

## **Technical Tip #63 – Maximizing the Coating Benefits of End Mills**

PVD TiN coatings are the primary general-purpose coating for end mills, but TiCN and TiAlN are becoming popular in use. Common questions for milling applications include when to use these advanced coatings, and at what speeds to run them.

TiCN is a harder coating than TiN and has good abrasion resistance. It is very good in milling applications for steels, stainless steels, and non-ferrous materials. End mills coated with TiCN should be operated at speeds **up to 50%** higher than uncoated end mills.

TiAlN is a high-performance coating for all material types. It is about the same hardness as TiCN but will maintain that hardness at a much higher cutting temperatures. This makes TiAlN very effective in high-temperature alloys, high-speed machining, and dry milling applications. End mills coated with TiAlN should be operated at speeds **up to 100%** higher than uncoated end mills.

The right coating can yield substantial time and cost savings, but those savings are in proportion to your machine's ability to achieve the high speeds required by those coatings.