



NORTON XTRIMIUM GEAR PLATFORM

Reshaping
your
world

XTRIMIUM GEAR PLATFORM

NEXT GENERATION
GRINDING

We understand that the choice of abrasive tooling is a key consideration **in the production of high quality gears.**

Designed to meet and exceed the gear industry's ever more stringent requirements for tighter tolerances, higher profile accuracy and improved surface finish, Norton Xtrimium offers the next level of high performance grinding wheels engineered to deliver the complete technical solution for worm, dual worm and baby worm as well as profile and bevel grinding.



As the need for high quality and excellent surface finish in transmissions is constantly growing, Saint-Gobain Abrasives' Gear research and development team have developed the next generation of worm grinding wheels.

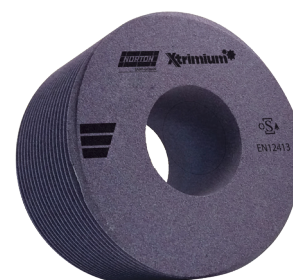
Designed to offer extremely high performance, the wheels run faster, are burn-free and offer a superior surface finish, so there's no need to choose between productivity and surface finish, Norton Xtrimum does it all.

What's more, the new worm wheels are all made to stock and ready in two weeks for testing at your location. Our expert engineers are also available to support you with field tests and process optimisation.

WORM GRINDING

The Norton Xtrimum continuous worm grinding wheel uses the most advanced engineered micro structured matrix of bond and grain to provide the highest level of performance. Free cutting capability, durability, unmatched quality and number of parts per dressing cycle are just some of the benefits this wheel provides.

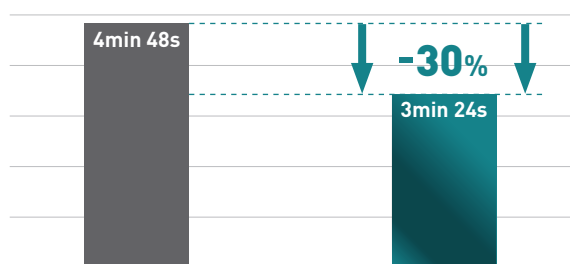
- Perfect homogeneity throughout wheel thickness
- Increased form holding
- Burn free grinding



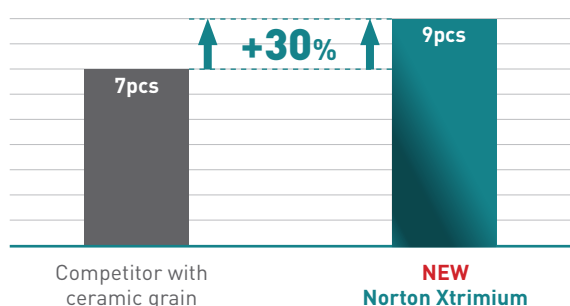
FIELD TEST 1: SPUR GEAR

Module = 7,24mm / Number of teeth 24 /
Pressure angle = 24° / Gear width = 80mm /
Material = 20MnCr5 / Hardness = 60-62 HRC

GRINDING TIME (min)



DRESSING INTERVALS (pcs)



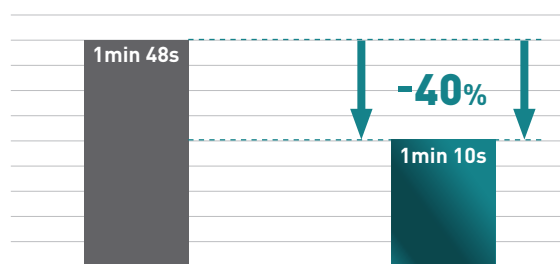
RESULTS:

EXCELLENT SURFACE FINISH, PERFECT QUALITY
Ra < 0,8 µm / Rz < 4,0 µm / ffa = DIN1 / ffB = DIN 1

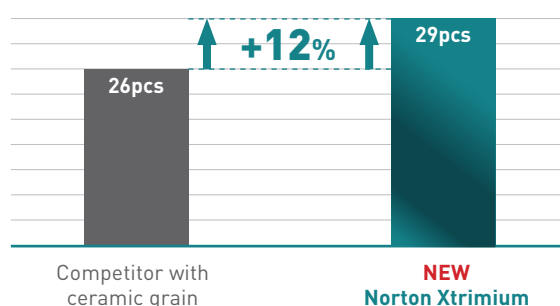
FIELD TEST 2: IDLE GEAR

Module 2,77mm / Number of teeth = 61 /
Pressure angle = 20° / Helix angle = 18° / Gear width = 76mm /
Material = 17CrNiMo6 / Hardness = 60-62 HRC

GRINDING TIME (min)



DRESSING INTERVALS (pcs)



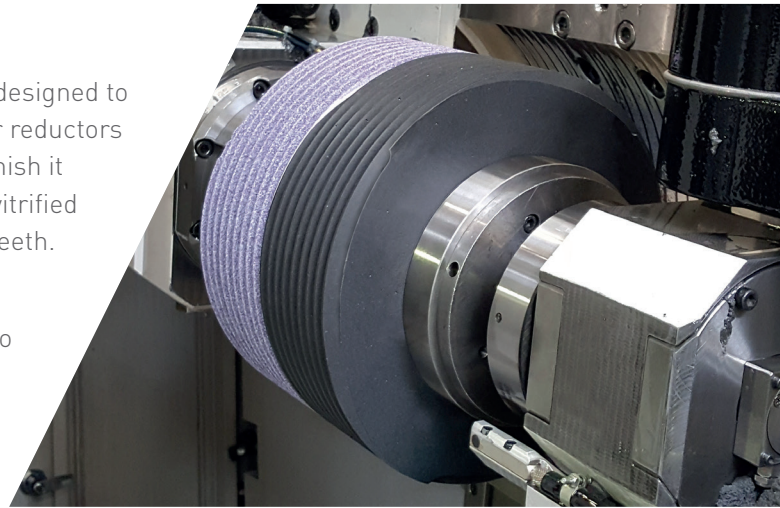
RESULTS:

EXCELLENT SURFACE FINISH, PERFECT QUALITY
Ra < 0,5 µm / Rz < 3,0 µm / ffa = DIN1 / ffB = DIN 1

DUAL WORM GRINDING

The Norton Xtrimium dual worm wheel is a new solution designed to provide stronger transmissions in trucks and quieter gear reducers in electric vehicles thanks to the extremely fine surface finish it provides. The Norton Xtrimium dual worm combines the vitrified section to grind and a fine grit section to polish the gear teeth.

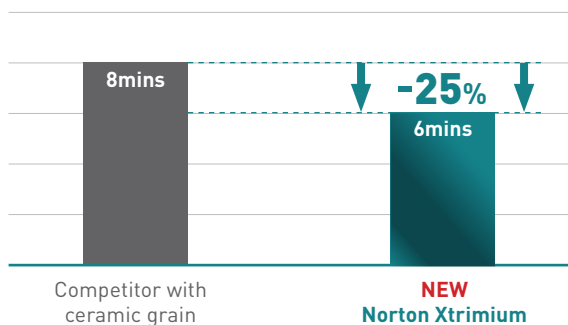
We developed a polishing section in hard resin where the elasticity of the resin is controlled to make sure there is no expansion of the resin during grinding. This results in no deformation of the gear and provides a high level of consistency in surface quality to achieve a mirror finish on the polished gear.



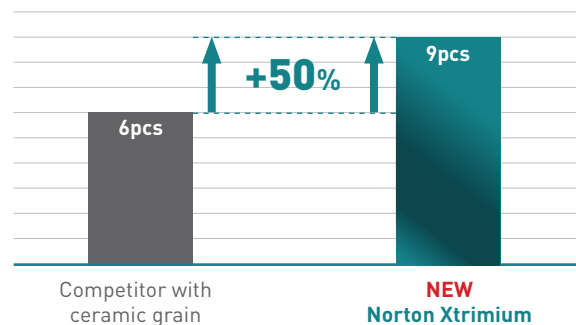
FIELD TEST: IDLE GEAR

Module = 2,9mm / Number of teeth = 73 / Pressure angle = 20° / Gear width = 74mm / Material = 20MnCr5 Hardness = 60-62 HRC

GRINDING TIME (min)



DRESSING INTERVALS (pcs)



RESULTS:

THE GEAR PROFILE IS MAINTAINED AND IMPROVED WITH NO INCONSISTENCY IN SURFACE FINISH THANKS TO THE HARD RESIN WITH NO EXPANSION. XTRIMIUM POLISHES IN ONE PASS & ACHIEVES THE SAME SURFACE FINISH AS 2 PASSES WITH COMPETITOR WHEELS.

Rz < 1.5µm / **ffa** DIN1 / **ffb** = DIN 1

BABY WORM WHEEL

The baby worm wheel is able to grind gears directly on the shaft or countershaft, avoiding the need for welding. Due to the specific geometry with a small outer diameter and large thickness, the baby worm wheel is strong and homogeneous and offers:

- Strong profile holding
- High productivity
- Consistent surface finish of Rz=3µm from the beginning to the end of the lifetime of the baby worm wheel throughout the life of the wheel



BEVEL GRINDING

The Norton Xtrimium bevel wheel has been designed to meet the specific needs of the curved teeth found on pinion and crown gears. Available in one specification, this wheel is a 'must have' for grinding operations on these gears.

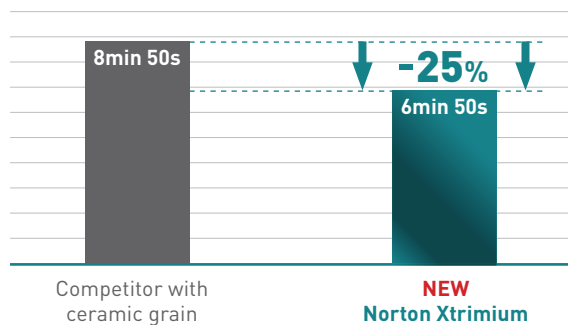
- Burn free cutting
- Extremely fast grinding
- Reduces part rejection, overall lowering the cost per unit



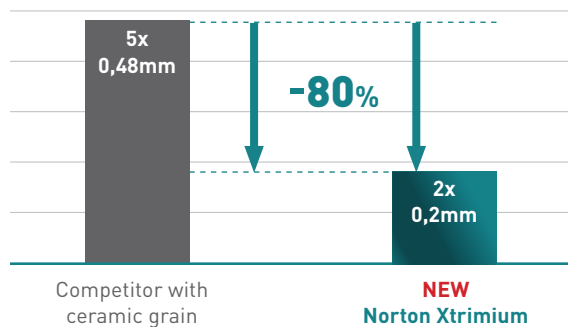
FIELD TEST 1: PINION

Module = 6,45mm / Number teeth = 9

GRINDING TIME (min)



DRESSING AMOUNT [mm]

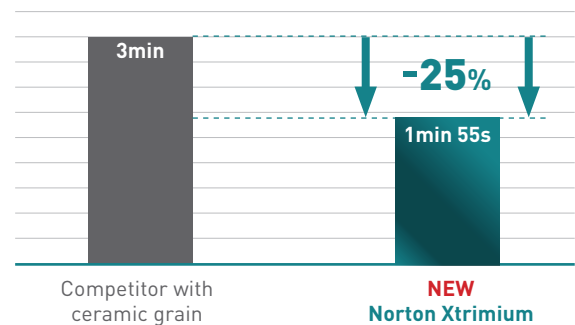


RESULTS:
EXTREMELY CONSISTENT RESULTS
AND EXCELLENT TOPOGRAPHY
 $Ra < 0,3 \mu m$ / $Rz < 3,0 \mu m$

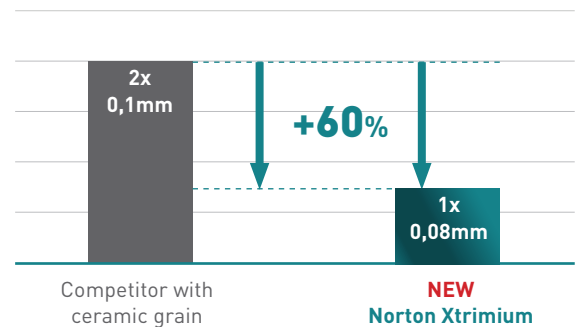
FIELD TEST 2: CROWN

Module = 2,47mm / Number teeth = 44

GRINDING TIME (min)



DRESSING AMOUNT [mm]



RESULTS:
EXTREMELY CONSISTENT RESULTS
AND EXCELLENT TOPOGRAPHY
 $Ra < 0,3 \mu m$ / $Rz < 3,0 \mu m$

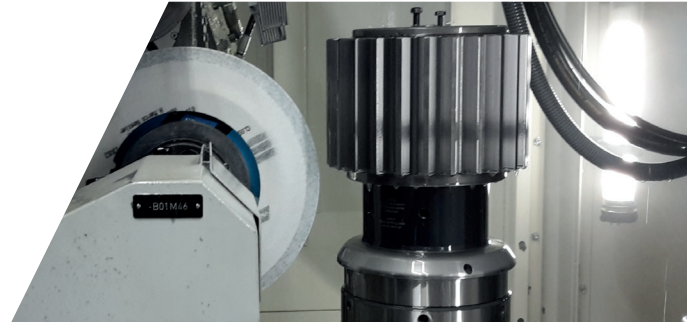


If you're experiencing an issue with workpiece burn, or you need to speed up productivity, a Norton Xtrimium wheel with enhanced formulation designed to meet your needs could be the answer.

PROFILE GRINDING

Profile grinding wheels provide flexibility in grinding operations as they're able to grind small to very large modules.

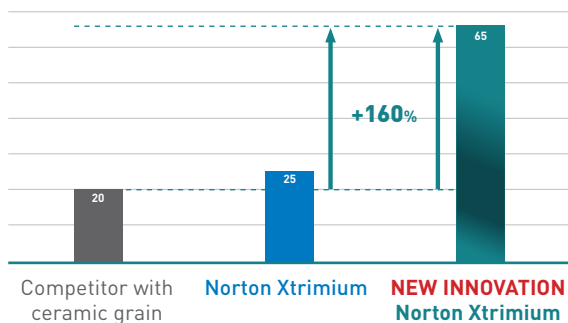
Norton Xtrimium offers excellent porosity and permeability for the highest geometric quality which complies with the DIN ISO Norm 1328-1 standard.



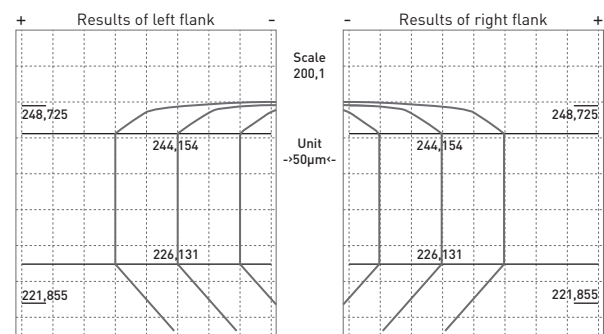
FIELD TEST: PLANET GEAR

Module = 9mm / Pressure angle = 20° / Number of teeth = 25 / Gear width = 160mm /
Material = 18MnCr6 / Hardness = 58-62HRC

MATERIAL REMOVAL RATE (mm³ / mm / sec)



RESULTS



RESULTS:

EXTREMELY CONSISTENT RESULTS AND EXCELLENT TOPOGRAPHY

$R_a < 0,8 \mu m$ / $R_z < 4,0 \mu m$

Norton Xtrimium shows extremely high quality according to DIN 1 tolerance and ultra fast grinding according to DIN 3 tolerance.



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Form # 3835