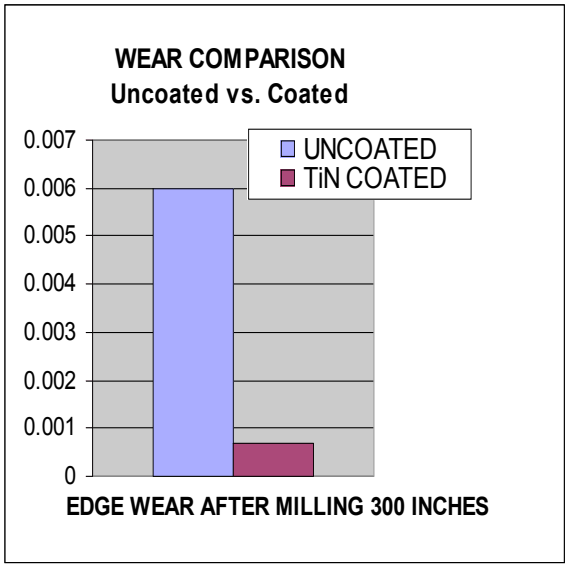
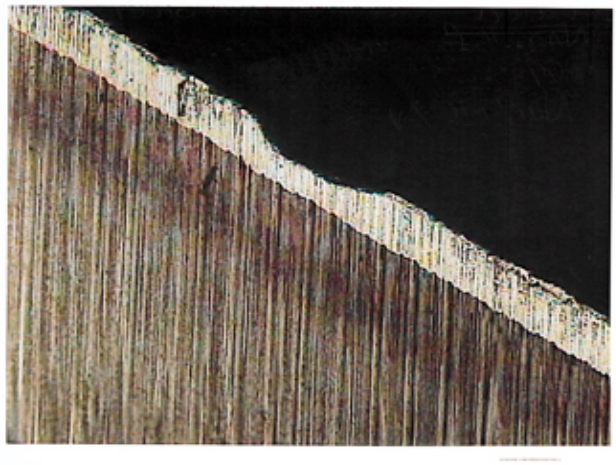
A simple and proven application of PVD TiN on cutting tools.

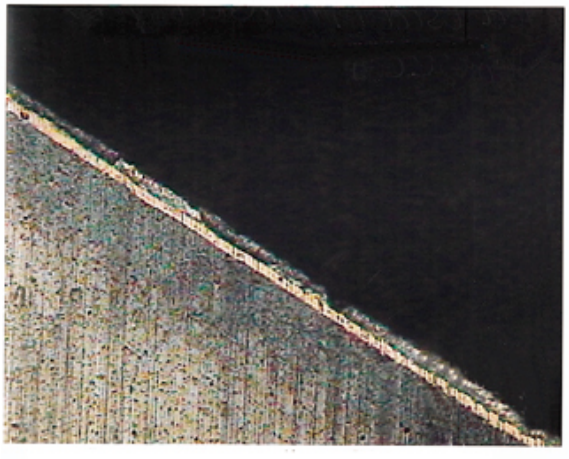
½" diameter 4-flute carbide end mill, milling 4140 steel HRc28.



Tool Type:	1/2" 4-flute Carbide end mill	1/2" 4-flute Carbide end mill
Condition:	UNCOATED	**TiN** COATED
Material:	4140 Steel DIN 1.7225	4140 Steel DIN 1.7225
Depth of Cut:	.500" 12.7mm	.500" 12.7mm
Width of Cut:	.125" 3.18mm	.125" 3.18mm
Spindle Speed:	1955 RPM 78 m/min.	2933 RPM 117 m/min
Feed Rate:	23.5 IPM 597mm/M	32.5 IPM 825mm/M

100X MAGNIFICATION OF THE CUTTING EDGE





Uncoated wear .006"

TiN Coated wear .0007"

The TiN coated end mill milled the same amount of steel at a speed 50% faster than the uncoated end mill and still had less wear.

Drilling hardened tool steel with an AlTiN coated straight flute carbide drill.

Tool Type:	Straight Flute Carbide drill	Straight Flute Carbide drill
Condition:	UNCOATED	**AlTiN** COATED
Material:	M-4 @ HRc64	M-4 @ HRc64
Depth of Cut:	.591" 15mm	.591" 15mm
Dia. of Cut:	.2362" 6mm	.2362" 6mm
Spindle Speed:	477 RPM 9 m/min.	477 RPM 9 m/min.
Feed Rate:	1.0 IPM 25.4 mm/M	1.0 IPM 25.4 mm/M