NORTON
SAINT-GOBAIN

QUANTUM™ PRIME

Transforming surfaces ...and beyond

PERFORMANCE REVOLUTION

MICRO-FRACTURING AT ITS SHARPEST

Norton Quantum Prime is a prime example of optimized performance from the worldwide leader in bonded abrasive grinding wheels. The new, proprietary, nano-crystalline ceramic grain from Saint-Gobain offers unparalleled grinding productivity across multiple applications. Thanks to the unique micro-fracture properties of this new ceramic grain, Quantum Prime delivers excellent grinding efficiency, significantly longer wheel life, while ensuring outstanding part quality.

KEY MARKET SEGMENTS

AUTOMOTIVE | AEROSPACE | ENERGY | PRIMARY STEEL | GEAR | BEARING | CUTTING TOOLS | GENERAL ENGINEERING

www.**nortonabrasives.com**

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QUANTUM™ PRIME

ADVANTAGES

Reduced Cycle Time

Unparalleled sharpness and cutting efficiency of the micro-fracturing grain results in reduced power draw, allowing for increased Material Removal Rates and faster overall cycle times.

Improved Part Quality and Surface Finish

The unique free cutting grain, along with the latest bond technologies, allows the grain to break down more consistently leading to improved part quality and geometry and excellent surface finish even at high MRR's.

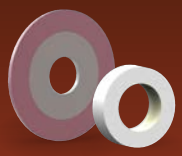
Improved Wheel Life and More Parts per Dress

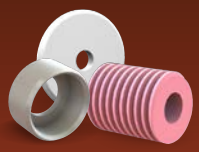
30% +

More friable self-sharpening grain technology means the wheel stays sharper for longer, lowering dress requirements and significantly improving wheel life.

END USE APPLICATIONS:

Quantum Prime:


OD GRINDING


GEAR GRINDING


TOOLROOM


DISC GRINDING


ID GRINDING


SURFACE GRINDING

MOUNTED WHEELS

FLUTE GRINDING

CREEPFEED

MADE-TO-ORDER

Quantum Prime wheels are made-to-order to your exact requirements.

GRAIN BLENDS:
Available in all standard grain combination blends

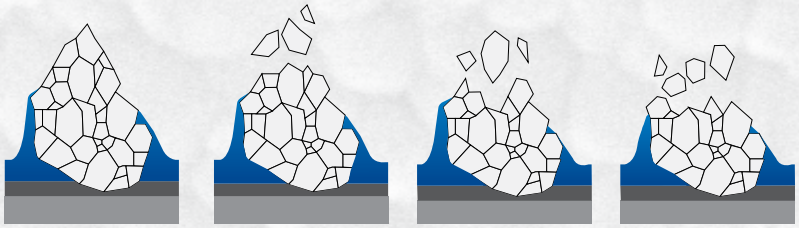
BONDS:
Organic or Vitrium3 vitrified bond

PERFORMANCE REVOLUTION WITH QUANTUM PRIME GRAIN

THE SCIENCE BEHIND THE GRAIN

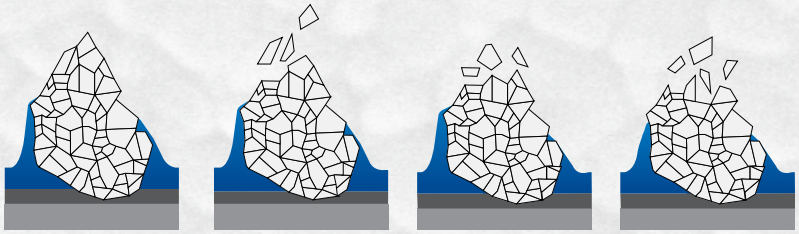
The new micro-structure of the Quantum Prime grain features a significant crystal size reduction compared to previous generation ceramic grains. The unique formulation and reduced crystal size allows the grain to micro-fracture and self-sharpen more efficiently. This keeps the wheel sharper for longer, reducing heat, wear flats, and minimizing the need for dressing.

SELF-SHARPENING PROCESS

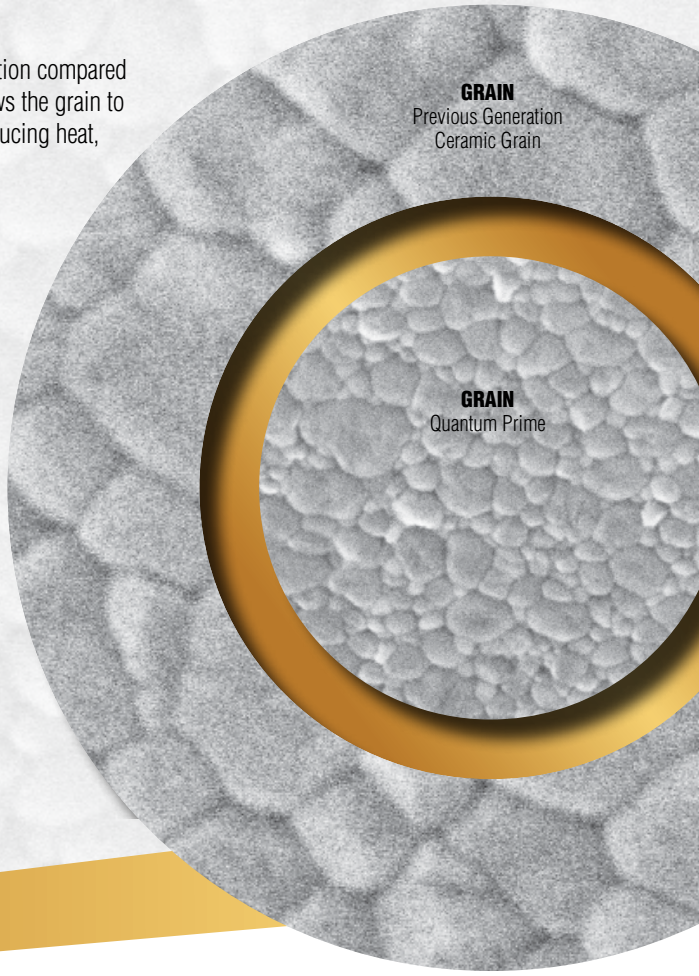


Previous Generation Ceramic Grain

GRINDING TIME (T)



Quantum Prime Ceramic Grain



ULTIMATE PAIRING FOR GRINDING EFFICIENCY

Pair Norton Quantum Prime with the revolutionary Vitrium3 Bond for the ultimate in grinding efficiency. Vitrium3 bond provides unprecedented grain adhesion and lowers your process cost in 3 ways:

NORTON VITRIUM3

1. COOL CUTTING	2. PRECISE PROFILE	3. HIGH SPEED
Improved holding power (using less bond-to-abrasive ratio) exposes a larger grain surface area, improving freer cut rate.	Superior grain-holding properties significantly improve wheel form and corner holding vs. other bond systems – reducing dressing time and dresser wear.	High Speed – Norton Vitrium^3 bond provides the ultimate wheel strength. This allows for high speed operation on equipment designed and rated for high speed.

Find out more about Vitrium3: **nortonsga.us/vit3**

TRUING AND DRESSING QUANTUM PRIME WHEELS

Utilizing proper truing and dressing tools to maintain the shape, profile, and sharpness of a grinding wheel is essential to achieving the best performance. The proprietary premium ceramic grain of Quantum Prime wheels can benefit from dressing tool advancements such as CVD reinforcements for optimized dressing performance and longer tool life. Norton offers a complete line of both stock and made-to-order stationary and rotary diamond dressing tools optimized for use with Quantum Prime wheels.

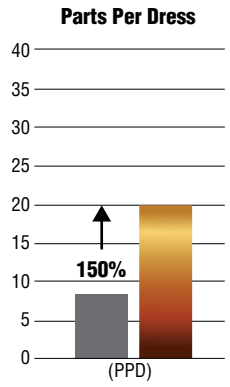
CASE STUDY: **OD GRINDING**

APPLICATION:	OD Bearing Grinding
MATERIAL:	100Cr6
PART DIMENSIONS:	110 mm x 28 mm
HARDNESS:	62 HRC
SURFACE FINISH:	Ra 0.40-0.55 µm
MACHINE:	SGB 55C
COOLANT:	Emulsion
GRINDING TIME REDUCTION:	9.3 seconds
INCUMBENT WHEEL:	Previous Generation Ceramic OD Wheel
NORTON WHEEL:	Norton Quantum Prime
	Shape and Dimensions: 610 x 35 x 203 mm Specification: 3NQNM

RESULTS

Norton Quantum Prime
Previous Generation Ceramic OD wheel

150%
in Parts
Per Dress



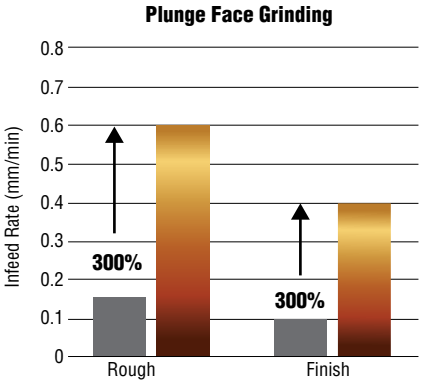
CASE STUDY: **ID GRINDING WITH OSCILLATION (BORE)**

APPLICATION:	Plunge face grinding
MATERIAL:	16MnCr5
PART DIMENSIONS (MM):	ø 88 x 15
HARDNESS:	HRC 60 + 2
STOCK REMOVAL:	0.2 mm
MACHINE:	Studer S31
COOLANT:	Emulsion
DRESSER:	CVD Insert dresser
INCUMBENT WHEEL:	Competitive Ceramic ID Wheel
NORTON WHEEL:	Norton Quantum Prime (Ideal Prime)
	Shape and Dimensions: 01_63mmx40mmx20mm Specification: 5NQN1007M13VQNP15A

RESULTS

Norton Quantum Prime
Competitive Ceramic OD wheel

300%
in Rough and
Finish Infeed



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USA CUSTOMER SERVICE:
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Toll Free Fax: 1 (800) 551-4416

CANADA CUSTOMER SERVICE:
Toll Free Phone: 1 (800) 263-6565
Toll Free Fax: 1 (800) 561-9490

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NO-RISK TEST

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