

## Aluminum Grades for CNC Machining

Materials	Other names	Type	Descriptions	Applications	Corrosion resistance	Post treatment capability	Welding capability	Price index	Density - g/cm <sup>3</sup>	Young modulus - Gpa	Yield strength - Mpa	Ultimate tensile strength - Mpa	Elongation at break - %	Hardness - HB brinell	Electrical Conductivity - % at 20 °C IACS	Electrical resistivity - Ω ·mm <sup>2</sup> /m	Thermal conductivity - W/m·K
1050 H24	3.0255, A91050	Aluminium Alloy	Part of the 1000 series which has a minimum of 99% aluminum with no major alloying additions. The 1050 is known for its excellent corrosion resistance, high ductility, highly electrical conductivity but low mechanical resistance. This grade is suitable for applications where moderate strength and good formability are required	Chemical industries Construction: facades, roofing Interior decoration Electrical/electronic: housing of devices Automotive: Interior trim, heat shields	Very good	Suitable for anodizing	Very good	2	2.71	69	75 - 84	110	3 - 8	33	59.5 - 61	0.0282 - 0.029	230
2017A T4	AlCuMgSi, 3.1325	Aluminium Alloy	It is part of the 2000-series aluminum alloy with the addition of copper which are called "hard" alloy. Compare to others, the copper provides substantial increases in strength but reduce ductility and corrosion resistance	Transportation: general structural components Automotive Aerospace Defense	Moderate	Not recommended for anodizing	Not recommended (reduce corrosion resistance)	3	2.79	72	245 - 260	390	>10	110	34	0.051	134
5052	AlMg2.5, 3.3523	Aluminium Alloy	This grade is one of the higher strength non-heat treatable alloys. It benefits from a medium to high fatigue strength, making the product an excellent choice for use in structures exposed to excessive vibrations. 5052 also offers improved corrosion resistance ( especially in marine atmospheres). It offers good weldability and formability.	Marine Food industry Chemical industry	Very good	Suitable for anodizing	Good	2	2.68	69	195-290	228	7 - 27	60	33 - 37	0.0495	138
5083-H111	AlMg4.5Mn0.7, 3.3547	Aluminium Alloy	Magnesium is the main element used in the composition of the 5000 series. Grade 5083 has the highest strength of the non heat treatable alloys (although it is not as strong or as hard as the grade 6082). It has excellent resistance to both chemical and atmospheric attack (performs particularly well in sea water / salt water and is often referred to as a marine grade of aluminium).	Transportation Defense Storage tanks Marine	Very good	Suitable for anodizing	Very good	3	2.65	71	150	300	13	75	29	0,059	117
6060 T6	AlMgSi, 3.3206, A96060	Aluminium Alloy	It is an alloy in the wrought aluminium-magnesium-silicon family that offers medium mechanical properties, high corrosion resistance and good aptitude for decorative anodizing.	Food industry Constructions: doors, windows, facades, winter gardens. Electronic components: heat dissipating elements, Automotive parts Furniture and office equipment.	Very good	Suitable for decorative anodizing	Good	3	2.71	70	150 - 170	190 - 220	08 - 12	70	54	0,032	209
6061 T6	AlMg1SiCu, 3.3214, H20, A96061	Aluminium Alloy	It is the most popular aluminum alloy containing magnesium and silicon. The alloy is appreciated because of its versatile performance and all-around mechanical properties. Its shows excellent machinability and natural corrosion resistance.	Transport Marine industry Aerospace Architectural decoration	Very good	Suitable for anodizing	Good	2	2.71	69	270 - 275	310	10 - 12	95	43	0,04	170
6063 T6	AlMg0.7Si, H9, A96063	Aluminium Alloy	This alloy has medium strength alloy commonly known as an architectural alloy. It has a high corrosion resistance, suitable for welding and can be easily anodised. It features medium mechanical properties (lowest tensile strength among the 6000-series1) with good surface finish.	Architectural: trims, framework, brackets, structural supports Automobile Agriculture: conduit, pipe and tube for irrigation systems, Home goods: furniture, recreational equipment Construction: pipes, tubing, stair rails, windows, door frames, roofs, signage.	Very good	Suitable for anodizing	Good	2	2.71	69	195 - 210	230 - 240	8 - 11	73	53	0,032	200
6082 T6	AlSi1MgMn, 3.2315, H30, A96082	Aluminium Alloy	This alloy is very similar to 6061 with a slightly better tensile strength (addition of manganese). It has the highest tensile strength among the 6000-series with excellent corrosion resistance (certified for use in marine application).	Construction: bridges, roof trusses, structural profiles and seamless tubes. Highly stressed applications: trusses, bridges, cranes, ore skips Kitchen: beer barrels, milk churns	Very good	Suitable for anodizing	Good	2	2.71	70	250 - 270	290 - 310	9 - 9.8	91-93	44	0,038	150 - 170
7075 T6	AlZn5.5MgCu, 3.4365	Aluminium Alloy	Known as the zinc grades – zinc being the largest alloying element, the 7000 series grades are the hardest and strongest grades of aluminium. Grade 7075 is the most common of this series. It is a very high strength alloy; the strongest of all commercial grades of aluminium (stronger than many types of mild steel).	Aerospace Defense Transportation	Good	Suitable for anodizing	Not recommended	3	2.71	72	480	560	7.9	150	33 - 34	0,0515	130