

Wire Rope Angle Reference

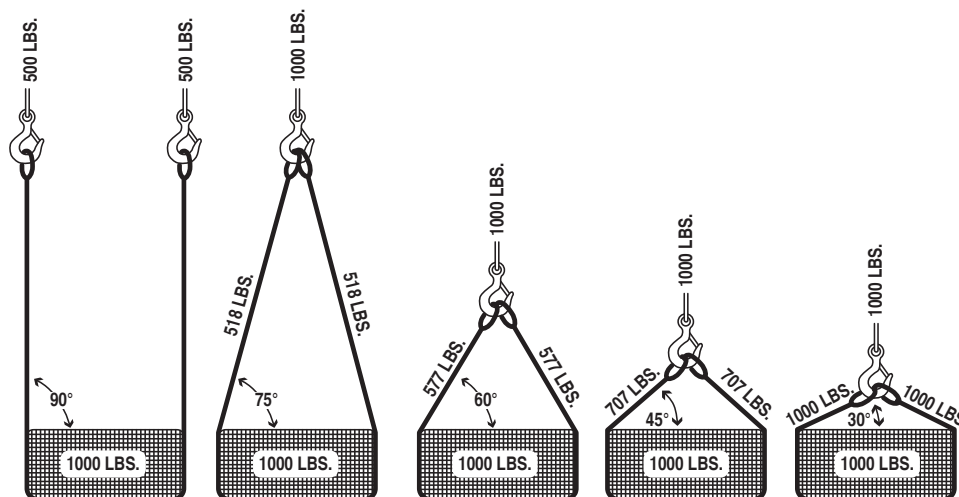
Important Sling Angle Information

The purpose of this page is to define wire rope slings in keeping with good practice and sound engineering design. Many areas of design apply to all types of slings. Specific design criteria will be covered in the appropriate sections. Rated capacities are for wire rope slings fabricated from new wire rope.

DESIGN FACTOR is used in calculating a sling's rated capacity and is necessary to allow for conditions such as wear, abrasion, damage and variations in load. Design factors have been established which allow the sling to give the most efficient service to the user. Rated capacity tables are based on a design factor of five (5). Other design factors may be applied for engineered lifts; however, the sling manufacturer should always be consulted.

Sling Rated Capacity is based upon the minimum Breaking force of the wire rope used in the sling and other factors which affect the overall strength of the sling. These other factors include splicing efficiency, number of parts of rope in the sling, type of hitch (e.g., straight pull, choker hitch, basket hitch, etc.), diameter around which the body of the sling is bent (D/d) and the diameter of pin used in the eye of the sling.

SLING ANGLE is the angle measured between a horizontal plane and the sling leg or body. This angle is very important and can have a dramatic effect on the rated capacity of the sling. When this angle decreases, the load on each leg increases. This principle applies whether one sling is used to pull at an angle, in a basket hitch or for multi legged bridle slings. Sling angles of less than 30 degrees shall not be used.



SLING ANGLES are measured from the horizontal plane. If the horizontal angle is used you must use the trigonometric sine of the horizontal angle in calculating sling capacity at that angle. When the vertical angle is used you must use the trigonometric cosine of the vertical angle.