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## **1. Basic Textile Terms of Spinning:**

**Fiber:** The fundamental component used in making textile yarns and fabrics. Fibers are fine substances with a high ratio of length to thickness. They can be either natural (e.g. cotton, wool, silk etc.) or synthetic (e.g. polyester, nylon, acrylic etc.).

**Blow room Lap:** The Loose strand, roughly parallel, untwisted fiber sheet produced in blow room.

**Chute feed system:** It is a system of feeding small tufts of fibers directly from blow room to a series of cards, arranged in a circuit through pneumatic pipe.

**Sliver:** The strand of loose, roughly parallel, untwisted fibers produced in Carding.

**Roving:** The soft strand of carded/combed fibres that has been twisted, attenuated, and freed of foreign matter, which is a feed material to spinning.

**Yarn:** A continuous strand of textile fibers that may be composed of endless filaments or shorter fibers twisted or otherwise held together.

**Spinning:** The process of making yarns from the textile fiber is called spinning. Spinning is the twisting together of drawn out strands of fibers to form yarn.

**UV checking:** Checking cones under Ultra Violet lights for any shade variations in cone.

### **Yarn Count/Sliver Hank**

Yarn count is the numerical expression of yarn, which defines its fineness or coarseness. (Linear density).

#### **Yarn count systems**

Indirect system: English count (Ne), Worsted Count etc.

i.e. Higher the yarn number, finer the yarn.

Direct System: Tex, Denier

i.e. Higher the yarn number, Coarser the yarn.

Similarly numerical expression of fineness or coarseness of Lap, sliver & roving are called Hank.

Note: English (Ne) count system is commonly followed in India.

English Count: No. of Hanks of length 840 yds weighing in 1 pound

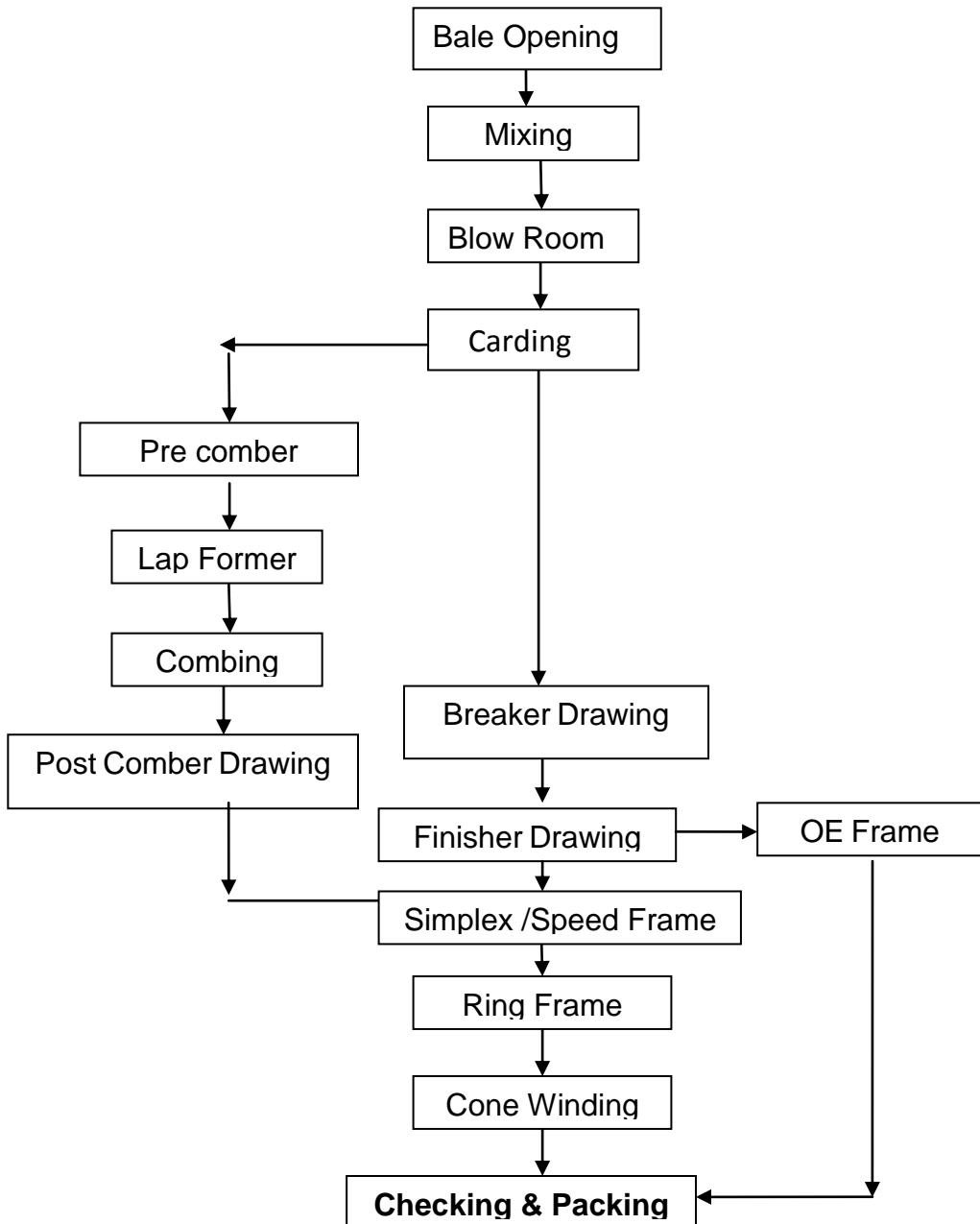
1yds: 0.9144mtrs

1lbs: 0.453 Kgs.

e.g.  $40^s$  Ne = 40 hanks of 840 yds weighs 1 lbs.

$20^s$  Ne = 20 hanks of 840 yds weighs 1 lbs.

## 2. Sequence of Spinning Process:



### 3. Material Flow in Spinning:

#### Carded Yarn Manufacturing:

**TABLE-1**

STAGE	MACHINE	INPUT MATERIAL	OUT PUT MATERIAL	PACKAGE FORM
Opening & cleaning	Blow Room machines	Raw cotton	Lap or chute feed	-
Carding	Card	Lap or chute feed	Card sliver	Slivers in Can
1 <sup>st</sup> drawing	Breaker Draw frame	Card sliver	Drawn sliver	Sliver can
2 <sup>nd</sup> drawing	Finisher Draw frame	Drawn sliver	Drawn sliver	Sliver can for Roving
Roving	Speed Frame	Drawn sliver	Roving	Roving bobbin
Spinning	Ring frame	Roving	Ring-spun yarn	Spinning Cops
Post-Spinning processes	Winding	Yarn in spinning cops	Yarn package	Cone, Cheese & Hank as required

#### Combed Yarn Manufacturing

**TABLE-2**

STAGE	MACHINE	INPUT MATERIAL	OUT PUT MATERIAL	PACKAGE FORM
Opening & cleaning	Blow Room machines	Raw cotton	Lap or chute feed	-
Carding	Carding machine	Lap or chute feed	Card sliver	Carded Slivers in Cans
Pre comber Drawing	Breaker Draw Frame	Carded Sliver	Drawn Sliver	Drawn slivers in cans
Lap Formation	Super Lap or Lap Former	Drawn Slivers	Lap	Laps in spools
Combing	Comber	Lap	Combed Sliver	Combed sliver in Cans
Post comber Drawing	Finisher Draw Frame	Combed sliver	Drawn sliver	Post comber Draw frame slivers in cans
Roving	Speed Frame	Post comber Draw frame sliver	Roving	Roving bobbin
Spinning	Ring frame	Roving	Ring-spun yarn	Spinning Cops
Post-Spinning processes	Winding	Yarn in spinning cops	Yarn	Cone, Cheese & Hank as required

## Open End Yarn Manufacturing:

TABLE-3

STAGE	MACHINE	INPUT MATERIAL	OUT PUT MATERIAL	PACKAGE FORM
Opening & cleaning	Blow Room machines	Raw cotton	Lap or chute feed	-
Carding	Card	Lap or chute feed	Card sliver	Slivers in Can
Drawing	Draw frame	Card sliver	Drawn sliver	Sliver can
OE Spinning	OE Frame	Drawn sliver	OE yarn	Cheese

## Various Package Form:





**Roving Bobbin**



**Ring Bobbins**



**Cone Packages**



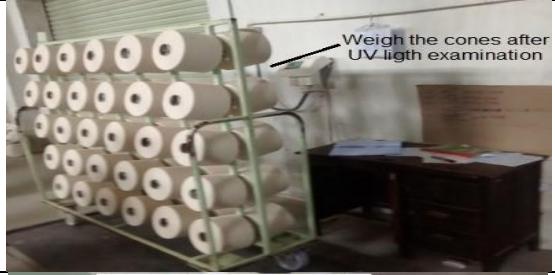
**Cheese Package**

#### **4. Functions of Packing Department**

- Inspecting the cones & identifying defects in the cones
- Carrying out UV checking of cones
- keeping separately the defective cones
- Taking only the defect free cones for packing
- Weigh the cones for each pack
- Filling the cones in cartons / bags
- Packing the cones in cartons/Bags

## 5. Details of Packing Methods

### Carton Packing

<b>UV checking:</b> Cones are taken in trolley to UV chamber for checking cones under UV light.	
<b>Weighing cones:</b> Cones are taken in trolley and are weighed for packing	
<b>Covering cones in Polybag:</b> Checked cones free from defects are covered with polybag before putting in to carton Box	
<b>Empty carton Box:</b> Taking Empty carton and making it ready to fill with cones	
<b>Filling Cartons:</b> Keeping the specified number of cones in the cartons.	

<p><b>Keeping separators:</b> After filling with one layer of cones separators are placed for safe packing</p>	 <p>Carton Packing step 3 Separator</p>
<p><b>Complete filling the carton:</b> Carton is fully filled with required no of cones for sealing</p>	
<p><b>Sealing of Carton:</b> After Filling the carton with required number of cones, carton is sealed with adhesive tape</p>	 <p>Carton packing step 5</p>
<p><b>Stacking of Cartons:</b> Cartons packed are stacked in godown for despatch</p>	 <p>Carton packing step 6</p>

## **Bag Packing:**

<b>Filling in Bag:</b> UV checked cones covered with polythene bag are taken from the trolley and filled in the HDPE Bag	 Bag packing step 1
<b>Stitching the Bags:</b> After filling the bag with required number of cones are stitched to close the bag	 Bag packing step 3
<b>Stacking of Bags:</b> Bags packed are stacked in godown for despatch	 Bag Packing step 4

## **6. Activities in Packing Department**

### **Checking the quality of cone**

- Identify the cone count to be inspected as per the instructions of the supervisor
- Bring the cones in the cone trolley from storage area
- Inspect the cone packages visually and check for any damages in the outer side of cone package
- Remove the surface defects in cone package
- Check each and every cone for any defects.
- If defects are identified store the defective cones separately in the designated area.
- Check whether the surface of the cone packages are in good condition
- Check the quality of cone using the UV light available
- Identify defects such as yarn shade variation and segregate such defective cones and report to supervisor

- segregate the cone with more defects in a separate area
- Record all the defective cones in the register provided.
- Weigh the full cone packages
- Check and take only correct weighing cones for packing (ie) cone weight should be within the tolerance limit specified.
- Keep the number of cones for one carton/bag as specified in the weighing balance
- Ensure that the total weight of all the cones for one carton/bag should be within the tolerance weight specified
- Use safety gadgets like caps, hand gloves and nose mask while working

### **Check the Packing Material**

- Take the packing materials from storage area
- Check the quality of packing materials for visual defects, report to supervisors, and avoid using defective materials
- Start packing according to the instructions given in the exhibit and as per instructions of the supervisor.
- Use necessary tools and equipments for packing and maintain the same in good condition

### **Packing in the cartons**

- Take the carton of the required specification as instructed by the supervisor
- Paste the count label, make any marking in the carton as per the instructions of the supervisor
- Spread sealed master polythene inside the carton, with adequate length for folding if specified.
- Place the required number of cones inside the carton in specified manner
- Keep separators in between layers as per instructions of supervisor
- Ensure all the cones are properly kept in the carton box
- Fold the flaps properly and paste with tape sealing as specified
- Do stencil marking / sticker pasting and numbering as specified on the cartons at exact location.
- Ensure that all the markings as specified are made on the cartons
- Cover the cartons with hessian cloth, if specified

- Do proper strapping by using strapping machine, if strapping is a requirement
- ensure count sticker and packing slip pasted on all cartons before transporting the carton to storage area

### **Yarn Bag Packing**

- Take the right colour marked empty HDPE bags of the required specification as instructed by supervisor
- Ensure that required markings are printed on the bags as specified.
- Make other required markings on the Bag as per the instructions of the supervisor
- Place the required number of cones inside the bag in specified manner
- Ensure all the cones are properly kept in the Bag
- Stitch the top joining parts of the bag from one end to another
- Do stencil marking / sticker pasting and numbering as per requirement on the Bags at exact location as specified
- Ensure that all the markings as specified are made on the bags
- Do proper strapping by using strapping machine, if strapping is a requirement

### **7. Instructions for Shift Change:**

#### **Take Charge of the Shift**

- Come at least 10 - 15 minutes earlier to the work spot.
- Meet the previous shift operator and discuss regarding the issues faced by them with respect to the quality or production or spare or safety or any other specific instruction etc.
- Weigh each cone on calibrated weighing balance & write in the register.
- Any major variation in weight inform to shift supervisor.
- Check for the availability of the winding cones.
- Check the correct dimension cartons, Polyethylene bags, cone tip colour, count labels or stickers.

### **Handing over the Shift:**

- Properly hand over the shift to the incoming shift operator.
- Provide the details regarding the lot being packed, count of yarn, colour coding of cones for different counts being packed, weighment details etc.,
- Provide information about defective cones/ adas cones stored for rework/rejection
- Inform about the packing materials used in the shift
- Inform about count labels being used to stick in the cones
- Check for the cleanliness of the work place.
- Get clearance from the incoming counterpart before leaving the work spot, in case if the next shift operators do not come, report to shift supervisor.
- Report to the shift supervisor about the defects in cones / packing / safety issues/ any other issues faced in the shift and leave the department only after getting concurrence for the same from supervisors.

### **8. Importance of Health & Safety**

- Follow the safety work instructions
- Follow safe work practices like in UV checking, handling strapping machine, moving the packed carton/bags
- Always use head cap, hand Gloves & Nose mask in the work spot.
- Take action based on instructions in the event of fire, emergencies or accidents, and participate in mock drills/ evacuation procedures organized at the workplace as per the organization procedures.