

THE CUTTING EDGE OF ABRASIVE TECHNOLOGY



- BENEFITS**
- 33% to 100% longer life v/s competitive ceramic products
 - 30%+ higher metal removal rate
 - 15%+ lower threshold power
 - Versatile in all low, medium, and high force applications
 - Superior results in both vitrified and organic applications.

- FEATURES**
- Engineered ceramic grain shape and chemistry with proven bond technology.

- MARKETS**
- Automotive, Bearing, Gear, Steel, Tool & Die.



VITRIFIED BOND AVAILABILITY

VQNP BOND	
ABRASIVE	NQ, 1NQ, 3NQ, 5NQ, 1NQP, 3NQP, 5NQP
GRAIN SIZE	36 - 120
GRADE	B - N
STRUCTURE	10, 12
BOND	VQNP

VQN BOND	
ABRASIVE	NQ, 1NQ, 3NQ, 5NQ, 1NQP, 3NQP, 5NQP
GRAIN SIZE	24 - 180
GRADE	F - S
BOND	VQN

APPLICATION	MAXIMUM OPERATING SPEED*
INTERNAL GRINDING	80m/s
CENTRELESS GRINDING	63m/s
CYLINDRICAL GRINDING	63m/s
SURFACE GRINDING	63m/s

ORGANIC BOND AVAILABILITY

SPRING GRINDING	
ABRASIVE	NQ, 1NQ, 3NQ, 5NQ, 1NQP, 3NQP, 5NQP
GRIT SIZE	36 - 120
GRADE	B - N
STRUCTURE	10, 12
BOND	VQNP

CONNECTING RODS	
ABRASIVE	2NQJ, 3NQJ
GRIT SIZE	20-36
GRADE	N - R
STRUCTURE	20
BOND	BQN

STEEL ALLOYED VALVE (ROUGH)	
ABRASIVE	1NQR, 2NQR, 2NQ
GRIT SIZE	46-60
GRADE	N - P
STRUCTURE	9
BOND	BQN

BEARING RING	
ABRASIVE	1NQJ, 2NQJ
GRIT SIZE	46-70
GRADE	G - L
STRUCTURE	22
BOND	BQN

ROLL GRINDING	HOT MILL	COLD MILL
ABRASIVE	1NQ, 2NQ, 3NQ, 5NQ, 1NQG, 2NQG, 3NQG, 5NQG	1NQ, 2NQ, 1NQR, 2NQR
GRIT SIZE	24-46	46-100
GRADE	H - M	H - K
BOND	BQN	BQN

APPLICATION	MAXIMUM OPERATING SPEED*
ROLL GRINDING	50m/s
SPRING GRINDING	50 to 63m/s
CONNECTING RODS GRINDING	30 to 63m/s
BEARING GRINDING	30 to 63m/s
VALVE GRINDING	50m/s

*NB: Maximum Operating Speeds vary with respect to the grinding conditions (enclosed machine or not) and wheel geometry and specification. Please check with our sales representative for details.

MAXIMUM POTENTIAL

DO THESE SOUND FAMILIAR?	NORTON QUANTUM GIVES YOU
At full capacity and not keeping up with demand?	Higher removal and reduced cycle times
Considering adding a new machine to increase thru-put?	Free cutting and lower grinding power
Need to replace an old machine due to power limitation?	Free cutting and lower grinding power
Keep having burn issues?	Improved bonds and longer wheel life
Looking for increasing wheel life?	Free cutting and longer lasting bonds bring improved cost per part
Looking for overall cost reduction?	Free cutting and longer lasting bonds bring improved cost per part

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Form # XXXX





THE CUTTING EDGE OF ABRASIVE TECHNOLOGY

Our cutting edge innovation makes Norton Quantum Grinding Wheels last 50% to 100% longer - designed for maximum performance and cost savings. With unrivalled precision, Norton Quantum Wheels provide the fastest and finest grinding in the industry.

INNOVATION

Norton Quantum is the new generation of ceramic grain with innovative organic and vitrified bonds specially developed to enhance grain performance:

- A new alumina grain chemistry and shape developed from the Norton patented Seeded-Gel Technology
- This revolutionary ceramic grain multiplies the cutting efficiency by controlling the grain breakdown at the micrometric level
- A perfect blend between sharpness (free cutting) and toughness (life)
- New developed bonds to optimize the grain-to-bond adhesion and improve grain retention.

A versatile technology that applies to low, medium and high force applications.

Flexible technology for grinding materials ranging from cast iron to stainless steel and even hard to-grind inconel and titanium.

VITRIFIED CASE STUDIES

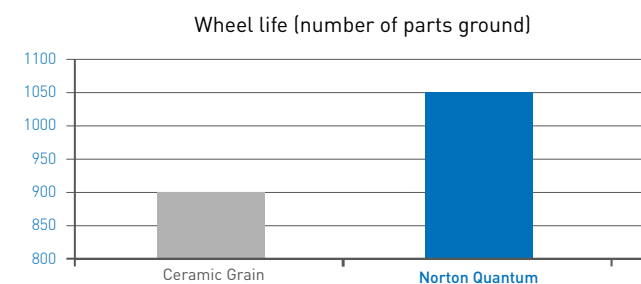
INTERNAL DIAMETER/INNER RING BORE GRINDING

PART INFORMATION

Workpiece material: 100CR6 - 60HRC
Coolant: Emulsion 3%
Material removal: 0,3mm on diameter
Surface finish: Ra: 0,8µm
Request tolerance: Conicity 5µm

WHEEL INFORMATION

Wheel size: 01_28x19x9mm
Wheel speed: 50m/s
Current specification: 100% ceramic grain
Norton Quantum specification: **NQ100J10VQNP**



Results: 15%+ parts per wheel

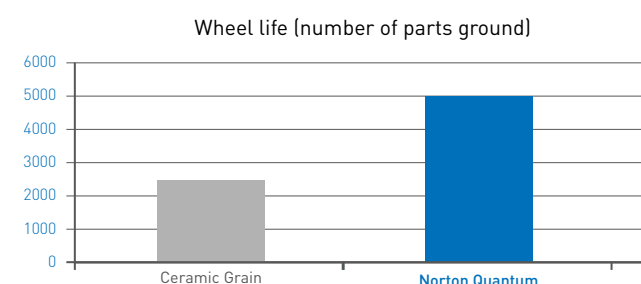
INTERNAL DIAMETER/OUTER RING RACEWAY GRINDING

PART INFORMATION

Workpiece material: 100CR6 - 60HRC
Coolant: Neat oil
Material removal: 0,3mm on diameter
Surface finish: Ra: 0,5µm
Request tolerance: Radius 7µm

WHEEL INFORMATION

Wheel size: 01F_42x12x15mm
Current specification: 50 % ceramic grain
Norton Quantum specification: **5NQ100NVQN**



Results: 100%+ wheel life

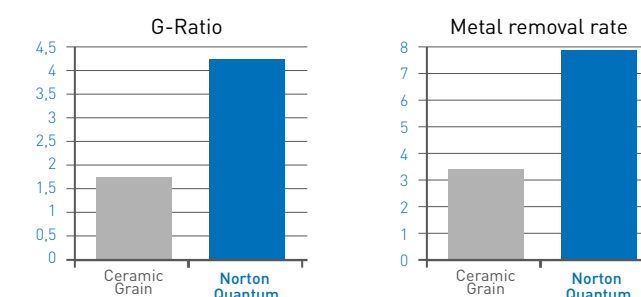
SURFACE GRINDING WITH SEGMENTS

PART INFORMATION

Workpiece material: HSS - up to 64HRC
Coolant: Emulsion 3%
Material removal: Up to 0,7mm
Surface finish: Ra: 1µm

SEGMENT INFORMATION

Segment size: 31 - 55x19x114mm
Current specification: 12 pieces per set
50% ceramic grain
Norton Quantum specification: **5NQ46E10VQNP**



Results: +234% metal removal rate

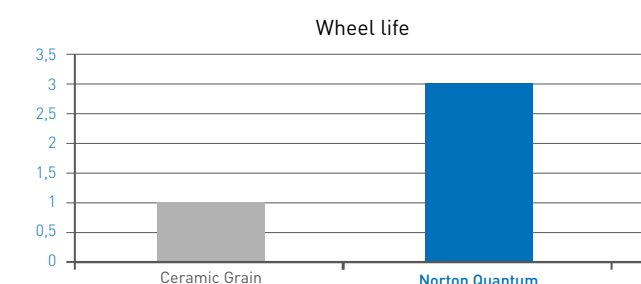
CENTRELESS GRINDING OF BARS

PART INFORMATION

Workpiece material: CK45
Coolant: Emulsion 5%
Material removal: 0,15mm on diameter
Surface finish: Ra: 2µm

WHEEL INFORMATION

Wheel size: 01 - 600x(150+150)x304,8mm
Wheel speed: 40m/s
Current specification: 10% ceramic grain
Norton Quantum specification: **1NQ70JVQN**



Results: +200%+ wheel life

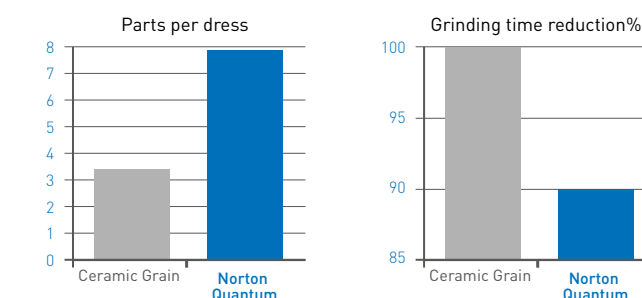
TEETH GEAR GRINDING

PART INFORMATION

Workpiece material: 20MnCr5-58/62HRC
Coolant: Neat oil
Material removal: 0,12mm / flank
Request tolerance: Conicity 5µm

WHEEL INFORMATION

Wheel size: 01X_320x125x115mm
Wheel speed: 45m/s
Current specification: 100% ceramic grain
Norton Quantum specification: **1NQ80GVQN**



Results: 10% reduced grinding time

ORGANIC CASE STUDIES

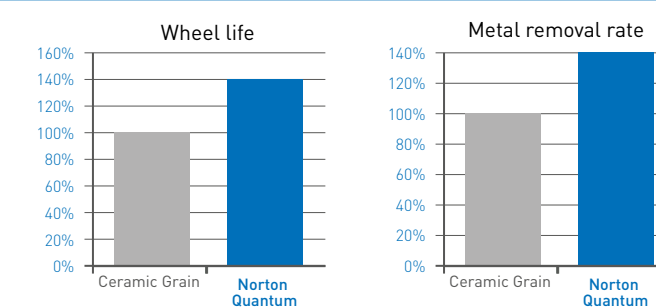
DOUBLE DISC/SPRING GRINDING

PART INFORMATION

Workpiece material: Heat treated carbon steel
Spring diameter: 28-34mm
Coil diameter: 4,5mm
Stock removed: 2,5 to 4grs/spring
Stock removal rate: 200 to 320grs/spring

WHEEL INFORMATION

Wheel size: 36_660x100x150
Current specification: 30% Keramisches Korn
Norton Quantum specification: **3NQJ24R20BQN**



Results: +40% productivity increase or 40% increased life / Excellent finish from cooler grinding

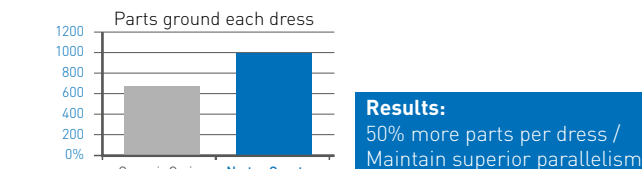
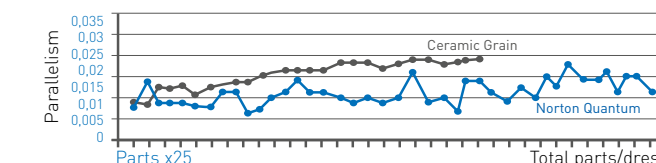
DOUBLE DISC/GRINDING OF CONNECTING RODS

PART INFORMATION

Workpiece material: Powdered metal
Stock removed: 2,55 cm³/part
Stock removal rate: 30,5 cm³/min
Surface finish: Ra: 0,8µm

WHEEL INFORMATION

Wheel size: 36_914x85x304,8
Current specification: 38GGL/022B81
Norton Quantum specification: **3NQGL/022BQN**



Results: 50% more parts per dress / Maintain superior parallelism

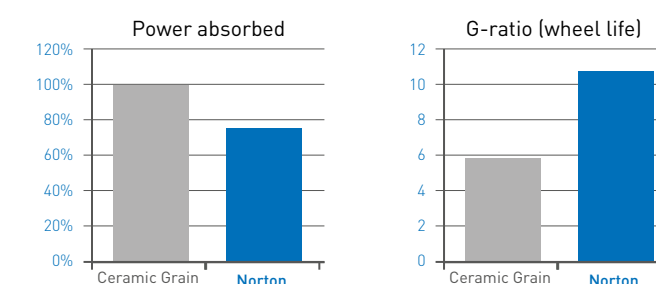
ROLL/GRINDING OF HOT MILL ROLL

PART INFORMATION

Workpiece material: Roll in ICDP
Surface finish: Ra: 0,8µm

WHEEL INFORMATION

Wheel size: 01_900x100x506
Current specification: 60% ceramic grain and black silicon carbide
Norton Quantum specification: **6NQ36KBQN**



Results: x2 wheel life (G-ratio) / 25% less power needed