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Department of Textile Engineering

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A Study on different types of knit fabric faults and their inspection.

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Submitted this thesis to partial fulfillment of the requirement for the degree of Bachelor of Science in Textile Engineering.

Advance in Fabric Manufacturing Technology

Fall 2023

DECLARATION

We declare that we are the only producers of this project. This version contains the exact content approved by our supervisor, with any necessary changes. No piece of this study has been presented elsewhere to get any academic certification. Furthermore, we permit Daffodil International University to replicate and distribute electronic or paper copies of this project.

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LETTER OF APPROVAL

I'm just writing to let you know that the "minimization of knit faults in knit fabric production" task report that was created by Estiak Ahammed Joy, Md. Ripon Ahmad and Safayet Sajim Mia our ID: 201-23-870 ,201-23-895 and 201-23-922 is complete and ready for evaluation. A thorough examination at MARMA COMPOSITE LTD and INTERNATIONAL CLASSIC COMPOSITE LTD was used to prepare the whole report. Additionally, incursion through the fundamental analysis of observational data with necessary possessions. The subject of the study was clearly related to their undertaking activities. Therefore, it would be greatly appreciated if you would accept this project report and use it as the basis for your final assessment.

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ABSTRACT

On this examination, many types of single and double jersey machine faults were completed, and this article is focused on wastage and how this type of fault can be reduced. We also focused on several types of issues that the system faces while functioning. We have a problem. The main issue with these machines is waste. We have certain dyeing and finishing flaws that we have discovered and are working on developing. We plate how we can cut down on textural waste. Analyze the distinct type of existing procedure and the fault-creation technique. It was quite tough to identify those flaws and develop them in the same manner. However, in this experimental work, we know how to accomplish it and how to solve any problems that arise. For this investigation, we collected several samples of typical knit fabric flaws as well as some quality inspection sheets completed using the four-point system approach from two reputable textile industries. We first analyzed the data from the quality inspection sheet, and then we examined how changing the stitch length affects the increase or decrease of mainly occurring flaws on grey knit materials. We collect all fault sample from “MARMA COMPOSITE LTD.” “INTERNATIONAL CLASSIC COMPOSITE LTD,”

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Chapter 1

Introduction

1.1 Introduction:

Knitting is the method of making textiles from continuous strands of thread by converting yarn into a series of loops. These loops are then linked to the loops that came before. The intermeshing of loops on both the left and right sides, as well as above and below, forms the foundation of knit fabric structure. This loop intermeshing distinguishes knit fabrics from woven fabrics, which are manufactured by interlacing two sets of threads: lengthwise warp threads and widthwise weft threads. Knit textiles, on the other hand, are created by looping a single, continuous thread. For millennia, the textile industry has employed the knitting process. Knitted things were created by hand in the early sixteenth century, using pins, hands, and fingers. However, modern knitting technology relies on electrically driven motors, a variety of needles, cams, sinkers, needle holders, and yarn feeders. When compared to hand knitting, high-speed circular knitting machines have significantly increased stitching speed, from 100 to 150 stitches per minute to several thousand stitches per minute. William Lee is credited as the inventor of mechanical stitch creation technology. Mathew Townsend was given a patent in 1847 for establishing the latch needle, while D. Griswold received one in 1878 for a circular knitting machine capable of producing tubular plain or rib textiles. In 1910, Robert Walter Scott received a patent for interlock textiles. Knit textiles must meet a number of quality criteria in order to boost output. These variables include course density, wales density, stitch density, stitch length (SL), count, GSM, fabric structure/design, needle and cam arrangement, dimensional stability, spirality, and skewing-bowing. Knitting parameters that affect overall knitting productivity include needle types, cam types, yarn feeding systems, gauges, and cylinder revolutions per minute (rpm). Furthermore, the operator's psychological stress has a direct impact on knitting productivity. Each of the aforementioned criteria has unique qualities that may have a different influence on knit creation. GSM, yarn count, and stitch length change as fabric properties vary. Different fabric structures require distinct needle and cam combinations. Stitch densities vary amongst fabrics with different GSM. Knit fabrics offer enhanced dimensional stability due to interloping. Spirality has a significant influence on knit materials, as do skewness and bowing, which create pattern distortion over the fabric's width. As a result, each aspic makes a major contribution to the overall output.

1.2 Objectives of this Study

- Identify knitting flaws in various processes.
- Discover therapy options tailored to individual needs.
- To decrease fabric waste due to defects.
- Comparison of productivity for various machine speeds, feeders, stitch lengths, and gauges.
- Understand the relationship between count, GSM, and stitch length.
- Compare Change of Count and Stitch Length dependent on GSM of knit materials.

CHAPTER 2

LITERATURE REVIEW

2.1.1 Knitting

Knitting is a way of producing materials by intermeshing yarn loops. When one loop is drawn through another, it creates a horizontal or vertical loop form.

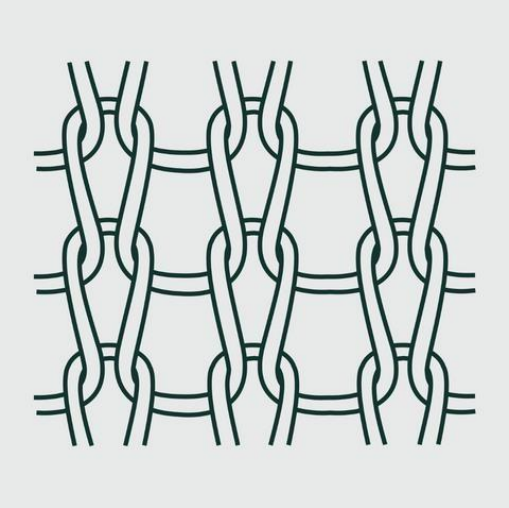
Knitting has two classes, these are

1. Circular knitting
2. Flat knitting

The main form of knitting are also two types. These are

1. Weft knitting
2. Warp knitting

2.1.2 Weft knitting



Weft knitting uses a single thread or yarn that runs horizontally. It has a strong elasticity and drape distinctive structure. Weft yarn loops are formed course-wise. The yarn originates from a cone. Weft knitted cloth has weak dimensional stability.

Weft knitted fabric classified in two forms, these are

1. Single jersey.
2. Double jersey.

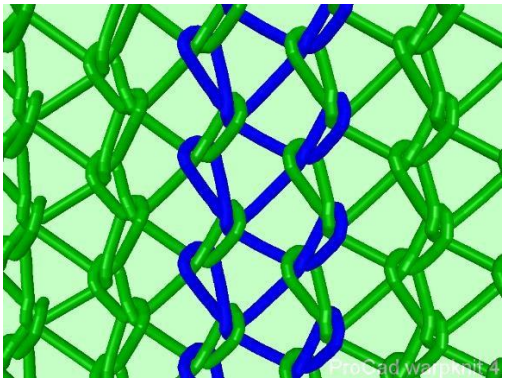
Some variation of single

- Single Pique
- Single Lacoste
- Polo Pique
- Terry Fleece
- Fleece etc

Some variation of double jersey

- Rib Fabric
- Interlock Fabric

2.1.3 Warp knitting



During the warping process, knitting yarn flows vertically or in the Wales direction. The yarn given is used to make warp beams, which might be two or more in number. The warp knitted fabric has superior dimensional stability.

2.2 Here are some common terms that play an essential role in knitting:

2.2.1 Course per inch:

The course is defined as horizontal rows of loops. The course per cm represents the total number of horizontal rows of loops per inch.

2.2.2 Wales per inch:

Wales is described as a vertical tower of loops. Wales per inch refers to the total number of vertical loop columns.

2.2.3 Needle gauge:

The needle gauge is the number of needles per inch of the needle bed on a knitting machine. The total number of needles may be calculated using needle gauze. The formula is given below-
Number of Needle = ∏ x machine diameter x machine gauze

2.2.4 Stitch Length:

The stitch length refers to the amount of yarn required to complete a knitted loop. The stitch length is the length of yarn that includes the needle loop and half of the platinum loops on each side. The GSM of the material can change depending on the stitch length.

2.2.5 Yarn Count:

Yarn count is a numerical expression that denotes fineness or coarseness. It also shows if the yarn is thicker or thinner. In a nutshell, count is a value that reflects weight per unit length or length per unit weight of yarn.

2.2.6 Dia:

Diameter refers to the breadth of the cloth. In general, the diameter of the cloth varies according to its GSM. Even with GSM cloth, diameter may be regulated. If Día increases, GSM will decrease, but if Día decreases, GSM will rise. The finishing diameter is critical for the cloth. There are three diameters: machine, gray fabric, and finishing diameter.

2.2.7 GSM:

GSM is an acronym for grams per square meter and relates to a substance's weight. In general, a textile with a greater GSM is likely to be stronger and more durable.

2.3 Study of Knitting Machine
Circular knitting machine

Circular knitting machines are commonly used in the knitting business to manufacture cloth. It may be created in any appropriate diameter, as well as tiny diameters of up to five, for wear. Machines for outerwear and underwear can range in diameter from 12 inches to 60 inches, depending on the manufacturer's requirements. This machine may be used as fabric or to make entire clothes with decorative stitches. Latch needles are extensively used in all current circular machines due to its easy operation and ability to process a wider range of yarns.

2.3.1 Various types of machines used in the garments industry:

- A circular machine was employed for single jersey production.
- Rib and interlock machines are utilized for double jerseys.
- Flatbed knitting machines include Shinker and loop wheels.

2.4 Single jersey circular knitting machine:

Fig2.4: Single jersey circular knitting machine

2.4.1 Parts of knitting machine and their function:

1. Creel- Creel is made to hold the yarn package

2. Cone Holder: A cone holder is an angled metallic rod that holds a yarn cone and allows for easy feeding to the feeder. It is sometimes called a cone carrier.

3. MPF Device: MPF represents Memminger Positive Feed. It accepts yarn through an aluminium telescopic tube. This gadget is known as the Memminger Positive Feed gadget because it provides a positive feed of yarn to the needles. MPF gives uniform tension to yarn, lowers machine stoppage, identifies and removes yarn knots, and alerts when yarn breaks.

4. Needle: To lengthen the string and create a new circle, pass the new cut through the previous circle.

5. Shinker: The major capacity is to hold the old circle and assist in the arrangement of the new circle.

6. Yarn guide: The primary use of this is to regulate the yarn legitimately.

7. Knot catcher: Tie to keep the residue and other debasements together. Simply let yarn pass through this.

8. Positive wheel: To maintain the precise amount of yarn while maintaining proper strain and ensuring uniform yarn feed.

9. Sensor: To stop the yarn, break a single yarn; the machine will stop.

10. Indicator light: The capability of this device is to identify the feeder or wheel where yarn breaks.

11. Yarn feeder: To feed the yarn to the needle for circle.

12. Shinker bed: This is making to hold the sinker.

13. Shinker cam: To make sinker path also give up and motion.

14. cylinder: To hold and place the needle in right position.

15. Needle cam: To make a path for needle for timing through in the cylinder according to the fabric construction.

16. Blower fan: Removing dust from the cylinder and feeder wheel.

17. Take up roller: To winding the fabric after producing.

18. Tensioner Roller: Maintain the tube fabric tension.

19. Lycra feeder: To insert Lycra to the machine with proper direction.

20. Toothed belt: To variations the motion from the VDQ pulley to the positive feeder.

21. Cylinder brush: To clean dust from the surface.

22. Jog switch: To move the machine slowly.

23. Tension pulley: To manage the tension of toothed belt.

2.5 There are some other factors that can influence the production fault of knitting:

Machine Maintenance: Machine maintenance is a key factor in increasing production. Weekly machine maintenance and service are essential. All parts of the machine should be thoroughly cleaned. Proper equipment use is critical for increased production. If the machine performs smoothly, stopping time will be decreased, and fewer faults will be identified in the cloth. Needle, sinkers, cams, positive feeder storage, guides, needle tricks, sensors, oil and lubricating pipe, take-up roller, cloth rollers, and motor should all be maintained on a predetermined schedule. If the oil pipe is not cleaned for a long period, some oil spots will undoubtedly emerge in the fabric, which is a type of fabric defect. If the needle is not correctly examined, short fiber will jampack the hook, resulting in the hook being unable to receive the fresh yarn properly. The cloth will be marked with a needle, a star, and a hole. This will lower fabric quality and slow down manufacturing. If the sensor fails to function properly, the operator will be unable to correct the problem following yarn breaking, resulting in a longer time to identify and resolve the issue. If the positive feeder fails to function effectively, there will be variations in loop length and tension, resulting in uneven feeding. If the needle tricks are not properly cleaned, fluffs will be adjusted in the tricks, resulting in fabric flaws. All this decreases the cloth.

2.5.1 Quality-full Knitting yarn:

Increased output is connected with higher quality. Yarns of lesser quality are more likely to break. Premium spun yarns, on the other hand, have fewer short fibers and are less likely to break. When breakages occur often, machine downtime increases, resulting in a decrease in production.

2.5.2 The skill of Workers:

An expert worker has a more in-depth expertise, continually focused on the machine's mechanical and technical details. This people can readily identify and solve difficulties, exhibiting better operational abilities as compared to others. The machine's runtime performance is impressive. By rationally solving issues, the worker provides better solutions for the machine, resulting in increased efficiency. The worker's efficacy helps to improve machine efficiency, which leads to higher total production.

2.5.3 Machine Program:

Each machine should be associated with a single program. Due to many structural design changes, the needle and cam arrangement takes a long time to run the new program. However, if the machine is paired with a single program, the idle team may be reduced while productivity increases. So, the number of programs on a single machine should be reduced.

2.5.4 Overhead Remove from Employee & Workers:

Mental satisfaction is crucial for greater productivity. Workers should be continually motivated, and medical and financial assistance should be available as required. Health and safety are vital. Overstress has a direct influence on the mental health of employees and workers. Each employee and worker should be given a distinct job description. Otherwise, stress affects the industry's quality and output.

2.5 Other Developments to improve knitting productivity and reduce the Fabric fault:

- To protect the yarn from damage, use metal tubes.
- Utilize automated lint removal.
- For oiling and cleaning, use compressed air at a pressure of 122–146 pounds per square inch.
- Make that the needles and sinkers are suitable with the machine.

2.6 Different Types of Fabric:

2.6.1 Single Jersey:

A single layer of knitted fabric made from fine yarn, often in stocking stitch but also adaptable to rib stitch or other interweaving patterns. Interlock/double jersey knitting involves knitting two layers of jersey fabric simultaneously, with the wrong sides folded inwards.

Figure 2.6.1: Single Jersey

2.6.2 Interlock:

Interlock textiles are a sort of rib knit construction. It is similar to knitwear, except the front and back of the cloth are the same. It features a twofold structure, which results in a thick knit fabric. The fabric is quite soft, robust, and absorbent.

Figure 2.6.2: Interlock

2.6.3 Rib

The rib texture consists of a fabric with visible vertical ribs on the front and back. In other words, ribbing on a double-sided fabric is reversible. Rib knits are frequently used to make bands like t-shirt collars, turtlenecks, and hems.

Figure 2.6.3: Rib

2.6.4 Terry fabric:

Tar pile or double-sided woven material used for towels, beach wear, bath, etc.

Figure 2.6.4: Terry

2.6.5 Fleece:

Fleece is a soft fabric with a brushed surface that provides good insulation. It efficiently maintains body heat, making it suitable for chilly conditions. It's a warm cloth available in a variety of fabrics. The fabric is called after a sheep's fleece coat, however it is not totally natural. The majority of fleece textiles available today are comprised of polyester fibers, although they can also be manufactured from cotton, hemp, or rayon fibers.

Figure 2.6.5: Fleece

2.6.6 Pique:

Lacoste, commonly known as pique, is a durable cotton fabric with subtle textured designs. The crisscross knit pattern produces a cellular look with a distinct and delicate touch. The term pique also refers to woven textiles with little woven motifs that resemble quilts.

Figure 2.6.6: Pique

2.7 Fabric faults and Remedies:

2.7.1 Needle Lines:

Causes:

- Bent latches, needle Hooks.
- More compact needle in the grooves.
- Incorrect needle placement.

Remedies:

- Inspected needle fulfillment sequence in cylinder dial grooves.
- Examine the grey cloth of the knitting machine for needle marks.
- Eliminate fibres from the Needle multitudes.
- Take the place any bent needles and tighten the multitudes.
- Take the place all diplomatic needles with bent locks, hooks, or stems.

2.7.2 Sinker Lines:

Causes:

- Bent or worn sink.
- Sink ring groove where the sink is firmly inserted.

Remedies:

- Eliminates filaments that hinder the sinker trick.
- Replace old or bent sinkers to prevent indentation lines in fabric.
- Sinker lines on fabric are prevalent, whereas vertical lines are weak.

2.7.3 Oil line:

causes:

- Excessive oiling of needle beds.
- Threads and pads are constructed in oil-sprinkled needle traps.

Remedies:

- After cleaning, use the grooves of the cylinder, dial and immersion ring withdry air.
- Dispose of all machine needles and weights regularly.
- Thoroughly wipe the cylinder grooves and machine discs with gasoline.
- The fibers collected in the needle trikes cause the oil to seep into the fabric.

2.7.4 Yarn Contra:

causes:

- Foreign material is present in short fibers.
- If dead fibers or other foreign bodies appear (dyed fibers, husks, synthetic fibers,etc.
- Dead fibers are not dyed during dyeing.
- The presence of excess unripe cotton fibers leads to the appearance of dead fibers in the fabric.

Remedies:

- A method of precise control of the blowing room to prevent foreign substancesfrom entering the cotton.
- Separate spinning and weaving machines with vinyl curtains or mosquitonetting to prevent fibers from adjacent machines from becoming entangled in yarn or fabric.

2.7.5 Holes:

causes:

- The distance between the dial ring and the cylinder ring is incorrect.
- Great thread tension.
- Too much or too little yarn feed.
- High fabric removal tension.

Remedies:

• Use a tension meter to guarantee consistent thread tension across all feeds.

• Adjust thread feed speed based on necessary stitch length.

• Prevent fibers, lint, wax, and other contaminants from clogging the eyelets or thread guides.

• Adjust the distance between the cylinder and plate based on the stitch size. • Use a thread free of faults like muck, naps, and large knots.

2.7.6 Lycra Turn:

causes:

- When the Lycra wheel moves lower than its actual movement, the lycra goes into the fabric
- unevenly and a spot appears on the fabric.

Remedies:

- The movement of the Lycra wheel must be precise.
- Wheel speed must be maintained.

2.7.7 Stop Mark:

causes:

• When the machine is switched off for a long period of time between productions, it will cause smudges on the fabrics with dust, which will appear as a stop.

Remedies:

- The time needs to be shortened if a break is needed when the production is on.

2.7.8 Flying Dust:

causes:

- If the surfaces of the device are not properly cleaned, dust flying problems occur.

Remedies:

- Before starting to prepare the dough, you must clean the machine thoroughly.
- The device should be filled with air for several hours.

2.7.9 Patta:

causes:

- When other threads enter the fabric, thin lines appear on the fabric. This problem occurs when there is a third thread.

Remedies:

- When running the fabric, great care should be taken so that the threads of otherlots do not enter the fabric.

2.7.10 Thick and Thin:

causes:

- This problem is mainly caused by threads. This problem occurs when the yarn quality is not as tough as the fabric structure.

Remedies:

- You need good quality yarn. This problem occurs mostly with white fabrics, soto solve this problem, you should use high-quality branded yarns.

CHAPTER 3

METHODOLOGY

3.1 Materials & Methods:

Defects in knitted textiles are methodically recognized for each fabric roll, similar to the creation of a defect inspection report. Each sort of fault is noted in a report, allowing for an objective evaluation of the knitted fabric roll's quality. The examination focuses on identifying and classifying problems, with a particular emphasis on their magnitude. Notably, the fabric break inspection report contains measurements of break length and frequency inside the fabric roll. Flat knitting may cause a variety of complications in knitted textiles. Pollution, spirals, and nudity may all emerge in woven fabrics, usually as vertical lines such as hole lines and sink lines during the weaving process. Mechanical faults, such as broken needles and lost stitches, can also cause flaws. During my examination of the Kent Concern Group, I discovered that they specialize in a wide range of fabric kinds, making a multitude of clothes incorporating various textiles. Singles, Lacoste, heavy jersey, terry, fleece, ribbed, twill, puck, ottoman, muslin, quilting, and other export fabrics with a variety of designs have been recognized. We have concentrated on and assessed the most popular materials, including single jersey, ribbed, terry, wool, and Lacoste.

3.2 Process Flow Chart for Knitting

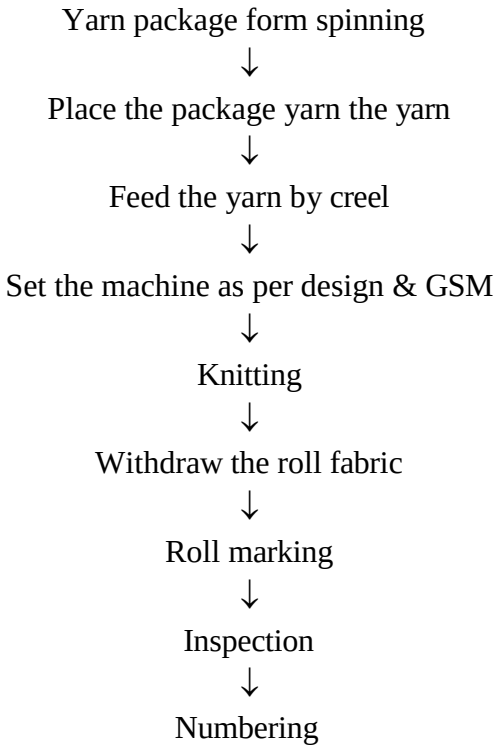


Fig3.2: Process Flow Chart for Knitting

3.2.1 Single jersey specifications:

- Basic GSM for single jersey fabric is 160.
- Fabric Type: Single jersey
- Machine: Single Jersey
- Gauge: 28,30
- Yarn:16s,20s, 24s,26s, 30s,34s,36s,40s
- GSM: 150,160,170
- Feeder: 108

3.2.2 Terry Specification:

- Basic GSM for jersey fabric is 260-320. This fabric can be 2 or 3 threads.
- Fabric Type: Terry
- Machine: Fleece
- Gauge: 20
- Yarn: 34s + 75D + 16s, 30 + 75D + 14s, 34s + 34s + 12s.
- GSM: 280,290,300
- Feeder: 68

3.2.3 Rib Specification:

There are 1x1, 2x1 and 2x2. There are many more types including irregular fabrics. The GSM of the ribbed fabric base is 145-350.

- Fabric Type: Rib
- Machine: Rib/ Interlock
- Gauge: 18,20,24
- Yarn: 24s,26s,28s,30s,34s,
- GSM:260.
- Feeder: 72

3.2.4 Interlock Specification:

Interwoven and ribbed fabrics look the same. However, there are slight design differences between the two fabrics. Interlock fabric is used for the body fabric. The basic GSM of the ribbed fabric is 200-300.

- Fabric Type: Strip Interlock
- Machine: Rib/ Interlock
- Gauge: 24.
- Yarn: 28s, 30s, 34s, 40s.
- GSM: 300.
- Feeder: 72

3.2.5 Fleece Specification:

Fleece is usually made of cotton or polyester, also viscose. The basic GSM of single jersey fabricis 280 – 390. This fabric can also be double or triple.

- Fabric Type: Fleece
- Machine: Fleece
- Gauge: 20
- Yarn: 30s + 75D + 16s, 34s + 75D + 14s, 34s
- GSM: 260
- Feeder: 68.

3.3.1 Working Procedure:

3.3.2 Inspection:

An important process to maintain the quality of the raw materials used in making the final product is called inspection. One person is responsible for making sure that this inspection is done. They are a quality control team.

3.3.3 Name of major defects and founded size:

- Needle Mark: 3"-5"
- Sinker Mark: 2"-5.5"
- Patta: 3.5"-9.5"
- Lycra Drop: 1-2.5"
- Oil Line: 1.5"-4"
- Hole: 0.5"-3."
- Yarn contra: 0.2"- 0.5"
- Thick Thin: 3.5"-9"

3.3.4 Given Penalty points based on 4 Four Points system:

Size of Defect:	**Penalty point**
3 inch or less	1
Over 3 inches but less 6	2
Over 6 inches but less 9	3
Over 9 inches	4
Any hole	4

The quality of the fabric is determined based on predetermined points, which are also called penalty points. If you get more than 4 points, no fabric will be awarded.

3.3.5 Given Penalty Points Calculation:

$$\frac{\text{Total point x 36 x100}}{\text{Fabric length yds x Fabric width inches}}$$

CHAPTER 4

RESULT & DISCUSSION

4.1 Table no 01
4.1 For Interlock Fabric: (500 Meter)

Name of fault	Size of faults	No of faults Existing process	No of faults developing process	% of faults existing process	% of faults developin gprocess
Drop stitch	1.1"- 2.6	16	8	4%	1.5%
Barrenness	2.6"- 5.5"	21	8	2%	1.7%
Streakiness	2.5”- 6”	12	6	2.6%	1.4%
Snarls	1.15”- 2.30”	24	8	5%	1.7%
Contamination	1"- 2.7"	20	10	1.7%	2%
Spirally	3.8”- 6”	18	8	3.7%	1.8%
Needle lines	3"- 5.3"	15	7	3%	1.4%
Sinker line	2.5"- 5.8"	14	5	2.9%	2.9%
Oil line	1"- 4"	14	7	4%	1.4%
piling	2"- 6"	19	10	2%	2%
Bowing	3.7"- 5"	11	6	2.5%	1.3%

4.2 Table no-02
4.2 For Rib Fabric: (500 Meter)

Name of fault	Size of faults	No of faults Existing process	No of faults developing process	% of faults existing process	% of faults developin gprocess
Drop stitch	1.1"- 2.4	19	6	5%	1.3%
Barrenness	2.5"- 5.6"	14	9	4%	1.8%
Streakiness	2.8"- 6"	14	6	4%	1.3%
Snarls	1.14"- 2.30"	23	8	6%	1.7%
Contamination	1"- 2.5"	24	10	6%	3%
Spirally	3.5"- 6"	14	10	4%	3%
Needle lines	3"- 5.7"	11	8	2.5%	1.7%
Sinker line	2.6"- 5.7"	0	4	0%	0.9%
Oil line	1"- 4"	20	0	1.7%	0%
piling	2"- 7"	21	8	4.5%	1.7%
Bowing	3.7"- 5"	11	11	3%	2%

4.3 Table no 03
4.3 For Fleece Fabric: (500 Meter)

Name of fault	Size of faults	No of faults Existing process	No of faults developing process	% of faults existing process	% of faults developing process
Drop stitch	1.1"- 2.5”	20	9	4%	1.8%
Barrenness	2.6"- 5.4"	18	6	3.5%	1.4%
Streakiness	2.9"- 6"	15	9	4%	1.9%
Snarls	1.14"- 2.30"	20	9	1.7%	1.9%
Contamination	1"- 2.7"	31	9	8%	1.9%
Spirally	3.8"- 6"	15	10	3.2%	2%
Needle lines	3"- 5.7"	20	9	1.8%	1.8%
Sinker line	2.5"- 5.6"	18	0	2%	0%
Oil line	1"- 4"	13	6	2%	1.3%
piling	2"- 6"	14	6	3%	1%
Bowing	3.6"- 5"	20	9	1.6%	1.6%

4.4 Fabric Faults Inspection Table:
4.4.1 Table: Single Jersey (160GSM)

MARMA Composite Ltd.
Tongabari, Ashulia, Savar, Dhaka, Bangladesh

Grey Fabrics Inspection Report Sheet
Section: Knitting

Date : 10-02-24
Shift : A/B

Buyer	Order No	Fabric Type	Brand	Lot	Harn Count	M/C Dia*G	S.L	F.GSM	F.Dia	Color	Roll Number	Roll Weight	Length in yds kg*43055/F. gsm/F.Dia	Spinning Faults: Patta	Spinning Faults: Slub/ Fly	Spinning Faults: Yarn Contra	Knitting Faults: Loop/ Hole	Knitting Faults: Set Up	Knitting Faults: Needle /Sinker Mark	Knitting Faults: Oil Spot	Knitting Faults: Lycra Out	Total Point	Point%	Grade
6/ Afiya	PO-55 643	1X1-H Rib	Amber	3478	34 (D)	38"	263	175	35 (T)	BLACK	1	20	70	-	-	-	2		-	-	-	8	6%	A
											2	30	105	-	-	-	2	1	-	-	-	12	6%	A
											3	20	70	-	-	-	3	1	-	-	-	16	12%	A
											4	25	88	-	-	-	2	1	-	-	-	12	7%	A
7/ Sven Tex		S/J	Bel-zac	282-323	28 (D)	36"	270	160	74 (D)	AVG.	1	25	91	-	-	-	-	-	-	-	-	OK		
											2	25	91	-	-	-	2	2	-	-	-	16	9%	A
											3	25	91	-	-	-	2		-	-	-	8	4%	A
											4	25	91	-	-	-	2	1	-	-	-	12	6%	A
8/ Sven Tex		S/J	Bel-zac	282-323	28 (D)	36"	280	160	74 (D)	BLACK	1	25	91	-	-	-		1	-	-	-	4	2%	A
											2	25	91	-	-	-	-	-	-	-	-	OK		
											3	25	91	-	-	-	2		-	-	-	8	4%	A
											4	25	91	-	-	-	3		-	-	-	12	6%	A

4 Point System

4 Point System	Point
Faults: 0-3"	1
Faults: 3-6"	2
Faults: 6-9"	3
Faults: Above 9"	4

Calculation of points per 100 yards
Point% = Total Point * 36 * 100 / Length-yds/ Finish Dia
Point% = 0-20, Fabrics will be graded "A"
Point% = 21-30, Fabrics will be graded "B"
Point% = 31 & Above, Fabrics will be Rejected

Prepared — Knitting Manager — GM

Name of faults	Number of defects	Penalty Point
Fly contra	2	2x1=2
Yarn contra	1	1x1=1
Oil stain	1	1x1=1
Slubs	1	1x1=1
Loop set-up	8	8x1=8
		Total penalty point =13

4-point calculation:

Total penalty point :13

Fabric length yds:33 Fabric

width inch:94

Points per 100 yards:

So. $$\frac{\text{Total point x 36 x100}}{\text{Fabric length yds x Fabric width inch}}$$

$$\frac{13x36x100}{33\ x94}$$

=15

This fabric is A grade.

Discussion:

To eliminate errors in fabric manufacturing, it is necessary to identify and treat their causes. One of the most common faults occurs in a single jersey lycra arrangement. The explanation is excessive stress. If you follow the instructions, you will be able to use Lycra with just the right amount of stretch without ripping. We use strategies to decrease defects in cloth manufacturing.

4.4.2 Table: Rib (270 GSM)

MARMA Composite Ltd.
Tongabari, Ashulia, Savar, Dhaka, Bangladesh

Grey Fabrics Inspection Report Sheet
Section: Knitting

Date : 10-02-24
Shift : A/B

Buyer	Order No	Fabric Type	Brand	Lot	Harn Count	M/C Dia*G	S.L	F.GSM	F.Dia	Color	Roll Number	Roll Weight	Length in yds kg*43055/F. gsm/F.Dia	Spinning Faults: Patta	Spinning Faults: Slub/ Fly	Spinning Faults: Yarn Contra	Knitting Faults: Loop/ Hole	Knitting Faults: Set Up	Knitting Faults: Needle /Sinker Mark	Knitting Faults: Oil Spot	Knitting Faults: Lycra Out	Total Point	Point%	Grade
5/ SYEK TEX		1x1 Ly Rib	Bek bal	282 323	28/ed	3 C4	280	270	68 (OD)	AVG.	1	25	59	–	–	–	2		–	–	–	8	7%	A
											2	25	59	–	–	–	–	–	–	–	–	OK		
											3	25	59	–	–	–		1	–	–	–	4	4%	A
8/ matta LAN	E0820 525	S/S	For mula	24 35	24/ed	3C4	280	180	76 (OD)	DAY Lily	1	25	79	–	–	–	1		–	–	–	4	2%	A
											2	25	79	–	–	–	–	–	–	–	–	OK		
											3	25	79	–	–	–	2	1	–	–	–	12	7%	A
1/ matta LAN	820 507	S/S	For mula	24 15 W	24/ed	34"	280	180	70 (OD)	White	1	25	85	–	–	–	–	–	–	–	–	OK		

4 Point System

4 Point System	Point
Faults: 0-3"	1
Faults: 3-6"	2
Faults: 6-9"	3
Faults: Above 9"	4

Calculation of points per 100 yards
Point% = Total Point * 36 * 100 / Length-yds/ Finish Dia
Point% = 0-20, Fabrics will be graded "A"
Point% = 21-30, Fabrics will be graded "B"
Point% = 31 & Above, Fabrics will be Rejected

ULLAS
Prepared

MASTER

Knitting Manager

GM

Name of faults	Number of defects	Penalty Point
Hole	4	4x4=16
Fly contra	1	1x1=1
Yarn contra	1	1x1=1
Oil stain	1	1x1=1
Slubs	1	1x1=1
		Total penalty point =20

- **point calculation:**

Total point :20

Fabric length yds:84

Fabric width inch:35

Points per 100 yards:

$$\text{So.} \quad \frac{\text{Total point x 36 x100}}{\text{Fabric length yds x fabric width inch}}$$

$$\frac{20\text{x}36\text{x}100}{84 \text{ x}35}$$

=12

This fabric is A grade.

Discussion:

Rib fabric construction is more challenging than single jersey. However, the defect is continually creating. However, the use of a krill box and air purifying procedures reduces the problem and results in reduced waste volume.

4.4.3 Table: Terry (200 GSM)

MARMA Composite Ltd.

Tongabari, Ashulia, Savar, Dhaka, Bangladesh

Grey Fabrics Inspection Report Sheet

Section: Knitting

Date : 10.02.24

Shift : C

Buyer	Order No	Fabric Type	Brand	Lot	Yarn Count	M/C Dia*G	S.L	F.GSM	F.Dia	Color	Roll Number	Roll Weight	Length in yds kg*43055/F. gsm/F.Dia	Spinning Faults: Patta	Spinning Faults: Slub/ Fly	Spinning Faults: Yarn Contra	Knitting Faults: Loop/ Hole	Knitting Faults: Set Up	Knitting Faults: Needle /Sinker Mark	Knitting Faults: Oil Spot	Knitting Faults: Lycra Out	Total Point	Point%	Grade
10/ Mata Lah	820 507	FFLY S/7	FOR MULE	30 21	30 OD	34"	290	200	66 OP	White 190P	1	20	65	–	–	–	1	–	–	–	–	4	3%	A
											2	20	65	–	–	–	–	1	–	–	–	4	3%	A
											3	20	65	–	–	–	2	–	–	–	–	ok		
11/ Mata Lah	820 507	S17	FOR mula	24 15 W	24 OD	34"	280	180	70 OP	White	1	25	86	–	–	–	–	1	–	–	–	4	2%	A
											2	25	86	–	–	–	–	–	–	–	–	ok		
											3	25	86	–	–	–	2	–	–	–	–	8	5%	A
15/ PRETTY	0295	H/7	Aman	83 23	26 OD	30"	41 38 5	250	74 OP	Need Assw	1	25	58	–	–	–	–	1	–	–	–	4	3%	A
											2	25	58	–	–	–	–	–	[illegible]	–	–	ok		
											3	25	58	–	–	–	1	–	–	–	–	4	3%	A
5/ Mata Lah	820 & 507	1X1 Ly RIB	FOR one	28 15 W	28 OD	36"	290	260	72 OP	L White	1	20	46	–	–	–	–	1	–	–	–	4	4%	A
											2	20	46	–	–	–	–	–	–	–	–	ok		

4 Point System

4 Point System	Point
Faults: 0-3"	1
Faults: 3-6"	2
Faults: 6-9"	3
Faults: Above 9"	4

Calculation of points per 100 yards

Point% = Total Point * 36 * 100 / Length-yds/ Finish Dia

Point% = 0-20, Fabrics will be graded "A"

Point% = 21-30, Fabrics will be graded "B"

Point% = 31 & Above, Fabrics will be Rejected

Prepared

Knitting Manager

GM

Name of faults	Number of Faults	Penalty Point
Hole	3	3x4=12
Fly contra	2	2x1=2
Yarn contra	1	1x1=1
Oil stain	1	1x1=1
		Total penalty point =16

- **point calculation:**

Total point :16

Fabric length yds:55

Fabric width inch:83

Points per 100 yards:

So. $$\frac{\text{Total point x 36 x100}}{\text{Fabric length yds x fabric width inch}}$$

$$\frac{16x36x100}{55\ x82}$$

=13

This fabric is A grade.

Discussion:

Terry has a more important structure than a regular single jersey. However, we can observe that flaws are also formed there. However, in this case, the bullet point states that the usual terry fabric fault number is 13.

4.4.4 Process of minimizing Fault duringproduction:

The defect number or the quality of the product is determined by the state of the machine and its components, as well as the quality of the raw materials. We may limit the number of faults by doing the following steps:

- Replace any bent needles and tighten the tricks.
- Replace damaged or bent sinkers that create indentation lines in the cloth.
- Use a tension meter to guarantee consistent thread tension across all feeds.
- When running cloth through the machine, the operator must use caution.
- Use excellent yarn.

If we follow these directions, we will be able to create defect-free fabrics.

CHAPTER 5

CONCLUSION

5.1 CONCLUSION

Faults in knitted fabric are primarily caused by three factors: (i) yarn faults, (ii) knitting defects, and (iii) environmental imperfections. To ensure the quality of a knitted fabric, all three components must be harmonized. We believe that our findings will help people working in the knitting industry identify the cause of observed flaws and offer specific solutions to these flaw sources. Knitters can then take the necessary remedial action to address the problems. Some knitting faults persist until the cloth is finished; however, they are easily remedied by dying. This study can give an in-depth explanation of knit faults, their causes, and remedies.

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