

1-800-GRAINGER (472-4643)

Aluminum Information

Soft, lightweight, corrosion-resistant alloy conducts both heat and electricity.

ALUMINUM TEMPERS

H14 (1/2 Hard)

Material is strain-hardened only (without additional thermal treatment) to a half-hard temper.

H22 (3/4 Hard)

Material is strain-hardened and partially annealed to a quarter-hard condition.

H32 (1/4 Hard)

Material is strain-hardened and mechanical properties are stabilized with supplementary thermal treatment to a quarter-hard temper.

T52

Material resists corrosion and can be formed, machined, and welded. Aluminum rods are lightweight and suitable for braces, cross members, frames, ornamental work, railings, and supports. Rods can be drilled, machined, punched, and sawed.

T6

Material is solution heat treated and then artificially aged.

T651

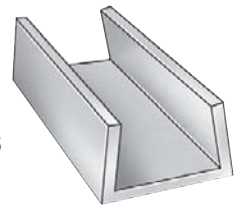
Material is solution heat treated, artificially aged, and then stretch-stress relieved. Refers to plates and cold-finished bars and rods.

T6511

Extruded material is solution heat treated, artificially aged, and then stretch-stress relieved.

Material	Tensile Strength* (psi)	Yield Strength* (psi)	Hardness* (BHN)	Corrosion Resistance	Wear Resistance	Formability	Machinability	Weldability
Alloy 2011	55,000	43,000	95	Poor	Fair	Fair	Excellent	Not Recommended
Alloy 2024	65,000 to 68,000	47,000	120	Poor	Good	Fair	Good	Fair
Alloy 3003	22,000 to 23,000	20,000 to 21,000	40	Excellent	Not Recommended	Good	Poor	Good
Alloy 5052	33,000	28,000	60	Excellent	Not Recommended	Good	Poor	Good
Alloy 6061	45,000	40,000	95	Good	Fair	Fair	Fair	Good
Alloy 6063	27,000	21,000	60	Good	Not Recommended	Good	Good	Good
Alloy 7075	73,000 to 83,000	63,000 to 73,000	150	Fair	Good	Poor	Good	Not Recommended

* Typical levels @ 1" dia.



Aluminum—U-Channels

- Length 8 ft.
- 6063 standards: ASTM B221

Offer good corrosion resistance, machinability, formability, and weldability.

Wall Thickness	Base Width	Wall Thickness Tolerance	Base Width Tolerance	Leg Length Tolerance	Item No.
Alloy 6063-T52 Temper/Mill					
1/2 in Leg Length					
0.062 in	1/2"	+/-0.006 in	+/-0.009 in	+/-0.009 in	6ALZ2
0.093 in	1/2"	+/-0.006 in	+/-0.009 in	+/-0.009 in	6ALZ3
0.125 in	1"	+/-0.007 in	+/-0.012 in	+/-0.009 in	6ALZ1
0.125 in	1 1/2"	+/-0.007 in	+/-0.014 in	+/-0.009 in	6ALZ0
0.125 in	2"	+/-0.007 in	+/-0.024 in	+/-0.009 in	6ALY9
3/4 in Leg Length					
0.125 in	1/2"	+/-0.007 in	+/-0.009 in	+/-0.010 in	6ALY8
0.125 in	3/4"	+/-0.007 in	+/-0.010 in	+/-0.010 in	6ALY7
0.125 in	1 3/4"	+/-0.007 in	+/-0.014 in	+/-0.010 in	6ALY6
1 in Leg Length					
0.125 in	1"	+/-0.007 in	+/-0.012 in	+/-0.012 in	6ALY5
1 1/4 in Leg Length					
0.125 in	1 1/4"	+/-0.007 in	+/-0.012 in	+/-0.012 in	6ALY1
1 1/2 in Leg Length					
0.125 in	1 1/2"	+/-0.007 in	+/-0.014 in	+/-0.014 in	6ALY0
1 in Leg Length					
0.125 in	2"	+/-0.007 in	+/-0.024 in	+/-0.012 in	6ALY4
0.125 in	3"	+/-0.007 in	+/-0.024 in	+/-0.012 in	6ALY3
0.125 in	4"	+/-0.007 in	+/-0.034 in	+/-0.012 in	6ALY2
2 in Leg Length					
0.188 in	5"	+/-0.007 in	+/-0.034 in	+/-0.024 in	6ALX8
0.25 in	2"	+/-0.008 in	+/-0.024 in	+/-0.024 in	6ALX9

Aluminum—90° Angles

- 6061 standards: ASTM B308, AMS-QQ-A-200
- 6063 standards: ASTM B221

Note: Additional sizes are available; call 1-800-GRAINGER (472-4643).

Leg Length	Leg Length Tolerance	Thickness Tolerance	4 FT. LENGTH Item No.	8 FT. LENGTH Item No.
Alloy 6061 - T6 Temper (Smooth Unpolished/Extruded)				
1/8 in Thick				
3/4"	+/-0.010 in	+/-0.007 in	—	2EYN8
1"	+/-0.012 in	+/-0.007 in	—	2EYP1
1 1/4"	+/-0.012 in	+/-0.007 in	2EYN2	2EYP3
1 1/2"	+/-0.014 in	+/-0.007 in	2EYN4	2EYP5
1 3/4"	+/-0.014 in	+/-0.008 in	2EYU4	—
2"	+/-0.024 in	+/-0.007 in	2EYN6	2EYP7
3/16 in Thick				
1"	+/-0.012 in	+/-0.007 in	2EYP9	2EYR8
1 1/4"	+/-0.012 in	+/-0.007 in	2EYR2	2EY11
1 1/2"	+/-0.014 in	+/-0.007 in	2EYR4	2EY13
2"	+/-0.024 in	+/-0.007 in	2EYR6	2EY15
1/4 in Thick				
1"	+/-0.012 in	+/-0.008 in	2EY17	2EYV5
1 1/4"	+/-0.012 in	+/-0.008 in	2EY19	2EYV7
1 1/2"	+/-0.014 in	+/-0.008 in	2EYU2	2EYV9
1 3/4"	+/-0.014 in	+/-0.008 in	—	2EYW2
2"	+/-0.024 in	+/-0.008 in	2EYU6	2EYW4
2 1/2"	+/-0.024 in	+/-0.008 in	2EYU8	2EYW6
3"	+/-0.024 in	+/-0.008 in	2EYV1	2EYW8
4"	+/-0.034 in	+/-0.008 in	2EYV3	2EYX1
3/8 in Thick				
2"	+/-0.024 in	+/-0.008 in	2EYX3	—
2 1/2"	+/-0.024 in	+/-0.008 in	2EYX5	—
3"	+/-0.024 in	+/-0.008 in	2EYX7	—
4"	+/-0.034 in	+/-0.008 in	2EYX9	—
6"	+/-0.044 in	+/-0.008 in	2EY12	—
1/2 in Thick				
3"	+/-0.024 in	+/-0.009 in	2EY14	2EY21
4"	+/-0.034 in	+/-0.009 in	2EY16	2EY23
5"	+/-0.034 in	+/-0.009 in	2EY18	2EY25
Alloy 6063 - T52 Temper (Mill/Extruded)				
1/8 in Thick				
1"	+/-0.012 in	+/-0.007 in	6ALZ8	6ALZ9
1 1/2"	+/-0.014 in	+/-0.007 in	6ALZ6	6ALZ7
2"	+/-0.024 in	+/-0.007 in	6ALZ4	6ALZ5

Aluminum—Cylindrical Rods

- 6061 (Unpolished) standards: ASTM B211, AMS-QQ-A-200
- 6061 (Mill); 6063 standards: ASTM B221

Note: Additional sizes and alloys are available; call 1-800-GRAINGER (472-4643).

Dia.	Dia. Tolerance	8 ft * Item No.	1 ft Item No.	3 ft Item No.	6 ft Item No.
Alloy 6061 - Extruded Temper (Mill)					
1/8"	+/-0.002 in	48KU32 **	—	—	—
3/8"	+/-0.002 in	48KU33 **	—	—	—
1/2"	+/-0.002 in	48KU30 **	—	—	—
Alloy 6061 - Extruded Temper (Unpolished)					
3/8"	+/-0.008 in	—	—	—	2EYJ6 †
1/2"	+/-0.009 in	—	—	—	2EYJ7 †
3/4"	+/-0.010 in	—	—	2EYJ7 †	2EYJ9 †
7/8"	+/-0.010 in	—	—	2EYJ8 †	2EYK1 †
1"	+/-0.012 in	—	—	2EYJ9 †	2EYK2 †
1 1/4"	+/-0.012 in	—	—	2EYH2 †	2EYK4 †
1 3/8"	+/-0.012 in	2EYF3 *	—	—	2EYK5 †
1 1/2"	+/-0.014 in	2EYF4 *	2EYH4 †	—	2EYK7 †
1 3/4"	+/-0.014 in	2EYF6 *	2EYH6 †	—	—
2"	+/-0.024 in	2EYF7 *	2EYH7 †	—	2EYL4 †
2 1/4"	+/-0.024 in	2EYF8 *	2EYH8 †	—	2EYL6 †
2 3/4"	+/-0.024 in	2EYF9 *	2EYH9 †	—	2EYL8 †
1 in	+/-0.006 in	6ALN1	2EYJ1 †	—	2AVB5 †
1 1/4 in	+/-0.006 in	6ALN3	2EYJ2 †	—	2AVB7 †
2 in	+/-0.012 in	6ALN4	2EYJ6 *	—	—

Length tolerance: * ±1.000"; † ±3.000"; ‡ ±6.000"; ** +/-0.0625".