

## MECHANICAL PROPERTY LIMITS

### 6063 EXTRUDED MECHANICAL AND PHYSICAL PROPERTY LIMITS <sup>(1)</sup>

Standard Tempers	Wall Thickness <sup>2</sup> Inches (min.)	Tensile Strength Ksi (min.)	Yield Strength Ksi (min.)	Elongation <sup>3</sup> % (min.)	Typical Thermal Conductivity @77°F BTU-in./ft. <sup>2</sup> hr.°F	Typical Electrical Conductivity @68°F, % IACS
<b>O</b>	All	19.0 max.	-	18	1510	58
<b>T1</b>	Up thru .500	17.0	9.0	12	1340	50
	.501 - 1.000	16.0	8.0	12	1340	50
<b>T4</b>	Up thru .500	19.0	10.0	14	1340	50
	.501 - 1.000	18.0	9.0	14	1340	50
<b>T5</b>	Up thru .500	22.0	16.0	8	1450	55
	.501 - 1.000	21.0	15.0	8	1450	55
<b>T52</b>	Up thru 1.000	22.0 - 30.0	16.0 - 25.0	8	1450	55
<b>T53</b>	Up thru .249	13.0 - 21.0	5.0 - 13.0	14	-	-
<b>T54</b>	Up thru .124	33.0	30.0	8	1390	53
	.125 - .499	33.0	30.0	10	1390	53
<b>T55</b>	Up thru .124	28.0	23.0	8	1450	55
	.125 - .249	27.0	22.0	10	1450	55
	.250 - .499	26.0	21.0	12	1450	55
<b>T6</b>	Up thru .124	30.0	25.0	8	1390	53
	.125 - 1.000	30.0	25.0	10	1390	53

1. Minimum property levels unless shown as a range or indicated as a maximum (max.)
2. The thickness of the cross section from which the tension test specimen is taken determines the applicable mechanical properties.
3. For materials of such dimensions that a standard test specimen cannot be taken or for shapes thinner than .062", the test for elongation is not required. Elongation percent is minimum 2" or 4 times specimen diameter.

### 6061 EXTRUDED MECHANICAL AND PHYSICAL PROPERTY LIMITS <sup>(1)</sup>

Standard Tempers	Wall Thickness <sup>2</sup> Inches (min.)	Tensile Strength Ksi (min.)	Yield Strength Ksi (min.)	Elongation <sup>3</sup> % (min.)	Typical Thermal Conductivity @77°F, BTU-in./ft. <sup>2</sup> hr.°F	Typical Electrical Conductivity @68°F, % IACS
<b>O</b>	All	22.0 max.	16.0 max.	16	1250	47
<b>T1</b>	Up thru 0.625	26.0	14.0	16	--	40
<b>T4, T4511</b>	All	26.0	16.0	16	1070	42
<b>T51</b>	Up thru 0.625	35.0	30.0	8	--	42
<b>T6, T6511</b>	Up thru 0.249	38.0	35.0	8	1160	43
<b>T6, t6511</b>	0.250 and over	38.0	35.0	10	1160	43

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2. The thickness of the cross section from which the tension test specimen is taken determines the applicable mechanical properties.
3. For materials of such dimensions that a standard test specimen cannot be taken or for shapes thinner than .062", the test for elongation is not required. Elongation percent is minimum 2" or 4 times specimen diameter.

**COMPARATIVE CHARACTERISTICS OF RELATED ALLOYS / TEMPERS <sup>(1)</sup>**

Alloy	Temper	Formability				Machinability				General Corrosion Resistance				Weldability				Brazeability				Anodizing Response			
		D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A	D	C	B	A
6061	O	↔				↔				↔				↔				↔				↔			
	T1, T4, T4S6, T4511	↔				↔				↔				↔				↔				↔			
	T6, T6511, T6X, T6511X	↔				↔				↔				↔				↔				↔			
6061	T6H, T6G, T6511H, T6511G	↔				↔				↔				↔				↔				↔			
	T6S2, T6S15	↔				↔				↔				↔				↔				↔			
	T6S9, T6S10	↔				↔				↔				↔				↔				↔			
6042	T5, T6511	↔				↔				↔				↔				↔				↔			
6063	T6, T6511	↔				↔				↔				↔				↔				↔			
	T5, T52	↔				↔				↔				↔				↔				↔			
6101	T6, T63	↔				↔				↔				↔				↔				N/A			
	T61, T64	↔				↔				↔				↔				↔				N/A			
6262	T6, T6511	↔				↔				↔				↔				↔				↔			
6463	T5	↔				↔				↔				↔				↔				↔			

1. Rating: A=Excellent B=Good C=Fair D=Poor