

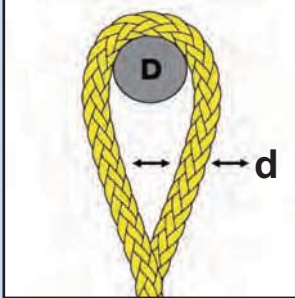


# UHMPE Plasma® Rope Slings

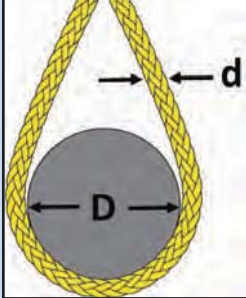
## Effects of Contact Diameters

When using Lift-It® UHMPE Rope Slings, careful consideration must be given to the effect on sling strength from the relationship between the **Diameter** of the load and/or connection point and the **diameter** of the UHMPE Rope Sling.

D/d ratio is defined as the ratio of the **Diameter** around which the sling is bent to the **diameter** of the UHMPE Rope Sling.



$\frac{D}{d}$  = Diameter of the load or connection point.  
d = diameter of the sling.



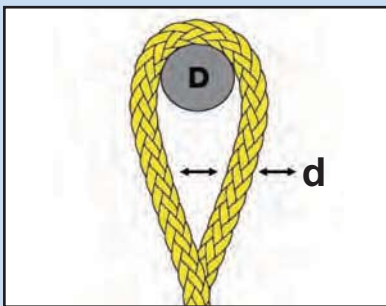
The D/d ratio has a significant effect on the rated capacity when either the UHMPE Rope Sling is placed over a connection point or wrapped around the load. Larger diameters result in greater sling strength, while smaller diameters decrease sling strength.

When D/d ratios used in the body of UHMPE Rope Slings and/or connection point(s) are less than those recommended, UHMPE Rope Sling capacities must be reduced.

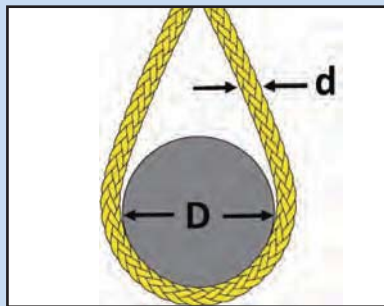
D/d ratio recommendations for UHMPE Eye & Eye Rope Slings are different than the D/d Ratio recommendations for UHMPE Endless Rope Slings.

## D/d Ratio Recommendations for UHMPE Eye & Eye Rope Slings

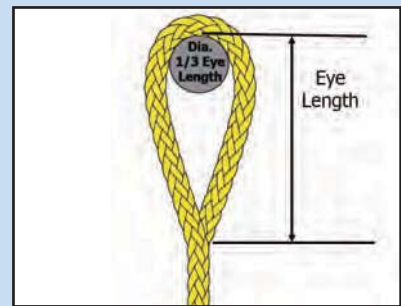
When D/d ratios in the eye are less than 3/1, Lift-It® UHMPE Eye & Eye Rope Sling capacity must be reduced.



When D/d ratios in the body are less than 8/1, Lift-It® UHMPE Eye & Eye Rope Sling capacity must be reduced.

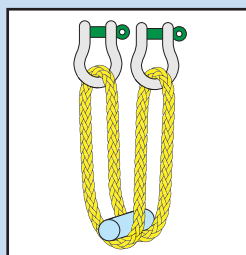


An object in the eye of the UHMPE Eye & Eye Rope Sling should not be wider than one-third the eye length.



## D/d Ratio Recommendations for UHMPE Endless Rope Slings

D/d ratio recommendations must also be taken into consideration for UHMPE Endless Rope Slings when they are used in vertical and/or basket hitch configurations.



When D/d ratios used in the body and/or connection points are less than 8/1, Lift-It® UHMPE Endless Rope Sling capacity must be reduced.



## ANGLE OF LOADING

Load weight must always be determined and/or verified.

The rated capacity (work load limit) of the sling, rigging hardware and/or sling protection shall not be exceeded. Check tags and markings, to verify that slings, rigging hardware and/or sling protection are adequately rated for the load weight, the desired configuration of lift and the Angle of Loading.

All slings, rigging hardware and sling protection used in load handling activities are dramatically affected by the Angle of Loading. The Angle of Loading is the angle between the sling leg and the plane perpendicular to the direction of the applied force. As an example, when a sling is used in a basket hitch, the tension on each "leg" of the sling increases as the Angle of Loading deviates from 90°. This principle applies whether one sling is used at an angle or if slings are used in basket hitches or in multi-leg bridle configurations.

Always take into account the Angle of Loading, which affects rated capacity and calculate changes in the rated capacity, when slings, rigging hardware and protection are used in non-perpendicular vertical, basket or bridle hitches.

When the Angle of Loading between the sling leg and the plane perpendicular to the direction of the applied force is not exactly straight (90°) tension increases. The increased tension must be calculated and slings, rigging hardware and/or protection capacities evaluated for adequacy. Multiply the load weight (per leg) by the appropriate tension multiplier in Table 1 to determine the increased tension on the sling leg(s).

Table 1 provides information about calculating increased tension as a function of the Angle of Loading. Calculations apply if: the load is symmetrical, sling legs are equidistant from the center of gravity and are attached at the same level. If conditions are different, i.e., asymmetrical loads, attachment points at uneven levels, multi-leg sling and/or bridle lifts, tension calculations must be done by a Qualified Person\* to prevent overloading. No leg shall be loaded beyond its single-leg rating.

Angles of Loading less than 30° are not recommended for non-perpendicular vertical, basket and/or bridle configurations unless approved by the sling manufacturer or Qualified Person\*.

Consideration, calculation and evaluation may lead you to select higher capacity slings, rigging hardware and/or protection to compensate for the effects of the Angle of Loading.

## INCREASED TENSION AS A FUNCTION OF THE ANGLE OF LOADING.

Multiply the load weight (per leg) by the tension multiplier to determine the increased tension on the sling leg(s).

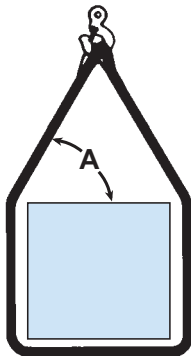
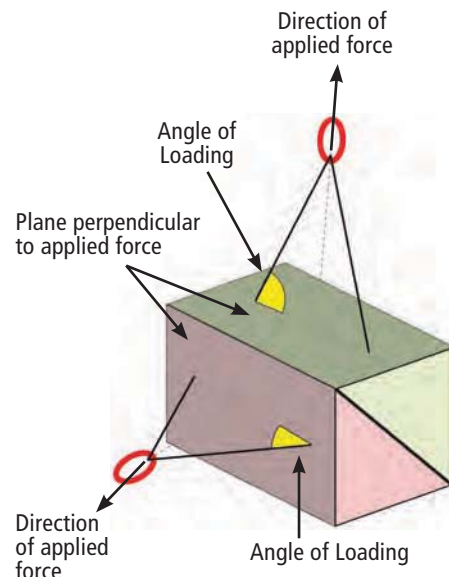


Table 1	
Angle "A" in degrees from horizontal	Tension Multiplier
90	1.000
85	1.004
80	1.015
75	1.035
70	1.064
65	1.104
60	1.155
55	1.221
50	1.305
45	1.414
40	1.555
35	1.742
30	2.000



**⚠ WARNING** DO NOT use UHMPE Rope Slings, rigging hardware, and or/sling protection until you are absolutely sure of what you are doing. Remember, failure to follow proper use, care and inspection criteria and/or the lack of skill, knowledge and care can result in severe INJURY or DEATH. UHMPE Rope Slings, rigging hardware and sling protection will fail if damaged, abused, misused, overloaded or improperly maintained resulting in INJURY or DEATH.