

High Performance Coatings for Gear Cutting Applications

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In addition to standard coatings for milling applications (TiN, TiAlN, TiCN...) IonBond offers a targeted range of high performance coatings from our Innovative Performance Coating (IPC) portfolio specifically designed for gear cutting applications.

IPC coatings are designed to offer properties and performance tailored to respond to the needs of gear cutting applications and to provide maximum productivity and optimal machine-tool use.



High Speed / Dry Gear Cutting with IonBond TopGear

IonBond TopGear is a nano-composite coating designed for high speed (>180 m/min) gear cutting. The nano-composite structure gives the coating a very high hardness and resistance to abrasion. With an oxidation temperature of over 1100°C, the coating is highly suitable for dry machining with carbide hobs and stick blades.



IonBond GearCut Ultra - the best performance for Conventional Gear Cutting

IonBond GearCut Ultra combines the exceptional performance characteristics of our high aluminum content AlTi based coatings with the high oxidation resistance and low frictional properties of chromium. Due to its excellent toughness, IonBond GearCut Ultra is especially suitable for high feed rates.



Maximum Price-Performance value with IonBond Maximizer Nano

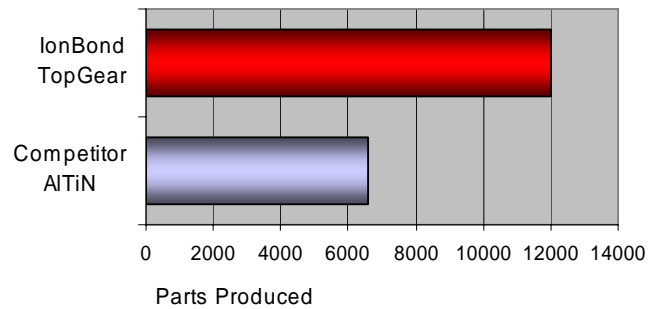
High hot hardness and reduced cutting efforts are the primary benefits of this nano-composite AlTiN coating. IonBond Maximizer Nano is the reasonably priced, high performance coating when moderate cutting speeds are involved. Suitable for hobs, shaper cutters and stick blades.

Performance Results – Gear Cutting

IonBond Top Gear

Tool: Carbide Gear Cutting Hob
Workpiece:
Cutting Data: Dry machining at 500m/min

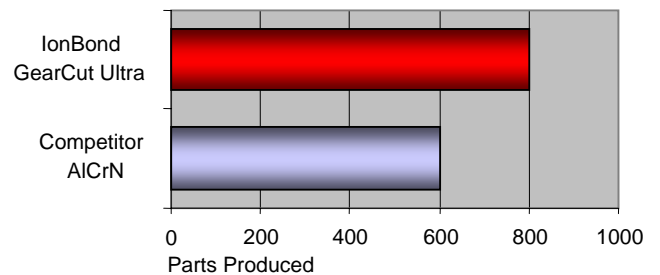
Dry Hobbing at 500m/min



IonBond GearCut Ultra

Tool: Carbide Stick Blades
Workpiece: 16MnCr5 / AISI 5120 / 1.7131
Cutting Data: Dry machining

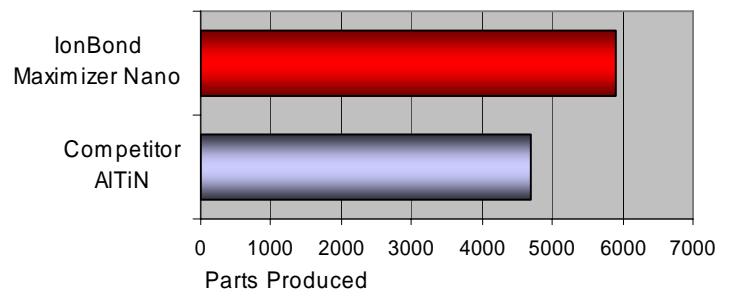
Machining AISI 5120



IonBond Maximizer Nano

Tool: HSS PM Hob
Cutting Data: 220 m/min, dry

Gear Cutting with Maximizer Nano



IonBond Coating	Coating Structure	Thickness (microns)	Hardness (HV 0.05)	Oxidation Temp (°C / °F)	Coef. of Friction vs. Steel, dry	Color
IonBond TopGear	TiSi based	4 to 6	3600	1200 / 2190	0.4	Bronze
IonBond GearCut Ultra	AlTiCrN based	3 to 5	3000	900 / 1650	0.3	Black Violet
IonBond MaximizerNano	AlTiN based	2 to 3	3400	1000 / 1830	0.3	Gray Purple

Coating selection is application specific and selection criteria are dependent on process parameters. An IonBond Sales Engineer will help you choose the best coating to suit your needs. IonBond Global Headquarters are located in Olten, Switzerland. www.ionbond.com.