

# Wire rope glossary



**ABRASION** Surface wear on the wires of a wire rope.

**AIRCRAFT CABLES** Strands and wire ropes made of special strength wire primarily for aircraft controls and miscellaneous uses.

**ALTERNATE LAY** Lay of a wire rope in which the strands are alternately regular and lang lay.

**AREA, METALLIC** Sum of the cross-sectional areas of individual wires in a wire rope or strand.

**BECKET LOOP** A loop of small rope or strand fastened to the end of a large wire rope to facilitate installation.

**BENDING STRESS** Stress imposed on wires of a wire rope by bending.

**CABLE-LAID WIRE ROPE** A wire rope made of several wire ropes laid into a single wire rope.

**CENTERS** Wire, strand or fiber in the center of a strand about which the wires are laid.

**CLOSING LINE** Wire rope that closes a clamshell or orange peel bucket.

**COMMON STRAND** A grade of galvanized strand.

**CONSTRUCTION** Design of the wire rope including number of strands, the number of wires per strand and the arrangement of wires in each strand.

**CORE** The axial member of a wire rope about which the strands are laid. It may be fiber, a wire strand or an independent wire rope.

**CORROSION** Chemical decomposition of the wires in a rope by exposure to moisture, acids, alkalines or other destructive agents.

**CORRUGATED** The term used to describe the grooves of a sheave or drum when worn so as to show the impression of a wire rope.

**DESIGN FACTOR** The ratio of the minimum breaking force to the design maximum working force. The minimum breaking force is the published catalog strength of the wire rope involved, and the design maximum working force is the maximum calculated static load to be applied.

**DIAMETER, ROPE** The distance measured across the center of a circle circumscribing the strands of a wire rope.

**DOG-LEG** Permanent short bend in a wire rope caused by improper use.

**DRUM** A cylindrical flanged barrel, either of uniform or tapering diameter, on which rope is wound either for operation or storage. Its surface may be smooth or grooved.

**EFFICIENCY OF WIRE ROPE** Percentage ratio of measured breaking strength of a wire rope to the aggregate strength of all individual wires tested separately.

**ELASTIC LIMIT** Limit of stress above which a permanent deformation occurs.

**EQUALIZING SHEAVE** The sheave at the center of a rope system over which no rope movement occurs other than equalizing movement. It is frequently overlooked during crane inspections with disastrous consequences. It can be a source of severe degradation.

**FATIGUE RESISTANCE** The characteristic of a wire rope which allows it to bend repeatedly under stress.

**FIBER CORE** Rope made of vegetable or synthetic fiber used in the core of a wire rope.

**FILLER WIRE** A strand construction that has small auxiliary wires for spacing and positioning other wires.

**FITTING** Any accessory used as an attachment to a wire rope.

**FLATTENED STRAND ROPE** Wire rope with triangular shaped strands that presents a flattened rope surface.

**GRADES, ROPE** Classification of wire rope by its minimum breaking force. See the table of common grades on page 8, listed in order of increasing strength.

**GRADES, STRAND** Classification of zinc-coated strand by its minimum breaking force. In order of increasing minimum breaking force, they are: Common, Siemens-Martin, High Strength and Extra-High Strength. A Utilities grade strand is also made to meet special requirements.

**GROOVED DRUM** Drum with a grooved surface to guide the rope for proper winding.

**GROOVES** Depressions in the periphery of a sheave or drum that are shaped to position and support the rope.

**IDLER** Sheave or roller used to guide or support a rope.

**IMPROVED PLOW STEEL ROPE** See "GRADES, ROPE."

**INDEPENDENT WIRE ROPE CORE (IWRC)** A wire rope used as the core of a larger wire rope.

**INNER WIRES** All wires of a strand except the outer wires.

**IWRC** See "INDEPENDENT WIRE ROPE CORE."

**KINK** A sharp bend in a wire rope that permanently distorts the wires and strands; the result of a loop being pulled through.

**LANG LAY ROPE** Wire rope in which the wires in the strands are laid in the same direction that the strands in the rope are laid.

**LAY** (1) The manner in which the wires are helically laid into a strand or the strands in a rope, or (2) the length along the rope that one strand uses to make one complete revolution around the core.

**LEFT LAY** (1) Strand - a rope strand in which the cover wires are laid in a helix having a left-hand pitch, or (2) Rope - a rope in which the strands are laid in a helix having a left-hand pitch.

**MARLINE CLAD ROPE** A rope with individual strands spirally wrapped with marline or synthetic fiber cord.

**MINIMUM BREAKING FORCE** Published strength that's been calculated and accepted by the wire rope industry following a set standard procedure. The wire rope manufacturer uses this strength as a minimum strength when designing the wire rope, and the user should consider this to be the strength when making his design calculations.

**NON-ROTATION-RESISTANT WIRE ROPE** Stranded wire rope, the design of which is not intended to reduce load-induced torque. Also known as standard wire rope.

**PEENING** Permanent distortion of outside wire in a rope caused by pounding.

**PREFORMED WIRE ROPE** Wire rope in which the strands are permanently shaped before fabrication into the rope to the helical form they assume in the wire rope.

**PREFORMED STRAND** Strand in which the wires are permanently shaped before fabrication in the strands to the helical form they assume in the strand.

**PRESTRETCHING** Stressing a wire rope or strand before use under such a tension and for such a time that the constructional stretch is largely removed.

**REEL** The flanged spool on which wire rope or strand is wound for storage or shipment.

**REGULAR LAY ROPE** Wire rope in which the wires in the strands and the strands in the rope are laid in opposite directions.

**RESERVE STRENGTH** The percentage of the minimum breaking force represented by the inner wires of the outer strands of a wire rope.

**RIGHT LAY** (1) Strand - a strand in which the cover wires are laid in a helix having a right hand pitch or (2) Rope - a rope in which the strands are laid in a helix having a right-hand pitch.

**ROTATION -RESISTANT ROPE** A wire rope consisting of at least two layers of strands where the lay direction of the outer layer is opposite of its underlying layer.

**SAND LINE** The wire rope that operates the bailer for removing water and drill cuttings in drilling a well.

**SEALE** A strand construction having one size of cover wires with the same number of one size of wires in the inner layer.

**SEIZE** To bind securely the end of a wire rope or strand with seizing wire or strand.

**SEIZING STRAND** Small diameter strand usually of seven wires made of soft annealed iron wire.

**SEIZING WIRE** A soft annealed iron wire.

**SHEAVE** A grooved pulley for wire rope.

**SLINGS** Wire ropes made into forms, with or without fittings, for handling loads and made to permit the attachment of a n .op e ra t ing ro p e .

**SMOOTH-FACED DRUM** A drum with a plain, ungrooved surface .

**SPLICING** Interweaving of two ends of ropes so as to make a continuous or endless length without appreciably increasing the diameter. Also making a loop or eye in the end of a rope by tucking the ends of the s t ra n d s .

**STAINLESS STEEL ROPE** Wire rope made of chrome-nickel steel wires having resistance to corrosion .

**STANDARD WIRE ROPE** See "NON-ROTATION-RESISTANT WIRE ROPE"

**STRAND** An arrangement of wires helically laid about an axis, or another wire or fiber center to produce a symmetrical section.

**STRENGTH, BREAKING** The load, applied through some type of tensile machine, that it takes to pull that piece of rope apart. This is the load at which a tensile failure occurs in the piece of wire rope being tested.

**STRENGTH, AGGREGATE** The sum of the breaking strength in tension of all the wires of a wire rope when the wires are tested individually.

**SWAGED ROPE** A wire rope that is rotary-swaged after closing to produce a compact cross-section.

**WARRINGTON** A strand construction in which the outer layer of wires is composed of alternating large and small wires.

**WIRE** A single, continuous length of metal cold-drawn from a rod.

**WIRE ROPE** A plurality of strands laid helically around an axis or core.

