

**ABNORMAL OPERATING CONDITIONS** - Environmental conditions that are unfavorable. Harmful or detrimental to or for the operation of the sling, such as excessively high or low ambient temperature; exposure to weather; corrosive fumes; dust laden or moisture atmospheres; and hazardous locations.

**ABRASION** - Friction surface wear on the wires of a wire rope.

**ANGLE OF CHOKE** - Sling angle formed in the body as it passes through the choking eye.

**ANGLE OF INCLINATION** - The angle formed by the body of a sling, used as a choker, with the attached hoisted material being out of horizontal.

**ANGLE OF LOADING** - Slope of a leg or branch of a sling may be measured from the horizontal or vertical plane. When angle of loading is less than 5 degrees from the vertical, the load may be considered a vertical load.

**BECKET** - An end attachment to facilitate wire rope installation.

**BECKET LOOP** - A loop of a small rope or strand fastened to the end of a larger wire rope. Its function is to facilitate wire rope installation.

**BIRD CAGE** - A colloquialism descriptive of the appearance of wire rope forced into compression. The outer strands form a bird cage and at times, displace the core.

**BODY** - The part of a sling which is between the end fittings or loop eyes.

**BODY DIAMETER** - The diameter of the greatest inscribed circle around the sling body.

**BOOM PENDENT** - A non-operating rope or strand with end terminations used to support a boom.

**BRAIDED SLING** - A sling made from a braided wire rope.

**BRAIDED WIRE ROPE** - A rope formed by plaiting or braiding component wire rope.

**BREAK STRENGTH** - Break Strength is the ultimate load at which tensile failure occurs in a sample of wire rope or sling being tested. (Note: The term breaking strength is synonymous with the actual strength). Minimum Acceptance Strength is that the strength which is 2-1/2% lower than the catalogue or nominal strength. This tolerance is used to offset variables that occur during sample preparation and actual physical test of a wire rope or sling. Nominal strength is the published (Catalogue) strength calculated by a standard procedure that is accepted by the wire rope industry. Wire rope manufacturers design wire rope to this strength and the user should consider this strength when making design calculation.

**BRIDLE SLING** - A sling composed of multiple legs with the top ends connected to a fitting that goes over the lifting hook.

**CABLE-LAID GROMMET** - An endless wire rope sling made from one continuous length of rope formed to make a body composed of six ropes around a rope core. The rope ends are hand tucked into the body forming the core.

**CABLE LAID SLING** - A wire rope sling made from a cable laid wire rope with eyes fabricated by pressing or swaging one or more metal sleeves over the rope junction.

**CABLE LAID WIRE ROPE** - A type of wire rope made by twisting together a number of smaller wire ropes into one.

**CENTER OF GRAVITY** - Point through which the resultant weight force passes, whatever the position of the given body or system of bodies.

**CIRCUMFERENCE** - Measured inside length of grommet.

**CLASSIFICATION** - Group or family designation based on wire rope constructions with common strengths and weights under the broad designation.

**CONSTRUCTION** - Geometric design description of the wire rope's cross section. This includes the number of strands, the number of wires per strand and the pattern of wire arrangement in each strand.

**CORE** - The axial member of wire rope around which the strands are laid.

**CORROSION** - Chemical decomposition of the wires in a rope through the action of moisture, acids, alkalies or other destructive agents.

**DESIGN FACTOR** - The ratio between nominal or minimum breaking strength and rated capacity of the sling.

**DESIGNATED PERSON** - A person selected or assigned by the employer or employer's representative as being competent to perform specific duties.

**DIAMETER** - A line segment which passes through the center of a circle and whose end points lie on the circle. Related to wire rope it would be the diameter of a circle which circumscribes the wire rope cross section.

**DOG-LEG** - Permanent bend or kink in a wire rope or sling caused by improper use or handling.

**D/D RATIO** - The sheave or bend diameter divided by the nominal wire rope diameter.

**EFFICIENCY** - (a) Ratio of a wire rope's actual breaking strength and the aggregate strength of all individual wire tested separately. (b) Ratio of the actual breaking strength and the breaking strength as measured with end terminations attached. (c) Reduction in breaking strength due to rope being bent over a small diameter pin or sheave.

**EIGHT STRAND BRAIDED** - A rope from eight strands arranged in four pairs in which one strand is placed adjacent to the second pair and in which each strand of each pair has been twisted in one direction while each strand in each alternate pair has been twisted in the opposite direction. The four pairs of strands are intertwined maypole fashion that each pair of strands passes over and under an adjacent pair of strands.

**END TERMINATION** - The treatment at the end or ends of the length of wire rope, usually made by forming an eye or attaching a fitting and designed to be the permanent end termination on the wire rope that connects it to the load.

**ENDLESS ROPE** - Rope with ends spliced together to form a single continuous loop.

**EXTRA IMPROVED PLOW STEEL** - A specific grade of wire rope.

**EYE OR EYE SPLICE** - A loop, with or without thimble, formed at the end of a wire rope.

**FATIGUE** - The process of progressive fracture resulting from the bending of individual wires. These fractures may, and usually do occur at bending stresses well below the ultimate strength of the material. Can be accelerated due to conditions in the rope such as rust or lack of lubrication.

**FERRULE** - A metallic button, usually cylinder in shape, normally fastened to a wire rope by swaging.

**FLEMISH SPLICE** - A method of forming the eye which meets the published breaking strength of the wire rope.

**GRADE** - Wire rope or strand classification by strength and/or type of material (i.e. Improved Plow Steel). It does not imply a strength of the basic wire used to meet rope's nominal strength.

**GROMMET** - An endless circle or ring fabricated from one continuous length of strand or rope.

**HITCH, BASKET** - A method of rigging a sling in which the sling is passed around the load and either both loop eyes or end fittings are attached to the lifting device.

**HITCH, CHOKER** - A method of rigging a sling in which the sling is passed around the load, then through one loop eye, end fitting, or other device with the other loop eye or end fitting attached to the lifting device. This hitch can be done with a sliding choker hook or similar device.

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

**KINK** - A unique deformation of a wire rope caused by a loop of rope being pulled down tight. It represents irreparable damage to and an indeterminate loss of strength in the rope.

**LAY** - (a) The manner in which the wires in a strand or the strands in a rope are helically laid, or (b) the distance measured parallel to the axis of the rope (or strand) in which a strand (or wire) makes one complete helical revolution about the core (or center).

## LENGTH, WIRE ROPE SLINGS

**Single leg slings without end fittings:** Measured from pull to pull or from bearing to bearing of eyes.

**Single leg slings with end fittings:** Measured from pull to pull of fitting, thimble, or eye at the opposite end. If zinc sockets are used, measurement is from the pull of the closed socket to the center line of the open socket pin. If swaged sockets are used, measurement is from center line of pin to center line of pin.

**Multipart sling:** Same as above, except that the ring, master link, or similar fitting is not included in the length dimension.

**LENGTH, WEB & ROUND SLING** - The distance between extreme and bearing points of the sling, including the fittings.

**LOOP EYE, WEB SLING** - A length of webbing which has been folded back upon itself, forming an opening and joined to the sling body to form a bearing surface.

**PREFORMED WIRE ROPE** - Wire rope in which the strands are permanently formed during fabrication into the helical shape they will assume in the wire rope.

**PRESSED FITTINGS** - Fittings attached by means of cold forming on the wire rope.

**PROOF LOAD** - The specific load applied in performance of the proof test. Generally, the proof load is twice the working load, but may be any value specified by the user.

**PROOF TEST** - A non-destructive tension test made by the sling manufacturer to verify construction and workmanship of the individual sling.

**QUALIFIED PERSON** - A person who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

**QUALITY CHECKED** - MacMor's internal quality audit system, which ensures that sleeves, ferrules and other swaged terminals are correctly pressed and immediately painted for identification purposes.

**REACH, ALLOY CHAIN SLINGS** - Effective length of an alloy steel chain sling measured between the bearing surfaces of the end fittings.

**REEVE** - To pass a rope through a hole or around a system of sheaves.

**SLING** - An assembly to be used for lifting when connected to a lifting mechanism at the sling's upper end when supporting a load at the sling's lower end, made from materials, and as depicted in the figures of this catalogue.

**SLING BRAIDED** - A flexible sling, the body of which is made up of two or more wire ropes braided together.

**SPLICE, WEB SLING** - That part of a sling which is lapped and secured to become an integral part of the sling.

**SPLICING** - (1) Making a loop or eye in the end of a rope by tucking the ends of the strands back into the main body of the rope. (2) Formation of loops or eyes in a rope by means of mechanical attachments pressed onto the rope. (3) Joining of two rope ends so as to form a long or short splice in two pieces of rope.

**SPLICING EFFICIENCY** - Ratio of the strength of a splice to the breaking strength of the component wire rope.

**STRENGTH, MINIMUM BREAKING** - Minimum load at which a new sling or component will break when loaded to destruction in direct tension.

**STRENGTH NOMINAL** - Load at which a new sling or component could be expected to break when loaded to destruction in direct tension.

**STRESS** - The force or resistance within any solid body against alteration of form; in the case of a solid wire it would be the load on the rope divided by the cross-sectional area of the wire.

**STRETCH** - The elongation of a wire rope under load.

**SWAGED FITTING** - Fitting into which wire rope can be inserted and then permanently attached by cold pressing (swaging) the shank that encloses the rope.

**TAPPERING AND WELDING** - Reducing the diameter of a wire rope at its end, and then welding the wire so as to facilitate reeving.

**WORKING LOAD LIMIT** - The maximum allowable working load established by the sling manufacturer. (When using a multi branch sling, the rating shown for the single branch sling shall not exceeded in any branch of the multiple branch sling) Terms rated load and rated capacity are commonly used to describe working load limit.