

6061

ALUMINUM ALLOY TECHNICAL SPECIFICATION SHEET

GENERAL: Silicon and Magnesium combine to make alloy 6061 one of the most versatile of the heat treatable alloys. Excellent formability and corrosion resistance make this alloy ideal for rivets, bolts, and nuts; especially in marine applications. Although 6061-H13 is the standard cold heading temper, when the Beneke special finishes are used, many fasteners can be produced directly from the heat treated condition (T4). This eliminates the need for solution heat treating after cold forming. Applications other than fasteners include wire forms and deep drawn products.

CHEMICAL COMPOSITION¹: Compositions in % max, unless otherwise specified.

Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others		Al (min)
									Each	Total	
.40-.8	0.7	0.15-.40	0.15	.8-1.2	.04-.35	-	0.25	0.15	0.05	0.15	Balance

¹ Complying with Aluminum Association, ASTM and Federal Specifications

MECHANICAL PROPERTIES AND CHARACTERISTICS

Although Beneke Wire Co makes every effort to provide you with accurate values in this section, when using for design purposes please consult with the Beneke technical staff or refer to any relevant standards and/or specifications,

Temper	Max Diameter ⁵ (inches)	Ultimate Tensile		Typical Shear ³ (ksi)	Typical % El ³ (in 10")	Resistance to Corrosion		Formability ²	Machinability ²
		Specification ¹ (ksi)	Typical ⁴ (ksi)			General ²	SCC ²		
6061-O	.715	22.0 max	18.3	12	25	B	A	A	D
-H11	.715	-	21.8	-	-	B	B	A	D
-H12	.715	-	22.7	-	-	B	B	A	D
-H13	.715	22.0-30.0	24.0	16	22	B	B	A	D
-H15	.625	-	25.4	-	-	B	B	B	C
-H18	.455	-	30.2	-	-	B	B	B	C
-T4	.715	30.0 min	32.2	21	22	B	B	B	C
-T6	.715	42.0 min	43.1	29	12	B	A	C	B

¹ Complying with Aluminum Association, ASTM and Federal Specifications

² Ratings A-E are relative ratings in decreasing order of merit

³ Industry averages as published by Aluminum Association. Should not be used for design purposes

⁴ Computed Beneke averages. Should not be used for design purposes

⁵ Larger sizes may be available subject to inquiry

FINISHES: Much success has been attained in cold heading 6061 alloy in T-tempers in the special Beneke finishes listed below:

1) DOX Finish - A satiny white finish specifically used on heat treated cold heading wire and rod. This oxide free surface greatly improves uniformity in metal flow during heading, thus giving the added advantage needed when heading heat treated wire and rod.

2) MICRO Finish - A bright, lustrous finish applicable only to heat treated wire. This oxide free surface is particularly useful in escomatic wire or any application where close tolerances in diameter are required. Improved corrosion resistance is one of many advantages.