



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 (3/4 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.

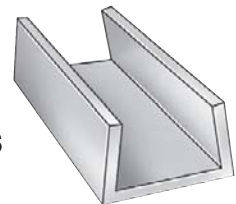


Aluminum—90° Angles

- 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 in	+/-0.010 in	+/-0.007 in	—	2EYN8
1 in	+/-0.012 in	+/-0.007 in	—	2EYP1
1 1/4 in	+/-0.012 in	+/-0.007 in	2EYN2	2EYP3
1 1/2 in	+/-0.014 in	+/-0.007 in	2EYN4	2EYP5
1 3/4 in	+/-0.014 in	+/-0.008 in	2EYU4	—
2 in	+/-0.024 in	+/-0.007 in	2EYN6	2EYP7
3/16 in Thick				
1 in	+/-0.012 in	+/-0.007 in	2EYP9	2EYR8
1 1/4 in	+/-0.012 in	+/-0.007 in	2EYR2	2EYT1
1 1/2 in	+/-0.014 in	+/-0.007 in	2EYR4	2EYT3
2 in	+/-0.024 in	+/-0.007 in	2EYR6	2EYT5
1/4 in Thick				
1 in	+/-0.012 in	+/-0.008 in	2EYT7	2EYV5
1 1/4 in	+/-0.012 in	+/-0.008 in	2EYT9	2EYV7
1 1/2 in	+/-0.014 in	+/-0.008 in	2EYU2	2EYV9
1 3/4 in	+/-0.014 in	+/-0.008 in	—	2EYW2
2 in	+/-0.024 in	+/-0.008 in	2EYU6	2EYW4
2 1/2 in	+/-0.024 in	+/-0.008 in	2EYU8	2EYW6
3 in	+/-0.024 in	+/-0.008 in	2EYV1	2EYW8
4 in	+/-0.034 in	+/-0.008 in	2EYV3	2EYX1
5/8 in Thick				
2 in	+/-0.024 in	+/-0.008 in	2EYX3	—
2 1/2 in	+/-0.024 in	+/-0.008 in	2EYX5	—
3 in	+/-0.024 in	+/-0.008 in	2EYX7	—
4 in	+/-0.034 in	+/-0.008 in	2EYX9	—
6 in	+/-0.044 in	+/-0.008 in	2EYY2	—
1/2 in Thick				
3 in	+/-0.024 in	+/-0.009 in	2EYY4	2EYZ1
4 in	+/-0.034 in	+/-0.009 in	2EYY6	2EYZ3
5 in	+/-0.034 in	+/-0.009 in	2EYY8	2EYZ5
Alloy 6063 - T52 Temper (Mill/Extruded)				
1/8 in Thick				
1 in	+/-0.012 in	+/-0.007 in	6ALZ8	6ALZ9
1 1/2 in	+/-0.014 in	+/-0.007 in	6ALZ6	6ALZ7
2 in	+/-0.024 in	+/-0.007 in	6ALZ4	6ALZ5



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 in	+/-0.006 in	+/-0.009 in	+/-0.009 in	6ALZ2
0.093 in	1/2 in	+/-0.006 in	+/-0.009 in	+/-0.009 in	6ALZ3
—	1 in	+/-0.007 in	+/-0.012 in	+/-0.009 in	6ALZ1
0.125 in	1 1/2 in	+/-0.007 in	+/-0.014 in	+/-0.009 in	6ALZ0
—	2 in	+/-0.007 in	+/-0.024 in	+/-0.009 in	6ALY9
3/4 in Leg Length					
0.125 in	1/2 in	+/-0.007 in	+/-0.009 in	+/-0.010 in	6ALY8
—	3/4 in	+/-0.007 in	+/-0.010 in	+/-0.010 in	6ALY7
—	1 3/4 in	+/-0.007 in	+/-0.014 in	+/-0.010 in	6ALY6
1 in Leg Length					
0.125 in	1 in	+/-0.007 in	+/-0.012 in	+/-0.012 in	6ALY5
—	2 in	+/-0.007 in	+/-0.024 in	+/-0.012 in	6ALY4
—	3 in	+/-0.007 in	+/-0.024 in	+/-0.012 in	6ALY3
—	4 in	+/-0.007 in	+/-0.034 in	+/-0.012 in	6ALY2
1 1/4 in Leg Length					
0.125 in	1 1/4 in	+/-0.007 in	+/-0.012 in	+/-0.012 in	6ALY1
1 1/2 in Leg Length					
0.125 in	1 1/2 in	+/-0.007 in	+/-0.014 in	+/-0.014 in	6ALY0
2 in Leg Length					
0.188 in	5 in	+/-0.007 in	+/-0.034 in	+/-0.024 in	6ALX8
0.25 in	2 in	+/-0.008 in	+/-0.024 in	+/-0.024 in	6ALX9

Aluminum—Cylindrical Rods

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

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, Mill Finish					
1/8 in	+/-0.002 in	48KU32	**	—	—
3/16 in	+/-0.002 in	48KU33	**	—	—
1/2 in	+/-0.002 in	48KU30	**	—	—
Alloy 6061, T6511 Temper, Unpolished Finish					
3/8 in	+/-0.008 in	—	—	—	2EYJ6
1/2 in	+/-0.009 in	—	—	—	2EYJ7
3/4 in	+/-0.010 in	—	2EYG7	+	2EYJ9
7/8 in	+/-0.010 in	—	2EYG8	+	2EYK1
1 in	+/-0.012 in	—	2EYG9	+	2EYK2
1 1/4 in	+/-0.012 in	—	2EYH2	+	2EYK4
1 3/8 in	+/-0.012 in	2EYF3	*	—	2EYK5
1 1/2 in	+/-0.014 in	2EYF4	*	2EYH4	2EYK7
1 3/4 in	+/-0.014 in	2EYF6	*	2EYH6	—
2 in	+/-0.024 in	2EYF7	*	2EYH7	2EYL4
2 1/4 in	+/-0.024 in	2EYF8	*	2EYH8	2EYL6
2 1/2 in	+/-0.024 in	2EYF9	*	2EYH9	2EYL8
3/4 in	+/-0.005 in	6ALN2	+	+/-0.024 in	2EYJ1
1 in	+/-0.006 in	6ALN3	+	+/-0.024 in	2AVB5
2 in	+/-0.012 in	6ALN4	+	+/-0.034 in	2AVB7

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