

Constellium Alumold® 500 Rolled Aluminum

Category : Metal , Nonferrous Metal , Aluminum Alloy , 5000 Series Aluminum Alloy

Material Notes:

The Alumold® 500 alloy has been optimized to provide excellent machinability, good shape stability and high strength properties throughout the plate thickness. Uniform strength is an important property for mould and tool construction. Typical applications include compression or injection moulds for plastics. Information provided by manufacturer

Order this product through the following link:

http://www.lookpolymers.com/polymer_Constellium-Alumold-500-Rolled-Aluminum.php

Physical Properties	Metric	English	Comments
Density	2.82 g/cc	0.102 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	175	175	
	@Thickness 203.2 - 254 mm	@Thickness 8.000 - 10.0 in	
	175	175	
	@Thickness 254 - 305 mm	@Thickness 10.0 - 12.0 in	
	180	180	
	@Thickness 127 - 152.4 mm	@Thickness 5.00 - 6.000 in	
Tensile Strength	180	180	
	@Thickness 152.4 - 203.2 mm	@Thickness 6.000 - 8.000 in	
	185	185	
	@Thickness 25.0 - 76.2 mm	@Thickness 0.984 - 3.00 in	
	185	185	
	@Thickness 76.2 - 127 mm	@Thickness 3.00 - 5.00 in	
Tensile Strength	>= 470 MPa	>= 68200 psi	Tempers T651 / T652
	@Thickness 254 - 305 mm	@Thickness 10.0 - 12.0 in	
Tensile Strength	>= 505 MPa	>= 73200 psi	Tempers T651 / T652
	@Thickness 203.2 - 254 mm	@Thickness 8.000 - 10.0 in	

Mechanical Properties	510 MPa Metric	74000 psi English	Comments Typical Strength
	@Thickness 254 - 305 mm	@Thickness 10.0 - 12.0 in	
	>= 525 MPa	>= 76100 psi	Tempers T651 / T652
	@Thickness 152.4 - 203.2 mm	@Thickness 6.000 - 8.000 in	
	535 MPa	77600 psi	Typical Strength
	@Thickness 203.2 - 254 mm	@Thickness 8.000 - 10.0 in	
	>= 540 MPa	>= 78300 psi	Tempers T651 / T652
	@Thickness 127 - 152.4 mm	@Thickness 5.00 - 6.000 in	
	>= 550 MPa	>= 79800 psi	Tempers T651 / T652
	@Thickness 76.2 - 127 mm	@Thickness 3.00 - 5.00 in	
	555 MPa	80500 psi	Typical Strength
	@Thickness 152.4 - 203.2 mm	@Thickness 6.000 - 8.000 in	
	>= 560 MPa	>= 81200 psi	Tempers T651 / T652
	@Thickness 25.0 - 76.2 mm	@Thickness 0.984 - 3.00 in	
	570 MPa	82700 psi	Typical Strength
	@Thickness 127 - 152.4 mm	@Thickness 5.00 - 6.000 in	
	580 MPa	84100 psi	Typical Strength
	@Thickness 76.2 - 127 mm	@Thickness 3.00 - 5.00 in	
	590 MPa	85600 psi	Typical Strength
	@Thickness 25.0 - 76.2 mm	@Thickness 0.984 - 3.00 in	
Tensile Strength, Yield	>= 435 MPa	>= 63100 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 254 - 305 mm	@Strain 0.200 %, Thickness 10.0 - 12.0 in	
	>= 455 MPa	>= 66000 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 203.2 - 254 mm	@Strain 0.200 %, Thickness 8.000 - 10.0 in	
	470 MPa		

Mechanical Properties	Metric @Strain 0.200 %, Thickness 254 - 305 mm	English ^{68200 psi} @Strain 0.200 %, Thickness 10.0 - 12.0 in	Comments Typical Strength
	>= 472 MPa	>= 68500 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 127 - 152.4 mm	@Strain 0.200 %, Thickness 5.00 - 6.000 in	
	>= 473 MPa	>= 68600 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 152.4 - 203.2 mm	@Strain 0.200 %, Thickness 6.000 - 8.000 in	
	490 MPa	71100 psi	Typical Strength
	@Strain 0.200 %, Thickness 203.2 - 254 mm	@Strain 0.200 %, Thickness 8.000 - 10.0 in	
	>= 497 MPa	>= 72100 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 76.2 - 127 mm	@Strain 0.200 %, Thickness 3.00 - 5.00 in	
	>= 504 MPa	>= 73100 psi	Tempers T651 / T652
	@Strain 0.200 %, Thickness 25.0 - 76.2 mm	@Strain 0.200 %, Thickness 0.984 - 3.00 in	
	510 MPa	74000 psi	Typical Strength
	@Strain 0.200 %, Thickness 152.4 - 203.2 mm	@Strain 0.200 %, Thickness 6.000 - 8.000 in	
	520 MPa	75400 psi	Typical Strength
	@Strain 0.200 %, Thickness 127 - 152.4 mm	@Strain 0.200 %, Thickness 5.00 - 6.000 in	
	530 MPa	76900 psi	Typical Strength
	@Strain 0.200 %, Thickness 76.2 - 127 mm	@Strain 0.200 %, Thickness 3.00 - 5.00 in	
	540 MPa	78300 psi	Typical Strength
	@Strain 0.200 %, Thickness 25.0 - 76.2 mm	@Strain 0.200 %, Thickness 0.984 - 3.00 in	
Elongation at Break	>= 0.50 %	>= 0.50 %	Tempers T651 / T652
	@Thickness 254 - 305 mm	@Thickness 10.0 - 12.0 in	

Mechanical Properties	^{>= 1.0 %} Metric	^{>= 1.0 %} English	Comments
	@Thickness 152.4 - 203.2 mm	@Thickness 6.000 - 8.000 in	Tempers T651 / T652
	>= 1.0 %	>= 1.0 %	Tempers T651 / T652
	@Thickness 203.2 - 254 mm	@Thickness 8.000 - 10.0 in	Tempers T651 / T652
	1.5 %	1.5 %	Typical Elongation
	@Thickness 203.2 - 254 mm	@Thickness 8.000 - 10.0 in	Typical Elongation
	1.5 %	1.5 %	Typical Elongation
	@Thickness 254 - 305 mm	@Thickness 10.0 - 12.0 in	Typical Elongation
	2.0 %	2.0 %	Typical Elongation
	@Thickness 152.4 - 203.2 mm	@Thickness 6.000 - 8.000 in	Typical Elongation
	>= 2.5 %	>= 2.5 %	Tempers T651 / T652
	@Thickness 127 - 152.4 mm	@Thickness 5.00 - 6.000 in	Tempers T651 / T652
	>= 4.0 %	>= 4.0 %	Tempers T651 / T652
	@Thickness 76.2 - 127 mm	@Thickness 3.00 - 5.00 in	Tempers T651 / T652
	4.0 %	4.0 %	Typical Elongation
	@Thickness 127 - 152.4 mm	@Thickness 5.00 - 6.000 in	Typical Elongation
	>= 5.0 %	>= 5.0 %	Tempers T651 / T652
	@Thickness 25.0 - 76.2 mm	@Thickness 0.984 - 3.00 in	Tempers T651 / T652
	6.0 %	6.0 %	Typical Elongation
	@Thickness 76.2 - 127 mm	@Thickness 3.00 - 5.00 in	Typical Elongation
	10 %	10 %	Typical Elongation
	@Thickness 25.0 - 76.2 mm	@Thickness 0.984 - 3.00 in	Typical Elongation
Modulus of Elasticity	72.0 GPa	10400 ksi	tensile
	73.0 GPa	10600 ksi	compression
Poissons Ratio	0.33	0.33	

Thermal Properties	Metric	English	Comments
CTE, linear	23.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	13.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 100 $^\circ\text{C}$	@Temperature 68.0 - 212 $^\circ\text{F}$	
Specific Heat Capacity	0.857 J/g- $^\circ\text{C}$	0.205 BTU/lb- $^\circ\text{F}$	
Thermal Conductivity	153 W/m-K	1060 BTU-in/hr-ft ² - $^\circ\text{F}$	

Descriptive Properties	Value	Comments
Thermal Diffusivity	63 mm ² /s	

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