

TYPES AND CONSTRUCTION OF NETTING YARNS TYPES AND CONSTRUCTION OF NETTING YARNS

- Netting yarn is a textile material suitable for the manufacture of fishing nets.
- There are **three** types of netting yarns used in fishing. They are:
 - **Twisted netting yarn**
 - **Braided netting yarn**
 - **Knotless netting yarn**
- Twisted netting yarn is more commonly used in fishing, though other two types also are making way into the industry

1. Definitions

- **Fibre** is filament of animal, vegetable or mineral origin, characterized by:
 1. flexibility,
 2. fineness and
 3. high ratio of length to thickness, from which yarns, fabrics and ropes are manufactured.
- **Filament** is a fibre (generally man made) of indefinite length.

- **Yarn** is of linear textile product.
- **Strand** formerly used for folded yarns, now preferred to use as components of braids.
- **Braiding** is the process of **interlacing three or more threads** in such a way that they cross each other and laid together in **diagonal formation**. The process is also known as **plaiting**.

2. *Twisted netting yarn*

- It is usually made by twisting single yarns into folded yarn and cabled yarn. (Fig. 1)
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- **Single yarn** is the simplest continuous thread composed of fibres or filaments.
- **Folded yarn (netting twine)** is made by twisting two or more single yarns in one twisting operation.
- **Cabled yarn (cabled netting twine)** is produced by twisting two or more folded yarns.

CONSTRUCTION OF TWISTED NETTING YARNS

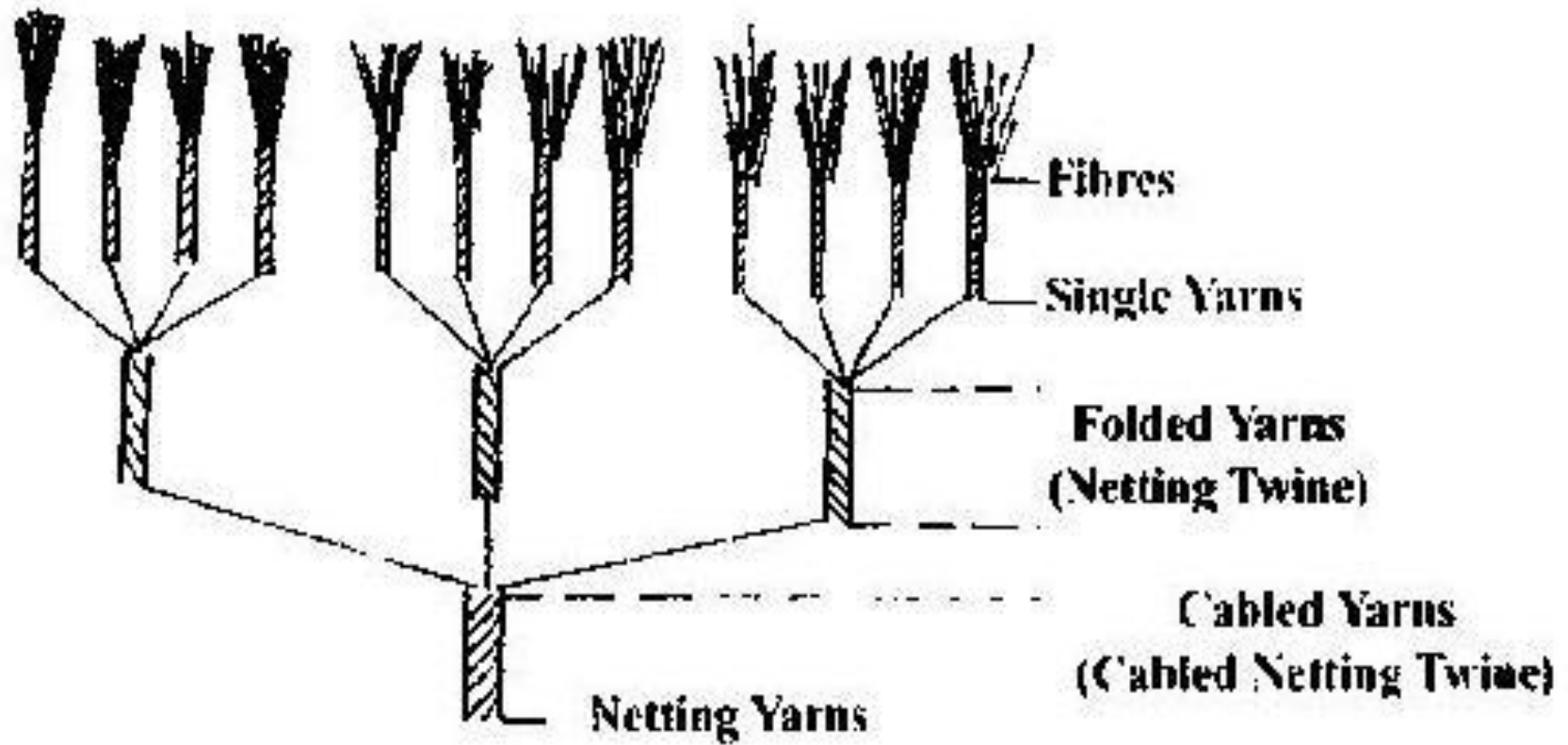


Fig. 1

- Thus cabled yarn is made by combining the fibres / filaments into single yarns, which are twisted together to form folded yarn. Several of these folded yarns are twisted together by secondary twisting operation to form cabled yarn.

3. Braided netting yarn

- It is produced by interlacing a number of strands in such a way that they **cross each** other in **diagonal direction** to the edge of the fabric.
- The braided yarn is in the form of a tube (Fig 2) and consists of
 - **core,**
 - **single yarns and**
 - **strands.**

Core:

- it is the central part used to fill up the space inside the braided tube.
- It may be made of **single yarn, folded yarns or monofilaments** which do not belong to the braided tube.

CONSTRUCTION OF TWISTED BRAIDED NETTING YARNS

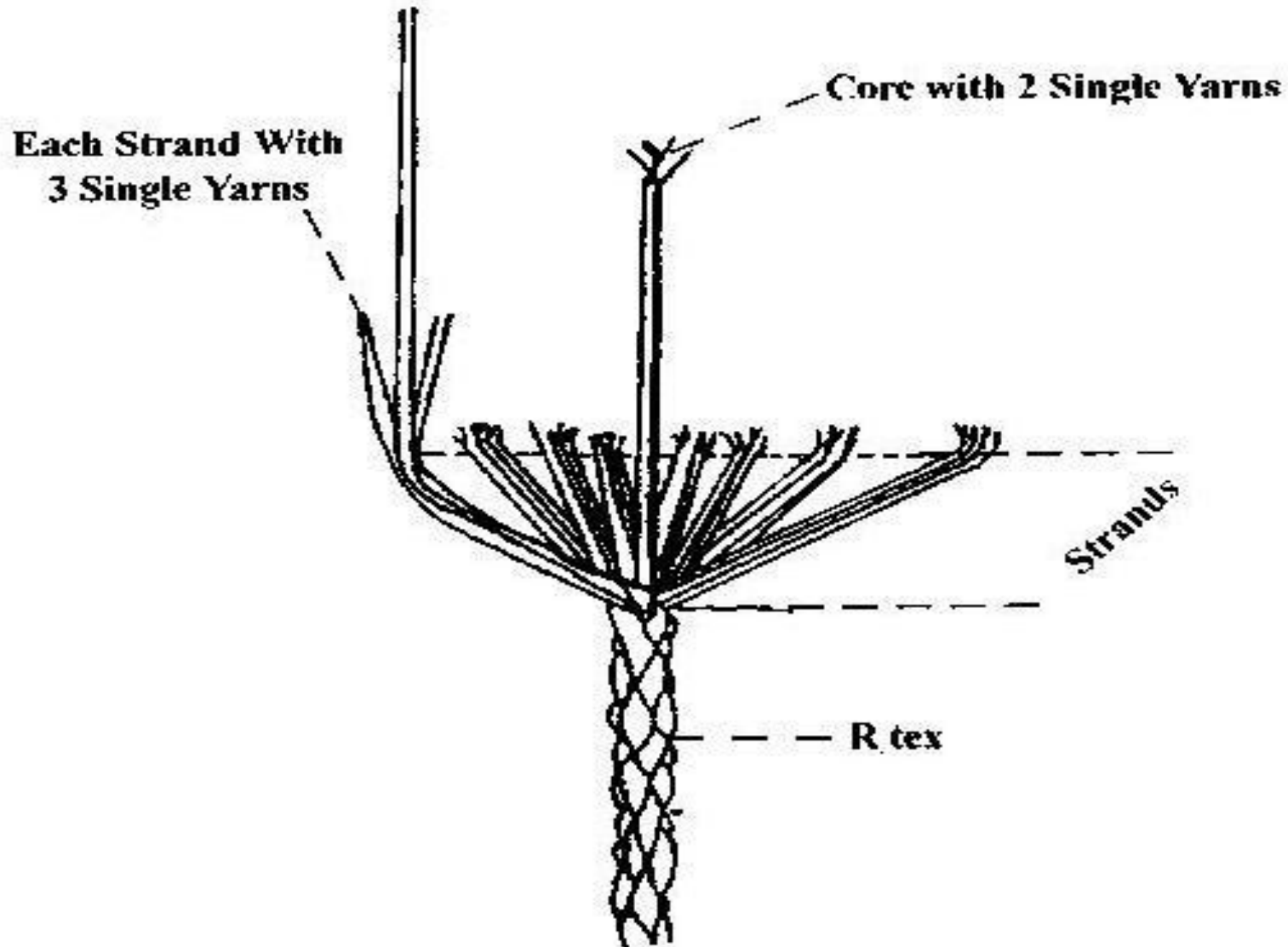


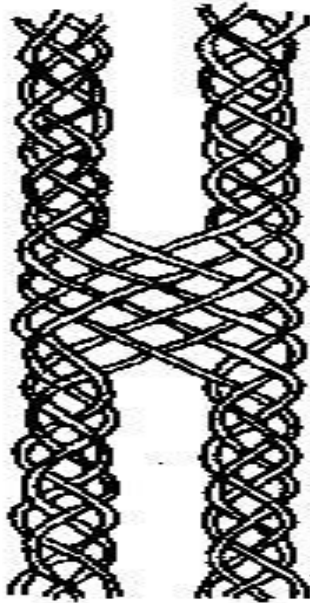
Fig 2

- Often **coreless braids** are preferred. as they are softer and have better knot stability.
- **Single yarn:**
 - is the simplest continuous thread composed of fibres or filaments.
- **Strands:**
 - are made by twisting the single yarns.
 - Braided netting yarn is produced by interlacing the strands usually varying by **6,8,12 or 16**.

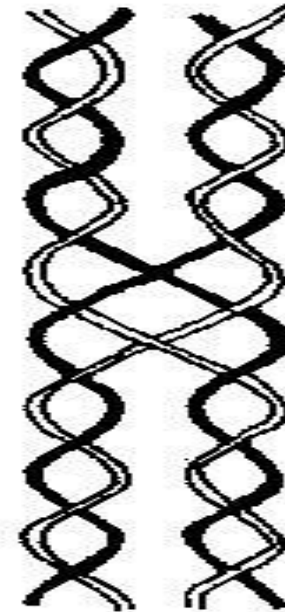
4. *Netting yarn from knotless netting*

- Knotless netting is made without knots.
- Single yarns are interlaced at the joints and the netting is made in only one working process.
- There are three main types of knotless netting. (Fig 3)
 1. Japanese twisted knotless netting
 2. Knotless raschel netting
 3. Braided knotless netting

CONSTRUCTION OF KNOTLESS NETTING YARNS - DIFFERENT TECHNIQUES



Braiding



Japanese

4.1 Japanese twisted knotless netting

- The bars of meshes consists of **two components** of either **single or folded yarns**.
- They are twisted together by the **netting machine**.
- After the desired length of the **bars** is reached, the two components of one netting yarn are connected with two components of the neighbouring yarns by interlacing **one or several times**. thus forming the joints.

4.2 Raschel netting

- In the most **common form**, a bar is composed of **three single yarns**.
- The joints are formed at **regular intervals** by interlacing the components of **two neighbouring bars**,
- thus forming the meshes. The construction of joints is rather **complicated**

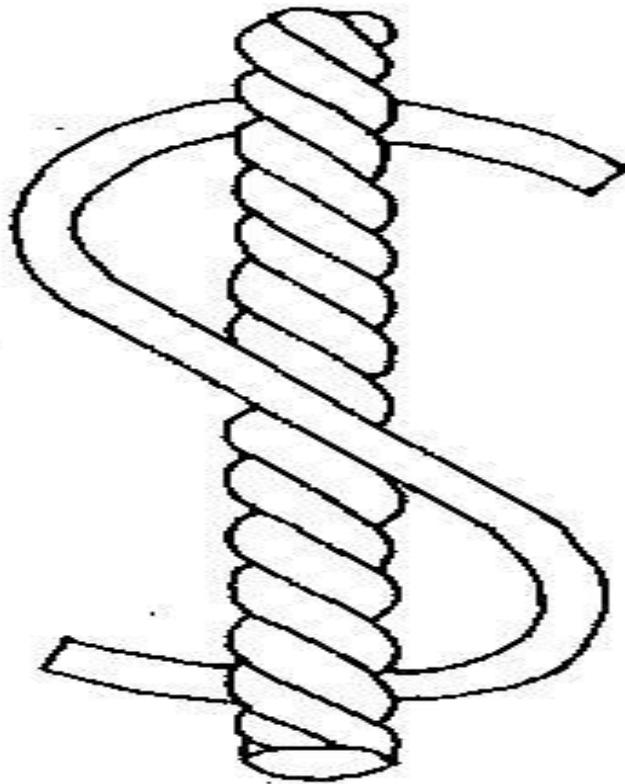
4.3 Braided netting

- The bars here are real braids of **3 or 4 strands** which are braided together with the strands of the neighbouring bars, thus forming the joints.

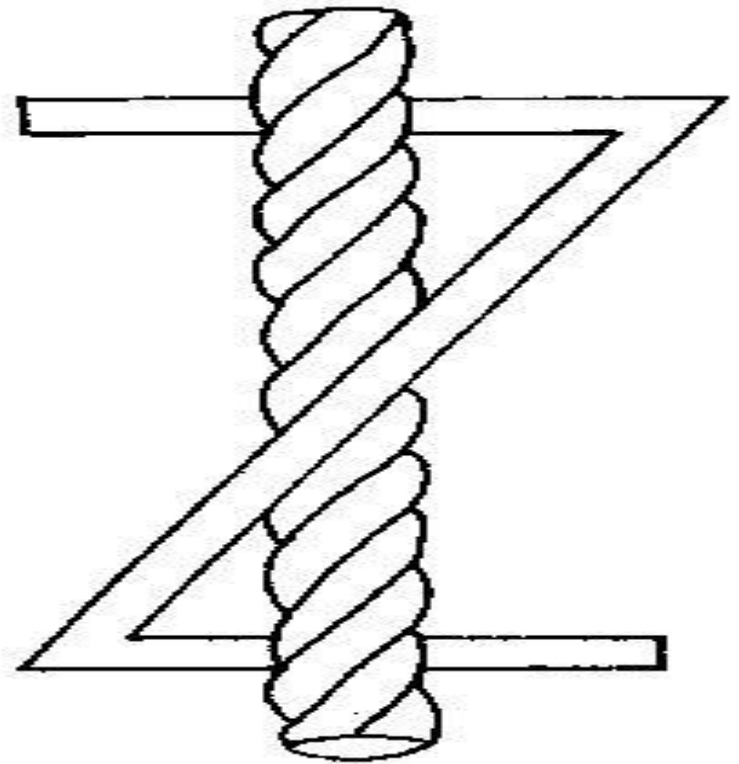
5. *Twist*

- It is the spiral disposition of the components of netting yarn.
- The direction of twist is indicated by capital letters 'S' or 'Z'. (Fig. 4).
- 'S' twist –
 - The product has 'S' twist if when it is held in a vertical position.
 - The spirals or helices formed by the fibres or filaments around its axis incline in the same direction as the central portion of the letter 'S'

DESIGNATION OF DIRECTION OF TWIST



S - Twist



Z - Twist

- 'Z' twist:
 - The product is said to have 'z' twist when it is held in a vertical position,
 - The spiral formed by the fibres or filaments around its axis incline with the same direction as the central portion of the letter 'Z'.
- Amount of twist is expressed in terms of turns per one meter (*t/m.*).
- Four degrees of twist are distinguished depending on the number of turns per meter

- They are:
 1. **Soft twist: Gill nets**
 2. **Medium twist: bottom trawls, purse seines and many types of small fishing gear**
 3. **Hard twist : mid'water trawls and lines**
 4. **Very hard twist**
- The amount of twist has a great influence on the
 - breaking strength and
 - the extensibility of netting yarns.
- The desired level of twist of a netting yarn depends on the requirements of the type of fishing gear for which it is to be used.