

## **Methods of Net Making**

Netting or webbing is a meshed structure of indefinite shape and size produced by interlacing or joining one or more systems of yarns. Most commonly used netting materials have quadratic or diamond shaped meshes which is either knotted or knotless. Of late, netting panels with square and hexagonal meshes are also used in fishing gear construction. Different types of fishing gears such as trawl nets, seine nets, surrounding nets, gillnets and entangling nets, lift nets, falling gears, stow nets and traps, extensively use netting panels as a restrictive barrier in their design and construction. There are two ways of net making namely machine making and hand making.

### **Hand braiding**

Construction of webbing by hand is initiated either by using chain mesh method or by using loop method. Knotted netting panels can be hand fabricated but are normally machine-made. Different types of knots are used in construction of netting. The most popular knot used is the English knot which is also known as weaver's knot or sheet bend. Reef knot is useful in preventing knot slippage. Knot breaking strength in knotted netting varies with knot type, material type, treatment and thickness of knotted twines. In general knot breaking strength decreases with the angle of the loop in the knot and increases with the number of loops in the knot. Double weaver's knot has the strongest knot breaking strength, followed by single weaver's knot and reef knot.

Braiding is initiated by laying a foundation line which is a strong, thick twine stretched between two supports. Clove hitches are made on the foundation line. The number of clove hitches made is one extra over and above the required number of meshes. When this is over, a mesh gauge must be used to obtain meshes of uniform size. The type of knot made depends on the requirement. The topmost edge of the webbing and the lowest edge of the webbing are called as Head and Foot of the webbing.

In chain mesh method a big loop is formed on the foundation line. This loop act as base for the further net making. Then series of required number of meshes are formed. After that each mesh should be stretched then reeved on to the main line. Further fabrication is carried out according to the number of meshes required in depth of the webbing.

### **Machine making**

The introduction of net making machines nearly one hundred of years ago made efficient production of webbing, this accelerated the fishing industry. In this method one can prepare the webbing having indefinite length but the width of the net is restricted to the width of the machine. By adjusting the machine we can prepare the webbing of required mesh size. However, the main drawbacks of machine made nets are: they cannot be baited – decrease the net – or creased – increase the net, and machines can't braid fly meshes on to net pieces which is necessary for the construction of trawl nets. But the above set-backs are not so serious in practice because if it is necessary to decrease or increase the net, this can be done by cutting to the shape required and braiding the edges with twine later. The fly meshes can also be braided by hand once the net has been made and cut to shape. In the process of making nets in such a manner, a certain amount of wastage will be there over but this can be reduced with careful initial planning.

### **Knotless netting:**

Two types of knotless netting are used in fisheries (i) Japanese twisted type and (ii) Raschel type. Advantages of knotless netting are higher mesh breaking strength and low material loss due to absence of knots and lower weight and hydrodynamic resistance compared to knotted netting.

### **Knotless webbing:**

- Japanese twisting technique
- Raschel technique
- Braiding technique

Advantages and disadvantages of knotless webbing and knotted webbings are same. But knotted netting has some principle disadvantage. (1) Knot decrease in breaking strength (2) knots are protruded and abrasion is more. (3) Substantial % of twine is consumed for knots (4) The increase of weight (5) Hydrodynamic resistance is increased

#### **Advantages of knotless webbing:**

- For the same area knotless netting would be lighter and bulk are greatly reduced
- Easy to handle
- Production cost is lower due to the considerable savings of material (25-30% cheaper)
- Knotless netting can have a lower towing resistance
- Abrasion resistance is higher
- Breaking strength is higher
- Constant and accurate mesh size
- Dirt does not adhere so much to knotless netting which is easier for cleaning and quick drying.