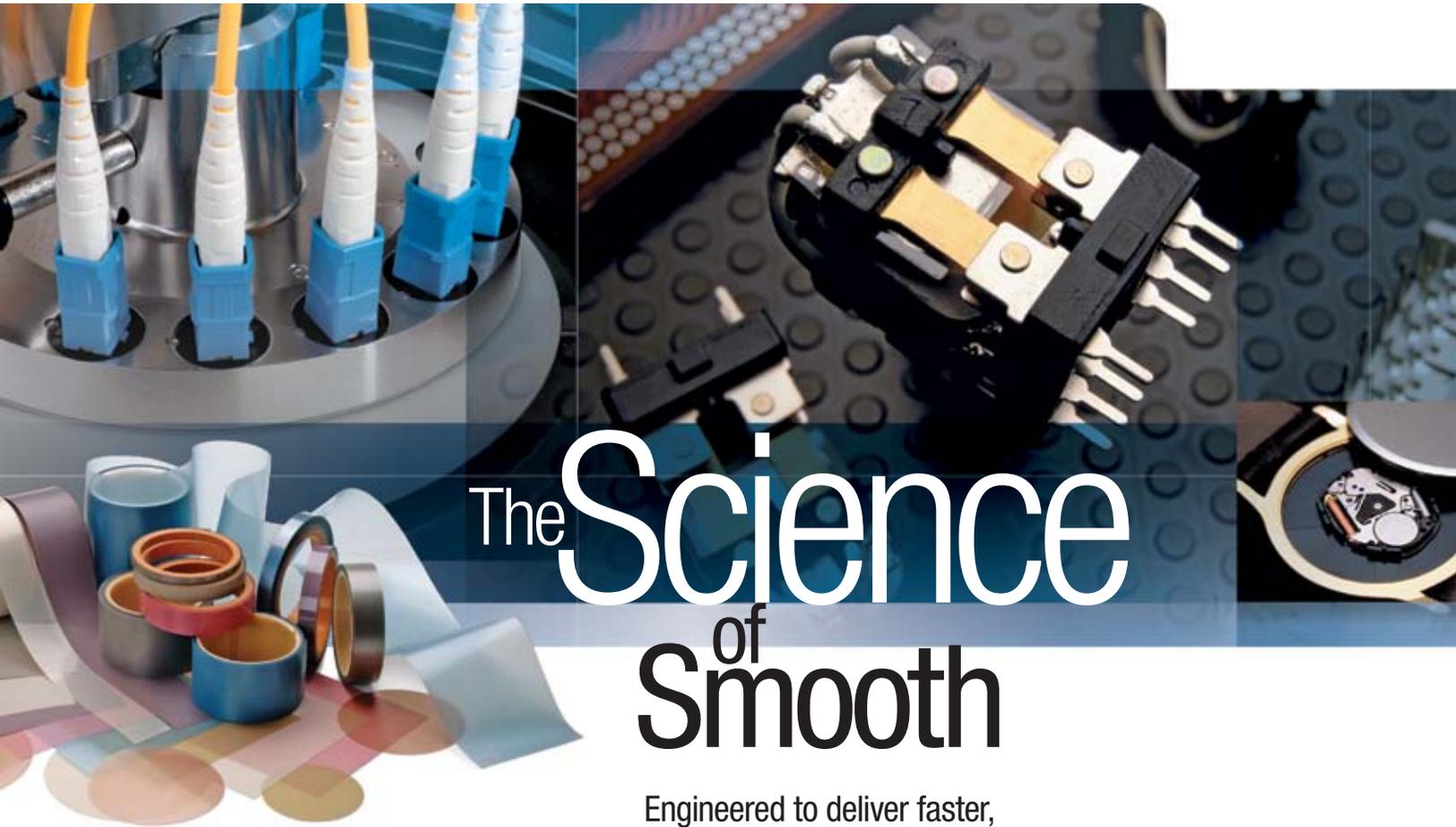


3M™ Lapping and Polishing Films  
for Precision Processing and Finishing



# The Science of Smooth

Engineered to deliver faster,  
more consistent fine finishes  
on a wide range of substrates



# A new level of consistency and control

In the electronics industry, and wherever delicate processing of specialty materials is required, generating a high quality finish on flat or cylindrical surfaces using traditional methods such as honing stones, bonded wheels or slurries can be messy and time consuming. Now, with advanced film-backed abrasive technology from 3M, you can achieve consistent, predictable finish tolerances faster and easier – to help increase your productivity and reduce your costs.

## 3M™ Lapping and Polishing Films



Film



Flock

3M Lapping and Polishing Films help enable a more consistent and reproducible uniform surface on a variety of backings tailored to your applications.

3M™ Lapping and Polishing Films give you unmatched consistency and control for finishing and polishing hard-to-grind materials such as carbide, ceramics, hardened metals, exotic alloys and composites. They are engineered to help you achieve target finishes in fewer passes, so you can increase production without the need to invest in new machines or add shifts. And they provide a cleaner and faster alternative to diamond slurries or stones in many applications.

3M Lapping and Polishing Films are designed to meet the rigid standards of highly technical electronic or related specialty finishing applications. Precision manufacturing or coating produces consistent, fine finishes.

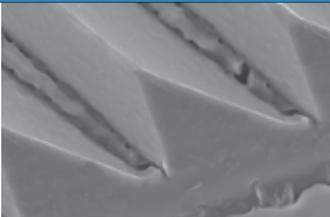
## 3M™ Lapping Film Products

061X, 261X, 461X, 562X, 661X, and 676XY

Achieve target finishes faster – first time, every time

- More consistent, predictable, repeatable finishes
- Up to 50% faster than conventional abrasive methods
- Eliminates traverse and chatter marks – helps reduce rejects & reworks
- Change grades in less than a minute – saves downtime on multiple grade sequences
- Achieve finer finishes

## 3M™ Trizact™ Abrasives



Derived from patented 3M technology, Trizact abrasives consist of precisely-shaped three-dimensional structures distributed uniformly over the substrate. As they wear, fresh, sharp mineral is constantly exposed to the workpiece, resulting in faster, more consistent cutting while the channel removes the spent material.

## 3M™ Trizact™ Lapping Film Products

162XA, 261XA, 269XA, 569XA, 661XA, 662XA and 663XA

For optimized cut, consistent finish, longest life and best value

- Superior durability
- Higher cut rate
- Fine finishes
- Microreplicated abrasives





## Electronic Component/Superfinishing

3M™ Lapping and Polishing Films are used for microfinishing and polishing whenever close tolerances are required.

Substrates	Applications		
<ul style="list-style-type: none"> <li>• Glass</li> <li>• Metal</li> <li>• Plastic</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic components</li> <li>• Fiber optic connectors</li> <li>• Precision instruments</li> <li>• Medical devices</li> </ul>	<ul style="list-style-type: none"> <li>• Hard disk drive</li> <li>• Waveguides</li> <li>• Micromotors</li> <li>• Displays</li> </ul>	<ul style="list-style-type: none"> <li>• Mobile handheld case finishing and repair</li> <li>• Glass cleaning and repair</li> <li>• Glass edge polish</li> </ul>



## Flat Lapping

3M Lapping and Polishing Films offer repeatable, precision finishes on hard materials such as silicon carbides, ceramics, high-hardness metals and optical substrates. They provide a cleaner, more consistent alternative to messy diamond compounds or slurries.

Substrates	Applications		
<ul style="list-style-type: none"> <li>• Carbides</li> <li>• Technical ceramics</li> <li>• High-hardness metals</li> <li>• Optical substrates</li> <li>• Tungsten carbide</li> </ul>	<ul style="list-style-type: none"> <li>• Ceramic</li> <li>• Graphite</li> <li>• Sapphire</li> <li>• High alumina</li> <li>• Quartz</li> </ul>	<ul style="list-style-type: none"> <li>• Lenses</li> <li>• Prisms</li> <li>• Specialty ceramics</li> <li>• CD/DVD mastering</li> </ul>	<ul style="list-style-type: none"> <li>• Metallurgical specimen prep, sample processing for failure analysis</li> </ul>



## Specialty Finishing

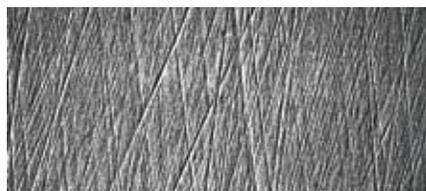
3M Lapping and Polishing Films provide fast, precise cutting action on hard materials. They are designed to deliver a predictable, consistent and repeatable finish over the entire length of a roll surface, and are less dependent on operator skill than conventional bonded wheel or slurry abrasives.

Substrates	Applications		
<ul style="list-style-type: none"> <li>• Thermal spray &amp; HVOC coatings</li> <li>• Carbide</li> <li>• Composites</li> <li>• Stone</li> <li>• Chrome</li> <li>• Exotic alloys</li> <li>• Chilled iron</li> <li>• Non-ferrous metals</li> </ul>	<ul style="list-style-type: none"> <li>• Polycarbon</li> <li>• Polyester</li> <li>• Paint surfaces (auto)</li> <li>• Composites</li> <li>• Plastic</li> <li>• Precious metals</li> <li>• Polyurethanes</li> <li>• Fiberglass</li> </ul>	<ul style="list-style-type: none"> <li>• Rolls and cylinders used in flexographic printing</li> <li>• Film extrusion</li> <li>• Paper production</li> <li>• CD/DVD</li> </ul>	<ul style="list-style-type: none"> <li>• Aircraft windows, doors, canopies</li> <li>• Plastic windows</li> <li>• Finishing jewelry</li> <li>• Copper foil</li> <li>• End mill finishing</li> <li>• Thermal spray coating</li> </ul>

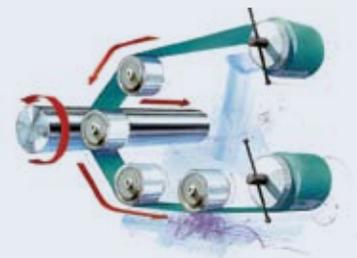
3M Lapping and Polishing films can be used to produce a straight line finish, or a cross-hatch finish, using an oscillating head that provides a vigorous scrubbing action at the interface. Varying degrees of crosshatch can be produced by adjusting the rate of oscillation.



Magnified view of straight line finished surface



Magnified view of cross-hatch finish, produced by oscillating the platen at the abrasive/workpiece interface



The secret behind this proven successful finishing method is the outstanding consistency of 3M film-back coated abrasives. By feeding a roll of the 3M abrasive film over a platen, fresh abrasive is continually applied to the workpiece, while problems encountered with conventional finishing systems – such as abrasive loading, wheel chatter, dulling and glazing – are eliminated.

## Got a tough finishing challenge?

3M's global network of Abrasive Technical Service Centers and regional business centers are at your service! Our experienced staff of abrasive specialists can help you determine the optimal combination of high performance abrasives, equipment and process steps for your specific application. We invite you to submit your parts to receive a no-obligation recommendation. For contact information, visit us at [www.3M.com/electronics](http://www.3M.com/electronics) and go to the "Abrasives for Electronics Finishing" section.

### Shanghai, China



### Woodlands, Singapore



### Neuss, Germany



### St. Paul, Minnesota, USA



## Versatile abrasive technology – for a new world of precision and productivity

For over forty years, customers around the world have been using 3M™ Lapping and Polishing Films on a wide range of substrates, and in a growing number of demanding applications. Following are just a few examples of how these high-performance abrasives can open up a new world of precision and productivity for you.

### Product Construction

Product	Construction	Available Grades (µm)	Converted Forms*	Notes
3M™ Lapping Film 061X	Chromium oxide mineral on a 3 mil polyester film backing	0.5	Sheets, discs & rolls Maximum width 26"	Ideal for final finishing of magnetic heads for computers, audio and video devices
3M™ Lapping Film 261X	Aluminum oxide abrasive on 3 mil polyester film backing	0.05, 0.3, 0.5, 1, 2, 3, 5, 9, 12, 30, 40, 50	Sheets, discs & rolls Maximum width 26"	Used for fiber optic connector polishing, flat lapping, superfinishing
3M™ Lapping Film 461X	Silicon carbide abrasive on 3 mil polyester film backing	5, 9, 15, 30	Sheets, discs & rolls Maximum width 26"	Used for fiber optic connector polishing, flat lapping, superfinishing
3M™ Lapping Film 562X	Cerium oxide abrasive on a polyester film backing	0.5	Sheets, discs & rolls Maximum width 26"	Primarily used in glass polishing
3M™ Diamond Lapping Film 661X	Micron-grade diamond abrasive on polyester film backing	0.1 – 30	Sheets & discs Maximum width 12"	Improved consistency for finishing and polishing hard materials such as carbide, ceramics, hardened metals, exotic alloys and composites
3M™ Diamond Lapping Film 676XY	Diamond, beaded abrasives on a 5 mil polyester film backing	0.25, 1, 1.5, 3	Disc 12" and 16" with PSA	Hard disk drive head finishing, waveguides

### 3M™ Trizact™ Lapping Film Portfolio

3M™ Trizact™ Lapping Film	Mineral	Primary Market	Sizes*	Competitive Advantage
162XA	Inorganic particles	HDD for gold repair	3.25" × 150' on a 3" core	
661XA	Diamond 0.5, 2 and 9 micron	Fiber optics	4.25" and 5" discs	Longest life of any product offering
662XA	Diamond 2, 9 micron	Electronic Lapping	4.25" and 5" discs	Long life, polishing
663XA	Diamond 0.5, 15 micron	Electronic Lapping	4.25" and 5" discs	Long life, polishing
569XA	Cerium oxide	Glass cleaning, glass repair	As requested in discs, belts and rolls	Long life, polishing
261XA	Aluminum oxide	LCD cullet removal	Belts	Long life
269XA	Aluminum oxide	LCD cullet removal	As requested in discs, belts and rolls	Long life, 5, 10, 20, and 35 micron

\* Also available in custom forms

**Important Notice:** Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Please consult the 3M product technical data sheet and Material Safety Data Sheet before use.

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### Electronics Markets Materials Division

3M Electronics  
3M Center, Building 225-3S-06  
St. Paul, MN 55144-1000  
[www.3M.com/electronics](http://www.3M.com/electronics)  
1-866-599-4227

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