NORTON®

SAINT-GOBAIN

# GRIT & GRIND

*March 2026 | Second Edition*

## DRIVING CONSISTENT PERFORMANCE IN AUTOMOTIVE MANUFACTURING

SAINT-GOBAIN

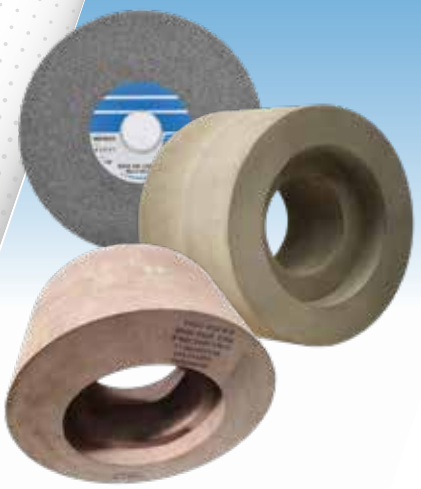
At Norton Abrasives, our solutions are engineered to address the challenges of automotive manufacturing, with a clear focus on delivering consistent performance across varying components and processes.
Designed for demanding production environments, our portfolio supports high-precision applications by enabling process stability, controlled variability, and improved cost efficiency, helping manufacturers maintain consistent quality and optimize performance at scale.

# SOLUTIONS FOR **SHOCK ABSORBER** COMPONENT GRINDING

Manufacturing shock absorber components such as piston rods and tubes requires tight dimensional control and superior surface finish across multiple grinding stages.

Norton Abrasives provides engineered solutions for **Stage I to Stage III** grinding and polishing, delivering:

- Consistent stock removal with precise dimensional control
- Improved wheel life and higher productivity through advanced bond and grain technology
- Made-in-India solutions with strong application support



## RECOMMENDED PRODUCTS:

**B10C** and **RBF** for **Stage I** & **II; RC80** for **Stage III**. Applications are suited for high-production centerless grinding, offering extended wheel life and consistent surface quality across all stages of shock absorber component manufacturing.

**Non-woven Centerless Wheel** for polishing tubes and piston rods after grinding or plating operations.

# CASE STUDY
## SHOCK ABSORBER GRINDING STAGE I

**OBJECTIVE:** Improve wheel life and reduce cost per component (CPC) in centerless grinding

### CHALLENGES

Higher number of part varities with various diameter & length (20+ part numbers)

Non-standard wheel life calculation (No of days/jobs)

### THE RESULT

**20%** reduction in wheel wear per part

**Standardized wheel life** calculation in GR (Grinding Ratio)

**22%** improvement in GR (4.5 GR to 5.5 GR)

**15%** reduction in total CPC

# CASE STUDY
## SHOCK ABSORBER GRINDING STAGE III

**OBJECTIVE:** Enable import substitution for Stage III wheels using RC80, delivering CTQ adherence and enhanced cost efficiency (CPC)

### CHALLENGES

High import dependency (lead time & cost)

Tight surface finish requirement (<0.2 Ra)

### THE RESULT

**52%** improvement in grinding ratio (GR) (from 5.5GR to 8.4GR)

Reduced wheel changeover (3 to 2 changeover per month)

Transition to indigenous supply with application & sales support

# SOLUTIONS FOR AUTOMOTIVE
# **GEAR GRINDING**

Gear manufacturing demands high dimensional accuracy, superior surface finish, and repeatable process capability to meet stringent DIN standards.
Norton offers advanced abrasive solutions for profile, worm, bevel grinding, and power honing, delivering:

- High material removal rates with burn-free grinding
- Consistent profile accuracy across production cycles
- Improved wheel life and dressing intervals
- Indigenous solutions with strong technical support


## RECOMMENDED PRODUCTS:

NORTON
SAINT-GOBAIN
Xtrimium

# CASE STUDY
# GEAR GRINDING PERFORMANCE SPOTLIGHT

## OBJECTIVE

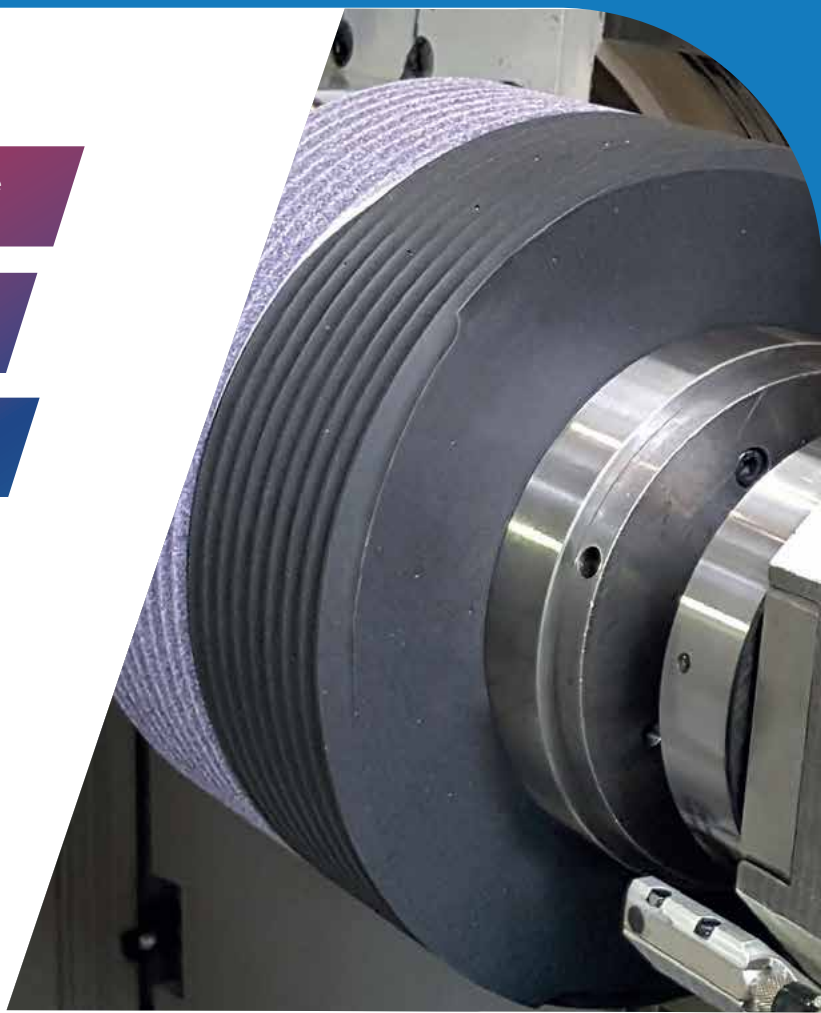
Improve Productivity with Norton premium ceramic abrasives gear grinding wheels

## CHALLENGES

- Import dependency - High lead time, cost and inventory
- Hardened gears (60 HRC)
- Low tolerance on lead and profile deviation
- Need for productivity improvement

## THE RESULTS

- **25%** reduction in cycle time (370s to 278s)
- Optimized cycle with **10%** total CPC reduction
- **Indigenous supplies** and **application support**



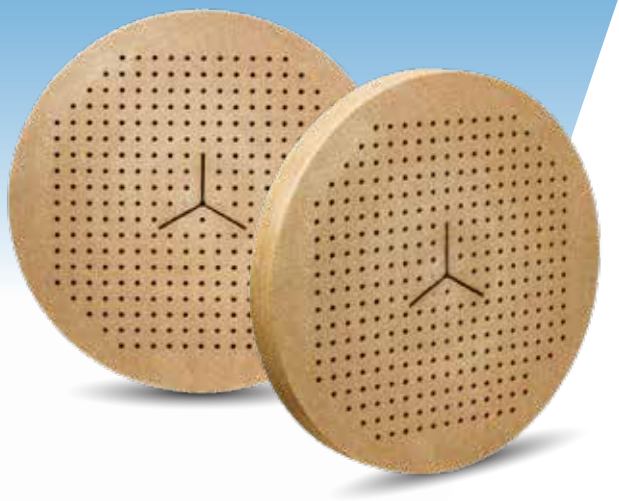
# SOLUTIONS FOR
# **SPRING END GRINDING**

Spring-end grinding is a significant contributor to overall manufacturing cost, especially in production environments with a wide variety of component types. Norton solutions designed to optimize productivity and consistency across a wide range of spring geometries:

Increased productivity through high material removal rates

Consistent component quality with controlled, burn-free grinding performance

Indigenous solutions supported by strong local service and application expertise



## RECOMMENDED PRODUCTS & SPECIFICATIONS:

NORTON
SAINT-GOBAIN
QUANTUM

BOND SYSTEM - BMT, B98
GRAIN - 19A, NQ

# CASE STUDY
## SPRING END GRINDING

### OBJECTIVE

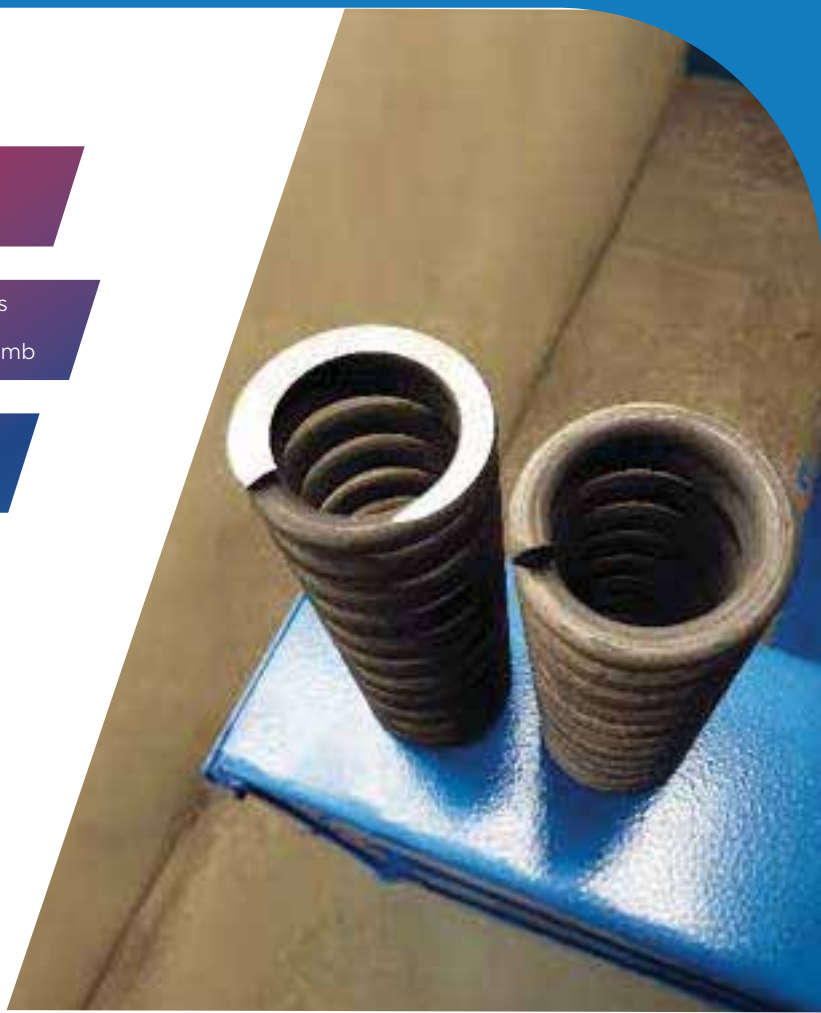
Establish a high-performance grinding solution across a wide range of clutch and valve springs.

### CHALLENGES

- High product variation: 1000+ spring variants with differing wire diameters and lengths
- Inconsistent end results due to variation in component geometry
- Smaller size springs required hardest grade wheels

### THE RESULTS

- Increase in grinding ratio from **22GR to 28GR**
- **Life is doubled** in case of springs below 1.5 mm wire diameter, by trying wheels without Honeycomb
- **Dressing frequency** increased from 3 plates to 9 plates for SS springs



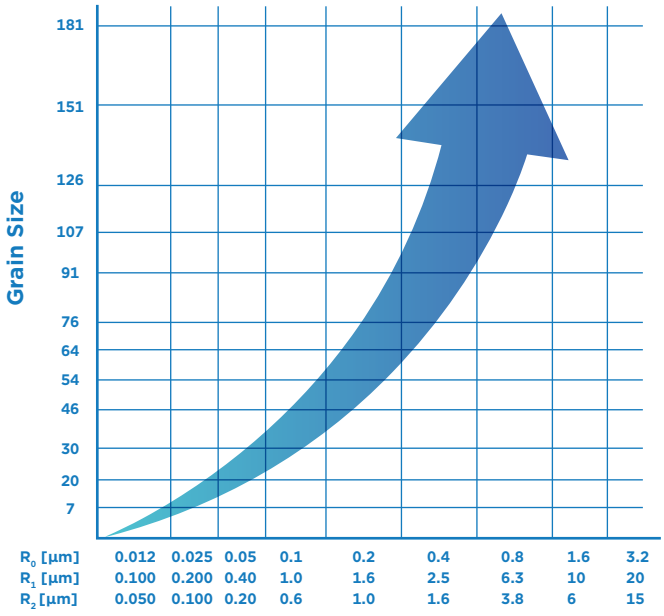
# GRINDING SCIENCE

# GRIT SIZE GUIDELINES FOR ACHIEVING SPECIFIC SURFACE ROUGHNESS

## BONDED ABRASIVES

| USAGE KEY • Highly Recommended | | SURFACE FINISH & GRIT SIZE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SURFACE | FINISH | GRIT SIZE | | | | | | | |
| µ in CLA | µ m Ra | 46 | 60 | 80 | 100 | 120 | 150 | 180 | 220 |
| 42 | 1,10 | ● | | | | | | | |
| 32 | 0,80 | ● | | | | | | | |
| 26 | 0,70 | ● | | | | | | | |
| 21 | 0,50 | | ● | | | | | | |
| 16 | 0,40 | | ● | | | | | | |
| 14 | 0,35 | | ● | ● | | | | | |
| 11 | 0,25 | | ● | ● | | | | | |
| 8 | 0,20 | | | ● | ● | | | | |
| 7 | 0,17 | | | ● | ● | ● | | | |
| 6 | 0,14 | | | | ● | ● | ● | | |
| 5 | 0,12 | | | | | ● | ● | ● | |
| 4 | 0,10 | | | | | | ● | ● | ● |
| 3 | 0,08 | | | | | | | ● | ● |
| 2 | 0,05 | | | | | | | | ● |
| MIN FROM RADIUS | METRIC (mm) | 0,75 | 0,50 | 0,40 | 0,25 | 0,20 | 0,18 | 0,13 | 0,10 |
| | IMP INS | ,030 | ,020 | ,015 | ,010 | ,008 | ,007 | ,005 | ,004 |

## SUPER ABRASIVES




Guidelines are based on standard conditions and are to be referred and used as a starting point.

Surface Roughness depends on various other conditions like Coolant (flow, concentration & temp), Parameters (Speed ratio, dress overlap and Q'), job (hardness, alloy) etc.

**Share your feedback:** Scan the QR code to share your suggestion and future topics that you want us to cover.

**OR Write to us at:**
norton.abrasives@saint-gobain.com