

Alloy 25 (C17200) Plate

Alloy 25 from Materion Brush Performance Alloys provides the highest strength of any copper alloy, with electrical and thermal conductivity considerably greater than other high strength copper alloys. This alloy features high fatigue strength and resistance to wear, corrosion, galling, and stress relaxation. Typical applications include wear plates and resistance welding components.

CHEMICAL COMPOSITION (weight percent)

Alloy	Beryllium	Nickel + Cobalt	Nickel + Cobalt + Iron	Copper
C17200	1.80 – 2.00	0.20 min.	0.6 max.	Balance

PHYSICAL PROPERTIES*

Elastic Modulus	Melting Point (Solidus)	Electrical Conductivity/ Resistivity	Density**	Thermal Expansion Coefficient	Thermal Conductivity (25 °C)
19,000 ksi 131 GPa	1600°F 870°C	25-30% IACS 5.8-6.9 μΩ-cm	0.302 lb/in ³ 8.36 g/cm ³	9.7×10 ⁻⁶ in/in °F 17.0×10 ⁻⁶ m/m °C	60 BTU/ft hr °F 105 W/m K

*Properties specified for the precipitation age hardened (heat treated) condition

** Density in the un-heat treated condition is 0.300 lbs/in³ (8.30 g/cm³)

MECHANICAL PROPERTIES*

Temper*	Plate Thickness		Heat Treatment Required	0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation
	inch	mm		ksi	MPa	ksi	MPa	
A (TB00)	0.5-8	12.7-203.2	3 hours	20-35	130-250	60-85	410-590	20-75
H (TD04)	0.188-0.375	4.8-9.5	2 hours	75-105	520-720	90-130	620-900	8-20
H (TD04)	>0.375-1	>9.5-25.4	2 hours	75-105	520-720	90-125	620-860	8-20
H (TD04)	>1-2	>25.4-51	2 hours	75-105	520-720	85-120	590-830	8-20
H (TD04)	>2-3	>51-76	2 hours	75-105	520-720	85-120	590-830	8-20
AT (TF00)	0.5-8	12.7-203.2	-	140-175	970-1200	165-200	1140-1380	3-10
HT (TH04)	0.188-0.375	4.8-9.5	-	160-200	1100-1380	180-215	1240-1490	1-5
HT (TH04)	>0.375-1	>9.5-25.4	-	155-200	1060-1380	180-220	1240-1520	1-5
HT (TH04)	>1-2	>25.4-51	-	150-200	1030-1380	175-215	1200-1490	2-5
HT (TH04)	>2-3	>51-76	-	130-180	890-1250	165-200	1140-1380	2-5

*Properties may vary by thickness

FORMS AVAILABLE

Alloy 25 plate is supplied in lengths from 24 to 126 inches (610 to 3200 mm), and in widths from 12 to 22 inches (305 to 559 mm). Solution annealed tempers are available in thicknesses ranging from 0.5" to 8" (12.7 to 203.2 mm) and hard drawn tempers are available from 0.188" to 3" (4.8 mm to 76 mm). Alloy 25 is also available in strip, wire, rod, bar, tube and parts finished by drawing, extrusion, and machining.

SPECIFICATIONS

C17200, ASTM B-194, AMS 4530, AMS 4533, AMS 4534, AMS 4650, AMS 4651, SAE J 461, SAE J 463, JIS H3130, RWMA Class 4

TOLERANCES

Plate Thickness (inches)		Standard Thickness Tolerance (inches)		Plate Thickness (mm)		Standard Thickness Tolerance (mm)	
Over	Including	Plus	minus	Over	Including	Plus	Minus
0.188	0.205	0.020	0	5.0	8.0	0.60	0
0.205	0.300	0.024	0	8.0	13.0	0.80	0
0.300	0.500	0.030	0	13.0	20.0	1.00	0
0.500	0.750	0.038	0	20.0	30.0	1.20	0
0.750	1.00	0.046	0	30.0	40.0	1.40	0
1.00	1.50	0.056	0	40.0	60.0	1.70	0
1.50	3.00	0.066	0	60.0	203.2	3.175	0
3.00	8.00	0.125	0				

Additional tolerances are per ASTM B 194. Please specify the exact tolerances that you require when you place your order. Tighter tolerances may be available at additional cost. Please contact your local sales engineer to confirm the requested capability.

RELATED INFORMATION

Additional information on Alloy 25 plate may be obtained by phoning 800-375-4205, or one of the numbers below.

North American Service Centers – Sales Inquiries

For strip and small diameter rod and wire:
Elmhurst, IL
TOLL FREE: 800-323-2438
LOCAL: +(1) 630-832-9650
FAX: +(1) 630-832-9657

For Rod, bar, tube and plate:
Warren, MI
TOLL FREE: 800-521-8800
LOCAL: +(1) 586-772-2700
FAX: +(1) 586-772-2472

International Sales Offices

CHINA/HONG KONG

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