

Mechanical Properties of Technically Significant Aluminum Rolled and G.AL® Cast Plates								
Alloy Temper	Type	Description	Thickness/Ø	Tensile Strength	Yield Strength	Elongation	Hardness	Notes
			inch	KSI	KSI	%	[2.5/62.5]	
1050A H111	non-heat-treatable	Rolled Plate	0.01 – 3.2	9	3	20-35	20	Directional properties. Low strength reduction from edge to center. Low residual stresses. Micro-porosity: Hardly any risk.
2007 T4, T451	heat-treatable	Extruded Bar	0.4 – 9.8	48 - 54	30 - 36	6 - 8	95	Micro-porosity: Risk from diameter approx. 4 in. Micro-porosity: High risk from diameter approx. 5 in. Micro-porosity: Unavoidable from diameter approx. 6 in. Risk of coarse grain: High.
2017 T4, T451	heat-treatable	Rolled Plate	0.02 – 7.8	44 - 57	29 - 36	2 - 14	95 - 111	Directional properties. Moderate strength reduction from edge to center. Very high residual stresses. Micro-porosity: Risk from thickness approx. 3 in. Micro-porosity: High risk from thickness approx. 4 in. Micro-porosity: Unavoidable from thickness approx. >5.5 in.
5083 H111	non-heat-treatable	Rolled Plate	0.01 – 11.8	36 - 40	13 - 18	9 - 16	69 - 75	Directional properties. Moderate strength reduction from edge to center. Micro-porosity: Risk from thickness approx. 4 in. Micro-porosity: High risk from thickness approx. 5 in. Micro-porosity: Unavoidable from thickness approx. >13 in.
5083 O3	non-heat-treatable	G.AL® Sawn Plate G.AL® C210R G.AL® Specialty Plate G.AL® C210 DYNAMIC G.AL® Precision Plate G.AL® C250 G.AL® Specialty Plate G.AL® C250 ELOXPLUS	0.25 - 42.5	33 - 42	16 - 19	10 - 15	68 - 75	Isotropic properties. No strength reduction across the cross-section. Maximum achievable stress relief. Low risk of micro-porosity up to 23.5 in thickness.
5754 H111	heat-treatable	Rolled Plate	0.1 – 7.9	27,5	12	12 - 18	52	Directional properties. Slight strength reduction from edge to center. High residual stresses. Micro-porosity: Low risk.
6061 T651	heat-treatable	Rolled Plate	0.3 – 5.5	38 - 42	32 - 35	2 - 10	80 - 88	Directional properties. Very significant strength reduction from edge to center. High residual stresses. Micro-porosity: Risk from thickness approx. 3 in. Micro-porosity: High risk from thickness approx. 4 in. Micro-porosity: Unavoidable from thickness approx. >5.5 in.
6082 T6, T651	heat-treatable	Rolled Plate	0.1 – 11.8	38 - 45	32 - 35	2 - 10	78 - 94	Directional properties. Very significant strength reduction from edge to center. Extreme residual stresses. Micro-porosity: Risk from thickness approx. 4 in. Micro-porosity: High risk from thickness approx. 5 in. Micro-porosity: Unavoidable from thickness approx. >6 in. Very high resistance to stress corrosion cracking.
7019 T651	heat-treatable	Precision Rolled Plate (UNIDAL®)	0.25 – 4	57 - 59	32 - 38	7 - 8	125 - 130	Directional properties. Extremely low strength reduction from edge to center. Low residual stresses. Micro-porosity: Very low risk of micro-porosity. Tight tolerances.
7020 T6, T651	heat-treatable	Rolled Plate	0.4 - 250	48 - 51	48 - 51	5 - 10	91 - 104	Directional properties. Moderate strength reduction from edge to center. High residual stresses. Micro-porosity: Risk from thickness approx. 3 in. Micro-porosity: High risk from thickness approx. 4 in. Micro-porosity: Unavoidable from thickness approx. >5.5 in.
7021 T6	heat-treatable	Cast Plate	23,6	47 - 52	38 - 41	1.5 - 8	130 - 135	Microstructure varies unusually strongly across the cross-section. Very to extremely coarse, globular microstructure with grain sizes up to 426 µm. Highly pronounced, intersecting precipitation chains. Problematic heat treatment.
7021 T79	heat-treatable	G.AL® Sawn Plate G.AL® C330R G.AL® Specialty Plate G.AL® C330 DYNAMIC G.AL® Precision Plate G.AL® C330	0.25-22.8	46 - 55	42 - 49	2.5 - 4.5	110 - 120	Isotropic properties. No strength reduction across the cross-section. Maximum achievable stress relief in this strength class. Low to very low risk of micro-porosity.
7022 T6, T651	heat-treatable	Rolled Plate	0.12-7.9	59 - 65	48 - 54	3 - 8	121 - 133	Directional properties. Very strong strength reduction from edge to center. Very high residual stresses. Micro-porosity: Risk from thickness approx. 3 in. Micro-porosity: High risk from thickness approx. 4 in. Micro-porosity: Unavoidable from thickness approx. >4 in.
7022 T651	heat-treatable	CERTAL® Rolled Plate	0.3 - 5.5	71 - 78	58 - 67	6 - 8	165	Directional properties. Significant strength reduction from edge to center. High residual stresses. Micro-porosity: Risk from thickness approx. 3 in. Micro-porosity: High risk from thickness approx. 4 in. Micro-porosity: Unavoidable from thickness approx. >5 in.
7075 T6, T651	heat-treatable	Rolled Plate	0.02 - 12	52 - 79	32 - 69	1 - 8	88 - 157	Directional properties. Very strong, with extreme strength reduction from edge to center starting at approx. 4 in thickness. Extreme residual stresses. Micro-porosity: Risk from thickness approx. 1.5 / 2 in. Micro-porosity: High risk from thickness approx. 3 in. Micro-porosity: Unavoidable from thickness approx. >4 in.
7075 T7351	heat-treatable	Rolled Plate	0.25 - 3.9	62 - 69	49 - 57	5 - 7	126 - 140	Directional properties. Slight strength reduction from edge to center. Moderate residual stresses. Micro-porosity: Very low risk. Very good toughness. Very high resistance to stress corrosion cracking

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All values are typical values at room temperature.