



# NEXT GENERATION DUAL WORM WHEEL

Transforming  
surfaces  
...and beyond



# GRINDING AND POLISHING SOLUTIONS FOR E-MOBILITY

**Norton Xtrimium** is designed for **high-performance gear grinding** in a tight-tolerance environment. The complete portfolio of gear grinding products offers **increased profile accuracy, enhanced form holding** and **burn-free grinding** in worm, profile and bevel applications.

Our new dual worm wheels further enhance the gear grinding efficiency. These wheels combine a vitrified bond section to grind and a fine-grit resin section to polish the gear teeth, delivering an extremely fine surface finish that meets the stringent requirements for electric vehicles and next-generation trucks.

With the **Norton Xtrimium** dual worm wheel, cycle times can be pushed faster while maintaining the mirror finish.

## BENEFITS

### EV – PASSENGER CARS & LIGHT TRUCKS



- ✓ Increased gear efficiency for longer battery life
- ✓ Reduced gear noise

### TRUCKS

- ✓ Increased lifetime of gearbox\*



*\*Polishing often takes place after a shot peening operation with a 100% resin wheel*

### E-BIKES



- ✓ Extra low surface finish  $R_z < 0.5 \mu m$
- ✓ Reduced gear noise

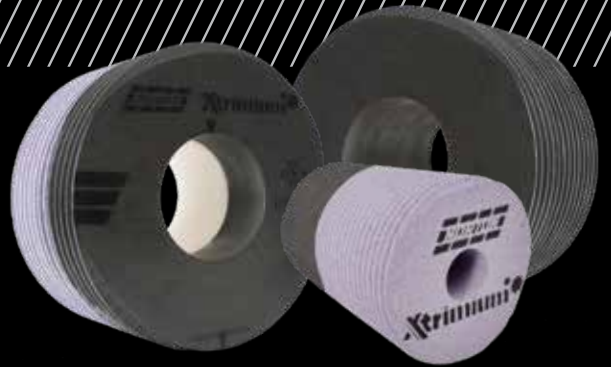


# DUAL WORM GRINDING

## Dual worm wheel with high-performance vitrified bond grinding section and hard resin polishing section

- ✓ Controlled resin elasticity
- ✓ No expansion of the resin during grinding
- ✓ No gear tooth rounding after polishing

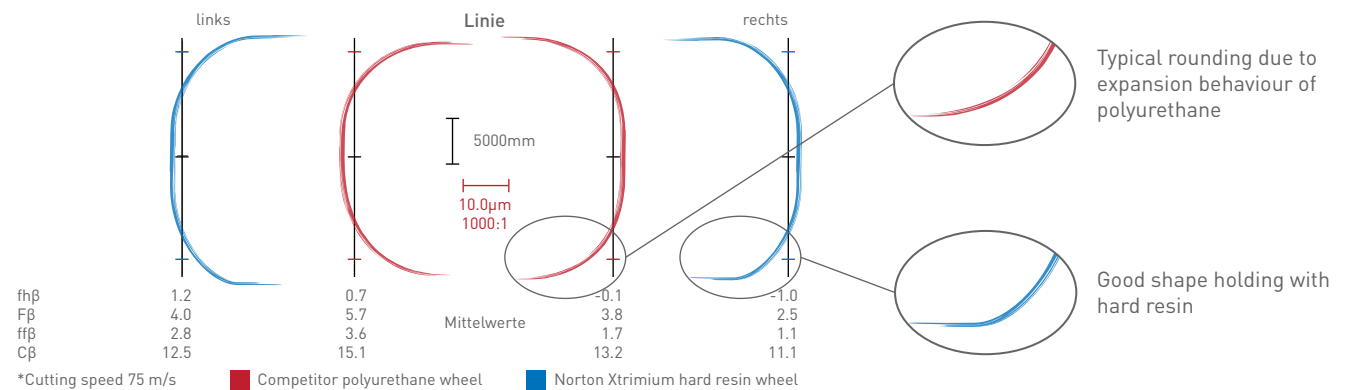
The hard resin is a patented breakthrough solution that successfully replaces standard polyurethane wheels and provides perfect gear geometry with no tooth deformation.



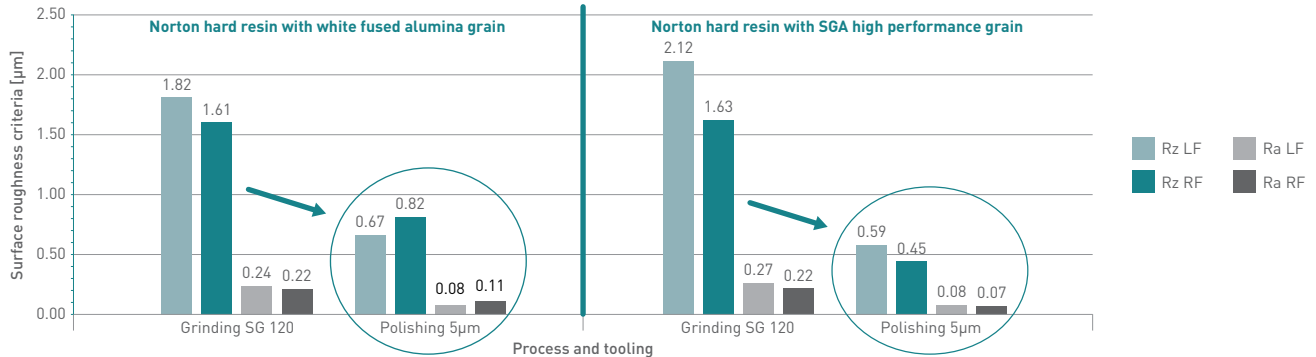
Norton Xtrimum range of polishing wheels: dual worm wheel, 100% resin worm wheel and baby dual worm wheel.

## NORTON XTRIMIUM DUAL WORM WHEEL ACHIEVES $R_z < 1\mu\text{m}$ and $R_{pk} \sim 0\mu\text{m}$

### FIELD TEST 1: GEAR LEAD COMPARISON



### FIELD TEST 2: WHITE FUSED ALUMINA GRAIN VS NEW HIGH-PERFORMANCE NORTON GRAIN



#### RESULTS:

- ✓ Polishing in one pass instead of two
- ✓ Up to 25% grinding time reduction

### NEW PATENTED SOLUTION

Polishing with our patented combination of hard resin and high-performance grain allows you to achieve the required surface finish parameters ( $R_z$ ,  $R_{pk}$ ,  $R_{vk}$ ,  $R_{mr}$ ) faster and with no gear deformation, so there is no difference between the prototype and production phases.

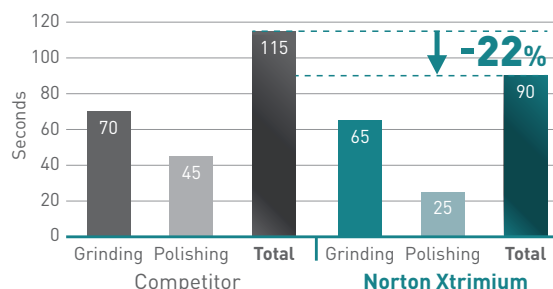
### CASE STUDY: POLISHING OF GEAR SHAFT FOR EV

#### GEAR DATA

Module = 2,1 mm  
Zb = 47 mm  
Z = 29  
Angle  $\alpha = 20^\circ$   
Angle  $\beta = -23^\circ$

#### RESULTS

$R_a = 0,09 - 0,11\mu\text{m}$   
 $R_z \text{ Left} = 0,8 - 0,9\mu\text{m}$   
 $R_z \text{ Right} = 0,6 - 0,7\mu\text{m}$   
 $R_{pk} = 0,07\mu\text{m}$   
 $R_{mr} [5\%] = 97,5 - 98,8\%$   
 $F_{fa} = \leq 1,5\mu\text{m}$



# AVAILABILITY FOR DUAL WORM GRINDING WHEELS

The list below highlights the availability of the most commonly requested geometries and UPCs for fast article creation.

Other dimensions, as well as 100% resin wheels, are also available for article creation. Please contact your Norton representative for more information.

**VITRIFIED SPEC:** 98ATQ120 O13 V131\*

**RESIN GRIT:** 800

*\*Don't hesitate to contact your Norton representative for different grits (400 and 600 available) and dimensions.*

**MOS EN:** 80 m/s

OD (outer diameter)	Thickness / set	Vitrified part thickness	Polishing part thickness	ID (internal diameter)	UPC	UPC vitrified	UPC resin	Drawing	Hard centre Ø
80	200	100	100	32	69083193952	310563409	310563255	F03371	-
	200	150	50	76,2	69210470337	310575994	310575995	F03503	110
	200	140	60	76,2	69210470340	310575996	310575997	F035031	110
	200	100	100	76,2	69210470343	310575998	310575999	F035032	110
	230	160	70	110	69210470344	310576001	310576002	F03504	150
	230	140	90	110	69210470345	310576003	310576004	F035041	150
240	160	110	50	160	69210470320	310575941	310575960	F02971	200
	160	100	60	160	69210470321	310575962	310575963	F034301	200
	160	80	80	160	69210470323	310575964	310575965	F034303	200
275	160	110	50	115	69210470330	310575988	310575989	F03394	150
	160	100	60	115	69210470333	310575990	310575991	F033942	150
	160	80	80	115	69210470336	310575992	310575993	F033943	150
280	200	160	40	160	69210470346	310576005	310576006	F03418	208
	160	110	50	160	69210470347	310576007	310576008	F03505	200

\*All dimensions are in millimetres (mm)



## DECARBONIZING YOUR GRINDING PROCESS

The outstanding performance of Norton Xtrimum dual worm wheels enables much faster grinding and polishing, requiring less machine time, and thus reducing your energy consumption!

Scan the QR code to download the most up-to-date dual worm wheel availability table



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[www.nortonabrasives.com](http://www.nortonabrasives.com)  
[www.youtube.com/NortonAbrasiveSEMEA](http://www.youtube.com/NortonAbrasiveSEMEA)

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