Faculty of Engineering

Department of Textile Engineering

Project thesis on

"EFFECTS OF COMPACTING ON KNIT FABRIC PROPERTIES"

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A thesis submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Textile Engineering

Advance in Wet Processing Technology

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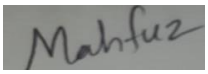
DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Tanvir Ahmed Chowdhury**, Assistant Professor, Department of Textile Engineering, Faculty of Engineering, and Daffodil International University. We also declare that, neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.



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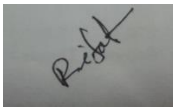

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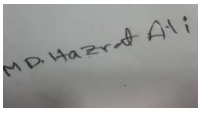

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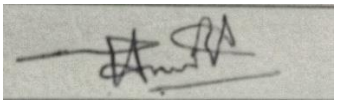
LETTER OF APPROVAL

This project report prepared by Md. Mahfuzur Rahman (ID: 161-23-4545), Anwar Shadat (ID: 161-23-4565) and Md Hazrat Ali (ID: 161-23-4646) is approved in Partial Fulfillment of the Requirement for the Degree of BACHELOR OF SCIENCE IN TEXTILE ENGINEERING. The said students have completed their project work under my supervision. During the research period I found them sincere, hardworking and enthusiastic.



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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 project report.

DEDICATION

We dedicate this report to our beloved Parents who give us constant support and love in our life and provided us the chance to study in Textile Engineering.

We also dedicate this work to all those garments workers who start their day hurrying for their shift and work so hard just to put a roof over their head and food on the table and in exchange our country has become the world's second largest apparel manufacturer with at least $20 billion annual revenues.

Abstract

This study has been sorted on effects of compacting on different knitted fabric properties. For complete this study we have used sample fabric of compactor machine before compactor and after compactor. We took multiple samples of four type of fabric Single jersey, Rib (1×1), Single Lacoste, and fleece. We have measured this samples (after compacting sample) GSM, Fabric width, Stitch length, WPI, CPI, Yarn count and this measuring data we have compared before fabric of compactor machine. We saw sometimes this data increase and sometimes decrease. In the case of GSM and the data has increase, and for fabric width the data has decrease. Because their demand was increase GSM. On the other hand for yarn count the data sometimes has increased and sometimes decreased. For WPI CPI and Stitch length most of the time the data has increased, and in a very short time the value has been decreased. We have evaluate the value after and before compacting fabric of compactor machine. Also we studied on compactor machine. How it's act on fabric structure for increase and decrease of GSM, fabric width, stitch length, WPI, CPI, yarn count. We also studied about machine parts, and their function of compactor machine.

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CHAPTER 1

INTRODUCTION

CHAPTER 1

1.1 Introduction

Fabric passes through different textile processing before dyeing or printing in textile processing, Compacting is one of them. This machine is used in textile knit finishing.

Compactor is a textile finishing machine which is designed special for compacting 100% cotton knitted fabric like jersey, pique, interlock, plush, rib and sinker etc. as well as cotton blended fabric in rope form, changing the loft and dimensional stability of the fabric and presenting it to plaited form. Open compactor machine is used for the open form fabrics. It gives some special properties on the fabric and improved the quality of the fabric. Machines are generally divided into two part one is chain pin and another is compactor part. Compacting machines used to Control the fabric GSM, shrinkage, fabric diameter, Compacting the fabric & also helps to improve the hand feel and smoothness, reduce fabric thickness and ironing the fabric. Fabric GSM control mainly dependable on feed roller delivery on the chain pin. When overfeeds the fabric on the chain pin that improves the fabric GSM and fabric width is changed and lower. If fabric GSM is increased fabric stitch length is increased. When fabric GSM is Decrease by using compacting machine lower feed the fabric by delivery roller on the chain pin and fabric GSM is decrease. If fabric GSM is decrease fabric width is increase. When the GSM is lower the fabric by compacting fabric stitch length is decrease. Temperature vary on fabric type and shade. In 100-200 GSM (gram per square fabric) fabric single jersey, Lycra single jersey, Lacoste, all are run in normally 120°C temperature. In light shade purpose temperature increased. Some special purpose Brush fleece are run in 105-110°C temperature. And High GSM fleece and terry are run in 130°C temperature.

1.2 Objective of the study:

The specific objectives of this research are mainly –

- To know how to control fabric GSM and find out the changes percentages.
- To know how to control the stitch length (SL) of fabrics and calculate the changes percentage.
- To know how to control diameter of fabrics and find out the changes percentages.
- To know how to control yarn count and find out their changes percentages.
- To know how to control fabrics WPI and find out their changes percentages.
- To know how to control fabrics CPI and find out their changes percentages.
- To know how to control the shrinkage of the fabrics.
- To know how to improve the hand feel and smoothness.
- To know how to compaction the fabric.

CHAPTER 2

LITERATURE REVIEW

CHAPTER 2

2.1 Introduction of compactor machine

The compactor machine is a textile finishing machine that used fabric shrinkage control which can compact the fabric in length wise direction, to provide over feed to the fabric while processing in presence of steam, and able to control the shrinkage. In other word, this is a process of compacting the fabric in length ways direction. Compactor is designed special for compacting of 100% cotton knitted fabric like jersey, interlock, rib and pique etc.

2.2 History of compactor machine

Sperotto Rimar is known to be a leading innovator and manufacturer of textile finishing machines. Founded in Italy in 1949, Sperotto Rimar specializes in natural and artificial fabric finishing machines. Long experience, rich history and deep knows that what the key futures of Sperotto Rimar are. After more than 60 years of service, Sperotto Rimer is internationally renowned for its quality, technical expertise and know the textile sector.

Compactor machine is very important for the finishing section of the cloth. That was referred to as the compactor frame, only the frame used in the USA. The main function of the compactor machine is to control the shrinkage of the fabric. The traditional compactor was like a fixed hand frame made of two parallel rails, which were mounted on rows of pins to hold the fabric. When the fabric was manually impenetrate on the bolt, the rails began to move apart by the cross rail. For this purpose, the fabric was dried in a stretched state and created a crease-free fabric and regulated the size of the fabric when it was released. This system is still used for finished lace and net fabric where 400 inches can be uncounted. The crepe georgette fabric also dried sometimes in a hand frame that controls both the length and the width of the fabric. The hand frames are kept in a warm room and the gentle flow of air is provided by a large spray over the frame. Sometimes the narrower frame of the hand is arranged in the tier.

2.3 Specification of compactor machine

Specifications Name	Specifications Value
Product Category	Finishing
Machine Category	Compactor
Product Name	Compactor Machine
Product Model	According to textile company
Product Class	New
Origin	Italy
Brand/ Manufacturer	Bianco
Power	380v, 30 Kw
Temperature	110-140
Production Capacity	NA
Working width	1500mm
Mechanical speed	3~35m/min
The temperature of cylinder	0~200°C
Pressure of compressed air	0.3~0.6MPa
Pressure of steam	0.4~0.6MPa
Adjustable width of cloth	400~1500mm
Motor power	8.02kw
Dimension	7558×2850×2350mm
Certification	SGS/others
Description	Used in Textile Factory / textile company for textile manufacturing

Table: 2. 1 Specification of compactor machine

2.4 The specific objectives of this project

- To calculate the after and before GSM and their change%.
- To calculate the after and before SL of fabrics and their change%.
- To calculate the after and before Diameter of fabrics and their change%.
- To calculate the after and before yarn count and their change%.
- To count the after and before WPI and find out change%.
- To count the after and before CPI and their change%
- To controlling the fabric shrinkage.

2.5 Importance of open width compactor machine

- Due to blanket system the fabric is very soft
- No harmful for using fabric
- The size of the fabric can be kept exactly
- Easy operating system
- Good shrinkage control

2.6 Cautions

- Taplon may be spoiled, if to give the knot on fabric without sewing
- It can be over compaction on fabric
- It can be more or less to size

2.7 Adjustments

- Temperature
- Left side pinning
- Right side pinning
- Blanket pressure
- Overfeed %
- Under feed %
- Width Adjust
- Out steam ratio
- Machine speed

2.8 Working procedure of compacting machine

Open Width Compactor is suitable for open width knit fabrics to achieve accurate dimensional stability and softness. In general, the machine consists of a feed frame with a centering device and a scrolling roller, an equalizing stenter frame with an over feed roller and a brush pinning arrangement.

The input portion of the Pin Frame is supported with the edge spreaders IR In-Feed and S.S. Prepared steam unit for uniform moistening of the fabric. The Steaming Device has stainless steel sliding shutters that allow steam to flow only by the width of the fabric.

A low contact Glueing and Drying unit is supplied with a stainless steel trough. Four drying units with infra-red emitters are placed on either side of the machine. The delivery side section consists of the edge dryer, the selvedge trimmer and the suction device, the outlet roller, the width adjustment device and the chain drive are housed in the outlet box.

The compacting unit consists of 2 felt compacting units, each consisting of a Nomex felt approx. 20 mm thick, chrome-plated, steam-heated center roller of dia. 400 mm, a rubber roller driven by a variable frequency drive, a compacting pressure roller, a felt roller and a felt roller. Each system is fitted with a special anti-fiction shoe style sheet operated by an electrical actuator to control compressive shrinkage. After a second felt, a fabric cooling roller is used to cool the fabric by cooling the circulation of water. The Fabric Tension is regulated by the computer with the aid of responsive load cells and variable frequency drive and PLC and touch screen.

2.9 Different parts & their functions of compacting machine

Feed roller: uses feed the fabric into the machine from dyeing section.

Figure: 2. 1 Feed roller

Upper feeder and lower feeder: This roller is used for passing the fabric frequently into the machine

Figure: 2. 2 upper and lower feed roller

Pinning: Adjust fabric for a specific width set

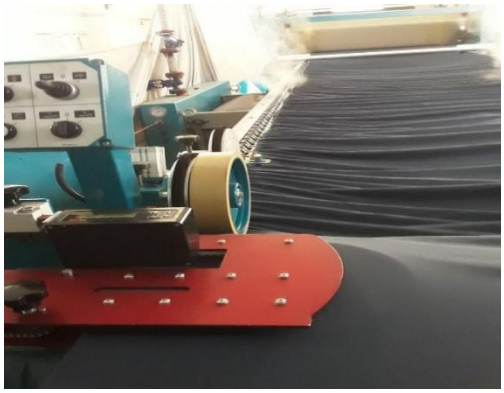


Figure: 2. 3 Pinning

Chain: used for passing the fabric frequently into the delivery zone

Figure: 2. 4 Chain

Blanket: It is help do more soft to fabric

Figure: 2. 5 Blanket

Cylinder: To produce temperature on fabric surface

Figure: 2. 6 Cylinder

Cooling belt: It is used to cool the fabric

Figure: 2. 7 Cooling belt

Delivery roller: It is used to deliver the fabric.

Figure: 2. 8 Delivery roller

Taplon: To give the pressure on fabric surface

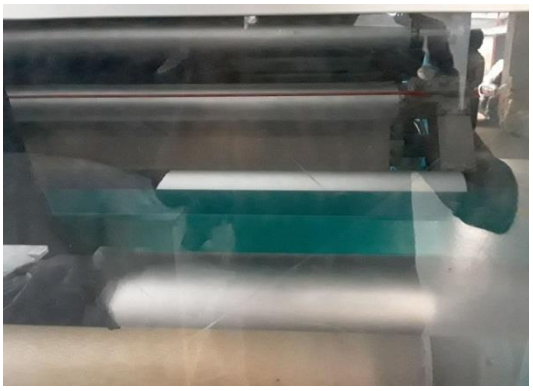


Figure: 2. 9 Taplon

2.10 Processing of compacting

There have one process of compacting

- Dyed fabric compacting process

2.11 Dyed fabric compacting process

Collected fabric from dyeing floor

Fabric feed in feed roller

Fabric pass in lower and upper feeder

Fabric goes left pinning and right pinning

Chain arrangement

Extractor setting

Blanket

Cooling belt

Delivery roller

2.12 Application of compactor machine

- Control fabric shrinkage and GSM
- In the case of high GSM overfeed of compactor machine is increased as a result fabric width is decreased. In case of low GSM overfeed of compactor machine is decreased and fabric width is increased
- Significant contribution in twist control
- Increased Smoothness
- Reduce thickness and compressed the fabric
- Control proper fabric width

Chapter 3

METHODOLOGY

3.1 Materials

We have collected five types of sample of different GSM. Each fabric was compacting after dyeing. We have measured it how much change the value of GSM, SL, Fabric width, Yarn count, WPI, CPI. The swatch is mentioned in table.

3.1.1 Sample specification

swatch no	Swatch Name
01	S/J
02	RIB(1×1)
03	Single Lacoste
04	Double Lacoste
05	Fleece

Table: 3. 1 Sample specification

3.1.2 Specification of compactor m/c that we were used our research

Brand Name	Lafer spa
Model No	KSA500
Serial no	10KS05137
Origin	ITALY
Manufacture year	2018
Speed range	30-40m/min
Temperature	50-140 c
Used utilities	Steam

Maximum fabric width	86 inch
Maximum Fabric width	36 inch
Applied for	Open width

Table: 3. 2 Specification of compactor m/c that we were used our research

3.1.3 Sample running

Condition

SL NO	Fabric types	Temperature (◦c)	M/C speed	Overfeed %
01	Single jersey	130	33	35
02	Rib (1×1)	135	35	40
03	Single Lacoste	135	30	40
04	Fleece	132	32	35

Table: 3. 3 Sample running

3.1.4 Sample specification:

We takes multiple sample from four types of sample before feed into compactor machine.

Single jersey 1:

GSM: 186

SL: 2.8

Dia: 242

Yarn count: 27

WPI: 54

CPI: 26

Single jersey 2:

GSM: 154

SL: 2.6

Dia: 198

Yarn count: 28

WPI: 60

CPI: 33

Single jersey 3:

GSM: 130

SL: 2.6

Dia: 182

Yarn count: 32

WPI: 48

CPI: 34

Single jersey 4:

GSM: 144

SL: 2.7

Dia: 184

Yarn count: 36

WPI: 63

CPI: 36

Rib1×1:

GSM: 162

SL: 2.7

Dia: 176

Yarn count: 38, 20

WPI: 62

CPI: 32

Rib1×1:

GSM: 168

SL: 2.8

Dia: 166

Yarn count: 35,20

WPI: 56

CPI: 34

Rib1×1:

GSM:177

SL:2.6

Dia:170

Yarn count: 36,20

WPI: 56

CPI: 34

Rib1×1:

GSM: 156

SL: 2.7

Dia: 170

Yarn count: 36,20

WPI: 56

CPI: 34

Single Lacoste 1:

GSM: 199

SL: 3

Dia: 92

Yarn count: 29

WPI: 64

CPI: 36

Single Lacoste 2:

GSM: 190

SL:2.9

Dia: 88

Yarn count: 32

WPI: 60

CPI: 38

Single Lacoste 3:

GSM: 202

SL: 3.0

Dia: 100

Yarn count: 32

WPI: 63

CPI: 33

Single Lacoste 4:

GSM:205

SL: 2.9

Dia: 89

Yarn count: 31

WPI: 56

CPI: 34

Fleece 1:

GSM: 321

SL: 1.50, 3.60, 4.70

Dia: 183

Yarn count: 16, 30, 30

WPI: 23

CPI: 15

Fleece 2:

GSM: 375

SL: 1.5, 3.6, 4.9

Dia: 181

Yarn count: 10, 28, 28

WPI: 22

CPI: 16

Fleece 3:

GSM:425

SL: 1.50, 3.65, 4.80

Dia: 181

Yarn count: 12, 28, 28

WPI: 24

CPI: 16

Fleece 4:

GSM: 427

SL: 1.50, 3,65, 4.80

Dia: 178

Yarn count: 12, 28, 28

WPI: 2

CPI: 16

3.2 Method

3.2.1 Method Of the calculation of fabric GSM:

GSM refers gm. per square meter that's indicate the weight of fabric of gm. per one square meter, also it's refers the hand feel of fabric the heavier or lighter. We had collected five types of sample S/J, Rib, Single Lacoste, Double Lacoste and fleece, Firstly we want to say that GSM has increased for each fabric. Because overfeed has been enhanced for each fabric.

We did the calculation of GSM by industrial rules and our education rules

First take measure the GSM cutter sample×100

Or,

GSM= WPI×CPI×S.L×0.9155/yarn count

3.2.2 Method of the calculation of Stitch Length:

Count of 100 needles of stitch on the horizontal line from fabric. Then we did bring out the closer yarn on the fabrics boundary line & measure the length by using scale of that yarn in mm.

3.2.3 Method of the calculation of fabric width

We took the measurement of fabric width from before and after compactor machine in inch, by using measuring tape.

3.2.4 Method of Calculation of yarn Count

We took some sample of fabric of single jersey, rib, single Lacoste, and fleece. Then we did calculate the yarn count of those fabric by using the following rules:

For, S/J= 4300/GSM

For, Lycra 1×1rib= (-0.119×GSM) + 59.12

For, Single Lacoste= (5500÷Gsm)

For, Fleece= (7200÷Gsm)

3.2.5 Method of calculation of WPI

We took some sample fabric of single jersey, rib, fleece & Single Lacoste. Then put the fabric on the table on gray line position. Then we put counting glass on this sample & count horizontally into 1 inch. Finally found the wales per inch.

3.2.6 Method of calculation of CPI

We took some sample fabric of single jersey, rib, fleece & single Lacoste. Then put the fabric on the table on gray line position. Then we put counting glass on this sample & count vertically into 1 inch. Finally found the course per inch.

3.3 Method of Evaluation:

3.3.1 Determination of fabric GSM

Firstly we had calculation the GSM of sample fabric. GSM express that gm. per square meter. In other words how much cloths are there in per meter square. By the GSM refers heavier and lighter of a fabric. We saw the GSM increased for each fabric. Because the fabric overfeed was more about 40, or 45%.Behind the GSM increase also have contribute the taplon pressure. When set up the fabric overfeed at max % at the same time taplon pressure also set up, which increase the fabric density. So tappoon pressure and overfeed is very important role for increase the fabric GSM. So we can say if we give the more overfeed then the fabric hand feel is heavier.

3.3.2 Determination of SL

By the SL refers that the length of yarn in a knitted loop. We can saw for the stitch length sometimes it's increased and sometimes it's decreased. But most of the time it's increased. So we can tell it is proportional to other between GSM and Stitch length, that means if stitch length is increased GSM is increased and if stitch length is decreased GSM is lower.

3.3.3 Determination of Fabric Width

Fabric width refers that the distance between one selvedges to another selvedge. For standard method fabric width measure should be taken after relaxation of fabric at standard atmosphere (24 hours). We can saw most of the time the width of fabric is decreased. It's completely handle by operator from compactor machine. If GSM is increase of fabric then the width of the fabric will decreased.

3.3.4 Determination of yarn count

Yarn count refers the numerical expression by direct or indirect system of a yarn fineness and coarseness. Count number indicate mass per unit length or length per unit mass. Yarn count must be change after compacting. Yarn count effect on fabric GSM. For indirect system more count of yarn is thin, and less count of yarn is thick. Here we measured the yarn count by indirect system. Here we get the variable yarn count after compacting, sometimes more or sometimes less. It's depended on fabric GSM.

3.3.5 Determination of WPI

WPI refers (wales per inch) that means no of wales loop per one inch in a knit fabric. We saw sometimes WPI increase and sometimes its decrease. WPI effect on fabric GSM. If GSM is increase WPI (wales per inch), also increase after compacting.

3.3.6 Determination of CPI

CPI refers (course per inch) that means no of course loop per one inch in a knit fabric. We saw sometimes CPI increase and sometimes its decrease. Also CPI effect on fabric GSM. If GSM is increased CPI (course per inch) also increase after compacting.

CHAPTER 4

DISCUSSION OF RESULTS

4.1 Effect of compactor on GSM of knitted fabric

4.1.1 Effect of compactor on GSM of single jersey fabric

Fabric types	GSM before compacting	GSM after compacting	GSM change	GSM change%	Avg. change GSM
Single jersey-1	186	194	8 (increased)	4.12% (increased)	3.20%
Single jersey-2	154	160	6 (increased)	3.75% (increased)	
Single jersey-3	130	134	4 (increased)	2.98% (increased)	
Single jersey-4	144	146	2 (increased)	1.36% (increased)	

Table: 4. 1 Effect of compactor on GSM of single jersey fabric

Here, we take four sample of single jersey fabric. There GSM were 186, 154, 130, and 144 before compacting and after compacting the GSM were increased in 194, 160, 134, and 146. The change% of those samples were respectively 4.12%, 3.75%, 2.98% and 1.36%. Finally the average GSM change% is 3.20% for single jersey fabric.

4.1.2 Effect of compactor on GSM of Fleece fabric

Fabric types	GSM before compacting	GSM after compacting	GSM change	GSM change%	Avg. change GSM
Rib 1*1	162	167	5 (increased)	3.1% (increased)	2.37%
Rib 1*1	168	172	4 (increased)	2.3% (increased)	
Rib 1*1	177	181	4 (increased)	2.2% (increased)	
Rib 1*1	156	159	3 (increased)	1.88% (increased)	

Table: 4. 2 Effect of compactor on GSM of Fleece fabric

Here, we take four sample of rib fabric. There GSM were 162, 168, 177, and 156 before compacting and after compacting the GSM were increased in 167, 172, 181, and 159. The change% of those samples were respectively 3.1%, 2.3%, 2.2% and 1.88%. Finally the average GSM change% is 2.37% for rib fabric.

4.1.3 Effect of compactor on GSM of Lacoste fabric

Fabric types	GSM before compacting	GSM after compacting	GSM change	GSM change%	Avg. GSM
Single lacoste-1	199	212	13 (increased)	6.14% (increased)	4.78%
Single lacoste-2	190	200	10 (increased)	5% (increased)	
Single lacoste-3	202	211	9 (increased)	4.26% (increased)	
Single lacoste-4	205	213	8 (increased)	3.75% (increased)	

Table: 4. 3 Effect of compactor on GSM of Lacoste fabric

Here, we take four sample of single Lacoste fabric. There GSM were 199, 190, 202, and 205 before compacting and after compacting the GSM were increased in 212, 200, 211, and 213. The change% of those samples were respectively 6.14%, 5%, 4.26% and 3.75%. Finally the average GSM change% is 4.78% for Lacoste fabric.

4.1.4 Effect of compactor on GSM of Fleece fabric

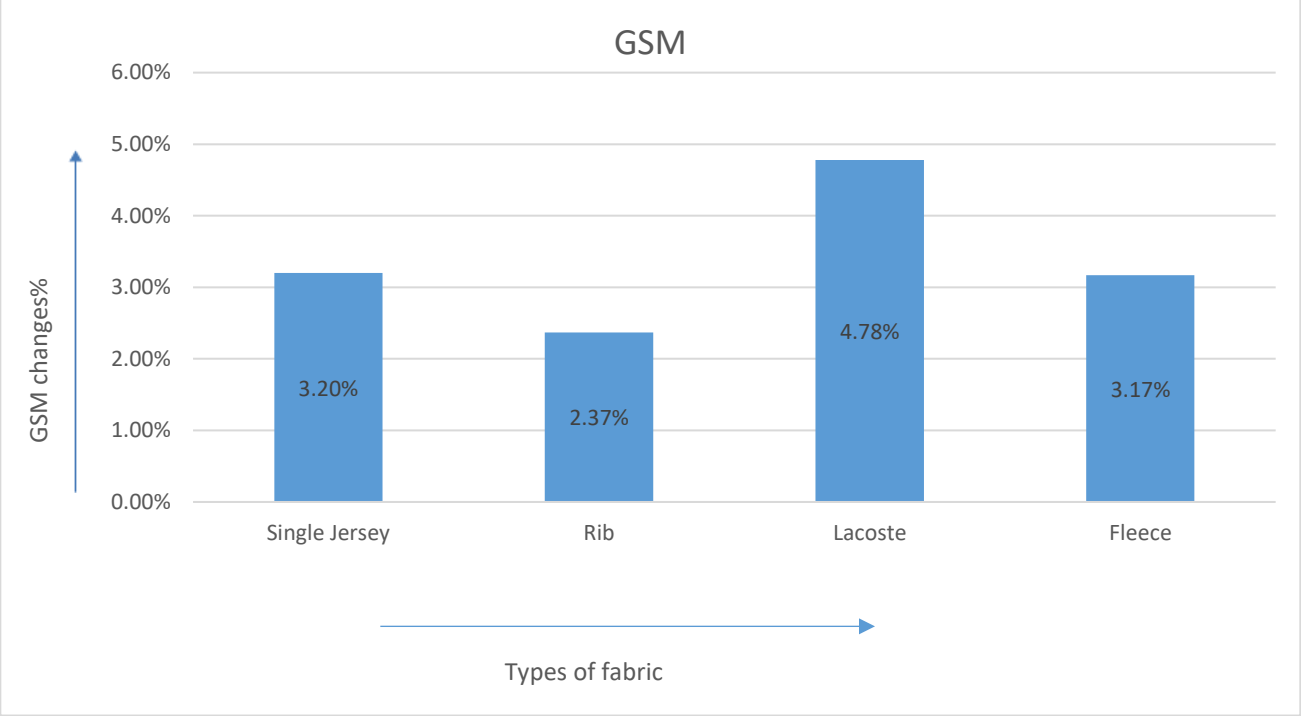
Fabric types	GSM before compacting	GSM after compacting	GSM change	GSM change%	Avg. GSM
fleece-1	321	338	17 (increased)	5.02% (increased)	3.17%
fleece-2	375	387	12 (increased)	3.1% (increased)	
fleece-3	425	436	11 (increased)	2.5% (increased)	
fleece-4	427	436	9 (increased)	2.06% (increased)	

Table: 4. 4 Effect of compactor on GSM of Fleece fabric

Here, we take four sample of Fleece fabric. There GSM were 321, 375, 425, and 427 before compacting and after compacting the GSM were increased in 338, 387, 436, and 436. The change% of those samples were respectively 5.02%, 3.1%, 2.5% and 2.06%. Finally the average GSM change% is 3.17% for Fleece fabric.

4.1.5 Change in GSM of different type fabric after compacting process

The change in GSM of fabric after compacting process, different average value is found. The changes in GSM of different types of fabric were used after the compacting process to draw the following Figure 4.1



Graph: 4. 1: Column diagram represents the GSM changes% of different type fabrics

The diagram has been drawn for the % of change in GSM of different types of fabric. In this diagram, the change% in GSM value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the GSM value of the fabric is also changed.

From this diagram we can see that after compacting process the changes% GSM of single jersey fabric is higher than Lacoste fabric but lower than Rib & Fleece fabric.

From this diagram we can see that after compacting process the changes% of Rib fabric is lower than Single jersey, Lacoste & Fleece fabric.

From this diagram we can see that after compacting process the changes% GSM of Lacoste fabric is higher than Single jersey, Rib and Fleece fabric.

From this diagram we can see that after compacting process the changes% of Fleece fabric is lower than Single jersey & Lacoste and higher than rib fabric.

Finally, from the diagram we can see that, the changes% values of GSM of different types of fabrics after compacting process is different. At this stage Lacoste fabrics change% of GSM is higher than other fabrics & Rib fabrics change% of GSM in lower than others. We found different GSM values for the different types of fabrics.

4.2 Effect of compactor on S.L of knitted fabric

4.2.1 Effect of compactor on S.L of single jersey fabric

Fabric types	S.L before compacting	S.L after compacting	S.L change	S.L change%	Avg. S.L
Single jersey-1	2.8	3.0	0.2 (increased)	7.14% (increased)	6.53%
Single jersey-2	2.6	2.8	0.2 (increased)	7.14% (increased)	
Single jersey-3	2.6	2.8	0.2 (increased)	7.14% (increased)	
Single jersey-4	2.7	2.85	0.15(increased)	5.26% (increased)	

Table: 4. 5 Effect of compactor on S.L of single jersey fabric

Here, we take four sample of single jersey fabric. There S.L were 2.8, 2.6, 2.6 and 2.7 before compacting and after compacting the S.L were increased in 3.0, 2.8, 2.8, and 2.85. The change% of those samples were respectively 7.14%, 7.14%, 7.14% and 5.26%. Finally the average S.L change% is 6.53% for single jersey fabric.

4.2.2 Effect of compactor on S.L of rib fabric

Fabric types	S.L before compacting	S.L after compacting	S.L change	S.L change%	Avg. S.L
Rib 1*1	2.7	2.85	0.15 (increased)	5.26% (increased)	3.11%
Rib 1*1	2.8	2.90	0.1 (increased)	3.44% (increased)	
Rib 1*1	2.6	2.65	0.05 (increased)	1.9% (increased)	
Rib 1*1	2.7	2.75	0.05 (increased)	1.85% (increased)	

Table: 4. 6 Effect of compactor on S.L of rib fabric

Here, we take four sample of rib fabric. There S. L were 2.7, 2.8, 2.6 and 2.7 before compacting and after compacting the S.L were increased in 2.85, 2.90, 2.65 and 2.75. The change% of those samples were respectively 5.26%, 3.44%, 1.9% and 1.85%. Finally the average S.L change% is 3.11% for rib fabric.

4.2.3 Effect of compactor on Lacoste fabric

Fabric types	S.L before compacting	S.L after compacting	S.L change	S.L change%	Avg. S.L
Single lacoste-1	3	2.8	0.2 (decreased)	6.66% (decreased)	4.99%
Single lacoste-2	2.9	3.1	0.2 (increased)	6.45% (increased)	
Single lacoste-3	3.0	2.9	0.1 (decreased)	3.33% (decreased)	
Single lacoste-4	2.9	3.0	0.1 (increased)	3.33% (increased)	

Table: 4. 7 Effect of compactor on Lacoste fabric

Here, we take four sample of Lacoste fabric. There S.L were 3.0, 2.9, 3 and 2.9 before compacting and after compacting the SL were decreased in 2.8, 3.1, 2.9 and increased in 3.0 . The change% of those samples were respectively 6.66%, 6.45%, 3.33% and 3.33%. Finally the average S.L change% is 4.99% for Lacoste fabric.

4.2.4 Effect of compactor on S.L of fleece fabric

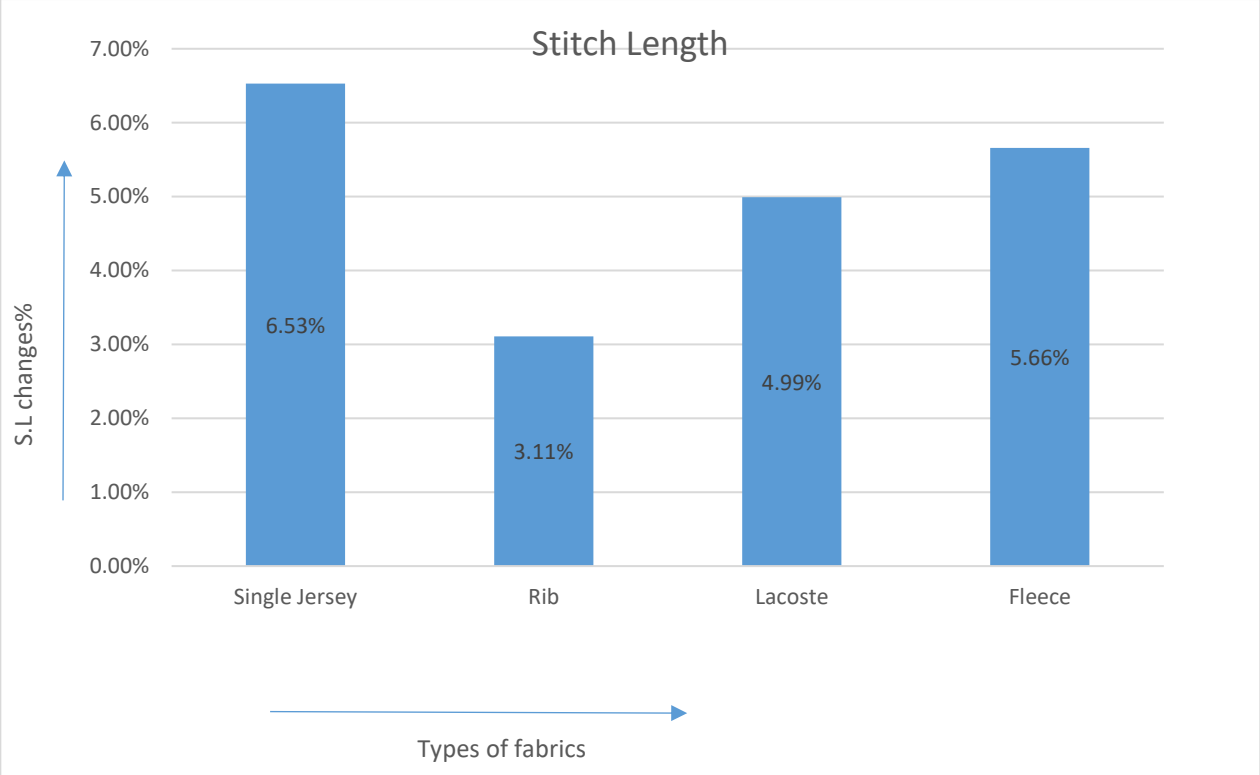
Fabric types	S.L before compacting	S.L after compacting	S.L change	S.L change%	Avg. S.L
Fleece-1	1.50,3.60,4.70	1.7,3.8, 5.0	0.2, 0.2, 0.3 (increased)	5.8%, 4.5%, 4.87% (increased)	5.66%
Fleece-2	1.5, 3.6, 4.9	1.8, 3.8, 5.2	0.3, 0.2, 0.3 (increased)	5.65%, 5.66%, 6.66% (increased)	
fleece-3	1.50,3.65,4.80	1.7,3.8, 5.0	0.2, 0.15, -.3 (increased)	5.6%, 4.5%, 4.87% (increased)	
fleece-4	1.50,3.65,4.80	1.6,3.8, 5.0	0.1, 0.15, -.3 (increased)	5.56%, 4.5%, 4.87% (increased)	

Table: 4. 8 Effect of compactor on S.L of fleece fabric

Here, we take four sample of Fleece fabric. There S.L were 1.50, 3.60, 4.70 and 1.5, 3.6, 4.9 and 1.50, 3.65 4.80 and 1.50, 3.65, 4.80 before compacting and after compacting the SL were increased in 1.7, 3.8, 5.0 and 1.8, 3.8, 5.2 and 1.7, 3.8, 5.0 and 1.6, 3.8, 5.0 . The change% of those samples were respectively 5.8%, 4.5%, 4.87% and 5.65%, 5.65%, 6.66% and 5.6%, 4.5%, 4.87% and 5.56%, 4.5%, 4.87%. Finally the average GSM change% is 5.66% for Fleece fabric.

4.2.5 Change in Stitch length of different types fabric after compacting process

The change in Stitch length of fabric after compacting process, different average value is found. The changes in Stitch length of different types of fabric were used after the compacting process to draw the following Figure4.2



Graph: 4. 2: **Column diagram represents the S.L changes% of different type fabrics**

The diagram has been drawn for the % of change in Stitch length of different types of fabric. In this diagram, the change% in stitch length value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the stitch length value of the fabric is also changed.

From this diagram we can see that after compacting the changes% of stitch length of single jersey fabric is higher than Lacoste fabric, Rib & Fleece fabric.

From this diagram we can see that after compacting the changes% of stitch length of Rib fabric is lower than Single jersey, Lacoste & Fleece fabric.

From this diagram we can see that after compacting the changes% of stitch length of Lacoste fabric is higher than Rib fabric and lower than single jersey fabric and Fleece fabric.

From this diagram we can see that after compacting the changes% of stitch length of Fleece fabric is lower than Single jersey and higher than rib fabric & Lacoste fabric.

Finally, from the diagram we can see that, the changes% values of stitch length of different types of fabrics after compacting process is different. At this stage single jersey fabrics change% of stitch length is higher than other fabrics & Rib fabrics change% of stitch length in lower than others. We found different stitch length values for the different types of fabrics.

4.3 Effect of compactor on diameter of knitted fabric

4.3.1 Effect of compactor on diameter of Single jersey fabric

Fabric types	Dia before compacting	Dia after compacting	Dia change	Dia change%	Avg. Dia
Single jersey-1	242	230	12 (decreased)	4.95% (increased)	2.41%
Single jersey-2	198.2	193.4	4.8 (decreased)	2.5% (decreased)	
Single jersey-3	182	180	2 (decreased)	1.11% (decreased)	
Single jersey-4	184	182	2 (decreased)	1.08% (increased)	

Table: 4. 9 Effect of compactor on diameter of Single jersey fabric

Here, we take four sample of single jersey fabric. There diameter were 242, 198.2, 182 and 184 before compacting and after compacting the SL were decreased in 230, 193.4, 180 and 182. The change% of those samples were respectively 4 .95%, 2.5%, 1.11% and 1.08%. Finally the average diameter change% is 2. 41% for single jersey fabric.

4.3.2 Effect of compactor on Diameter of rib fabric

Fabric types	Dia before compacting	Dia after compacting	Dia change	Dia change%	Avg. Dia
Rib 1*1	176	171	5 (decreased)	2.92% (decreased)	2.12%
Rib 1*1	166	162	4 (decreased)	2.46% (decreased)	
Rib 1*1	170	168	3 (decreased)	1.76% (decreased)	
Rib 1*1	170	168	2 (decreased)	1.17% (decreased)	

Table: 4. 10 Effect of compactor on Diameter of rib fabric

Here, we take four sample of Rib fabric. There diameter were 176, 166, 170 and 170 before compacting and after compacting the diameter were decreased in 171, 162, 168, 168. The change% of those samples were respectively 2. 92%, 2 .46%, 1. 76% and 1.17%. Finally the average GSM change% is 5.72% for rib fabric.

4.3.3 Effect of compactor on Diameter of Lacoste fabric

Fabric types	Dia before compacting	Dia after compacting	Dia change	Dia change%	Avg. Dia
Single lacoste-1	92	89	3 (decreased)	3.26% (decreased)	2.15%
Single lacoste-2	88	86	2 (decreased)	2.24% (decreased)	
Single lacoste-3	100	98	2 (increased)	2% (increased)	
Single lacoste-4	89	88	1 (increased)	1.12% (increased)	

Table: 4. 11 Effect of compactor on Diameter of Lacoste fabric

Here, we take four sample of Lacoste fabric. There dia were 92, 88, 100 and 89 before compacting and after compacting the dia were decreased in 89, 86, 98 and 88. The change% of those samples were respectively 3.26%, 2.24%, 2% and 1.12%. Finally the average dia change% is 2.15% for Lacoste fabric.

4.3.4 Effect of compactor on Diameter of fleece fabric

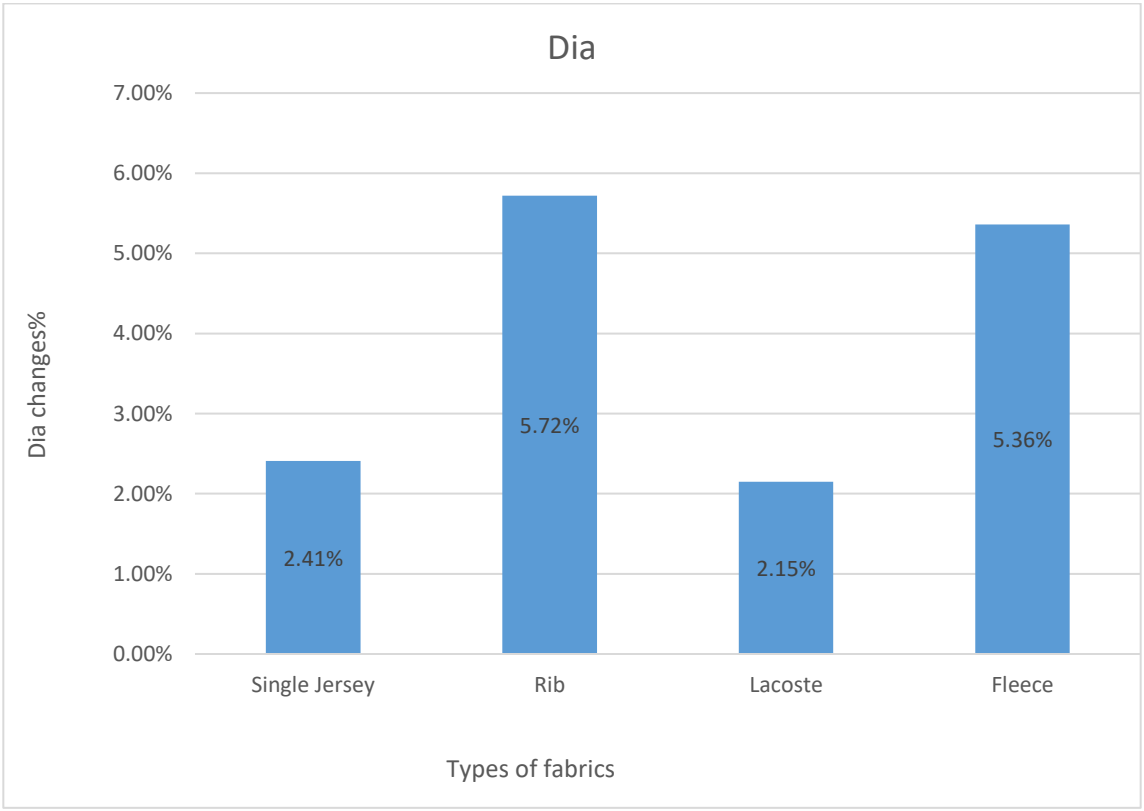
Fabric types	Dia before compacting	Dia after compacting	Dia change	Dia change%	Avg. Dia
Fleece-1	183	170	13 (decreased)	7.1% (decreased)	5.36%
Fleece-2	181	170	11 (decreased)	6.07% (decreased)	
fleece-3	181	172	9 (decreased)	4.8% (decreased)	
fleece-4	178	172	6 (decreased)	3.48% (decreased)	

Table: 4. 12 Effect of compactor on Diameter of fleece fabric

Here, we take four sample of fleece fabric. There dia were 183, 181, 181 and 172 before compacting and after compacting the dia were decreased in 170,170, 172 and 172. The change% of those samples were respectively 7 .1%, 6. 07%, 4.8% and 3.48%. Finally the average dia change% is 5.36% for fleece fabric**.**

4.3.5 Change in Diameter of different type fabric after compacting process

The change in diameter of fabric after compacting process, different average value is recorded. After compacting process the changes in diameter of different types of fabric has been used to draw the following Figure 4.3



Graph: 4. 3: **Column diagram represents the diameter changes% of different type fabrics**

The diagram has been drawn for the% of change in diameter of different types of fabric. In this diagram, the change% in diameter value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the diameter value of the fabric is also changed.

From this diagram we can see that after compacting the changes% of diameter of single jersey fabric is higher than Lacoste fabric and lower than Rib & Fleece fabric.

From this diagram we can see that after compacting the changes% of diameter of Rib fabric is higher than Single jersey, Lacoste & Fleece fabric.

From this diagram we can see that after compacting the changes% of diameter of Lacoste fabric is lower than Rib fabric, single jersey fabric and Fleece fabric.

From this diagram we can see that after compacting the changes% of diameter of Fleece fabric is lower than Rib fabric and higher than single jersey fabric & Lacoste fabric.

Finally, from the diagram we can see that, the change% values of diameter of different types of fabrics after compacting process is different. At this stage Rib fabrics change% of diameter is higher than other fabrics & Lacoste fabrics change% of stitch length in lower than others. We found different diameter values for the different types of fabrics.

4.4 Effect of compactor on yarn count of knitted fabric

4.4.1 Effect of compactor on yarn count of single jersey fabric

Fabric types	Yarn count before compacting	Yarn count after compacting	Yarn count change	Yarn count change%	Avg. Yarn count
Single jersey-1	27	28	1 (increased)	3.57% (increased)	3.20%
Single jersey-2	28	29	1 (increased)	3.44% (increased)	
Single jersey-3	32	33	1 (increased)	3.03% (increased)	
Single jersey-4	35	36	1 (increased)	2.77 (increased)	

Table: 4. 13 Effect of compactor on yarn count of knitted fabric

Here, we take four sample of single jersey fabric. There yarn count were 22, 28, 32 and 35 before compacting and after compacting the yarn county were increased in 28, 29, 33, and 36 . The change% of those samples were respectively 3. 57%, 3 .44%, 3.03% and 2.77%. Finally the average count change % is 2. 15% for single jersey fabric.

4.4.2 Effect of compactor on yarn count of rib fabric

Fabric types	Yarn count before compacting	Yarn count after compacting	Yarn count change	Yarn count change%	Avg. Yarn count
Rib 1*1	38,20	35,20	3 (decreased)	8.57% (decreased)	5.24%
Rib 1*1	35, 20	37, 20	2 (increased)	5.4% (increased)	
Rib 1*1	36,20	34.5,20	1.5 (decreased)	4.16% (decreased)	
Rib 1*1	36,20	35,20	1 (decreased)	2.85% (decreased)	

Table: 4. 14 Effect of compactor on yarn count of rib fabric

Here, we take four sample of rib fabric. There yarn count were 38,20, 35,20, 36,20, , 35,20 before compacting and after compacting the yarn count were decreased in 35,20, 34.5. The change% of those samples were respectively 8. 57%, 5.4%, 4.16% and 2.85%. Finally the average count change% is 5.24% for rib fabric.

Here, we take four sample of Lacoste fabric. There yarn count were 29, 29, 32 and 15 before compacting and after compacting the yarn county were decreased in 27, 29, 30 and 30. The change% of those samples were respectively 6.78%, 6.45%, 6.25% and 3.25%. Finally the average count change% is 5.29% for Lacoste fabric.

4.4.3 Effect of compactor on yarn count of Lacoste fabric

Fabric types	Yarn count before compacting	Yarn count after compacting	Yarn count change	Yarn count change%	Avg. Yarn count
Single lacoste-1	29	27	2 (decreased)	6.78% (decreased)	5.29%
Single lacoste-2	31	29	2 (decreased)	6.45% (decreased)	
Single lacoste-3	32	30	2 (decreased)	6.25% (decreased)	
Single lacoste-4	31	30	1 (decreased)	3.25% (decreased)	

Table: 4. 15 Effect of compactor on yarn count of Lacoste fabric

4.4.4 Effect of compactor on yarn count of fleece fabric

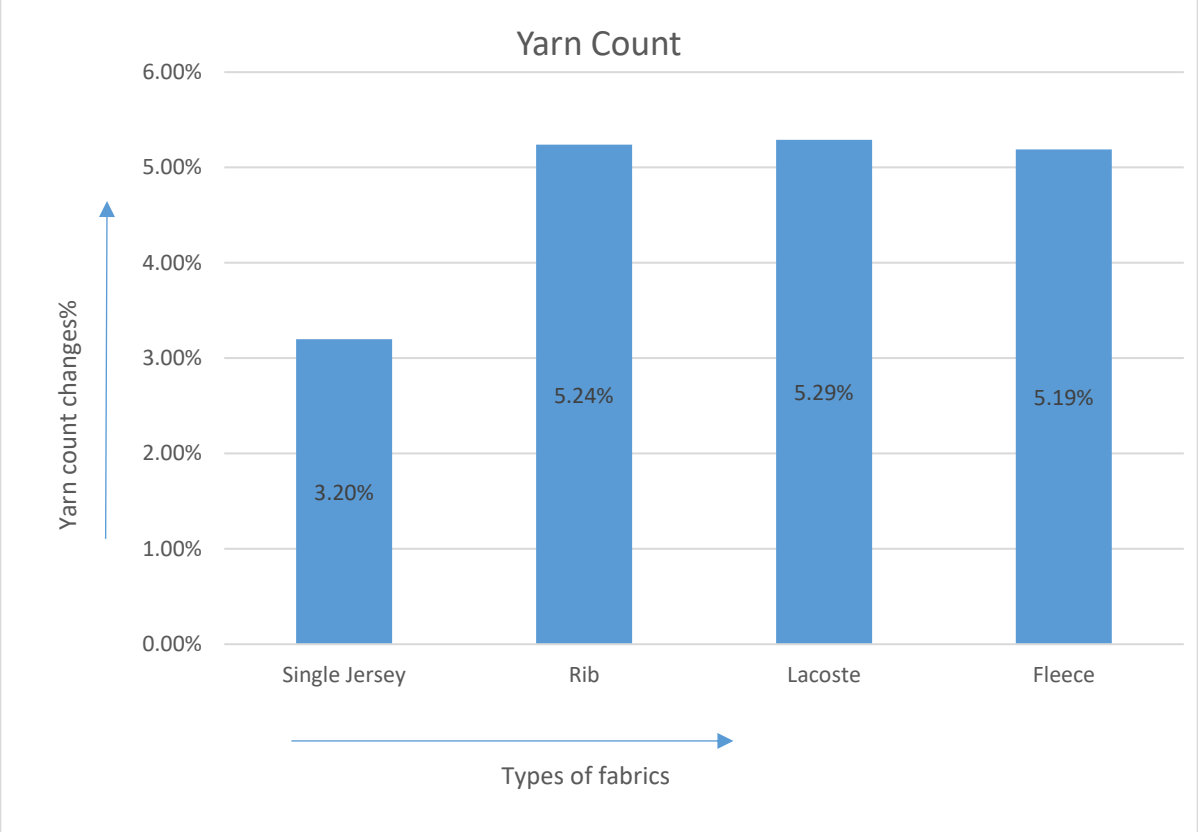
Fabric types	Yarn count before compacting	Yarn count after compacting	Yarn count change	Yarn count change%	Avg. Yarn count
Fleece-1	16, 30, 30	15, 32, 32	1, 2, 2 (decreased)	6.25%, 6.66%, 6.5%(decreased)	5.19%
Fleece-2	10, 28, 28	12, 29, 29	2, 1 , 1 (increased)	16.66%, 3.4%, 3.4% (increased)	
fleece-3	12,28,28	10,28,28	2 (decreased)	5%	
fleece-4	12,28,28	10,28,28	2 (decreased)	5%	

Table: 4. 16 Effect of compactor on yarn count of fleece fabric

Here, we take four sample of Fleece fabric. There Yarn Count were 16, 30, 30 and 10, 28, 2.8 and 12,28,28 and 12,28,28 before compacting and after compacting the SL were increased in 15, 32, 32 and 12, 29, 29 and 10,28,28 and 10,28,28. The change% of those samples were respectively 6.25%, 6.66%, 6.5% and 16.66%, 3.4%, 3.4% and 5% and 5%. Finally the average GSM change% is 5.19% for Fleece fabric.

4.4.5 Change in yarn count of different type fabric after compacting process

The change in diameter of fabric after compacting process, different average value is recorded. After compacting process the changes in yarn count of different types of fabric has been used to draw the following Figure 4.3



Graph: 4. 4 Column diagram represents the yarn count changes% of different type fabrics

The diagram has been drawn for the % of change in yarn count of different types of fabric. In this diagram, the change% in yarn count value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the yarn count value of the fabric is also changed.

From this diagram we can see that after compacting the changes% of yarn count of single jersey fabric is lower than Lacoste fabric, Rib & Fleece fabric.

From this diagram we can see that after compacting the changes% of yarn count of Rib fabric is lower than Lacoste and higher than Single jersey & Fleece fabric.

From this diagram we can see that after compacting the changes% of yarn count of Lacoste fabric is higher than Rib fabric, single jersey fabric and Fleece fabric.

From this diagram we can see that after compacting the changes% of yarn count of Fleece fabric is lower than Rib fabric, Lacoste and higher than single jersey fabric.

Finally, from the diagram we can see that, the change% values of yarn count of different types of fabrics after compacting process is different. At this stage Lacoste fabrics change% of yarn count is higher than other fabrics & single jersey fabrics change% of stitch length in lower than others. We found different diameter values for the different types of fabrics.

4.5 Effect of compactor on WPI of knitted fabric

4.5.1 Effect of compactor on WPI of single jersey fabric

Fabric types	WPI before compacting	WPI after compacting	WPI change	WPI change%	Avg. WPI
Single jersey-1	54	57	3 (increased)	5.26% (increased)	4.27%
Single jersey-2	60	63	3 (increased)	4.76% (increased)	
Single jersey-3	48	50	2 (increased)	4% (increased)	
Single jersey-4	63	65	2 (increased)	3.07% (increased)	

Table: 4. 17 Effect of compactor on WPI of single jersey fabric

Here, we take four sample of single jersey fabric. There WPI were 54, 60, 48, 63 before compacting and after compacting the WPI were increased in 57,63,50,65, The change% of those samples were respectively 5.26%,4.76%,4%,and 3.07%. Finally the average WPI change% is 4.27% for single jersey fabric.

4.5.2 Effect of compactor on WPI of rib fabric

Fabric types	WPI before compacting	WPI after compacting	WPI change	WPI change%	Avg. WPI
Rib 1*1	62	59	3 (decreased)	4.83% (decreased)	3.56%
Rib 1*1	58	56	2 (decreased)	3.44% (decreased)	
Rib 1*1	56	58	2 (increased)	3.4% (increased)	
Rib 1*1	56	57.5	1.5 (increased)	2.60% (increased)	

Table: 4. 18 Effect of compactor on WPI of rib fabric

Here, we take four sample of rib fabric. There WPI were 62, 58, 56, 56 before compacting and after compacting the WPI were increased in 59, 56, 58, 57.5, The change% of those samples were respectively 4.83%, 3.44%, 3.4% and 2.60%. Finally the average WPI change% is 3.56% for single jersey fabric.

4.5.3 Effect of compactor on WPI of Lacoste fabric

Fabric types	WPI before compacting	WPI after compacting	WPI change	WPI change%	Avg. WPI
Single lacoste-1	64	66	2 (increased)	3.3% (increased)	3.16%
Single lacoste-2	60	62	2 (increased)	3.42% (increased)	
Single lacoste-3	63	61	2 decreased)	3.33 (decreased)	
Single lacoste-4	56	57.5	1.5 (increased)	2.60% (increased)	

Table: 4. 19 Effect of compactor on WPI of Lacoste fabric

Here, we take four sample of Lacoste fabric. There WPI were 64,60,63,56 before compacting and after compacting the WPI were increased in 66,62,and decreased 61, 57.5, The change% of those samples were respectively 3.3%,3.42%,3.33%,2.60%. Finally the average WPI change% is 3.16% for Lacoste fabric.

4.5.4 Effect of compactor on WPI of fleece fabric

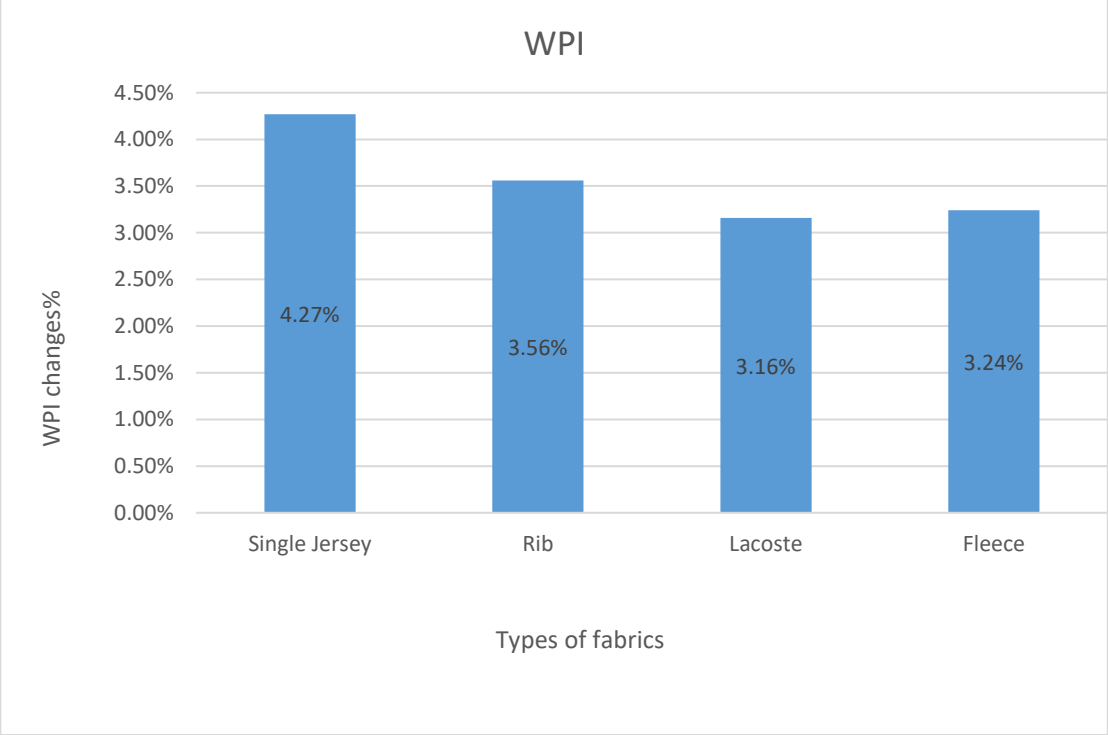
Fabric types	WPI before compacting	WPI after compacting	WPI change	WPI change%	Avg. WPI
fleece-1	23	24	1 (increased)	4.6% (increase)	3.24%
Fleece-2	22	23	1(increased)	4.37% (increase)	
Fleece-3	24	24.5	0.5 (increased)	2.04% (increase)	
Fleece-3	25	25.5	0.5 (increased)	1.96% (increase)	

Table: 4. 20 Effect of compactor on WPI of fleece fabric

Here, we take four sample of fleece fabric. There WPI were 23,22,24,25 before compacting and after compacting the WPI were increased in 24,23,24.5,25.5, The change% of those samples were respectively 4.6%,4.37%,2.04%,1.96%. Finally the average WPI change% is 3.24% for fleece fabric.

4.5.5 Change Wales per Inch of different types fabric after compacting process

The change in wales per inch of fabric after compacting process, different average value is recorded. After compacting process the changes in wales per inch of different types of fabric has been used to draw the following Figure 4.3



Graph: 4. 5 Column diagram represents the wales per inch changes% of different type fabrics

The diagram has been drawn for the % of change in wales per inch of different types of fabric. In this diagram, the change% in wales per inch value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the wales per inch value of the fabric is also changed.

From this diagram we can see that after compacting the changes% of wales per inch of single jersey fabric is higher than Lacoste fabric, Rib & Fleece fabric.

From this diagram we can see that after compacting the changes% of wales per inch of Rib fabric is lower than single jersey and higher than Lacoste & Fleece fabric.

From this diagram we can see that after compacting the changes% of wales per inch of Lacoste fabric is lower than Rib fabric, single jersey fabric and Fleece fabric.

From this diagram we can see that after compacting the changes% of wales per inch of Fleece fabric is lower than Rib fabric single jersey fabric and higher than Lacoste fabric.

Finally, from the diagram we can see that, the change% values of wales per inch of different types of fabrics after compacting process is different. At this stage single jersey fabrics change% of wales per inch is higher than other fabrics & single jersey fabrics change% of wales per inch in lower than others. We found different wales per inch values for the different types of fabrics

4.6 Effect of compactor on CPI of knitted fabric

4.6.1 Effect of compactor on CPI of single jersey fabric

Fabric types	CPI before compacting	CPI after compacting	CPI change	CPI change%	Avg. CPI
Single jersey-1	26	28	2 (increased)	7.14 (increase)	6.15%
Single jersey-2	33	35	2 (increased)	6.65% (increased)	
Single jersey-3	34	36	2 (increased)	5.55% (increased)	
Single jersey-4	36	38	2 (increased)	5.26% (increased)	

Table: 4. 21 Effect of compactor on CPI of single jersey fabric

Here, we take four sample of single jersey fabric. There CPI were 26,33,34,36 before compacting and after compacting the CPI were increased in 28,35,36,38, The change% of those samples were respectively 7.14%,6.65%,5.55%,5.26%. Finally the average CPI change% is 6.15% for single jersey fabric.

4.6.2 Effect of compactor on CPI of rib fabric

Fabric types	CPI before compacting	CPI after compacting	CPI change	CPI change%	Avg. CPI
Rib 1*1	32	30	2 (decreased)	6.66% (decreased)	4.13%
Rib 1*1	34	36	2 (increased)	5.55% (increased)	
Rib 1*1	34	33	1 (decreased)	2.9% (decreased)	
Rib 1*1	34.5	34	0.5 (decreased)	1.44% (decreased)	

Table: 4. 22 Effect of compactor on CPI of rib fabric

Here, we take four sample of Rib (1×1) fabric. There CPI were 32,34,34,34.5 before compacting and after compacting the CPI were increased in 36 and decreased in 30,33,34, The change% of those samples were respectively 6.66%,5.55%,2.9%and 1.44%. Finally the average CPI change% is 4.13% for Rib fabric.

4.6.3 Effect of compactor on CPI of Lacoste fabric

Fabric types	CPI before compacting	CPI after compacting	CPI change	CPI change%	Avg. CPI
Single lacoste-1	30	32	2 (increased)	6.25% (increased)	3.93%
Single lacoste-2	38	40	2 (increased)	5% (increased)	
Single lacoste-3	33	31	2 (decreased)	2.96% (decreased)	
Single lacoste-4	34.5	34	0.5 (decreased)	1.44% (decreased)	

Table: 4. 23 Effect of compactor on CPI of Lacoste fabric

Here, we take four sample of Single Lacoste fabric. There CPI were 30,38,33,34.5 before compacting and after compacting the CPI were increased in 32,40 and decreased in 31,34 The change% of those samples were respectively 6.25%,5%,2.96%,1.44%. Finally the average CPI change% is 3.93% for Single Lacoste fabric.

4.6.4 Effect of compactor on CPI of fleece fabric

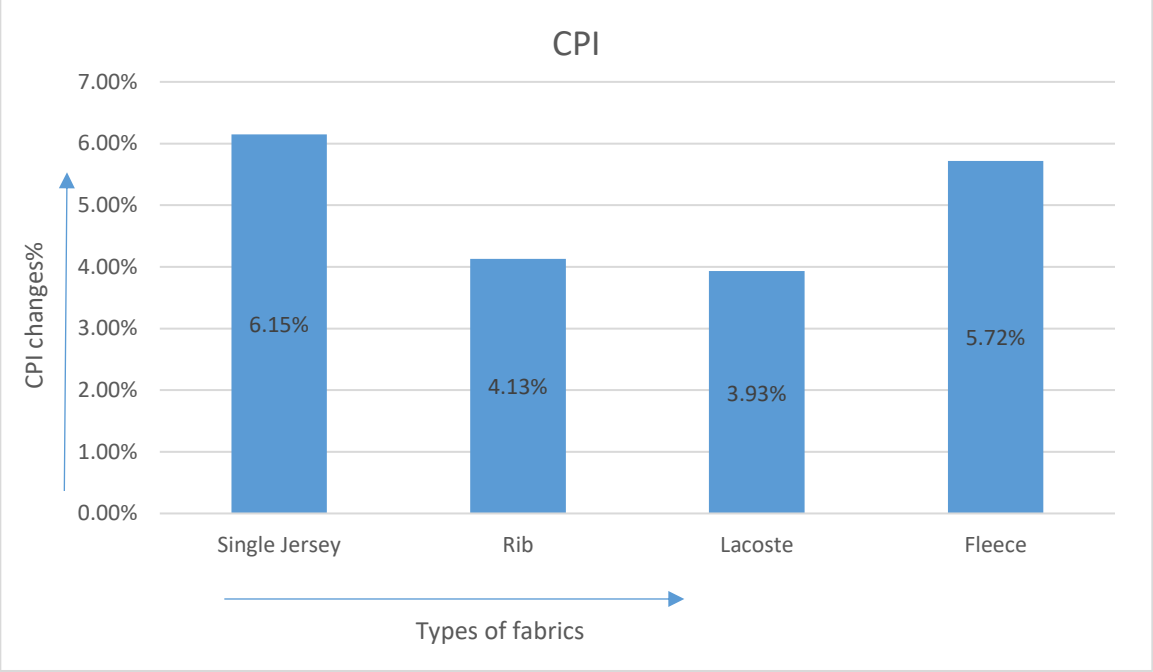
Fabric types	CPI before compacting	CPI after compacting	CPI change	CPI change%	Avg. CPI
Fleece-1	15	14	1 (decreased)	6.66% (decreased)	5.72%
Fleece-2	16	15	1 (decreased)	6.56% (decreased)	
fleece-3	16	15	1 (decreased)	6.56% (decreased)	
fleece-4	16	15.5	0.5 (decreased)	3.12% (decreased)	

Table: 4. 24 Effect of compactor on CPI of single fleece fabric

Here, we take four sample of fleece fabric. There CPI were 15,16,16,16 before compacting and after compacting the CPI were decreased in 14,15,15,15.5, The change% of those samples were respectively 6.66%,6.56%,6.56,and 3.12%. Finally the average CPI change% is 5.72% for Fleece fabric**.**

4.6.5 Change Course per Inch of different type's fabric after compacting process

The change in course per inch of fabric after compacting process, different average value is recorded. After compacting process the changes in wales per inch of different types of fabric has been used to draw the following Figure 4.3



Graph: 4. 6 Column diagram represents the course per inch changes% of different type fabrics

The diagram has been drawn for the % of change in course per inch of different types of fabric. In this diagram, the change% in course per inch value is shown vertically which is along the Y axis and the different types of fabric are shown horizontally which is along the X axis. For different types of fabric, the change% in the course per inch value of the fabric is also changed.

From this diagram we can see that after compacting the changes% of course per inch of single jersey fabric is higher than Lacoste fabric, Rib & Fleece fabric.

From this diagram we can see that after compacting the changes% of course per inch of Rib fabric is lower than single jersey, Fleece fabric and higher than Lacoste.

From this diagram we can see that after compacting the changes% of course per inch of Lacoste fabric is lower than Rib fabric, single jersey fabric and Fleece fabric.

From this diagram we can see that after compacting the changes% of course per inch of Fleece fabric is lower than fabric single jersey fabric and higher than Lacoste fabric & Rib fabric.

Finally, from the diagram we can see that, the change% values of course per inch of different types of fabrics after compacting process is different. At this stage single jersey fabrics change% of course per inch is higher than other fabrics & single jersey fabrics change% of stitch length in lower than others. We found different course per inch values for the different types of fabrics.

SAMPLE ATTACHMENT

SAMPLE ATTATCHMENT

Single Jersey			
S/J (1)	S/J (2)	S/J (3)	S/J (4)

Rib (1×1)			
Rib (1)	Rib (2)	Rib (3)	Rib (4)

Lacoste			
Single Lacoste (1)	Single Lacoste(2)	Single Lacoste (3)	Single Lacoste (4)

Fleece			
Fleece (1)	Fleece (2)	Fleece (3)	Fleece (4)

CHAPTER 5

CONCLUSION

5.1 Conclusion

For complete this report we studied the effect of fabric structure (before and after condition) on compactor machine. We get different value for different fabric. We use four types of fabric for complete this report Single jersey, Rib (1×1), Lacoste and fleece. We have compare the value of GSM, Stitch Length, Fabric width, WPI,CPI, Yarn count for before condition of fabric or (before compacting) with after condition of fabric or (after compacting). We have try to find out what an impact it has (Stitch length, yarn count, WPI, CPI) on GSM. We saw most of the time WPI CPI and Stitch length has increased in the case of when we want to do increase GSM. But in the case of yarn count showed the value sometimes increase and sometimes decreased in the case of increasing GSM. We got different result for different test. We have evaluate the research after complete that, how impact on fabric physical properties for using compactor machine. And also we studied on compactor machine How come its impact on fabric physical properties for changing GSM.

At last we reached our following outcomes after compacting:

The GSM was always higher after the compacting fabric. Because the operator set up higher overfeed more than +40. And the temperature was 130 most of the time.

The Stitch Length increased most of the time. We saw in the case of increase GSM the Stitch Length has been increased.

The fabric width we saw sometimes increase and sometimes decrease. It's depend of demand on machine operator. Machine operator set up fabric width on machine monitor and accordingly the fabric out from the machine. Since the GSM has been increased therefore the width of the fabric has been decreased.

Yarn count depend on fabric GSM. Sometimes it is higher and sometimes it is less for each fabric.

WPI has increase every time for each fabric. If we want to do increase GSM then WPI always increase. It depends on fabric GSM.

Also CPI has increase every time for each fabric. In the case of increasing GSM the CPI has increase.

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- By the help of our supervisor teacher
- By the help of our industrial data
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