

Sheaves and Drums - Minimum Diameters

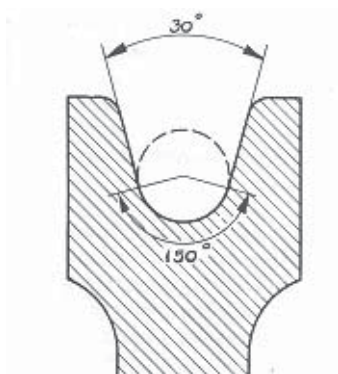
A sheave, or drum, of too small a diameter will hasten fatigue in any wire rope, and in theory sheaves and drums should always be of large diameter. In practice however designers and manufacturers of machinery often find it necessary to compromise. While, therefore, the table opposite should not be used as sole grounds for modifying a design already implemented, it indicates recommended minimum sheave/drum diameters.

Sheave Grooves

The rope is supported in the best possible manner if the arc of contact with the groove contour can be 150 degrees. This corresponds to a throat angle of 30 degrees. However, with a large fleet angle or with oscillating loads, the throat angle should be larger to avoid undue wear of the rope and sheave flanges.

The height of the flanges should be at least 1.5 times the rope diameter to prevent the rope running off the sheave.

A radius 5% larger than half the rope diameter will give the longest service life of the rope.



Sheaves and pulleys should be of hard metal. Soft metal is abraded and will wear to the diameter of the wire rope being used, and may also be imprinted with the lay of that wire rope. A new rope will not fit this imprint exactly, and will therefore, suffer damage. Sheaves should be checked frequently for wear and alignment.

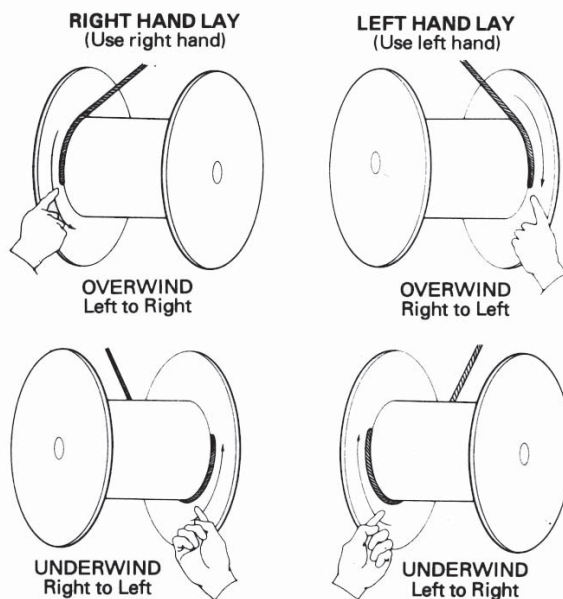
Lubrication of sheave and pulley bearings should be maintained.

Recommended Minimum Sheave/Drum Diameters

Construction	Diameter
6x7	42 x rope diameter
6x25 Flattened Strand	36 x rope diameter
18x7	34 x rope diameter
6x19 Seale	30 x rope diameter
6x21 Filler	28 x rope diameter
6x19 Filler	25 x rope diameter
6x26	26 x rope diameter
6x31	24 x rope diameter
6x36	22 x rope diameter
8x19 Seale	21 x rope diameter
6x41	20 x rope diameter
8x25	18 x rope diameter

Drum Winding

The direction in which a wire rope winds on to a drum depends on the direction of the lay of the rope. The diagrams indicate the methods used for Right Hand Lay and Left Hand Lay ropes respectively, together with a useful means of remembering the system, using the right and the left hand.



Use the hand to indicate the correct direction, the right hand for the Right Hand Lay rope, and the left hand for Left Hand Lay rope. The closed fist represents the drum, the thumb indicates the side at which the inside end of the rope is anchored and the index finger represents the rope leading off the drum.

Most ropes are supplied Right Hand Lay, but some machinery will only accept Left Hand Lay ropes, and if the latter is required it MUST be specified clearly on the order, as Right Hand Lay is always assumed if no lay is indicated.