

Constellium Planoxal® 50 Aluminum plate

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

Material Notes:

Planoxal®-50 plates differ from other standard EN-AW 5083 alloy products by their low level of residual stress. This specialty plate is also suitable for decorative anodizing. Planoxal®-50 is mainly used for low stressed, intensively machined and anodized machine elements.

Applications include packaging, printing and food conditioning machines. Information provided by manufacturer

Order this product through the following link:

http://www.lookpolymers.com/polymer_Constellium-Planoxal-50-Aluminum-plate.php

Physical Properties	Metric	English	Comments
Density	2.66 g/cc	0.0961 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	75	75	
	@Thickness 20.0 - 100 mm	@Thickness 0.787 - 3.94 in	
	77	77	
	@Thickness 8.00 - 20.0 mm	@Thickness 0.315 - 0.787 in	
Tensile Strength	>= 260 MPa	>= 37700 psi	Tempers O/H111; Standard EN 485-2
	@Thickness 80.0 - 100 mm	@Thickness 3.15 - 3.94 in	
	>= 270 MPa	>= 39200 psi	Tempers O/H111; Standard EN 485-2
	@Thickness 8.00 - 12.5 mm	@Thickness 0.315 - 0.492 in	
	>= 270 MPa	>= 39200 psi	Tempers O/H111; Standard EN 485-2
	@Thickness 12.5 - 50.0 mm	@Thickness 0.492 - 1.97 in	
	>= 270 MPa	>= 39200 psi	Tempers O/H111; Standard EN 485-2
	@Thickness 50.0 - 80.0 mm	@Thickness 1.97 - 3.15 in	
	295 MPa	42800 psi	Typical Strength
	@Thickness 8.00 - 20.0 mm	@Thickness 0.315 - 0.787 in	
	295 MPa	42800 psi	Typical Strength
	@Thickness 20.0 - 100 mm	@Thickness 0.787 - 3.94 in	

Mechanical Properties	>= 110 MPa Metric	>= 16000 psi English	Comments
Tensile Strength, Yield	@Strain 0.200 %, Thickness 80.0 - 100 mm	@Strain 0.200 %, Thickness 3.15 - 3.94 in	Tempers O/H111; Standard EN 485-2
	>= 115 MPa	>= 16700 psi	
	@Strain 0.200 %, Thickness 8.00 - 12.5 mm	@Strain 0.200 %, Thickness 0.315 - 0.492 in	Tempers O/H111; Standard EN 485-2
	>= 115 MPa	>= 16700 psi	
	@Strain 0.200 %, Thickness 12.5 - 50.0 mm	@Strain 0.200 %, Thickness 0.492 - 1.97 in	Tempers O/H111; Standard EN 485-2
	>= 115 MPa	>= 16700 psi	
	@Strain 0.200 %, Thickness 50.0 - 80.0 mm	@Strain 0.200 %, Thickness 1.97 - 3.15 in	Tempers O/H111; Standard EN 485-2
	140 MPa	20300 psi	
	@Strain 0.200 %, Thickness 20.0 - 100 mm	@Strain 0.200 %, Thickness 0.787 - 3.94 in	Typical Strength
	150 MPa	21800 psi	
	@Strain 0.200 %, Thickness 8.00 - 20.0 mm	@Strain 0.200 %, Thickness 0.315 - 0.787 in	Typical Strength
Elongation at Break	>= 12 %	>= 12 %	
	@Thickness 80.0 - 100 mm	@Thickness 3.15 - 3.94 in	Tempers O/H111; Standard EN 485-2
	>= 14 %	>= 14 %	
	@Thickness 50.0 - 80.0 mm	@Thickness 1.97 - 3.15 in	Tempers O/H111; Standard EN 485-2
	>= 15 %	>= 15 %	
	@Thickness 12.5 - 50.0 mm	@Thickness 0.492 - 1.97 in	Tempers O/H111; Standard EN 485-2
	>= 16 %	>= 16 %	
	@Thickness 8.00 - 12.5 mm	@Thickness 0.315 - 0.492 in	Tempers O/H111; Standard EN 485-2
	23 %	23 %	
	@Thickness 8.00 - 20.0 mm	@Thickness 0.315 - 0.787 in	Typical Elongation
	23 %	23 %	
			Typical Elongation

Mechanical Properties	@Thickness 20.0 - 100 Metric	@Thickness 0.787 - 3.937 in English	Comments
Modulus of Elasticity	71.0 GPa	10300 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	23.8 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	13.2 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 100 $^{\circ}\text{C}$	@Temperature 68.0 - 212 $^{\circ}\text{F}$	
Thermal Conductivity	105 - 120 W/m-K	729 - 833 BTU-in/hr- ft ² - $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	92.55 - 95.55 %	92.55 - 95.55 %	as balance
Chromium, Cr	0.050 - 0.25 %	0.050 - 0.25 %	
Copper, Cu	≤ 0.10 %	≤ 0.10 %	
Iron, Fe	≤ 0.40 %	≤ 0.40 %	
Magnesium, Mg	4.0 - 4.9 %	4.0 - 4.9 %	
Manganese, Mn	0.40 - 1.0 %	0.40 - 1.0 %	
Silicon, Si	≤ 0.40 %	≤ 0.40 %	
Zinc, Zn	≤ 0.25 %	≤ 0.25 %	
Zr+Ti	≤ 0.15 %	≤ 0.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000590 - 0.00000660 ohm-cm	0.00000590 - 0.00000660 ohm-cm	

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