

BASIC TEXTILE OPERATION

NTQF Level -I-

Learning Guide -58

Unit of Competence: Operate knitting machine

Module Title: Operating knitting machine

LG Code: IND BTO1 M15 LO4-LG-58

TTLM Code: IND BTO1 M15 TTLM 09 19v1

LO4: Check product quality



Instruction Sheet	Learning Guide #-58
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- ❖ Checking the product against quality standard
- ❖ Assessing product faults and non-conformances
- ❖ Rectifying and reporting the product faults

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to:

- ❖ Check the product against quality standard
- ❖ Assess product faults and non-conformances
- ❖ Rectify and reporting the product faults

Learning Instructions:



1. Read the specific objectives of this Learning Guide on page - 1-
2. Follow the instructions described in number on page -2-
3. Read the information written in the “Information Sheets 1”, sheet 2, Sheet 3 and sheet 4.
on page
4. Accomplish the “Self-check 1”, **Self –check 2, Self –check 3 and Self- check 4 on page** respectively
5. Ask from your **trainer’s** the key to correction (key answers) or you can request your **trainer’s** to correct your work.
6. If you earned a satisfactory evaluation proceed to “**Information Sheet**”. However, if your rating is unsatisfactory, see your **trainer’s** for further instructions or go back to Learning Activity #1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.



Information Sheet-1	Check the product against quality standard
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1.1. Introduction

Conforming to specification is quality. Quality can also mean, meeting or exceeding customer's expectation all the time. The customer expectation can be of different types. Then expectation of quality and the ability to distinguish various quality characteristics also vary of customer. E.g. more educated customer's requirements are very specific and less educated customer's requirements for quality are less.

A quality assurance refers to engineering activities implemented in equality system, so that requirements for knitting products or service will be fulfilled. It is the systematic measurement, comparison with a quality standard monitoring of processes and an associated feedback loop that confers error prevention.

1.1.1. To improve quality in knitting

- a. Communicate the importance of quality production to your employees and shop floor workers and explain quality expectations by the management.
- b. Maintain a clean and dry workplace including storage rooms and shipping areas.
- c. Select and utilize appropriate equipment it cutting, sewing and finishing processes.

Quality control: is concerned with the evaluation of test data and its application to control of textile process, raw material, intermediate products and final products. It is concerned not only with the quality level and cost of maintaining this quality level but also concerned with presentation of tangible values to measure quality and changes in quality. In order to control quality one must know about the consumers expectation.



Fig. quality circle

1.1.2. Objectives of quality control in knitting



- a. Selection of raw material.
- b. Specification test.
- c. Product testing.
- d. To insure the product desired quality.
- e. To fulfill requirements for quality.
- f. Process control and development.
- g. To control and different techniques will be required by different conditions.
- h. Quality assurance and so no.
- i. To evaluate accurately of the end product.
- j. To research and development
- k. Quality assurance and so no.

1.1.3. Quality management system

Quality assurance procedure may be provided by the following two major parts:

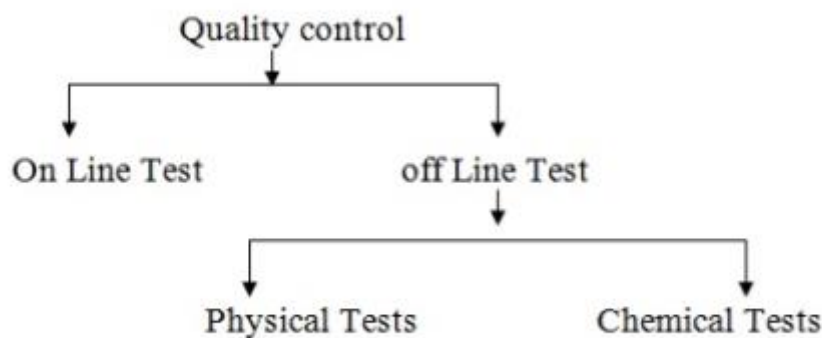


Fig. quality control system

Quality control: in the textile industry involves a set of standards or guidelines that help quadrant a product meet certain parameters as well as customer satisfaction. Quality control inspectors typically do the following;

- ❖ Read blueprints and specifications.
- ❖ Monitor operations to ensure that they meet production standards.
- ❖ Recommend adjustments to the assembly or production process.
- ❖ Inspect, test or measure materials or products being produced.



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:



Note: Satisfactory rating - 3 and above points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions

2.1. Holes

Drop Stitches are randomly appearing small or big holes of the same or different size which appear as defects in the Knitted fabrics.

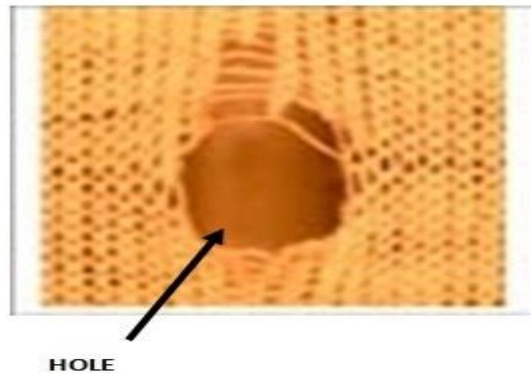


Fig. hole in fabric

2.1.1. Major Causes

- ❖ High Yarn Tension
- ❖ Yarn Overfeed or Underfeed
- ❖ High Fabric Take Down Tension
- ❖ Defects like Slugs, **Neps**, and Knots etc.
- ❖ Incorrect gap between the Dial & Cylinder rings

2.1.2. Remedies

- ❖ Ensure uniform yarn tension on all the feeders with a Tension Meter.
- ❖ Rate of yarn feed should be strictly regulated as per the required Stitch Length.
- ❖ The fabric tube should be just like a fully inflated balloon, not too tight or too slack.
- ❖ The yarn being used should have no imperfections like; Slubs, Neps & big knots etc
- ❖ The gap between the cylinder & the dial should be correctly adjusted as per the knitted loop size

2.2. Foreign matter

Contaminations appear in the form of foreign matter such as; dyed fibers, husk, dead fibers etc. in the staple spun yarn or embedded in the knitted fabric structure.

2.2.1. Causes:



- ❖ Presence of dead fibers & other foreign materials, such as; dyed fibers, husk & synthetic fibers etc.
- ❖ Dyed & other types of fibers flying from the adjacent Knitting machines cling to the yarn being used for knitting & get embedded in the Grey Fabric.

2.2.2. Remedies:

- ❖ Use rich fiber mixing for the yarns to be used for knitting in order to have less dead fibers appearing in the fabric.
- ❖ Rigid control measures in the Blow Room to prevent the mixing of foreign matters in the Cotton mixing.
- ❖ Segregate the Spinning & Knitting Machines, with Plastic Curtains or Mosquito Nets, to prevent the fibers flying from the neighboring machines, from getting embedded in the yarn / fabric

2.3. Barriness

Barriness defect appears in the Knitted fabric in the form of horizontal stripes of uniform or variable width

2.3.1. Causes:

- ❖ High Yarn Tension
- ❖ Count Variation
- ❖ Mixing of the yarn lots
- ❖ Package hardness variation

2.3.2. Remedies:

- ❖ Ensure uniform Yarn Tension on all the feeders.
- ❖ The average Count variation in the lot should not be more than + 0.3
- ❖ Ensure that the yarn being used for Knitting is of the same Lot
- ❖ Ensure that the hardness of all the yarn packages is uniform using a hardness tester

2.4. Horizontal lines

2.4.1. Causes:

- ❖ Fault in bobbin
- ❖ Irregular tension on cams.

2.4.2. Remedies:

- ❖ Replace that bobbin.
- ❖ Check cams positioning

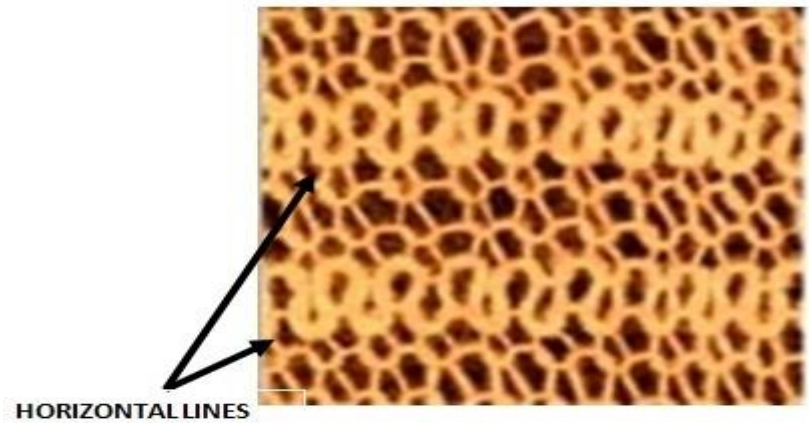


Fig. Horizontal line in fabric

2.5. Streakiness

Streaks in the Knitted fabrics appear as; irregularly spaced & sized, thin horizontal lines

2.5.1. Causes:

- ❖ Faulty winding of the yarn packages.
- ❖ Yarn running out of the belt on the Pulley

2.5.2. Remedies:

- ❖ Winding of the yarn package should be proper.
- ❖ The yarn should be running between the belt and around the pulley

2.6. Oil Stain

Oil lines are prominent vertical lines which appear along the length of the knitted fabric tube. The lines become permanent if the needle oil used is not washable & gets baked due to the heat during the finishing of the fabric

2.6.1. Causes:

- ❖ Fibers & fluff accumulated in the needle tricks which remain soaked with oil.
- ❖ Excessive oiling of the needle beds.

2.6.2. Remedies:

- ❖ Fibers accumulated in the needle tricks cause the oil to seep into the Fabric.
- ❖ Some lubricating oils are not washable & cannot be removed during Scouring.
- ❖ Remove all the Needles & the Sinkers of the machine periodically.
- ❖ Clean the grooves of the Cylinder & Dial of the machine thoroughly with petrol
- ❖ Blow the grooves of the Cylinder Dial & Sinker ring with dry air after cleaning

2.7. Cut

Broken ends appear as equidistant prominent horizontal lines along the width of the fabric tube when a yarn breaks or is exhausted.



2.7.1. Causes:

- ❖ High Yarn Tension
- ❖ Yarn exhausted on the Cones.

2.8.2 Remedies:

- ❖ Ensure correct yarn tension on all the feeders.
- ❖ Ensure that the Yarn detectors on all the feeders are working properly
- ❖ Depute a skilled & alert machine operator on the knitting machine

2.8. Ladder

Defects caused by the broken needles show prominently as vertical lines parallel to the Wales. There are no loops formed in the Wale which has a broken needle.

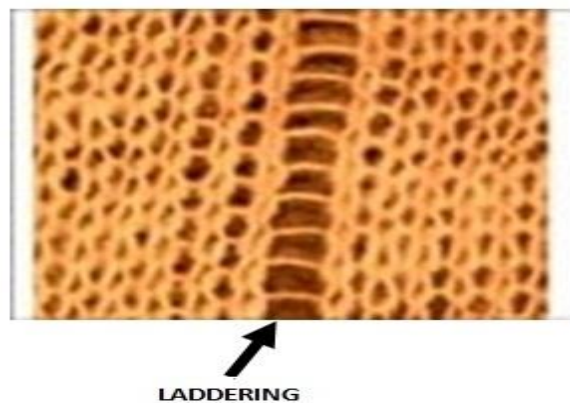


Fig. Laddering effect

2.8.1. Causes:

- ❖ High yarn tension
- ❖ Bad setting of the yarn feeders
- ❖ Old & worn out needle set
- ❖ Cylinder grooves are too tight restricting needle movement
- ❖ Breakage of hook or butt in needle.

2.8.2. Remedies:

- ❖ Ensure uniform & the right Yarn tension on all the feeders.
- ❖ Keep the recommended gap between the Yarn Feeders & the Needles.
- ❖ Periodically change the complete set of needles.
- ❖ Remove fly or blockage from groove.
- ❖ Replace defective needle.



Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:



Note: Satisfactory rating - 3 and above points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____

Rating: _____

Name: _____

Date: _____

Short Answer Questions



Information Sheet-3

Rectify and reporting the product faults



Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:



Note: Satisfactory rating - 5 and above points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions



List of Reference Materials