



THE **IDEAL** SOLUTION FOR INTERNAL DIAMETER GRINDING

- Cutting Efficiency
- Workpiece Quality
- Increased Wheel Life
- Fastest Cycle Time

www.nortonabrasives.com



The IDEal Solution for Internal Diameter Grinding

When grinding efficiency, ultimate accuracy, and reduced process costs are key, Norton proves to be the ideal partner. Norton IDEal-Prime wheels feature Norton Quantum Prime nano-crystalline ceramic grain embedded in an optimized matrix of bond. Thanks to the micro-fracture properties of this new ceramic grain & retention capability of the bond, IDEal-Prime wheels deliver excellent grinding efficiency and significantly longer life, while ensuring outstanding part quality over time.

ADVANTAGES

Reduced Cycle Times

Our self-sharpening grain technology increases Material Removal Rates and reduces the need for dressing, cutting down on overall cycle times and effective cost per part.

Improved Wheel Life

The new grain micro-structure allows longer, cooler cuts and more stable profiles and shapes. Lowering the dress requirement significantly improves the wheel life of IDEal-Prime without sacrificing work piece quality.

Improved Geometric Consistency

The innovative grain technology creates a product with unparalleled sharpness and cutting efficiency that reduces spindle power requirements even at increased Material Removal Rates. This means less mechanical stress and improved part geometry.

Improved Surface Finish

Norton IDEal-Prime utilizes latest bond technology and advances in manufacturing processes to achieve unparalleled product consistency and thus stable surface finish over time.

PRODUCT AVAILABILITY

Abrasive Type	Norton Quantum Prime ceramic grain available in a variety of blends to optimize cost-performance	
Grain Size (FEPA F)	46 ← Coarse Grain for aggressive cutting action	→ 150 Finer Grain for improved surface finish
Grade	G ← Softer wheel hardness for easier grain refresh and free cutting ability	→ Q Harder grade wheel for less aggressive cutting and improved form hold and wheel life
Structure	6 ← Less open structure for improved form hold and wheel wear	→ 10 More open structure for higher MRR and heat sensitive parts
Bonds	Vitrium 3/VS3 bonds	
Speed	63 m/s, Higher speed may be available on request	



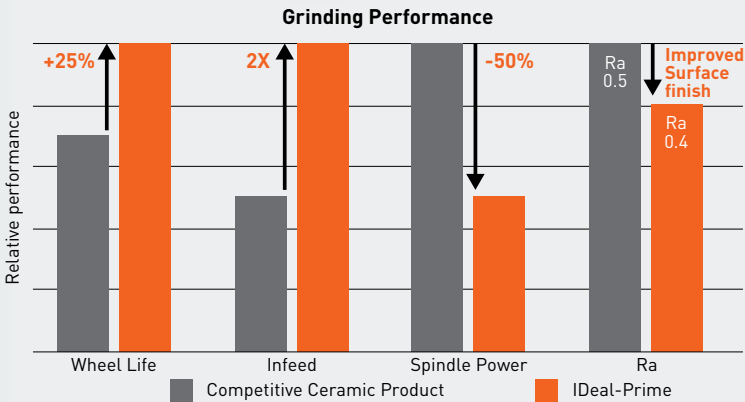
Case Study #1

APPLICATION: ID PLUNGE GRINDING, RACE

PART TYPE / MATERIAL: Outer bearing ring / 100Cr6 hard treated HRc 62
PART DIMENSIONS (MM): 65 x 50
STOCK REMOVAL (MM): 0.4 on radius
WHEEL DIMENSIONS (MM): 41 x 38 x 13
SPECIFICATION: 3NQN120KVS3
COMPARED WITH: Competitive ceramic product
COOLANT: Emulsion
DRESSING: Dressing roll

IDEAL-PRIME RESULTS

INFEEED: Doubled
DRESSING: 30% reduction
RA: Improved to 0.4mm
POWER DRAW: Reduced by 50%



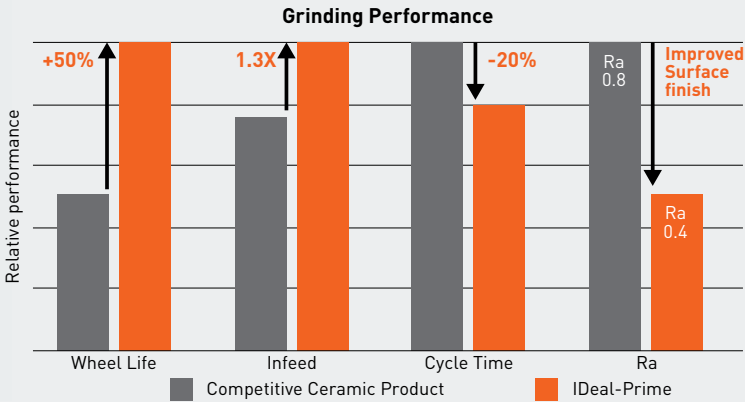
Case Study #2

APPLICATION: ID GRINDING WITH OSCILLATION (BORE)

PART TYPE / MATERIAL: Inner bearing ring bore / 100Cr6 HRc 48
PART DIMENSIONS (MM): 65 x 50
STOCK REMOVAL (MM): 0.4 on radius
WHEEL DIMENSIONS (MM): 40 x 40 x 13
SPECIFICATION: 3NQN100K12VS3P
COMPARED WITH: Competitive ceramic product
COOLANT: Emulsion
DRESSING: Diamond single point tool

IDEAL-PRIME RESULTS

INFEEED: 1.3 X standard
DRESSING: 50% reduction
RA: Improved to 0.4mm
POWER DRAW: Reduced by 20%

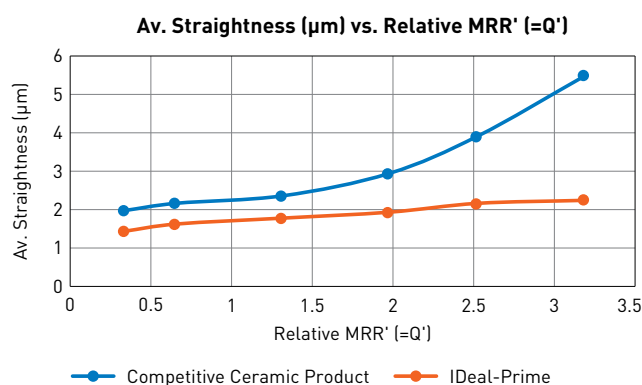
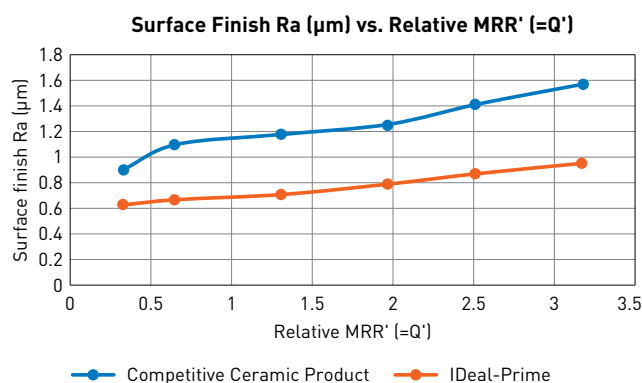


Grinding Test Benefits

APPLICATION: INTERNAL DIAMETER GRINDING

TEST METHOD 1 – WORKPIECE QUALITY

- Increasing Material Removal Rate (MRR) in Internal Diameter grinding application
- Benchmarked against a competitive ceramic product
- Measured workpiece quality including:
 - » Workpiece Surface Finish
 - » Workpiece Straightness

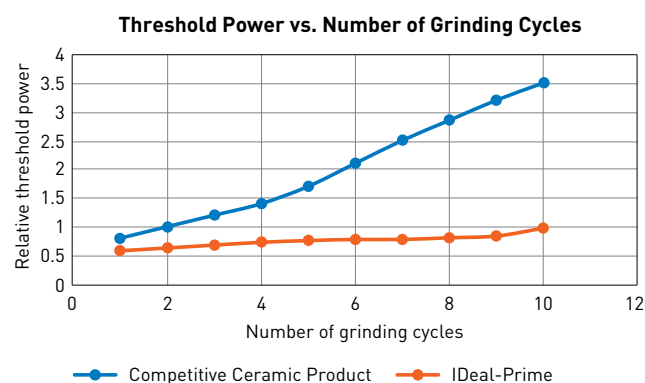


Improved Geometric Consistency

Workpiece quality remains stable without dressing due to improved shape hold of product.

TEST METHOD 2 – THRESHOLD POWER

- Performing repeated grinding cycles without dressing in between cycles
- Benchmarked against a competitive ceramic product
- Measured grinding parameter: Threshold Power (Minimum power required for grain to start cutting)



Lower Threshold Power Than The Competition

Threshold power does not increase regardless of the number of cycles thanks to an easier and more stable cut.

