

Sapa Industrial Extrusions

Alloy 6262 is the alloy of choice for applications requiring improved machinability. This alloy is one of the few aluminum alloys developed specifically for machining applications including screw machine and CNC machine products. Sapa offers 6262 with a variety of standard and special tempers. To further enhance the machinability of Sapa 6262 alloy, a unique chemical analysis has been developed which conforms to industry standards. Sapa produces extruded 6262-T6 and -T6511 for use in certain custom shapes, standard rod, bar and hex forms, and other product forms that include ECON-O-ROD®, ECON-O-HEX®, ECON-O-PLATE® and close tolerance ACC-U-ROD® and ACC-U-PLATE®.

For screw machine applications, alloy 6262 has good machinability characteristics in the heat-treated -T6, and -T6511 condition. Generally, alloy 6262 produces curled and broken chips while machining. However, in certain applications the use of chip breakers or special machining techniques (i.e., peck drilling) can further improve chip formation.

Alloy 6262 has excellent corrosion resistance to atmospheric conditions and good corrosion resistance to sea water. The corrosion resistance of alloy 6262 is considered superior to alloy 2011 (caution: direct contact by dissimilar metals can cause galvanic corrosion). This alloy also offers good finishing characteristics and responds well to all common anodizing methods, which enhances resistance to corrosion and wear. The most common anodizing methods are clear, clear and color dye, and hardcoat.

Joining characteristics for welding and brazing of alloy 6262 are significantly improved over alloy 2011, although they are not as good as alloy 6061. Since 6262 is a heat-treatable alloy, strength in its -T6 condition can be reduced by heat from welding or brazing. Selection of an appropriate filler alloy will depend on the desired weld characteristics. Consult the Material Safety Data Sheet (MSDS) for proper safety and handling precautions when using alloy 6262.

Typical applications for alloy 6262 include:	▪ Automotive and truck brake components	▪ Hydraulic valve blocks
	▪ Air conditioning components	▪ Electrical and cable components
	▪ Manifolds	▪ Hardware and fasteners

6262 TEMPER DESIGNATIONS AND DEFINITIONS

Standard Tempers	Standard Temper Definitions*
T6, T6511	Solution heat-treated and artificially aged. Applies to products that are not cold worked after solution heat-treatment, or in which the effect of cold work in flattening or straightening may not be recognized in mechanical properties. Temper -T6511 applies to products stress relieved by stretching.
Special Tempers	Special Temper Definitions**
T6S4	Applies to extrusions requiring maximum hardness for strength and good machinability. Same minimum tensile and yield strengths as standard -T6, but with lower minimum elongation of 6%. (See Note A).
T6, T6511H	Sapa's "H" temper is offered for special applications requiring improved machinability and higher minimum mechanical properties than standard -T6 or -T6511. Minimum properties of 42 ksi tensile, 38 ksi yield and 10.0% elongation are guaranteed. "H" temper is available for rod, bar and certain solid shapes with a principle thickness of .500" or greater.

* For further details of definitions, see Aluminum Association's Aluminum Standards and Data manual and Tempers for Aluminum and Aluminum Alloy Products.

** Sapa Special Temper Designations are unregistered tempers for reference only, not recognized by the Aluminum Association, and are provided for customer use to identify unique processing, material or end use application characteristics.

Note A: The guaranteed property limits for the specified special temper will not conform to Military, Federal, ASTM, ASME, AMS specifications.

CHEMICAL COMPOSITION Melting Temperature Range: 1080-1205 °F Density: 0.098 lb./in.³

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Others	
											Each	Total
6262	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	0.25	0.15	0.40-0.7	0.40-0.7	0.05	0.15

Chemical composition in weight percent maximum unless shown as a range or minimum.

Average Coefficient of Thermal Expansion (68° to 212°F) = 13.0 x 10⁻⁶ (in./in.°F)

Aluminum = Remainder

6262 EXTRUDED MECHANICAL AND PHYSICAL PROPERTY LIMITS¹

Standard Tempers	Wall Thickness ² Inches (min.)	Tensile Strength Ksi (min.)	Yield Strength Ksi (min.)	Elongation ³ % (min.)	Typical Thermal Conductivity, @77°F, BTU-in./ft. ² hr.°F	Typical Electrical Conductivity, @68°F, % IACS
Extruded Tempers						
T6, T6511 ⁴	All	38.0	35.0	10	1180	44
Cold Finished Tempers for reference						
T6, T651 ⁴	Up thru 8.000	42.0	35.0	10	1180	44
T8	.750 thru 2.000	45.0	43.0	12	-	-
T9	.125 thru 2.000 2.001 thru 3.000	52.0 50.0	48.0 46.0	5 5	- -	- -
Sapa Special Tempers*						
T6S4	All	38.0	35.0	6	1180	44
T6H, T6511H ⁴	0.500 thru 9.000	42.0	38.0	10	1180	44

- Minimum property levels unless shown as a range or indicated as a maximum (max.).
 - The thickness of the cross section from which the tension test specimen is taken determines the applicable mechanical properties.
 - 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.
 - For stress-relieved tempers, the characteristics and properties other than those specified may differ somewhat from the corresponding characteristics and properties of material in the basic temper.
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COMPARATIVE CHARACTERISTICS OF RELATED ALLOYS / TEMPERS¹

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				
6262	-T6, -T6511	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	-T6H, -T6511H*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	-T651 CF ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	-T8 CF ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	-T9 CF ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6042	-T5, -T5511	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2011	-T3 CF ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6020	-T8 CF ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6061	-T6, -T6511	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6063	-T6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

1. Rating: A=Excellent B=Good C=Fair D=Poor 2. Cold Finished product

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