

Heat Conductivity of Various Metals

The type of substrate, thickness of the substrate, and the substrate's ability to conduct heat will influence the power needed to make a mark on it. For example, aluminum conducts heat much better than steel, so it will require more marking power. A thicker substrate will dissipate heat much faster than a thinner one, again meaning more marking power needed to make the mark. The chart below lists the thermal conductivity of various metals; metals and alloys at the top of the chart will require much more heat to mark than those at the bottom.

Metal/Alloy	Conductivity (Watts/cm K)	Marking Difficulty
Silver	4.01 – 7.10	Very difficult
Copper	4.29 – 4.50	Very difficult
Gold	3.18	Difficult
Brass	3.02	Difficult
Bronze	2.61	Difficult
Aluminum	2.37	Difficult
Carbon Steel	1.00	Medium
Nickel	0.91	Medium
Pewter	0.69	Medium
Cast Iron	0.60 – 0.80	Medium
Tin	0.52	Easy
Stainless Steel	0.30	Very easy
Titanium	0.22	Very easy

Questions about properties of CerMark products, application techniques or laser settings should be directed to:

Dave Smith (724) 250-5503
Marketing Manager

Sean Weir (724) 229-5161
Research and Development

Dennis Gilmore (724) 229-5620
Technical Service

Steve Rozwood (724) 223-5990
Technical Service

To place an order, please contact:

Wanda McDowell (800) 245-4951, extension 5167
Customer Service Representative