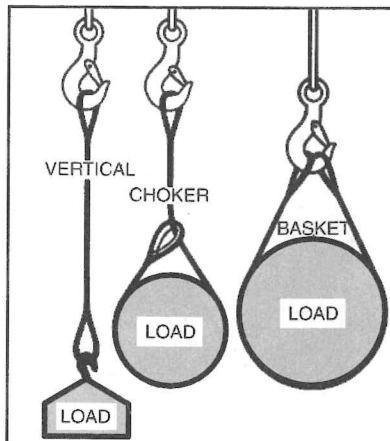


Wire Rope and Wire Rope Slings



Every Lift Uses 1 of 3 Basic Hitches

VERTICAL, or straight, uses a sling to connect a lifting hook or other device to a load. The full rated load of the sling may be used, but never exceeded. A tagline should be used on such a lift to prevent rotation which can damage the sling. A sling with a hand-tucked splice can unlay and fail if the sling is allowed to rotate.

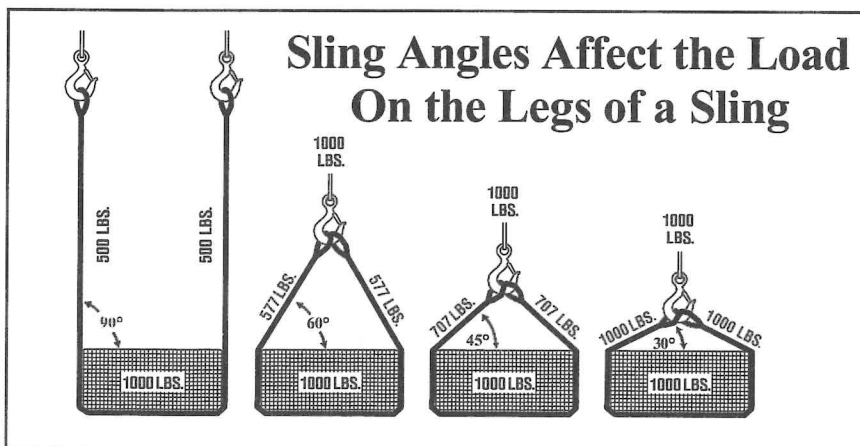
CHOKER hitches reduce lifting capability of a sling. This method of rigging affects

the ability of the wire rope components to adjust during the lift; places angular loading on the body of the sling; and creates a small diameter bend in the sling body at the choke point.

BASKET hitches distribute a load equally between the two legs of a sling, within limitations imposed by the angles at which legs are rigged to the load. (See discussion of sling angles below.)

Basic Factors Concerning Use of Wire Rope Slings

1. **RATED LOAD** (Rated Capacity) of a wire rope sling is based on the Minimum Breaking Force, or Catalog Strength, of the wire rope used in the sling, and factors which affect the overall strength of the sling. These factors include **ATTACHMENT** or **SPLICING EFFICIENCY**, the **NUMBER OF PARTS** of rope in the sling, type of hitch (e.g., straight pull, choker hitch, basket hitch), **DIAMETER** around which the body of the sling is bent, and the **DIAMETER OF ANY PIN** (or hook) over which the eye of the sling is rigged.
 2. Rated Load of a sling is different for each of the three basic methods of rigging. (See graphic above.) Rated loads are indicated on the tag attached to the sling.
 3. **WARNING**: A hand-tucked eye splice can unlay (unravel) and fail if the sling is allowed to rotate during use.
 4. **NEVER "SHOCK LOAD"** a sling. There is no practical way to estimate the actual force applied by shock loading. The rated load of a wire rope sling can easily be exceeded by a sudden application of force, and damage can occur to the sling. The sudden release of a load can also damage a sling.
 5. The **BODY** of a wire rope sling should be **PROTECTED** with corner protectors, blocking, or padding against damage by sharp edges or corners of a load being lifted. Sharp bends that distort the sling body damage the wire rope and reduce its strength.
 6. **ANY ANGLE** other than vertical at which a sling is rigged increases the loading on the sling.
 7. A sling should be given a **VISUAL INSPECTION BEFORE** each lift or usage to determine if it is capable of safely making the intended lift.
- An inspection should include looking for such things as:
- Broken wires
 - Kinks or distortions of the sling body
 - Condition of eyes and splices, and any attached hardware
 - Reduction in diameter of the rope
 - Disruptions to the rope lay
 - Corrosion
 - Missing tags
 - Any damage
8. Whenever a sling is found to be deficient, the eyes must be cut, or other end attachments or fittings removed to prevent further use, and the sling body discarded.
 9. A **SLING EYE** should never be used over a hook or pin with a body diameter larger than the natural width of the eye. **NEVER FORCE AN EYE ONTO A HOOK**. The eye should always be used on a hook or pin which has **AT LEAST THE DIAMETER OF THE ROPE**.



SLING ANGLE (also called Angle of Loading) is the angle measured between a horizontal line and the sling leg or body. This angle is very important and can have a dramatic effect on the rated load of the sling. As illustrated here, when this angle **DECREASES**, the **LOAD ON EACH LEG INCREASES**. This principle applies whether one sling is used with legs at an angle in a basket hitch, or for multi-leg bridle slings. Horizontal sling angles of **LESS THAN 30 DEGREES SHALL NOT BE USED**.