Technical Data

ALLOY	CHARACTERISTICS	MACHINABILITY
2011 An age-hardening alloy noted for its free-machining characteristics and good mechanical properties.	Commonly used in the manufacture of screw machine products, machine parts, atomizer and hose parts, pipe stems, cigarette holders and tube fittings.	While carbide tooling is preferred, high-speed steel tooling may also be used machining this alloy. Top rake angles should be 50 degrees, 32 degree cutting edge, 15 degree side rake and 10 degree clearance. Oils should be used for heavy cutting, light cutting may be done dry.
2024 An age-hardening, high strength aluminum alloy. Useful for optimum strength-to-weight ratio structures.	Used in the manufacture of truck wheels, aircraft structures, screw machine products, scientific instruments, rivets, veterinary and orthopedic braces and equipment.	The machining characteristics of AL 2024 are fair in the heat treated condition, which is the condition in which most machining is done. Machinability in the annealed condition is good. Use of oil lubricants is recommended for all machining operations.
6061 Probably the most commonly available, heat treatable aluminum alloy.	Provides corrosion resistance for heavy duty structures such as truck, marine and pipeline components, railroad cars, tank fittings, high pressure applications, wire products and furniture.	Machinability in the harder T4 and T6 tempers is good. It is notably less easy to machine in the annealed temper.
6262 A heat treatable alloy with excellent mechanical strength, this alloy has very good resistance to general corrosion	A free-machining alloy that is ideal for screw-machine stock and general machining purposes. Commonly used in the manufacture of screw machine products, fittings, couplings, camera parts, and nuts.	The additions of bismuth and lead produce excellent machining characteristics. Smooth finishes can be obtained with either high-speed or carbide tooling. Use oil lubricant for heavy cuts, light cutting may be done dry.
7075 Capable of high strength as developed by heat treating, this alloy has excellent properties at low temperatures.	Commonly used in the manufacture of aircraft and other aerospace applications not requiring the corrosion resistance of Clad 7075.	It is best to machine this alloy in the annealed condition. Machining capability is good and oil lubricants should be used.

CHEMICAL PROPERTIES

		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Zr	Pb	Bi	Al
2011	Minimum			5								0.2	0.2	Remainder
	Maximum	0.4	0.7	6					0.3			0.4	0.6	
2024	Minimum			3.8	0.3	1.2								Remainder
	Maximum	0.5	0.5	4.9	0.9	1.8	0.1		0.25	0.15				
6061	Minimum	0.4		0.15		0.8	0.04							Remainder
	Maximum	0.8	0.7	0.4	0.15	1.2	0.35		0.25	0.15				
6262	Minimum	0.4		0.15		0.8	0.04							Remainder
	Maximum	0.8	0.7	0.4	0.15	1.2	0.14		0.25	0.15				
7075	Minimum			1.2		2.1	0.18		5.1					Remainder
	Maximum	0.4	0.5	2	0.3	2.9	0.28		6.1	0.2				

MECHANICAL PROPERTIES

		UTS ksi	YTS ksi	Elongation
2011	Extruded	–	–	–
	Cold Drawn	45	38	10
2024	Extruded	68	48	8
	Cold Drawn	62	45	10
6061	Extruded	38	35	8
	Cold Drawn	42	35	10
6262	Extruded	38	35	10
	Cold Drawn	52	48	5
7075	Extruded	81	72	7
	Cold Drawn	77	66	7