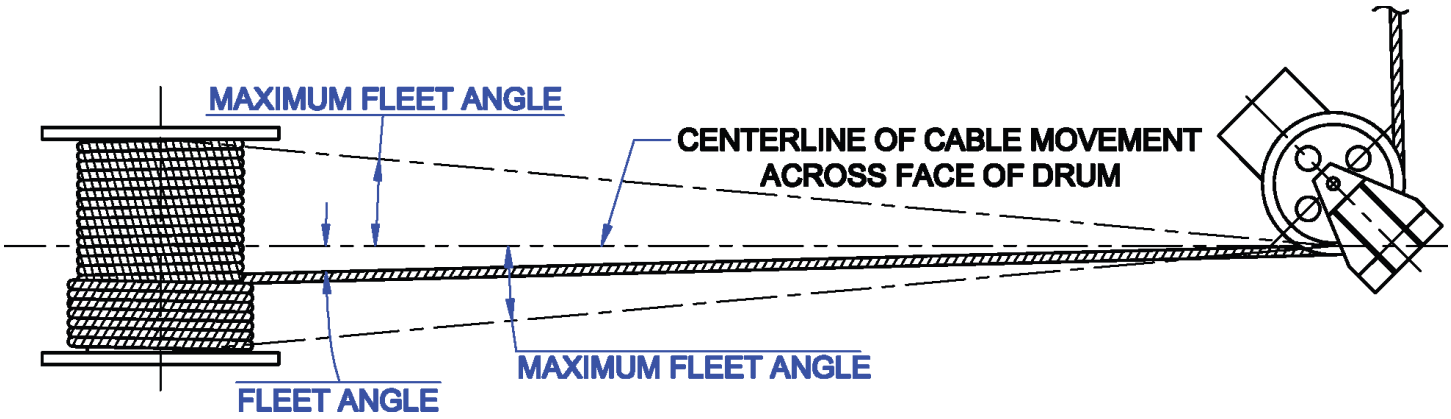
CALCULATING FLEET ANGLE



Fleet Angle:

To ensure proper wrapping on the drum and minimize undue wear of the wire rope, the fleet angle should be kept as small as practical. This is important to consider during the planning of a winch installation. Sheaves and drums should be placed so that the fleet angle will be equal on each side of the centerline of rope travel. The fleet angle is controlled by the drum length and the fleeting distance.

For a smooth drum a maximum fleet angle of 1-1/2 degrees is recommended. When the drum is grooved to suit the wire rope, the fleet angle should not exceed 3 degrees.

Fleeting Distance:

The minimum distance between the centerline of the drum and the first deflector sheave can be calculated using the equation below:

$$Minimum\ Fleeting\ Distance\ in\ Feet = \frac{(Drum\ Length\ in\ Inches)/2}{\tan(a)}$$

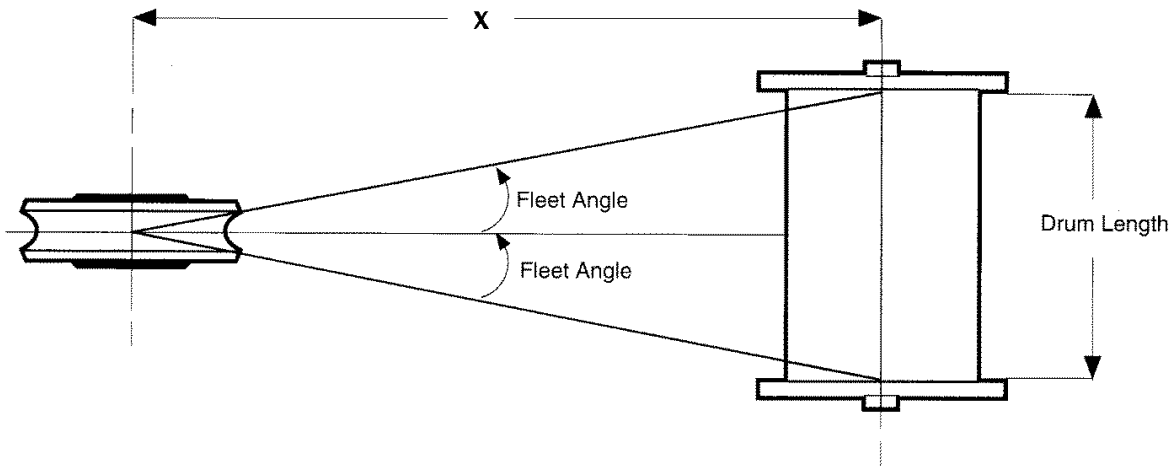
Where "a" is the maximum allowable fleet angle.

The relationship between drum length and fleeting distance is shown in the chart on the next page.

Additional Notes to Consider:

- Ensure the winch axis is perpendicular to the direction of pull. Otherwise, the rope will always try to spool on one side of the drum.
- Make sure there is at least a modest amount of tension on the rope when operating the winch. Otherwise, a slack rope can back up around the winch core when you are trying to pay out rope. Without sufficient tension, the rope will not properly seat itself next to the previous wrap of rope and will cause uneven spooling.

CALCULATING FLEET ANGLE



X = Minimum Distance from Drum to First Sheave or Load Connection – Feet