

# TOLERANCES & GUIDELINES

## Standard Length Tolerances for Cable Assemblies and Cut-Length Cable

Liberal tolerances allow a faster rate of production and lower cost. The "standard" tolerances shown in the chart normally permit a cost saving over "close" tolerances. Tolerances closer than those shown can be supplied at a higher cost upon (1) reviewing your specific requirements and (2) mutual agreement regarding methods of inspection.

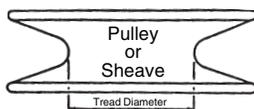
Length in Feet	Tolerance in Inches	
	Standard	Close
0 - 5	±1/4	1/8
5 - 10	±3/8	3/16
10 - 20	±1/2	1/4
20 - 40	±3/4	3/8
40 - 60	±1	1/2
60 - 90	±2	1
90 - 200	±5	2
Over 200	±12	4

## Breaking Strength Safety Factor

When designing a cable or wire rope into a product always divide the breaking strength by 5 to arrive at a "safe working load." The term "breaking strength" means just that! It is the load at which the cable or wire rope destructs. A 5 times safety factor will reduce potential accidents.

## Cable Diameter Related To Pulley or Sheave Diameter

Cable or wire rope will give increased service if (1) it operates over the largest possible pulley or sheave diameter and (2) it is properly supported in the pulley or sheave groove. Working life of the individual wire strands is greatly reduced as the pulley or sheave diameter is diminished. The chart shows minimum tread diameters over which various sizes and constructions of cable should operate.



When designing a pulley groove, the groove should be 150% of the maximum tolerance of the wire rope.

### Example:

A 1/8" 7 x 19 aircraft cable has a maximum tolerance of .014" (.125 minimum, .139 maximum). Multiplying the .014" maximum tolerance by 150% = .021". Adding .021" to .139" maximum diameter = .160" which should be the pulley groove dimension.

Please call for pricing.

## Outside-Diameter Tolerances for Plastic Coated Cable

Information on chart applies to cable coated with all plastics as described in this catalog.

Inner Cable Diameter in inches	Coated to Outside-Diameter in inches	Standard Tolerance of O.D. in inches
3/64 to 1/8	up to 1/4 max.	±.007
5/32 to 1/4	up to 3/8 max.	±.010
9/32 to 3/8	up to 1/2 max.	±.015
7/16 to 1/2	up to 3/4 max.	±.020

## Quality Control

Adscos Line Products Manufacturing operates a fully staffed Quality Control Department conforming to the requirements of MIL-1-45208A. We have equipment available for torsion testing, tensile testing, fatigue testing, as well as dimensional and non-destructive testing. Measuring instruments and gauge controls are in accordance with MIL-1-45662 and MIL Standard 120. Our personnel and procedures have undergone quality assurance inspections by most of the major aerospace firms, as well as government agencies. These evaluations have always resulted in manufacturer receiving top ratings. A copy of our Quality-Control Manual will be sent upon request.

## Minimum Tread Diameter for Pulleys or Sheaves

Cable Diameter in inches	Ratio of cable diameter to pulley diameter:											
	42:1		24:1		12:1		28:1		18:1		10:1	
	Desirable Minimum in inches						Critical Minimum in inches					
	6 x 7 or 7 x 7	6 x 19 or 7 x 19	6 x 37	6 x 7 or 7 x 7	6 x 19 or 7 x 19	6 x 37						
1/16	2-5/8	-	-	1-3/4	-	-						
3/32	2-15/16	2-1/4	-	2-5/8	1-11/16	-						
1/8	5-1/4	3	-	3-1/2	2-1/4	-						
5/32	6-9/16	3-3/4	-	4-3/8	2-7/8	-						
3/16	7-7/8	4-1/2	-	5-1/4	3-3/8	-						
7/32	9-3/16	5-1/4	-	6-1/8	4	-						
1/4	10-1/2	6	3	7	4-1/2	2-1/2						
5/16	13-1/8	7-1/2	3-3/4	8-3/4	5-5/8	3-1/8						
3/8	15-3/4	9	4-1/2	10-1/2	6-3/4	3-3/4						
7/16	18-3/8	10-1/2	5-1/4	12-1/4	7-7/8	4-3/8						
1/2	21	12	6	14	9	5						

When designing aircraft control cable systems, minimum ratio of cable diameter to pulley diameter is 35:1.

Pre-stretched aircraft cable, both stainless steel and galvanized, are available in 1/16", 3/32" and 1/8" diameter at 10% added charge.