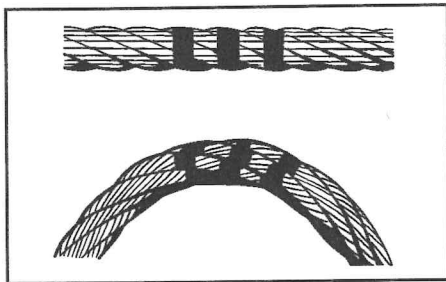


A Wire Rope Is a “Machine” With Many Moving Parts

A wire rope is a machine, by dictionary definition: “An assemblage of parts...that transmit forces, motion, and energy one to another in some predetermined manner and to some desired end.”

A typical wire rope may contain dozens – even hundreds – of individual wires which are formed and fabricated to operate at close bearing tolerances one to another. When a wire rope bends, each of its many wires slides and adjusts in the bend to accommodate the difference in length between the inside and the outside of the bend. The sharper the bend, the greater the movement.

Every wire rope has three basic components: (1) The wires which form the strands and collectively provide rope strength; (2) The strands, which are laid helically around the core; and, (3) The core, which forms a foundation for the strands.

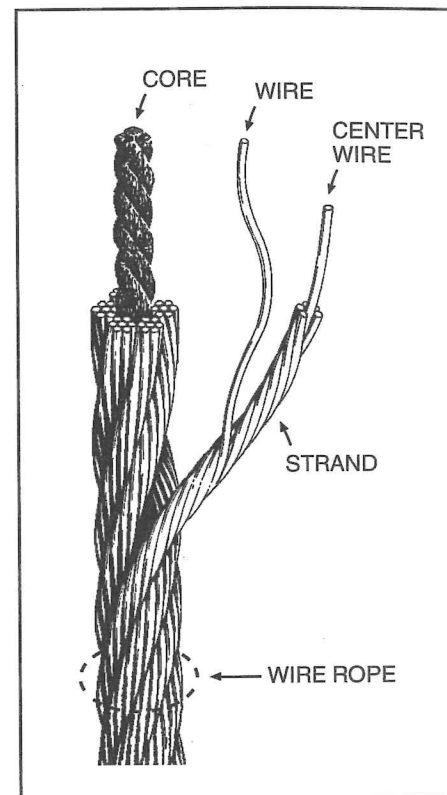


The core may be either a fiber rope, an Independent Wire Rope Core (IWRC), which is actually a smaller wire rope, or a strand similar to the outer strands of the rope; only an IWRC or strand core contributes strength to the rope; and an IWRC normally provides only 7 1/2% of the wire rope's Minimum Breaking Force (published catalog strength).

The greatest differences in wire ropes are found in the strands, which may vary widely in the pattern and number of wires which are laid together.

The wires of a rope may be made of various metals, including steel, iron, stainless steel, monel, and bronze. The material of which the wires are made is the primary determinant of rope strength. By far the most widely used metal is high-carbon steel.

Carbon steel wire ropes come in various Grades. The term “Grade” is used to designate the Nominal Strength of the wire rope. The most common rope Grades are Traction Steel (TS), Plow Steel (PS), Improved Plow Steel (IPS), Extra Improved Plow Steel (EIPS), and Extra Extra Improved Plow Steel (EEIPS).



One cannot determine the Grade of a wire rope by its feel or appearance. To properly evaluate a rope system you must obtain the Grade from your employer or wire rope supplier.