

# Machining Hardened Materials with Ceramics and NEW CeramiX

*To Dramatically Reduce Costs*

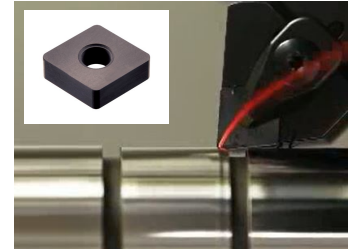
**HX5**

NEW

NEW CeramiX Grade

## Features

- Matches the performance characteristics of CBN
- Significant cost savings compared to CBN
- New TiAlN coating offers excellent wear resistance for hard turning
- In continuous machining materials with a hardness of 55 to 65 Rc
- Geometries: CNGA, DNGA, TNGA, VNGA



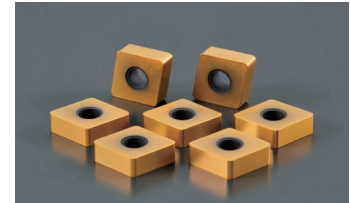
Work material	Grade	Purpose	Cutting speed (SFM)	Feed (IPR)	DOC (inch)	DRY	WET
Hardened material (55 -62 Rc)	<b>HX5</b>	Finish (Continuous)	330-660	.003-.006	.004-.020	●	●

**ZC4**

For machining hardened materials

## Features

- Excellent wear resistance to machine hardened materials
- TiN-coated premium ceramic grade with the finest grain size of all the NTK ceramic grades
- Best for finishing hardened material applications from 62-70 Rc (or 74-97 Shore hardness)
- The gold coating makes edge wear easily detectable
- Geometries: CCGW, CNG, CNGA, DNGA, RCGX, RNG, RPG, SNG, SNGA, SPG, TNG, TNGA, TPG, VNGA, WNGA



**ZC7**

For machining hardened parts with a wide range of hardness

## Features

- Excellent wear resistance to machine hardened materials
- TiN Coating is available in various geometries as standards
- Wiper inserts and AG-chipbreaker improve machining efficiency
- Covers a wide range of applications such as carburized or induction hardened steels from 30-62 Rc
- Semi-finishing and finishing cast iron & chilled iron
- Geometries: CNG, CNGA, CNGG, CNGX, DNG, DNGA, DNGG, RCGX, RNG, SNG, SNGA, TNG, TNGA, TPG, VNGA



Work material	Hardness (HRc)	Grade	Purpose	Cutting speed (SFM)	Feed (IPR)	DRY	WET
Hardened material	30-62	<b>ZC7</b>	Finish (Continuous)	130-700	.003 - .008	●	●
	55-70	<b>ZC4</b>				●	●

## HC2

The standard grade for machining cast iron and hardened materials

### Features

- Well-balanced content of aluminum oxide and titanium carbide (Al<sub>2</sub>O<sub>3</sub>+TiC) sintered under pressure
- Stable performance under a wide range of machining conditions
- General purpose ceramic which works well in a wide range of cutting applications
- Semi-finishing to finishing of cast iron mill rolls.
- Machining steels hardened from 50 - 62 Rc
- Geometries: CCGW, CDH, CNG, CNGA, DNG, DNGA, LNJ, RCGX, RNG, RPG, SNG, SNGA, SPG, TBGE, TNG, TNGA, TP, TPG, VNG, VNGA, WNGA, ZT1130

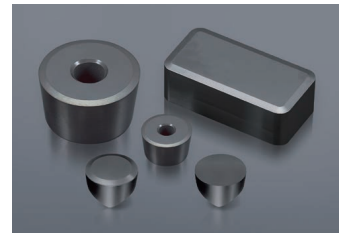


## HC5

Developed for Mill Rolls

### Features

- Developed for use in hard turning applications for mill rolls
- Excellent toughness combined with wear resistance
- Roughing to finishing of cast iron and steel mill rolls
- Combination of toughness and stability for successful finish turning applications
- Turning steels hardened from 50 - 62 Rc
- Geometries: CDH, CNGA, LNJ, RCGX, RNG, TNGA, VNGA, ZT1130



## WA1

Machining advantage when roughing carbide and hardened rolls

### Features

- Good flank wear resistance at high speed
- Best notch wear resistance compared to competitor's Whisker-reinforced ceramics
- Increased toughness compared to competitor's Whisker-reinforced ceramics
- Roughing to Semi-finishing of carbide mill rolls.
- Roughing of hardened rolls from 45-62 Rc.
- Semi-finishing to finishing of cast iron
- Geometries: CNG, CNGA, DNG, DNGA, RCGX, RNG, RPG, RPGX, SNG, SNGA, TNG, TNGA, TPG, VNGA, WNGA



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