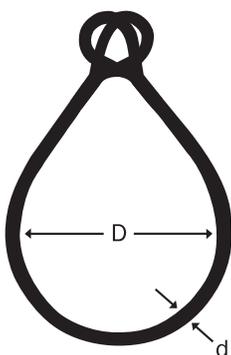


Rated capacities, design factors and D/d ratios



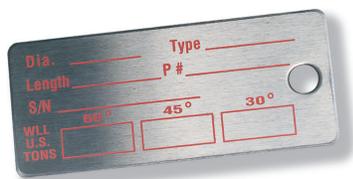
D/d RATIOS

When a sling is rigged as a basket, the diameter of the bend where the sling contacts the load can affect the sling's lifting capacity.



How much the lifting capacity is affected can be calculated by dividing the diameter of the bend where the rope contacts the load (represented by "D") by the diameter of the rope or the component rope diameter in a multi-part sling (represented by "d"). For example, if the diameter of the bend ("D") is 10 and the component rope diameter ("d") is 1/2, the D/d Ratio is $10 \div 1/2$ or 20.

The rated capacity of a sling varies depending upon the type of sling, the size of the sling, and the type of hitch. The American Society of Mechanical Engineers



(ASME) requires that all wire rope slings be tagged with the name or trademark of the manufacturer, the rated capacity for specific configurations and the diameter or size of the sling. Under no circumstances shall a sling's rated capacity be exceeded. The user should maintain this identification so that it is legible during the life of the sling. All persons using the sling should read the tag and understand the information on it.

The rated capacity of a wire rope sling is based upon the Minimum Breaking Force (MBF) of the wire rope used in the sling and other factors that affect the overall strength of the sling, including:

- > Splicing efficiency.
- > Design factor (5 is standard).
- > Number of parts of rope in the sling.
- > Type of hitch (straight pull, choker hitch or basket hitch).
- > Diameter around which the body of the sling is bent (D/d ratio).
- > Number of legs.
- > Diameter of the pin (or hook) over which the eye of the sling is rigged.
- > Angle at which the sling is used.
- > Hook or other end attachment rated capacity.

DESIGN FACTOR

The rated capacities for wire rope slings are based on a design factor of 5 per ASME B30.9. The design factor and other factors are used to calculate the rated capacities.

Design factors have been established that allow the sling to give efficient service to the user.

APPLY STANDARD D/d RATIOS TO DETERMINE EFFICIENCY OF VARIOUS SLING CONSTRUCTIONS

Mechanically-spliced, single-part slings	25 times rope diameter
Hand-spliced, single-part slings	15 times rope diameter
Braided multi-part slings of 6 parts	25 times component rope diameter
Braided multi-part slings of 8 parts	25 times component rope diameter
Helically laid multi-part slings	25 times component rope diameter
Hand-tucked grommets and mechanically joined grommets	5 times sling body diameter

When D/d ratios smaller than those shown above (or those shown in the footnotes below Rated Capacity Tables) are used, the rated capacity of the sling must be decreased.