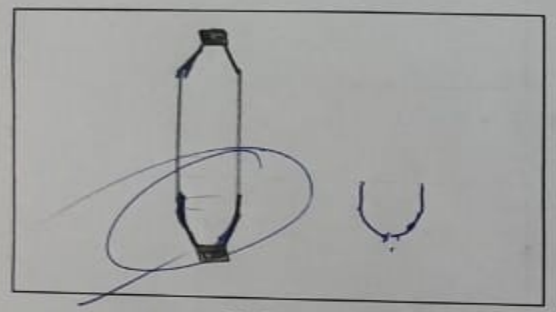
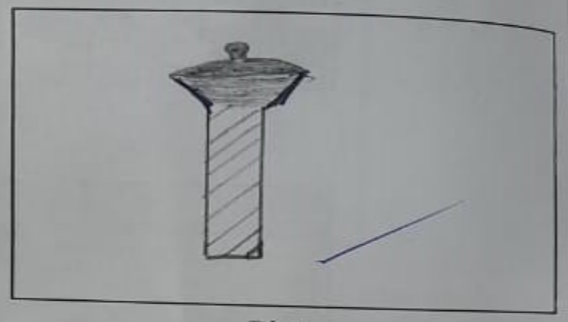
EXPERIMENT: 02

AIM: To study different types of yarn packages and the process of Winding

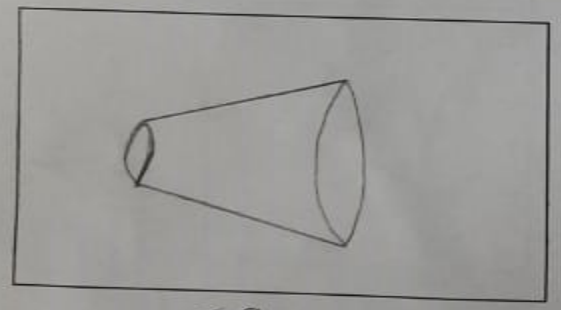
Draw various types of yarn packages here:



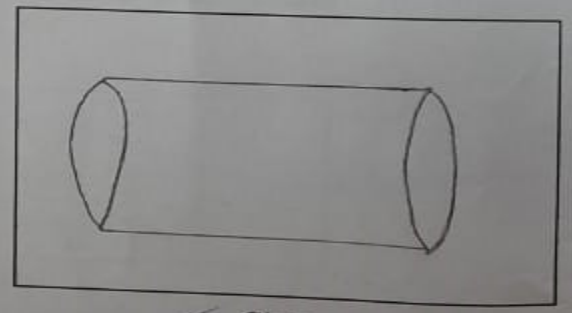
Bobbin



Pirn



Cone



Cheese

WINDING:

Winding is the first process of the weaving preparation

- It is aimed at the transfer of yarn from small ring frame bobbins to larger packages which are more suitable to be used on the weaving machine
- Also it removes the irregularities like thick places, thin places, slubs, etc. present in the yarn

Types of winding:

1. Precision winding (spindle driven);
2. Friction winding (drum driven);

Precision winding:

The package is directly mounted on a spindle which is positively rotated with a constant RPM. As the diameter of the package increases the winding speed increases due to increase in surface speed of the package which results in increase in the yarn tension. Also no. of wraps per traverse remains constant but the wind angle changes with the increase in diameter. A reciprocating yarn guide is used to guide the yarn to the surface of the package.

Drum winding:

A negative drive is given to the package with the help of friction with the surface of a grooved drum thus the surface speed, yarn tension and wind angle all remain constant. The yarn traverse takes place through the grooves in the drum.

PIRN WINDING:

Pirn winding is used to wind the pirn from cone or cheese. Pirns are the packages used for holding weft in the shuttles used in shuttle looms.

Specification of Machines in lab:

	Schlafhorst Autoconer	Auto knotter
Machine model		
Winding Speed		
Knotting/Splicing type		
Knotting/Splicing time		
Yarn Count Range		

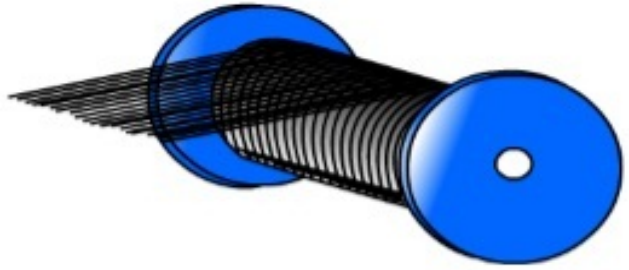
Types of Wound Packages

There could be three types of wound packages based on the angle at which the yarns are laid on the package.

- Parallel wound package

In this, yarns are laid parallel to each other. This helps to maximize the yarn content in the package. However, parallel wound packages suffer from the problemof stability and layers of coils can collapse specially from the two sides of the package. Therefore, double flanged packages are sometimes used for parallel wound packages.

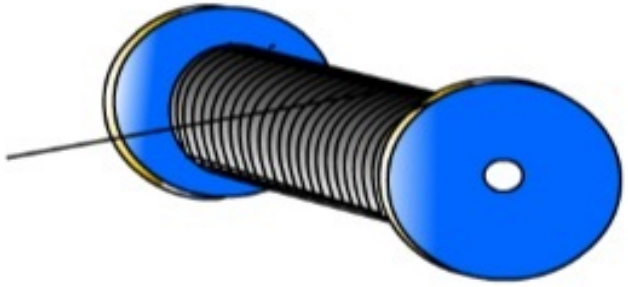
Example: Weaver's beam, warper's beam



Parallel wound packages

- Nearly parallel wound package

In this, successive coils of yarn are laid with a very nominal angle. The rate of traverse is very slow in this case.

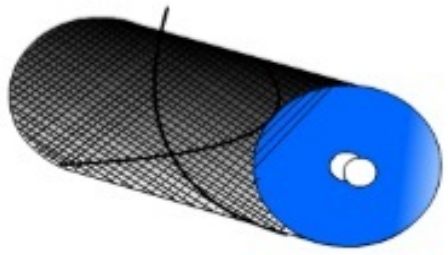


Nearly parallel wound packages

- Cross wound package

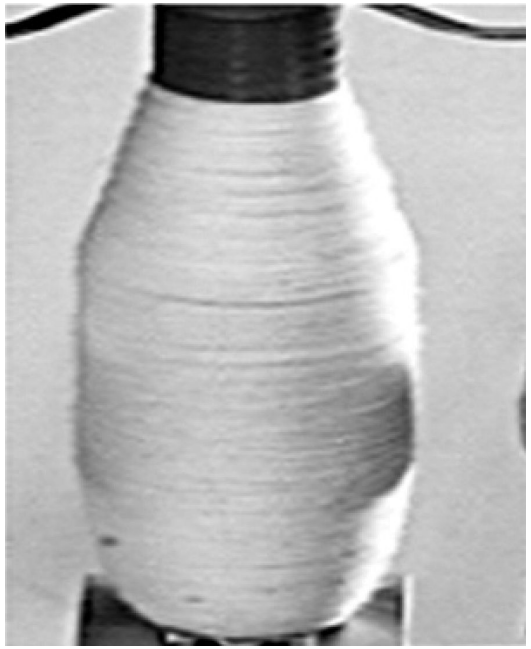
In this, yarns are laid on the package at considerable angle. As the coils crosses each other very frequently, the package content is lower than that of parallel wound package. However, cross wound package provides very good package stability as the coils often change their direction at the edges of the package.

Example: Cones, Cheeses.



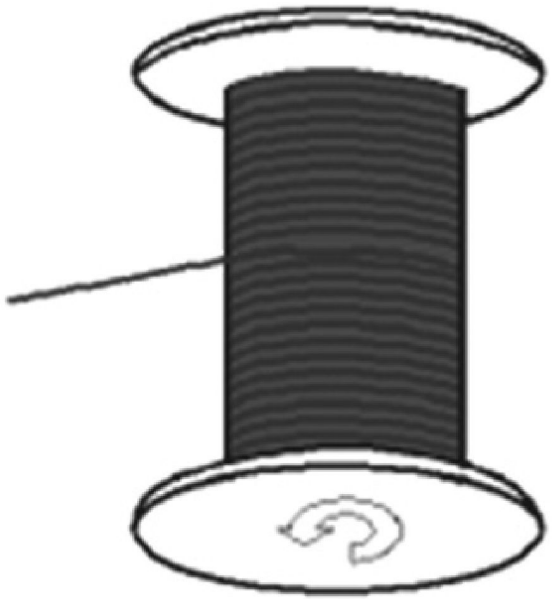
Cross wound packages

Packages



BOBBIN
180–360 mm in length
72 mm in diameter
2000–4000 m of yarn
80–120 g.

CONE
90–150 mm height
diameter of nearly 300 mm
cone angle from 4°20’ to 11°
2–3 kg of yarn
50–100 km length



DOUBLE FLANGED BEAM

Package Build

1 Flanged (lateral support)

2 Flangeless (self-supporting)-Flangeless packages permit yarn unwinding at very high speed through over end withdrawal.

Flangeless packages can in turn be grouped into two classes namely:

- Parallel-wound
- Cross-wound