EFFECT OF LYCRA AND NYLON YARN PERCENTAGE ON THE DIMENSIONAL AND PHYSICAL CHARACTERISTICS OF LOCKNIT WARP KNITTED FABRICS

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Thesis submitted in partial fulfillment of the requirements for the degree Master of Science in Textile & Clothing Management.

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Sri Lanka

March 2015

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Abstract

The effects of different percentages of elastane and Nylon yarn on the dimensional and physical properties of elastane/Nylon Locknit warp knitted fabrics are investigated. In order to investigate the properties of the fabric, four different samples were knitted by selecting four different run-in ratios of elastane and Nylon. Elastane yarn was kept at a constant elongation of 65% for all four samples. Two samples were produced keeping constant run-in of nylon yarn and changing the run-in length of elastane yarn. Then elastane yarn run-in was kept constant and produced two other samples.

The sample with minimum run-in length of elastane yarn and the highest run-in ratio has the highest value of load at 20%, 40%, 60% and 80% extensions in length direction and the lowest values of load at 20%, 40%, 60% and 80% extensions in width direction. This is due to the fact that low run in of elastane yarn increases the strain on the yarn and it increases the tightness factor value of the sample and contributes higher load at extension along the length direction of the greige sample. Nylon yarn runner length influences the relaxation behavior of elastane yarn and it leads to reduce the load at extension along the width direction of the sample.

Changing of Nylon yarn runner length influence the relaxation behavior of elastane yarn and it has an effect on the load at different extension in width direction and course density of the greige fabric. Results revealed that the effect of elastane content of the sample is more on the load at extension values than the effect of run-in of the Nylon yarn.

Key words Greige fabric, Run-in, elongation, load at extension, course density

ACKNOWLEDGEMENT

I take this opportunity to express my profound gratitude and deep regards to my supervisor Dr. W.D.G.Lanarolle, head of department, department of textile and clothing technology, University of Moratuwa for his exemplary guidance, monitoring and constant encouragement throughout the course of this thesis

I also take this opportunity to express a deep sense of gratitude to Adjunct professor Rohana Kuruppu, Mr.AsokaWalpitigama and Mr. Ranjan Nishantha, Brandix college of Clothing Technology for their cordial support, valuable information and guidance, which helped me in completing this task through various stages.

I am obliged to staff members of Trishel Fabric (pvt) Ltd, Specially Mr.Heshana Kuruppu and Mr. Champika Liyanage for giving me the opportunity to produce the fabrics and providing valuable information in their respective field. I am grateful for their cooperation during the period of my assignment.

I would to thank Mr.G.K.K.Kumara Laboratory Manager and the staff of Textile Laboratory in Sri-Lanka Institute of Textile and Apparel and Ms. Dilum Dissanayaka of Physical Testing and Quality control laboratory, Department of Textile and Clothing Technology, University of Moratuwa for their valuable assistance during the period of my assignment

Lastly, I thank almighty, my parents, brothers, sister and friends for their constant encouragement without which this assignment would not be possible.

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LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
%	Percentage
°	Degree of Temperature
C	Centigrade
F	Franhide
ASTM	American standard of textile material
b_g	Back guide bar
CPI	Courses per Inch
GSM	Gram per square meter
g/m^2	Gram per square meter
f_g	Front guide bar
K	Tightness factor value
LTD -03	Limited brand stretch & recovery test
l	Stitch Length
l_f	Stitch Length-front guide bar
l_b	Stitch Length – back guide bar$l$
S	Stitch density
WPI	Wales per inch
CPI	Courses per inch
T	Yarn count in Tex
T_f	Yarn count in Tex – front guide bar
T_b	Yarn count in Tex – back guide bar
SLS	Sri-Lanka standard

T_1G	Sample which is having Run in ratio 2.5:1(1400:550) - Greige
T_2G	Sample which is having Run in ratio 2.8:1(1400:485)- Greige
T_3G	Sample which is having Run in ratio 2.3:1(1330:580)- Greige
T_4G	Sample which is having Run in ratio 2.4:1(1330:550)- Greige
T_1F	Sample which is having Run in ratio 2.5:1(1400:550) - Finish
T_2F	Sample which is having Run in ratio 2.8:1(1400:485)- Finish
T_3F	Sample which is having Run in ratio 2.3:1(1330:580)- Finish
T_4F	Sample which is having Run in ratio 2.4:1(1330:550)- Finish
G_E	Greige Sample – Width Direction
G_L	Greige Sample – Length Direction
F_E	Finished Sample – Width Direction
F_L	Finished Sample – Length Direction