

# MT-CVD Coated Carbide Grade Machining Recommendations for Milling

Type of Material	Hardness		Maximum Surface Speeds (ft/min)			
	Rc	BHN	GA5036	GA5026	GA5023	GA5125
<b>Non-Alloy Carbon Steel</b>						
<i>C &lt; 0.25 %</i>		110	1050	N/A	N/A	N/A
<i>C &lt; 0.80 %</i>	6	150	850	N/A	N/A	N/A
<i>C &lt; 1.40 %</i>	33	310	700	N/A	N/A	N/A
<b>Low-Alloy Steels</b>						
<i>Medium - High Carbon, Annealed</i>	12	180	700	N/A	N/A	N/A
<i>Hardened</i>	36	330	560	N/A	N/A	N/A
<b>High-Alloy Steels</b>						
<i>Annealed</i>	16	200	500	N/A	N/A	N/A
<i>Hardened</i>	41	380	400	N/A	N/A	N/A
<i>Manganese Steel</i>	20	230	N/A	N/A	N/A	500
<b>High-Alloy Tool Steel</b>						
<i>Hardened</i>	36	330	450	N/A	N/A	N/A
<b>Cast Steel</b>						
<i>Non-Alloy</i>	6	150	730	N/A	N/A	N/A
<i>Low-Alloy</i>	16	200	570	N/A	N/A	N/A
<i>High-Alloy</i>	16	200	500	N/A	N/A	N/A
<b>Stainless Steels</b>						
<i>Ferritic, 400 Series</i>	16	200	N/A	N/A	760	N/A
<i>Ferritic, 400 Series</i>	32	310	500	N/A	660	N/A
<i>Austenitic, 300 Series</i>	16	200	N/A	450	500	N/A
<b>Gray, Perlitic Cast Irons</b>						
<i>Low Tensile</i>	12	180	N/A	600	950	N/A
<i>High Tensile</i>	26	260	N/A	350	340	N/A
<b>Nodular / Malleable Irons</b>						
<i>Short Chipping</i>	6	150	N/A	N/A	1370	N/A
<i>Long Chipping</i>	21	230	N/A	N/A	820	N/A
<b>Aluminum Alloys</b>			N/A	1800	N/A	N/A
<b>Brass, Copper, Bronze</b>			N/A	700	N/A	N/A
<b>Hardened Steels (&gt; 50 Rc)</b>			N/A	N/A	N/A	N/A
<b>Chilled, Hardened Irons (&gt; 50 Rc)</b>			N/A	N/A	N/A	N/A
<b>Titanium, Refractory Metals</b>			N/A	200	N/A	N/A
<b>Nickel &amp; Iron Based Superalloys</b>						
<i>Inconels</i>			N/A	130	N/A	N/A
<i>Hastelloys</i>			N/A	170	N/A	N/A
<i>Waspalloys</i>			N/A	130	N/A	N/A
<i>Renes</i>			N/A	110	N/A	N/A
<i>Monels</i>			N/A	110	N/A	N/A
<b>Cobalt Based Superalloys</b>						
<i>Stellites</i>			N/A	90	N/A	N/A
<i>Haynes Alloys</i>			N/A	90	N/A	N/A

Feeds should be in the range of 0.003 in/tooth to 0.012 in/tooth.

Higher speeds require lower feeds, whereas, low speeds use higher feed rates.

A good general starting point for feed rate in milling is 0.004 in/tooth.