

Aluminum 6005-T5

Physical Properties	Metric	English	Comments
Density	2.70 g/cc	0.0975 lb/in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	95	95	500 kg load with 10 mm ball
Hardness, Knoop	120	120	Converted from Brinell Hardness Value
Hardness, Rockwell A	39.8	39.8	Converted from Brinell Hardness Value
Hardness, Rockwell B	60	60	Converted from Brinell Hardness Value
Hardness, Vickers	107	107	Converted from Brinell Hardness Value
Tensile Strength, Ultimate	260 MPa	37700 psi	
Tensile Strength, Yield	240 MPa	34800 psi	
Elongation at Break	8.00 % @Thickness 1.60 mm	8.00 % @Thickness 0.0630 in	In 5 cm
Modulus of Elasticity	69.0 GPa	10000 ksi	Average of Tension and Compression. In Aluminum alloys, the compressive modulus is typically 2% greater than the tensile modulus
Poissons Ratio	0.330	0.330	Estimated from trends in similar Al alloys.
Fatigue Strength	100 MPa @# of Cycles 5.00e+8	14500 psi @# of Cycles 5.00e+8	
Shear Modulus	26.0 GPa	3770 ksi	Estimated from similar Al alloys.
Shear Strength	205 MPa	29700 psi	

Aluminum 6061-T6; 6061-T651

Physical Properties	Metric	English	Comments
Density	2.70 g/cc	0.0975 lb/in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	95	95	AA; Typical; 500 g load; 10 mm ball
Hardness, Knoop	120	120	Converted from Brinell Hardness Value
Hardness, Rockwell A	40	40	Converted from Brinell Hardness Value
Hardness, Rockwell B	60	60	Converted from Brinell Hardness Value
Hardness, Vickers	107	107	Converted from Brinell Hardness Value
Ultimate Tensile Strength	310 MPa	45.0 ksi	AA; Typical
Tensile Yield Strength	276 MPa	40.0 ksi	AA; Typical
Elongation at Break	12.0 % @Thickness 1.59 mm	12.0 % @Thickness 0.0625 in	AA; Typical
	17.0 % @Diameter 12.7 mm	17.0 % @Diameter 0.500 in	AA; Typical
Modulus of Elasticity	68.9 GPa	10000 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Notched Tensile Strength	324 MPa	47000 psi	2.5 cm width x 0.16 cm thick side-notched specimen, $K_t = 17$.
Ultimate Bearing Strength	607 MPa	88000 psi	Edge distance/pin diameter = 2.0
Bearing Yield Strength	386 MPa	56000 psi	Edge distance/pin diameter = 2.0
Poissons Ratio	0.330	0.330	Estimated from trends in similar Al alloys.
Fatigue Strength	96.5 MPa @# of Cycles 5.00e+8	14000 psi @# of Cycles 5.00e+8	completely reversed stress; RR Moore machine/specimen
Fracture Toughness	29.0 MPa-m ^{1/2}	26.4 ksi-in ^{1/2}	K_{IC} ; TL orientation.
Machinability	50 %	50 %	0-100 Scale of Aluminum Alloys
Shear Modulus	26.0 GPa	3770 ksi	Estimated from similar Al alloys.
Shear Strength	207 MPa	30000 psi	AA; Typical