.
 - ❑ Set an empty beam in the beam during unit by beam barrel by an adhesive tape and rotate the beam manually.
 - ❑ Set beam flange with measured warp width.
 - ❑ Set winding tension value range from 1-6 (calculated value as attached).
 - ❑ Run at crawl speed to see alignment either left side or right side by drum alignment switch.
 - ❑ Set the winding speed within a range of 1-160 m/min, depending on yarn quality.
 - ❑ Run the m/c with run switch.
 - ❑ Doff the beam by unloading switch.
 - ❑ Warping data sheet is failed as a production record. Each beam is set with a warping data sticker for identification in the next process.

5.4.1 Components of Warping Machine:

➤ CREEL:

- ❑ Cone Holder : Hold the cone or arrange the cone in the creel.
- ❑ Yarn Guide : To guide the yarn.
- ❑ Tension Rod : Maintain yarn tension by upper & lower disc tensioned.
- ❑ Ceramic Guide Disc : To guide the yarn from creel to warping m/c.
- ❑ Auto Stop Sensor : To sense the breakage yarn.
- ❑ Creel Panel Board : Display where the yarn break.

➤ HEAD STOCK:

- ❑ Guide Reed : Uniformly spread the yarn over the warp width.
- ❑ Adjustable V-Reed : Guides the yarn to follow the fixed path.
- ❑ Speed Controller : control the speed, crawl speed or full speed.
- ❑ Pressure Roller : Exert required pressure to the warp yarn.
- ❑ Measuring Device : Measures the length of the yarn.
- ❑ Beam Bracket : Holds the warp beam.
- ❑ Emergency Stop Device: For emergency stop.

- Automatic Knock Off : Stop m/c at achieving required length of beam or in case of
Yarn breaks.
- Electrical Panel Board: To give the automatic controlled function.

5.5 Faults & Remedies of Warping:

Warp off centre of the beam:

Due to not carefully placing of creel wraith and flanged beam.

Remedy: Beam and wraith placed properly.

Ridgy or uneven warp beam:

This effect due to

Winding of small no of ends on larger beam.

When the dents are bent or the spacing between dents is uneven.

Mixed Count.

Remedy: Higher no of ends be used.

Crossed ends:

Due to

Faulty knotting after yarn breakage.

Tying of broken ends.

Loose warp.

Remedy: Knotting and tension controlled.

Snarl formation in the warp:

Due to over tension.

Improper twist.

Position of guide.

Remedy: By proper tension and twist.

Missing ends:

Due to Faulty stop device.

Exhausted cone or bobbin.

Absence of cone or bobbin on creel.

Remedy: By correct stop device is used.

Hard beam:

Due to high tension.

Remedy: Tension and pressure maintained.

Unequal length:

Due to faulty measuring device.

Remedy: correct measuring device.

Broken ends:

Remedy: To be joined carefully the yarn.

5.6 Calculation:

$$\text{Feed} - 1 = \frac{\text{deci tex} \times \text{cone fig}(0.5) \times \text{total ends}}{\text{warp density} \times \text{warp width}} \quad \text{dtex} = \frac{5905.4}{Ne}$$

$$\text{EndsPercm} = \frac{\text{total ends} \times 10}{\text{warp width}}$$

$$\text{Ends Per Section} = \frac{\text{total ends}}{\text{creel ends}}$$

$$\text{No. of Section} = \frac{\text{total ends}}{\text{ends per section}}$$

$$\text{Ends Per Dent} = \frac{\text{total ends} \times \text{dent density}}{\text{warp width}^5}$$

Two V- Reed is used according to yarn density-
1.1 1.2

$$\text{Cone Length} = \text{Cone weight without package} \times \text{count} \times 1.6934 \text{ m}$$

$$\text{Warp Length} = \frac{\text{cone length} - 1\% \text{ of this cone length}}{\text{section no}} \text{ m}$$

$$\text{Breakage}\% = \frac{\text{Break} \times 1000000}{\text{Total ends} \times \text{fabric length}}$$

$$\text{Production} = \frac{\text{warping speed} \times 60 \times 24 \times \text{efficiency}}{\text{average no. of beams per set}} \text{ m/min}$$

CHAPTER-6

SIZING

Lay Out of Sizing:



6.1 Definition:

The process by which warp yarn is chemically treated for strengthening, reducing hairiness and to make more flexible. The main purpose for sizing warp yarns is to encapsulate the yarn with a protective coating. This protective coating reduces yarn abrasion that takes place during the weaving operation and reduces yarn hairiness preventing adjacent yarns from entangling with one another at the weaving machine. Too much size causes yarn chaffing and excessive shedding of size particles at the weaving machine, and too little size causes excessive yarn abrasion resulting in dye streaks, clinging, broken and entangled ends resulting in low weaving efficiencies

6.1.1 Objects:

- To increase the smoothness of the warp yarn.
- To reduce hairiness of warp yarn.
- To increase the strength of warp yarn.

6.2 Types of sizing:

Sizing may be classified into *four* types on the basis of size% on the yarn.

Light Sizing : 10% to 15%.

Pure Sizing : 16% to 25%.

Medium Sizing: 26% to 50%.

Heavy Sizing : 50% to 100%.

6.3 Machine specifications:

TOTAL SIZING M/C : 03

SECTION : 01

- M/C NAME : BENNINGER ZELL SIZING M/C.
- ORIGIN : GERMANY.
- MODEL : BENPROCOMB ZB-20 SWATKECT 4/4/4.
- R.P.M. : 160 m/min.
- SIZE BOX : 2.
- BEAM CREEL : 20.
- VOLTAGE/FREQUENCY : 400V/50Hz
- CONTROLLED VOLTAGE : 20V/DC.
- MAIN FUSE : 20 A.
- WORKING WIDTH : 2200 mm (between the flanges).
- SIZING BATH : Working Width 2200mm, Roller Width 2400mm, 2 Dip Rolls, 2 high pressure nip rolls with automatic regulation of the squeezing pressure.

DRYER : Steam Pressure 3.5-5 bar-147°C, automatic tension regulation by PC, Stainless Steel aspiration top with 2 ventilators.

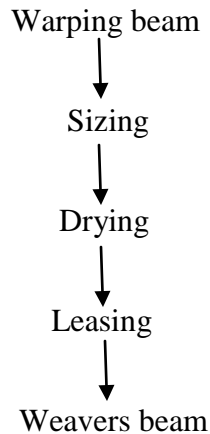
➤ M/C NAME : BENNINGER ZELL SIZING M/C.
ORIGIN : GERMANY.
MODEL : BEN PROCOMB ZB-20 SWATKDZT 4/6 BBg.
R.P.M. : 160 m/min.
SIZE BOX : 1.
BEAM CREEL : 1.
VOLTAGE/FREQUENCY : 400V/50Hz
CONTROLLED VOLTAGE : 20V/DC.
MAIN FUSE : 20 A.
WORKING WIDTH : 2200 mm (between the flanges).
SIZING BATH : Working Width 2200mm, Roller Width 2400mm, 2 Dip Rolls, 2 high pressure nip rolls with automatic regulation of the squeezing pressure,

DRYER : Steam Pressure 3.5-5 bar-147°C, automatic tension regulation by PC, Stainless Steel aspiration top with 2 ventilators.



Fig: Sizing Machine.

6.4 Sizing Process flow chart:



6.5 Chemical Used for Sizing:

- **Adhesive Material:** modified starch, synthetic chemicals e.g. Kollotex 5, Avetex K.
- **Chemicals:** Quick solon SPR.
- **Acrylic Sizing Agent:** e.g. size CA20.
- **Lubricants Softener:** Sol wax -50, Mutton Tallow.

6.5.1 Sizing Ingredients-

- Starch.
- Binder.
- Softener.
- Anti-septic agent.
- Anti-static agent.
- Weighting agent.

Starch:

Starch is the main sizing ingredients. They coat the warp yarn with a film & impart smoothness by binding the projecting fibers to the yarn surface. The viscosity of the size solution is controlled by the amount of starch, the recipe, degree of mechanical mixing, temperature & time of boiling.e.g. Potato, CMS (Carboxyl Methylated Starch), PVA (Polyvinyl Alcohol)

Binder:

These materials penetrate into the yarn & contribute in increasing yarn strength. These materials can be used as an independent gum & substitute of starch products. e.g. Polyacrylamide, Polyacrylonitrile etc.

Softener:

The hard fragile film is softened by addition of softener. They increase flexibility of yarn after sizing; e.g. Tallow, Soap, Japanese wax, Modified wax, Artificial wax.

Anti-septic agent:

The size recipe consist starch which the protein substances in the favorable medium for the development of the micro-organism (Fungi, Mould etc). The sized warp or grey cloth is stored for long time; the anti-septic agent is used to prevent the growth of micro-organism in the grey cloth.

Weighting agent:

These agents are used to increase the weight of the fabric. The fabrics are to be sold at grey stage or require the special type of finishing to get fuller appearance are sized with the weighting agent.

6.6 Size Cooking:

Before sizing is set to operate sizing liquor needs to be cooked, stored and transferred to the main m/c size box. Preparatory section in charge and/or sizing technologist gives the plan of size liquor quality and quality (recipe), considering the following factors:

- Material to be sized i.e. yarn composition.
- Diameter of material to be sized i.e. total number of ends.
- Total weight of material to be sized.

Size mixing man prepares the size liquor as per instruction and record in the production register. The preparing sequence is as follows:

- Main switch at the main control panel is switch on.
- Enter following set points for cooking process at the panel-
 - cooking temperature.
 - water quality.
 - cooking time.
- Enter temp. set point for storage tank.
- Open water valve with push button, water will come in.
- When Agitator impeller is covered with water then switch on agitator with the push button.
- Change with size powder, liquid size component etc. as per recipe.
- Close and lock cooker cover. Automatic cooking program will start-
 - Steam valve will open. Temp. will increase from 55°C to 85°C.
 - Agitator will be switched to higher speed.
- After cooking temp. has been reached-
 - Steam valve will close.
 - Cooking temp. is maintained at a constant valve by temp. controller.
 - Cooking time commence.
- After cooking time is finished-
 - Agitator will be switched from higher to lower speed and continue to run at that speed.
 - Cooker cover can be unlocked and opened to check viscosity and concentration.
- For reservation of cooked size to storage tank-

- Open manual valve of the corresponding tank.
 - Switched on size delivery pump with push button size is pumped in to the corresponding storage tank.
 - The size delivery pump is stopped automatically when the cooker is emptied or the maximum level in the storage tank is reached.
 - Switch on agitator of the corresponding tank with push button.
- This cooked liquor is transferred in the size box of the main m/c called sizing center. A steam pressure of 3.5 bar (maximum) is required in the sizing center for the following types of steam heating.
- Direct heating (controlled by pneumatic control valve) for the size feed box and the size box.
 - Indirect heating (controlled by automatic or manual operated valve) for vent in the size and size feed box (water bath). Temperature of water bath must be as close as possible to the boiling point of water.
- The direct heating system should be switched on as less as possible by temp. Control to maintain a constant temp. of about 80 to 85°C in order to avoiding diluting the size liquor where by preventing fluctuation in viscosity and hence varying degree of sizing.

Creel has a capacity up to 20 beams which are placed in groups. Each beam has special break system/tension control system in modern m/cs.

This zone consists of a size box, immersion roller, squeezing roller etc. this box is used to apply size solution to the yarn. The size box temp. is controlled by steam. Equal level of solution is maintained during sizing. The size pick up% depend on yarn structure, types and size of ingredients, viscosity of the solution, squeezing pressure, roller hardness, m/c speed etc.

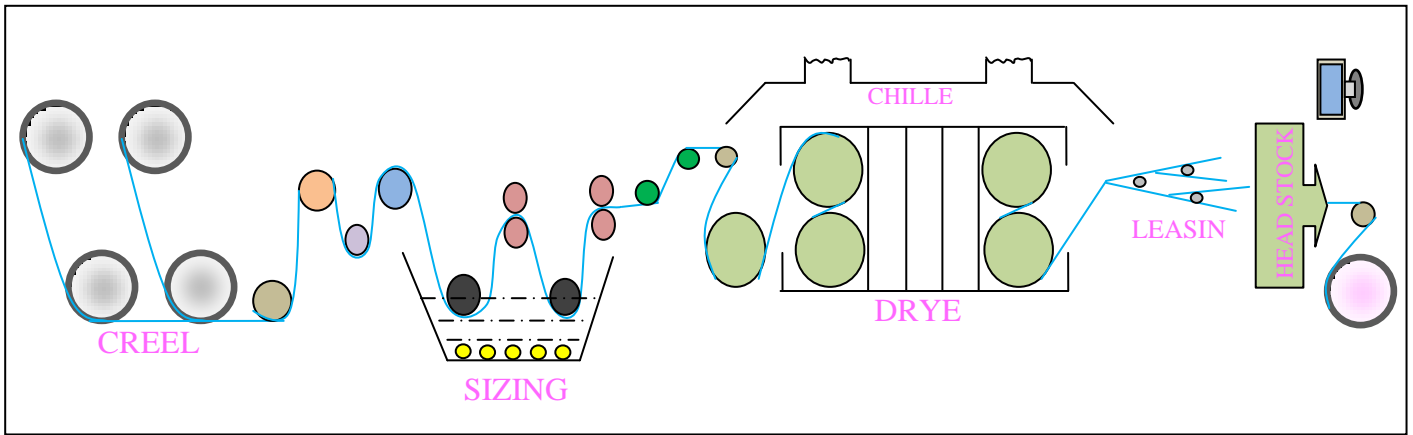
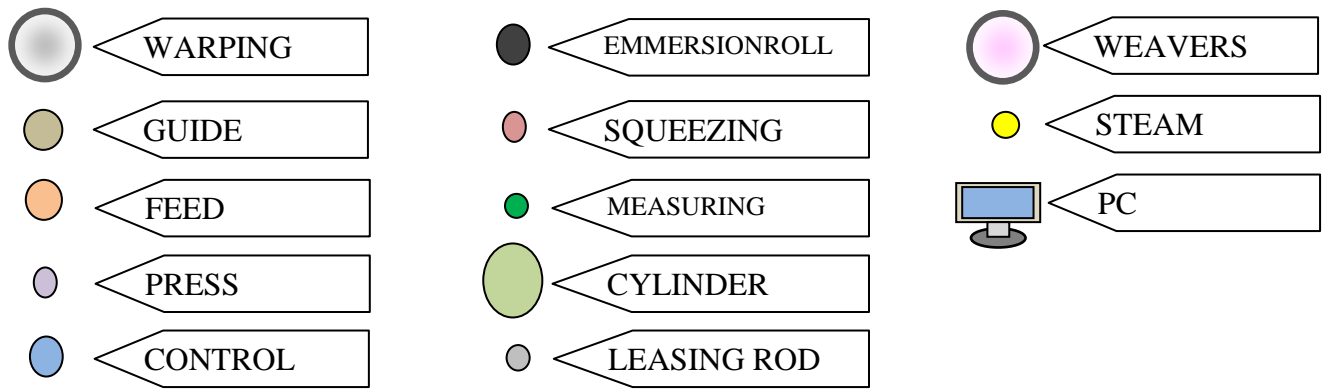


FIG: SIZING M/C



ZONE 3-DRYER:

It consists of several heated cylinder over which sized up sheet passes and dried uniformly. Temp. Range: 80-130°C; depending on yarn type & pick up%.

ZONE 4-LEASING:

In order to prevent adhesion between yarns, the ends are separated from each other by dividing the sheet into sections.

ZONE 5-HEAD STOCK:

This is the delivery section. The yarns are wound on weavers' beam. A measuring device measuring the length. A control pane is attached with this section which controls all operations electrically.

6.7 Size box:

This consists of a *size box*, *immersion roller*, *squeezing roller* etc. this box is used to apply size solution to the yarn. The size box temp is controlled by steam. Equal level of solution is maintained during sizing. The size pick up% depend on yarn structure, types and size of ingredients, viscosity of the solution, squeezing pressure, roller hardness, m/c speed etc.

- Size Box Temperature = 85°C
- Cylinder Dryer Temperature = 125°C
- Refractometer is used to check the dispersion of size materials.

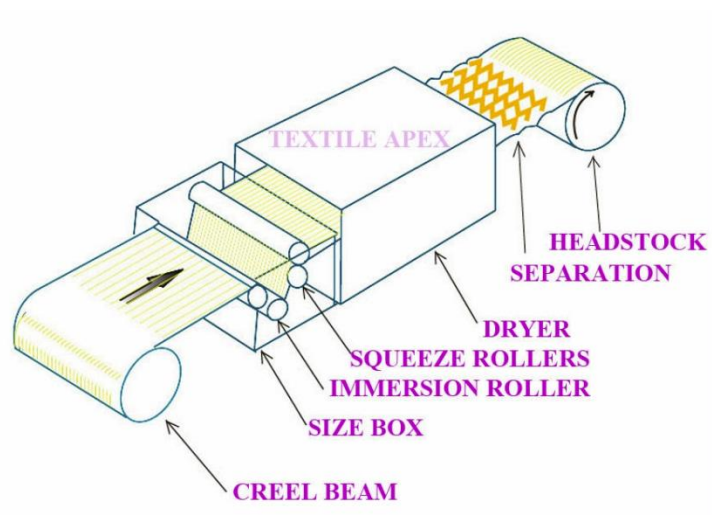


Fig: Size Bath

6.8 FACTORS AFFECTING THE SIZE TAKE UP PERCENTAGE -

- **Viscosity of the size recipe:** If viscosity of the size liquor is not proper, it is difficult to penetrate for the size material to the core of the yarn.
- **Lubrication:** Lubricant can exist at the surface or exist inside the structure and later work itself to the surface as the yarn rubs over a friction surface.
- **Degree of size penetration:** It determines the stiffness for a given yarn bearing a given size. So if Degree of penetration is not proper, size take up% will be un-uniform.
- **Squeeze roller pressure:** If the pressure of squeeze roller is not sufficient, size add-on may be increased or decreased.
- **M/C Speed:** If m/c speed is high or low consequently size take-up% may be less or high correspondingly than the required take-up%.

PARAMETER	M/C RANGE	SET VALUE
Sized Speed	1-120 m/min	40-45 for Fine Cotton
		45-50 for Yarn Dyed Material.
		50-70 for Solid Dyed Material.

M/C no	Total Ends	Construction	Refractrometer %	Pick Up %	Moisture %	Speed	Warp Tension N	Size Tension N	Strech %
2	8450	40x40/133x100	12	17.5	6.0	40	4200	4190	0.98
1	7080	40x40/20x70	12	16.8	6.0	38	2658	2630	1.0
2	8450	40x40/130x90	12	16.2	6.0	40	4200	4192	0.98
1	7080	40x40/130x90	12	16.2	6.0	38	1961	1940	0.98
1	7080	40x40/130x90	12	16.2	6.0	38	1961	1936	0.98
2	8450	40x40/130x90	12	15.8	6.0	38	4114	4108	0.98
2	5900	20x16/100x80	10	14.1	6.5	30	3923	3906	1.0

As the m/c is on enter all data/production parameter in the BEN PRECOMB unit at the head stock.

Following data is entered-

- Feed length and doff length.

- Sizing degree i.e. pick-up%.
- Tension and stretch over warp in different zone.
- Drying cylinder temp. in different zone.

6.9 Faults of Sizing:

- **Sizing spots:**
Size material should be added gradually to the mixing tank for good mixing. If it is added at once, spots are appeared on the yarn.
- **Repeating warp streaks:**
This defect is due to uneven tension in the pre beam.
- **Shinny:**
This defect due to the friction between the yarn and drying cylinder.
- **Sandy warp:**
Due to not crushed or grind the size material properly.
- **Ridge beam:**
This fault occurs due to uneven distribution of yarn in wraith.
- **Hard sizing:**
If the size materials are applied too much, the size becomes hard which cause hard sizing.
- **Improper drying:**
Under drying-Bacteria form-Yarn breakage-over drying-Hard sizing.
- **Size dropping:**
This defect due to not optimum the viscosity of the size solution.
- **Size stitching:**
Due to improper drying after sizing.
- **Uneven sizing:**
Due to over or under sizing.
Due to over or under concentration of size liquor.

Size Recipe for Grey Yarn:

H₂O = 400L

Starch = 50 kg

PVA (SPR) = 32 kg

Acrylic (Trisize) = 15 kg

Soul Wax = 5 kg

Size Recipe for Dyed Yarn:

H₂O = 490L

Starch = 50 kg

PVA (SPR) = 25 kg

Acrylic (Trisize) = 12 kg

6.10 Calculation:

Cylinder dia=800mm

Size box roller=200mm

Pressure roller dia=232mm

Pendium roller dia=232mm

Feeding roller dia=232mm

Unwinding frame tension=200N

Size box tension=8.0%

Total ends=7446

Temperature=92°c

Solid percentage for chemical:

Stretch=85%, for 50kg solid%=50x85/100=42.5kg.

PVA=98%, for 23kg solid%=22.54kg

Acrylic=30%, for 10kg solid%=3

Wax=2.5kg

Water=650lt

Total volume: 650+2.5+10+23+50=823lt

Solid%=68.04

Refactometer reading: (Actual Chemical/Total Volume)*100%

6.11 Formula:

$$\text{Liquor Pick - up\%} = \frac{\text{weight of size liquer (kg)}}{\text{weight of dry yarn (kg)}} \times 100$$

$$\text{Solid add - on\%} = \frac{\text{dryweight of size materials (kg)}}{\text{dry weight of yarn (kg)}} \times 100$$

$$\text{Concentration\% of solution} = \frac{\text{dry weight of materials (kg)}}{\text{ready size liquer (kg)}} \times 100$$

$$\text{Required Starch\%} = \frac{(\text{ sized warp length} + \text{ size wastage}) - \text{warp length}}{\text{warp length}} \times 100$$

$$\text{Waste} = \frac{\text{total ends} \times \text{wastage warp length}}{\text{warp count} \times \text{no. of cones} \times 2.2046} \text{ Kg}$$

Required Chemical &no. of Mixing of Sizing Recipe:

$$\text{Weight of Total Length} = \frac{\text{warp length} \times \text{total ends}}{\text{warp count} \times 1.6934 \times 1000}$$

Required Chemical = *weigh of total length* x (1 + *waste% of sizing*)

Required Wate = *water per mixing (450 lit.)* x 13% (*for steam*) of 450 lit.

CHAPTER-7

CAD(COMPUTER AIDED DESIGN)

7.1 CAD:

Computer-aided design (CAD) is the use of computer systems to assist in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations.

Computer-aided design is used in many fields. Its use in designing electronic systems is known as electronic design automation, or EDA. In mechanical design it is known as mechanical design automation (MDA) or computer-aided drafting (CAD), which includes the process of creating a technical drawing with the use of computer software.

CAD software for mechanical design uses either vector-based graphics to depict the objects of traditional drafting, or may also produce raster graphics showing the overall appearance of designed objects.

7.1.1 Uses:

- Computer-aided engineering (CAE) and Finite element analysis (FEA)
- Computer-aided manufacturing (CAM) including instructions to Computer Numerical Control (CNC) machines
- Photo realistic rendering
- Document management and revision control using Product Data Management (PDM).

CAD is also used for the accurate creation of photo simulations that are often required in the preparation of Environmental Impact Potential blockage of view corridors and shadow studies are also frequently analyzed through the use of CAD.

1). 3D parametric solid modeling allows the operator to use what is referred to as "design intent". The objects and features created are modifiable. Any future modifications can be made by changing how the original part was created. If a feature was intended to be located from the center of the part, the operator should locate it from the center of the model.

2). Explicit Modelers or Direct 3D CAD Modelers provide the ability to edit geometry without a history tree. With direct modeling once a sketch is used to create geometry the sketch is incorporated into the new geometry and the designer just modifies the geometry without needing the original sketch. As with Parametric modeling, direct modeling has the ability to include relationships between selected geometry (e.g., tangency, concentricity).

7.2 Basic types of Weaves:

7.2.1 Plain Weave:

Most simple and most common type of construction Inexpensive to produce, durable, Flat, tight surface is conducive to printing and other finishes. The simplest of all patterns is the plain weave. Each weft yarn goes alternately over and under one warp yarn. Each warp yarn goes alternately over and under each weft yarn. Some examples of plain weave fabrics are crepe, taffeta, organdy and muslin. The plain weave may also have variations including the following:

- Rib weave: the filling yarns are larger in diameter than the warp yarns. A rib weave produces fabrics in which fewer yarns per square centimeter are visible on the surface.
- Matt Weave or Basket weave: here, two or more yarns are used in both the warp and filling direction. These groups of yarns are woven as one, producing a basket effect.

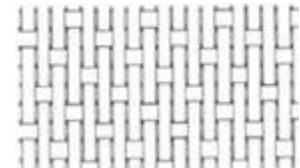
7.2.2 Twill Weave:

Creates a diagonal, chevron, hounds tooth, corkscrew, or other design. The design is enhanced with colored yarn is strong and may develop a shine. Twill weave is characterized by diagonal ridges formed by the yarns, which are exposed on the surface. These may vary in angle from a low slope to a very steep slope. Twill weaves are more closely woven, heavier and stronger than weaves of comparable fiber and yarn size. They can be produced in fancy designs.

Household Uses: Upholstery, comforters, pillows.

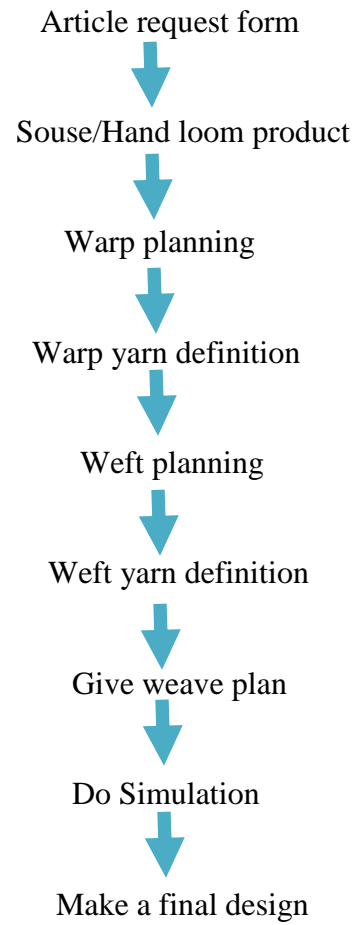
7.2.3 Satin:

- Smooth, soft luster
- Excellent drapability
- Floats snag easily



Household Uses: Draperies, quilts

7.3 CAD Making Procedure:



CHAPTER-8

DRAWING&DENTING

8.1 Drawing:

Drawing is the process of passing the warp yarn into the heald eye according to the warp plan or design is known as Drawing.

8.1.1 Denting:

Denting is the process of passing the warp yarn into the reed dent according to the denting plan is known as Denting.

8.1.2 Objects:

- To draw the warp yarn into the heald eye.
- To ensure the production of proper design in the loom.
- To maintain the proper warp yarn spacing in the fabric.

8.1.3 Requirement of Drawing & Denting:

- Proper warp plan in case of yarn dyed fabric.
- As much possible accurate warping in case of sectional warping.
- Keep some extra warp yarn during warping from the required quantity.
- Must use accurate reed.

8.1.4 Key Accessories:

For Drawing-in the following key accessories are used-

- Drawer's hook,
- Heald wire,
- Drop wire,
- Reed.

For Warp tying the following key accessories are used-

- Brush.
- Leasing band.

8.2 Method Used to Prepare Weaver's Beam:

1. Warp tying or knotting (quick style change).
2. Reaching-in/Drawing-in & Beam getting.

8.2.1 WARP TYING:

This method is limited to use where an exactly same article or quality of fabric is to be made that is already running in the loom. The following points are considered-

- The total number of warp ends should be same as that of running.

- The count of yarn & weave design should be same.

Before running a new beam with an older one, the new beam is to undergo a process called *leasing*, where the adjacent yarns are kept separately by placing a yarn in between them. This is very essential in case of tying a yarn dyed beam; otherwise the warp yarn scheme will be disturbed & lost. Leasing is done manually. For more color beam (solid dyed beam) tying is performed without leasing.

8.2.2 DRAWING-IN/RACHING-IN:

This method of mounting weavers beam on to loom is adopted in such case which have separate style of working of adjacent warp yarn is called yarn interlacement, compared to that of running in loom.

In this method, warp yarn are separated individually, as per count or color patterns from the adjacent yarn & hooked to the access of drawer's hook called Reaching-in.

The yarn as it comes to reach of drawer's hook is then drawn through the dropper & then through the eye of heald wire. All the warp yarns thus drawn in one by one, is then passed through the split of reed called reed.

FISCHER POEGE WARP TYING M/C



FISCHER POEGE WARP TYING M/C

- **OPERATION STAFF-**
- **WARP TYING:**
 1. Knotting in-charge.
 2. Knotting operators.
 3. Knotting helpers.
- **DRAWING-IN/REACHING-IN:**
 1. Production manager.
 2. Drawing in-charge.
 3. Drawer.
 4. Reacher.
- **CHECK LIST BEFORE PRODUCTION-**

- Check the correctness of the knots.
- Check whether there are any crossings.
- Check there are any empty droppers.
- Check the number of ends in each reed whether there are required number of ends.
- Check the repeats whether the required number of ends are there.

➤ OPERATION PROCEDURE-

1. Production manager monitor the following on a daily basis.
 - Everyday beam production record & the style of fabric to be made from these beams.
 - Check the number of looms running out of beams at each day & check that loom specification relating to designing scope. i.e. number of heald frames, reed count, weft insertion capacity etc.
 - Make a list of tying-in accordance with the marketing priority & availability of looms that are running out of beam.
2. According to that plan, knotting In-Charge & drawing In-Charge jointly arrange leasing of beams, the respective beams being identified from the sizing data sticker.
3. As leasing is completed, the beam is transferred to a specific loom & mounted on loom beam bracket. The tying frame is set on proper position.
4. The ends of the old beam & the ends of the new beam are accurately brushed & gripped by the frame so that older & newer ends make an upper and lower set of yarn placed in proper tension.
5. The warp tying end is mounted over the tying frame. In case of Stable m/c, number of knots per repeat of color pattern is entered into the m/c.
6. Then the m/c is started. After the programmed number of knots per color pattern is reached, knotting will stop. Operator will check the correctness of the knot and start again by switch.
7. Thus knotting will be completed up to the end of set, tying upper set of older yarn with lower set of new warp.
8. As knotting is completed, the knotting operator make a quality card, mentioning customer name, work order number, beam number, beam length, knotting operators name & the date or date of knotting.

The sizing data sticker is set over the quality (or Doffing) card & the card is set over the loom.

The knotting operator also makes a work record in his resister book.

As knotting is completed tying head & framer removed the old piece of knotted yarn is pulled through the m/c, i.e. through heald wire and reeds and the new warp set is allowed to pass and make ready to run.

1. The customers' fabric swatch is sent to the weaving section; generally after warping is done, either enclosed to the order sheet form or separately. Assistant Manager, Weaving; analyzes the swatch for reproduction. In this stage he determines-
 - The design of sample, i.e. whether dobby or tappet or combination of two.
 - The Drawing-in, Denting and lifting or tappet/cam setting plan.
 - The required number of heald frame and reed count, draw width etc.
2. Then whenever the sized beam is ready, the work out drawing-in plan, reed count etc. against on order number is given to the drawing in-charge for production. Drawing in-charge make a work programmed considering the following-
 - The availability of run out loom for beam.
 - The availability of reed no. of reed count.
3. Drawing In-Charge and senior drawer find out the desired sized beam number from the sizing production record, check against the specific work order number and transport these to the drawing section by trolley& start working there.
4. According to the working order number each design/drawing-in plan is record in the register book. The production sample being attached thereafter.
5. After drawing-in/denting is completed each beam is set with quality/doffing card, the sizing data sticker is being attached on the card on the quality card and the following information are written-
 - Customer name.
 - Work order number.
 - Beam number.
 - Beam length.
 - Loom number where the beam is to be set.
6. During the loom number, the drawing in-charge takes in to consideration the designing scope & color insertion scope of the respective loom.

7. Finally beam gaiters carry this beam along with dropper, healds & reed with trolley on to the specific loom & mount.
8. They pull the new yarn from the beam & set in the loom with dropper, healds & reed properly positioned & tie the yarn with old piece of warped around surface roller with a number of small knots.
9. Daily beam gating report with every information is made & filed.

8.3 DOCUMENTS FLOW-

- The customer's fabric swatch is sent to the weaving section; generally after warping is done, either enclosed to the grey fabric. Request form for yarn dyed fabric or separately. Assistant Manager, weaving then analyzes the swatch for reproduction.
- Knotting in-charge & Drawing in-charge jointly arrange leasing beams that are being identified from the sizing data sticker.
- As knotting completed, the knotting operator make a Doffing/Quality card, mentioning *customer name, work order number, beam number, beam length, knotting operators name & the date or date of knotting.*
- The sizing data sticker is set over the quality (or Doffing) card & the card is set over the loom.
- The planning dept. raise the grey fabric report form & sends a copy each to the yarn dyeing, winding & weaving section.

CHAPTER-9

Conclusion

9. Conclusion:

FOURTY TWO day's industrial training in **BEXIMCO TEXTILES LTD.** was a concluding part of the B.Sc in Textile Technology course which was to comprehend our theoretical knowledge along with practical knowledge. It also enables us to orientate ourselves with the practical environment where we will work in future. During the training period, the whole thirty 42 days were segmented and scheduled to a systematic routine. There were different sides of operation in Garments manufacturing process. First of all, it should be mentioned that the **BTL** is a 100% export oriented composite industry. For producing a quality product above all export quality it is desirable that the processes should be highly standard. For this purpose **BTL** has high skilled hard working officials, management and departments. Last of all I thank all the officers who help us by co-operation and give information's to me. We are lucky because we completed our internship in a well known industry which will help us to build up our career in RMG sector.