



Technical Tip #34 – Coatings for Cutting Tools

It is important to understand some fundamentals of high-performance tool coatings:

1. All similar coatings are not alike. The performance of a TiN/TiCN/TiAlN-coated tool from one vendor may perform significantly different than a TiN/TiCN/TiAlN-coated tool from another vendor. Kennametal conducted independent tests of tools from the same lot and coated by different vendors, including ourselves. The results revealed a performance spread of 10X when tested in identical test conditions. In extreme cases, a drill coating from one vendor may yield 300 holes while another's coating will yield 3,000 holes! Consistent day-to-day and month-to-month performance is critical for predictable results.
2. Coatings development is an ongoing process at Kennametal. It is constantly evaluated and improved to yield higher productivity and consistency on tools and workpiece materials. Kennametal's Research and Development department updates recommendations and changes in both SFM and IPR about once a quarter, based on ongoing improvements to our coating process.
3. Surface feet recommendations are vital. To achieve ANY benefit from high-performance coatings, these coatings must be run at significantly higher speeds than other coatings. If coated tools are run at parameters other than those recommended, they can be counter-productive. Follow the manufacturer's recommended starting points (which are typically conservative) and work upward from there.

Kennametal coated tools set the standard for the highest possible performance available in the marketplace.