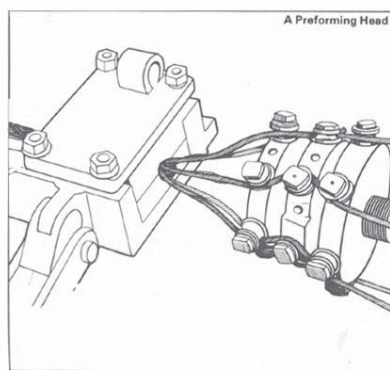


Preforming

Preforming is a process by which each strand is shaped to the helical profile it will adopt in the finished rope. If a preformed rope is unlaid (i.e. the strands and wires are separated) it will be seen that the elements all have their set helical forms, and the rope can easily be laid up again. A Preformed rope had the following advantages:

- 1) The rope is “dead” and is therefore more easily handled.
- 2) When the rope is cut, the cut ends do not automatically unlay (ie. spring open).

The process of Preforming is carried out by a Preforming Head, through which the strands pass immediately before the Closing Head, in which they are formed into the wire rope.



Cores

The central core is a steel wire rope maintains the circular cross-section of the rope by supporting the strands around it, and the core may be of two classes:

Fibre Cores: composed of vegetable fibres (e.g.) Manila, Jute or more commonly Sisal) or man made fibre (such as Polypropylene) which has the advantage of being more resistant to deterioration. Fibre cores are often referred to as FC or FMC (Fibre Main Core), and are impregnated with a suitable preserving lubricant.

Steel Cores: may be Wire Strand Core - WSC. - (usually in ropes of a diameter less than 8mm) or a complete rope in itself (an Independent Wire Rope Core - IWRC - usually of 7x7 construction - 6 strands of 7 wires round 1 strand of 7 wires).

The steel core will resist distortion when the rope is heavily loaded, passing over relatively small diameter sheaves or pulleys, or subjected to drum crushing. Distortion may lead to impaired running over sheaves etc, and may lead to failure due to unequal loading of individual wires, so where these dangers are present a wire rope with IWRC will normally give a longer fatigue life than one with FC. It is also superior in very hot working conditions, such as steel making plants, where the FC will soon dry out and cease to support the strands. In general, a wire rope with IWRC has a breaking strength 8% higher than a similar rope with FC.

Wire Rope Lay

This Term is applied in various ways:

- 1) To describe the direction of rotation of wires and strands.
- 2) The direction of lay or rotation of the strands is normally right hand, but some machinery needs left hand lay ropes.

Right Hand Ordinary Lay



Left Hand Ordinary Lay



Galvanising

To protect the rope from corrosion, a coating of Zinc can be applied to the individual wires. Wire Mills apply this zinc coating using the Hot Dip Process, after which the wires are further drawn to the finished size. This is known as Drawn Galvanising, and provided an intimate bond between the Zinc and the Steel. The alternative is Finished Galvanising, in which the Zinc is applied after the wire is fully drawn, and although the Zinc coating may be thicker it is more likely to flake in service.

Lubrication

When a wire rope bends, each wire moves in relation to its neighbours, and lubrication helps to reduce friction between wires. It also helps to combat corrosion, external and internal.

Specially-selected lubricants have to be applied during the manufacture of the wire rope, the choice of lubricant depending to some extent on the work the rope will be doing. The lubricant helps protect the wires from corrosion during transit and storage, resisting oxidation and water penetration.

During prolonged periods of storage, and during its working life, a wire rope should be examined regularly and further lubricant or “dressing” may be added if necessary. This dressing generally only acts as a preservative, since it will only penetrate the rope if it is applied where the rope is bent over a sheave, so that the strands are open enough to allow such penetration.

Lubricants are generally petrolatum-based and compatible with similar petroleum jelly type lubricants.