



## MAXIMIZE STOCK REMOVAL WITH BETTER FINISH

FOR AUTOMOTIVE  
ENGINE APPLICATIONS

The final finishing steps of camshaft and crankshaft polishing requires precision and extremely tight tolerances. Norton Finium microfinishing films deliver a precise finish every time without the worry of imperfections. The proprietary resin system holds grains in place, eliminating concerns of grain fall out which could leave coarse scratches and result in defect parts.

Finium abrasives films come in a range of shapes, sizes and grits to fit a wide variety of cut-to-finish polishing applications. The color-coded grit range offers easy identification and eliminates operator error. Norton Finium films can be custom cut to meet customer specific width & length requirements, core dimensions, and edge designs, offering the right fit for any application.

### KEY APPLICATIONS

CAMSHAFT LOBES & JOURNALS | CRANKSHAFT MAINS, PINS, THRUST WALLS, AND OIL SEALS | TRANSMISSION SHAFTS | AIR CONDITIONER COMPRESSORS | ROLL FINISHING | CYLINDER SHAFTS

### KEY INDUSTRIES

AUTOMOTIVE POWERTRAIN | AUTOMOTIVE COMPONENTS MANUFACTURING | METAL FABRICATION

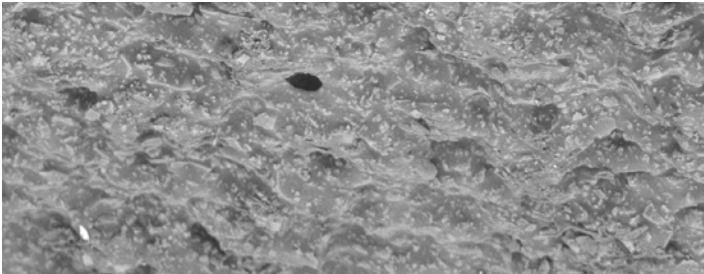
[www.nortonabrasives.com](http://www.nortonabrasives.com)

## FEATURES & BENEFITS

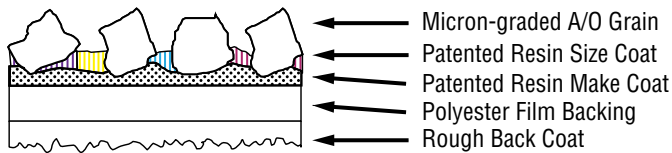
- Patented, high-performance, durable, reinforced resin bond system
  - » Provides reinforcement and retention of grain for improved cut performance
  - » Eliminates random scratches - no loose abrasives or rolling indentation defects
  - » Flexible, patented resin layers provide superior surface finish
- Premium, heat-treated, micron-graded aluminum oxide
  - » Delivers consistent finish and superior cut rate
- Uniform, durable and tear resistant 5 mil polyester backing
  - » Slip resistant product fit for any application results in consistent wear and part finish
  - » Non-abrasive back coat reduces tool wear for powertrain applications
- Rough or Smooth back coat options
  - » Offers flexibility in selecting the best performing option to match shoe type
- Complete grit range: 80 – 9 um
  - » Comprehensive grit range covers all key target microfinishing film applications
- Extensive stock shape availability as well as custom solutions
  - » Available in rolls, belts, sheets, and discs - offers the best fit for any application



## Q351R – ROUGH BACK



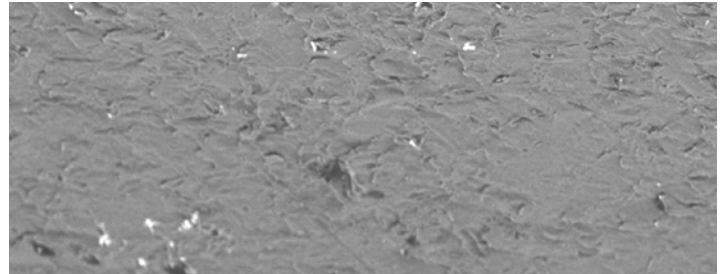
Scanning electron microscope image of rough back coat (x250)



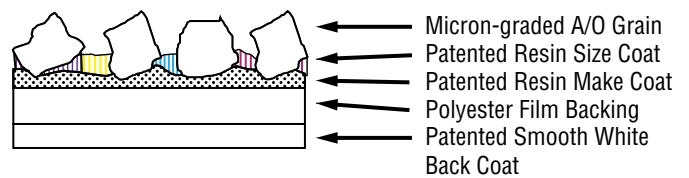
### Features

- More suitable for softer shoes (such as polyurethane), where higher friction and gripping are required
- Front and backing are color coded by grit

## Q351S – SMOOTH BACK



Scanning electron microscope image of smooth back coat (x250)



### Features

- More suitable (creates less wear) on harder shoes (diamond), where less friction and gripping are required
- Excellent choice for roll finishing
- Front: color coded by grit
- Backing: white (smooth) patented, proprietary to Norton film products



### Q351R/Q351S AVAILABILITY

All Norton Finium Q351R and Q351S products are custom made to your exact requirements.

COLORS	ABRASIVE: A/O GRIT RANGE (MICRON SIZES)	BACKINGS	SHAPE AVAILABILITY
<b>Purple</b>	80 microns	Q351R – rough	Straight-edge rolls
<b>Yellow</b>	60 microns	Q351S – smooth	Scalloped-edge rolls
<b>Black</b>	50 microns		Belts
<b>Blue</b>	40 microns		Discs
<b>Green</b>	30 microns		Sheets
<b>Red</b>	20 microns		
<b>Orange</b>	15 microns		
<b>Light Gray</b>	9 microns		

- High precision edge cutting +/- .002"
- Straight or scallop edged rolls
  - » Custom scallop edge designs offer a perfect fit in finishing diesel crankshafts, fillets, radii, and curved parts.
  - » Available in standard 1" or 3" plastic or cardboard cores; custom 3D printed core sizes available upon request.

To put Norton abrasives to work for you, contact your local Norton representative or visit [www.nortonabrasives.com](http://www.nortonabrasives.com) for more information on our products, applications and distributor locations.



Patent issued for high performance resin system: 8,287,611  
Patent granted for new back coat



## Case Studies

### LINK PIN POLISHING

**PRODUCT:** Norton Finium Q351R 50 micron film rolls; new machine, no competitor involved

**MATERIAL:** Hardened steel 54-62 HRC

**COOLANT:** Water-based

**TOOLING:** 80 Durometer, color-coded film-backing roller

**RESULTS:** Norton Finium Q351R rolls produced key tolerances of 0.25 Ra, 75% Rmr Bearing Ratio  
Achieved 0.207 Ra, 82%  
No need for adjustments in the newly-installed machine; product approved by customer

### ROLL FINISHING

**PRODUCT:** Norton Finium Q351S 15 micron film rolls vs. competitive 15 and 9 micron microfinishing smooth film rolls

**MATERIAL:** Steel

**RESULTS:** Norton Finium rolls achieved target finish with a 15 micron product in place of a 2-step 15/9 micron process, thus eliminating a step and costs in the finishing process. Improved current finishing time by 40%.

### AUTOMOTIVE CRANKSHAFT POLISHING

**PRODUCT:** Norton Finium Q351R 30 micron film rolls vs. competitive 30 micron rough film rolls

**MATERIAL:** Forged steel

**TOOLING:** Urethane

**RESULTS:** Norton Finium Q351R rolls achieved single step finishing, similar to competitive product; product approved by the customer

### V6 ENGINE COMPONENTS POLISHING

**PRODUCT:** Norton Finium Q351R 30 micron film rolls vs. competitive 30 micron rough film rolls

**MATERIAL:** Assorted

**TOOLING:** Diamond

**RESULTS:** Norton Finium Q351R rolls achieved same finish and MRR as competitive product – with 10+% cost savings; product approved by the customer

### AUTOMOTIVE COMPRESSORS POLISHING

**PRODUCT:** Norton Finium Q351S 30 micron film rolls vs. competitive 30 micron smooth film rolls

**MATERIAL:** Ductile cast iron

**RESULTS:** Norton Finium Q351 rolls produced same finish as competitor product with a 10+% cost savings; product approved by the customer

### AUTOMOTIVE CAMSHAFT POLISHING

**PRODUCT:** Norton Finium Q351R 20 micron film rolls vs. competitive 20 micron rough film rolls

**MATERIAL:** Hardened steel

**RESULTS:** Norton Finium Q351R rolls provided better finish (30% higher RZ drop) than competitive film rolls with the same material removal. Color backing perceived as an excellent tool to ensure proper material is being used.

### AUTOMOTIVE V6 CAMSHAFT LOBE POLISHING

**PRODUCT:** Norton Finium Q351R 20 micron film rolls vs. competitive 20 micron rough film rolls

**MATERIAL:** Forged steel / 58-62 HRC

**COOLANT:** Water-based

**TOOLING:** Urethane

**RESULTS:** Norton Finium Q351R rolls delivered equivalent stock removal and better surface finish than competitor

### AUTOMOTIVE CAMSHAFT & RELATED PARTS POLISHING

**PRODUCT:** Norton Finium Q351R 30, 15, then 9 micron film rolls vs. competitive 30, 15, then 9 micron film rolls, rough version

**MATERIAL:** Assorted

**RESULTS:** Norton Finium Q351R rolls worked well on a variety of parts – equal to or better than competition

### AUTOMOTIVE CAMSHAFT & RELATED PARTS POLISHING

**PRODUCT:** Norton Finium Q351R 60 through 15 micron film rolls vs. competitive 60 through 15 micron film rolls, rough version

**MATERIAL:** Forged Steel

**RESULTS:** Norton Finium Q351R rolls worked well on a variety of parts – equal to or better than competition with a 10+% cost savings; product approved by customer