MATERION

DATA SHEET

Alloy 25 (C17200) Plate

Alloy 25 from Materion 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 other galling resistant components.

RoHS COMPLIANT

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	9.7x10^{-6} in/in °F 17.5x10^{-6} m/m °C	60 BTU/ft hr °F 105 W/m K

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

** Value listed is the density after heat treatment. The density before heat treatment is 0.300 lbs/in^3 (8.30 g/cm^3)

MECHANICAL PROPERTIES*

Temper*	Plate Thickness		Heat Treatment Required at	0.2% Offset Yield Strength		Ultimate Tensile Strength		Elongation
	inch	mm	600 – 675 °F 315 – 357 °C	ksi	MPa	ksi	MPa	Percent
A (TB00)	0.5-8	12.7-203.2	Before Heat Treatment	20-35	130-250	60-85	410-590	20-75
H (TD04)	0.188-0.375	4.8-9.5		75-105	520-720	90-130	620-900	8-20
H (TD04)	>0.375-1	>9.5-25.4		75-105	520-720	90-125	620-860	8-20
H (TD04)	>1-2	>25.4-51		75-105	520-720	85-120	590-830	8-20
H (TD04)	>2-3	>51-76		75-105	520-720	85-120	590-830	8-20
AT (TF00)	0.5-8	12.7-203.2	After 3 hours	140-175	970-1200	165-200	1140-1380	3-10
HT (TH04)	0.188-0.375	4.8-9.5	After 2 hours	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 AND STANDARDS

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

Materion Performance Alloys
6070 Parkland Boulevard
Mayfield Heights, OH 44124 USA
phone: 216.383.6800 fax: 216.383.4005
email: BrushAlloys-info@materion.com

MATERION CORPORATION
www.materion.com/alloys

AD0104_0817

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	4.8	5.2	0.5	0
0.205	0.300	0.024	0	5.2	7.6	0.6	0
0.300	0.500	0.030	0	7.6	13	0.8	0
0.500	0.750	0.038	0	13	20	1.0	0
0.750	1.00	0.046	0	20	25	1.2	0
1.00	1.50	0.056	0	25	40	1.4	0
1.50	3.00	0.066	0	40	76	1.7	0
3.00	8.00	0.125	0	76	203	3.2	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 technical or safe handling information on Alloy 25 plate may be obtained by phoning 800-375-4205. For pricing and availability, phone 800-521-8800, or the local sales number listed on the bottom of this page.

SAFE HANDLING OF COPPER BERYLLIUM

Handling copper beryllium in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Safety Data Sheet (SDS) before working with this material. For additional information on safe handling practices or technical data on copper beryllium, contact Materion Performance Alloys, Technical Service Department at 1-800-375-4205.

North American Service Centers – Sales Inquiries

For bar, tube, plate/sheet >0.060" (1.5 mm) thick
and rod >0.5" (12.7 mm) diameter:

Warren, MI
TOLL FREE: 800-521-8800
PHONE: +(1) 586-772-2700
FAX: +(1) 586-772-2472

International Sales Offices

CHINA/HONG KONG
TEL: + (852) 2318-1960 / 1907
brushalloysHK-info@materion.com

CHINA/SHANGHAI
TEL: + (86) 21-5237-2328
brushalloysCN-info@materion.com

GERMANY
TEL: + (49) 711-830-930
brushalloysDE-info@materion.com

JAPAN
TEL: + (81) 33 230 2961
brushalloysJP-info@materion.com

REPUBLIC OF KOREA
TEL: + (82) 32-811-2171
brushalloysKR-info@materion.com

SINGAPORE/ASEAN
TEL: + (65) 6842-4456
brushalloysSG-info@materion.com

TAIWAN, R.O.C.
TEL: + (886) 2-2747-8800 x-121
brushalloysTW-info@materion.com

UNITED KINGDOM & IRELAND
TEL: + (44) 118-930-3733
brushalloysUK-info@materion.com

Materion Performance Alloys
6070 Parkland Boulevard
Mayfield Heights, OH 44124 USA
phone: 216.383.6800 fax: 216.383.4005
email: BrushAlloys-info@materion.com

MATERION CORPORATION
www.materion.com/alloys

AD0104_0117