



# Wire Rope Slings

## General Information

Penco® slings are constructed to meet nearly every need. Of course, there are many special situations which require the use of a specialty sling. These are also available. When ordering a specialty sling, be sure to consider:

- Maximum load
- Type of material to be handled
- Condition of material
- Lifting attachments
- Dimensions of load
- Height of lift
- Headroom and working space available
- Distribution of load weight
- Load center of gravity
- Number of sling legs required

### Ordering Wire Rope Slings

When ordering slings shown in this catalog, the sling number, diameter, and length are required. Unless otherwise specified, the dimensions and fittings indicated will be supplied. When variations are necessary, full dimensions must be specified. For example, alloy oblong links are standard for most bridle slings, and these will be supplied unless otherwise specified. If oblong or pear-shaped carbon links are desired, full link dimensions should be included. In applications where corrosion is a factor, your nearest ALP branch office should be consulted before wire rope is ordered.

### Rated Capacities

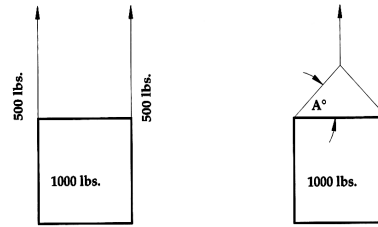
Rated capacities suggested for ALP slings are based on sound engineering practices and ample design factors, and are in accordance with Occupation Safety and Health Administration standards.

**Rated capacities are only applicable for new slings under normal conditions. As a standard practice to avoid confusion, all sling angles in this catalog are measured from the horizontal.**

### Wire Rope Construction

Wire ropes which are regularly used in Lifting slings are either 6x19 Class or 6x37 Class. Generally, ropes with diameters up to 1-1/8 in. inclusive are 6x19 Class and ropes with larger diameters are 6x37 Class. The choice between the two classes may also depend upon the application of the sling, and the characteristics that are most desirable in the sling. For example, if resistance to abrasion is of prime importance, the 6x19 Class is chosen because wires of large diameter provide a high degree of wear resistance. On the other hand, if flexibility is desired, the 6x37 Class is more satisfactory because of the large number of smaller wires in the rope. Other constructions may be available, but they are rarely used and will not be supplied unless specified.

## Effects On Sling Angle



Sling Angle Degrees (A)	Load Angle Factor
90	1.000
75	.966
60	.866
45	.707
30	.500

The rated capacity of a multiple leg sling is directly affected by the angle of the sling leg with the horizontal. As this angle decreases, the stress on each leg increases for the same load. If the sling angle is known, the capacity can be readily determined by multiplying the vertical capacity of the sling leg by the appropriate load angle factor from the table above. Then multiply the resulting capacity by the number of legs to find the assembly's rated capacity. When more than one angle is involved use the smallest angle for calculating rated capacity.

### Wire Rope Sling Inspection

Conditions such as the following should be sufficient reasons for consideration of sling replacement:

1. For strand laid and single part slings, ten (10) randomly distributed broken wires in one rope lay, or five (5) broken wires in one strand in one rope lay.
2. For cable laid and braided slings of less than 8 parts, twenty (20) randomly distributed broken wires in one lay or braid, or one (1) broken strand per sling.
3. For braided slings of 8 parts or more, forty (40) randomly distributed broken wires in one braid, or two (2) broken strands per sling.
4. Severe localized abrasion or scraping.
5. Kinking, crushing, birdcaging or any other damage resulting in distortion of the wire rope structure.
6. Evidence of heat damage or if a wire rope sling having a fiber core is exposed to temperatures in excess to 200 degrees F, or if a wire rope sling having a steel core is used at temperatures above 400 degrees F or below minus 60 degrees F.
7. End attachments that are cracked, deformed, or worn.
8. Hooks that have been opened more than 15% of the normal throat openings measured at the narrows point or twisted more than 10 degrees from the plane of the unbent hook.
9. Corrosion of the rope or end attachments.
10. Unlaying or opening up of a tucked splice.

**All Wire Rope Slings must be identified by manufacturer, diameter or size, rated capacity**