

3M Abrasive Systems

3M Superabrasive & Microfinishing Product Application Guide



3M™ Superabrasive & Microfinishing Product Application Guide

Superabrasive and Microfinishing products are designed to meet the fine finishing needs of customers in multiple market segments and general engineering applications.

This product application guide is a reference tool to assist product selection in a variety of applications.

Details for each product include:

- Common Conversions
- Source of Supply
- Product Description
- Applications
- Machine Systems

3M™ Film & Paper Discs

3M Microfinishing Film

3M Wetordry™ Polishing Paper

3M Trizact™ Film

3M™ Film & Paper Rolls & Sheets

3M Microfinishing Film

3M Wetordry Polishing Paper

3M Lapping Film

3M Diamond Lapping Film

3M™ Flexible Diamond Products

3M Flexible Diamond Belts

3M Flexible Diamond Discs

3M Flexible Diamond Files

3M Flexible Diamond Hand Laps

3M Flexible Diamond Whetstones

Mineral Grading Comparison

	Flex Diamond Belts	Flex Diamond Discs / Assembled Items	Lapping Film	Diamond Lapping Film	Microfini- shing Film	Trizact™ Film	Polishing Papers	Principal Applications	Principal Products
Plastics		◆						Edge deburring	3M 6200J Diamond Handlaps
					◆		◆	Scratch removal, surface refining and polishing	3M 268L & 3M 266L Discs 3M 281Q & 3M 481Q Discs 3M 286Q & 3M 486Q PSA Discs
Composite Materials		◆						Edge deburring, surface refining	3M 6200J Diamond Handlaps 3M 6210J Diamond Files
Paints & Laquers					◆	◆		Spot repair, nib removal	3M 268L & 3M 266L Discs 3M 268XA Discs
Solid Surface Composite Material					◆	◆		Scratch removal, surface refining and polishing	3M 266L Discs 3M 268XA Discs
DVD / CD Repair					◆	◆	◆	Scratch removal, surface refining and polishing	3M 268L Discs 3M 268XA Discs 3M 281Q & 3M 481Q Discs 3M 286Q & 3M 486Q PSA Discs
Hard Metals	◆	◆						Edge deburring, surface refining	3M 6400J, 3M 6440J & 3M 6480J Belts 3M 6234J Roloc Discs

	Flex Diamond Belts	Flex Diamond Discs / Assembled Items	Lapping Film	Diamond Lapping Film	Microfinishing Film	Trizact™ Film	Polishing Papers	Principal Applications	Principal Products
Metallurgical Lapping								Flat lapping machines	3M 6002J QRS Discs 3M 6008J PSA Discs 3M 268L Discs
								Hand applications	3M 261X Sheets 3M 661X Sheets
Roll Superfinishing								Rubber & polyurethane rolls	3M 272L Rolls 3M 261X Rolls
								Iron & steel rolls	3M 272L Rolls 3M 261X Rolls
								Hard coated rolls (plasma, chrome oxide and carbide coatings)	3M 6466J Diamond Belts 3M 6430J MO Strips 3M 663X Rolls
Glass								Glass belt arissing	3M 6465J Belts 3M 6405J Belts
								Hand edge removal	3M 6200J Diamond Handlaps
								Glass defect repair	3M 268XA & 3M 586XA Discs
Fibre Optics								Connector polishing	3M 261X, 3M 661X & 3M 662XW Discs
AOEM/ Powertrain Components								Cam & Crank superfinishing	3M 262L, 3M 272L & 3M 972L Rolls

3M™ Microfinishing Film

3M 266L Hookit™ Discs

Common Conversions: 125mm & 150mm

Source of Supply: UK

Grades Available: 9, 15, 30, 60 & 100 micron

Description: Micron graded aluminium oxide resin bonded to a 3ml backing. Closed coat abrasive surface is coated with a dry lubricant to resist loading. Discs have loop backing for attachment to hook faced back-up pads. Easy to re-use.

Applications: Acrylic window frames and panes, GRP, solid surface finishing, paint and lacquer, aluminium.

Machine Systems: Compatible with all random orbital sanding machines utilising Hookit type back-up pads. Available as a 3M / Dynabrade™ Machine Deal.

3M 268L Stikit™ Finesse-It™ Discs

Common Conversions: 3" x 7/8" centre hole, 1 7/16"

Source of Supply: UK

Grades Available: 9, 15, 30, 60 & 100 micron

Description: Fast cutting abrasive for precise, uniform close tolerance finishes. High strength polyester film backing resin bonded for durability. Discs have PSA backing.

Applications: Metal, plastic, paint spot repair, lacquers.

Machine Systems: For use on 3" and 1" spot repair machines.

Micron graded minerals are electrostatically oriented on a high strength polyester film backing. This fast cutting abrasive provides precise, consistent, close tolerance finishes. For use on metal, fibreglass, plastic, wood and solid surface composites.

3M 268L Stikit™ Discs

Common Conversions: 127mm

Source of Supply: UK

Grades Available: 9, 15, 30, 60 & 100 micron

Description: Micron graded aluminium oxide resin bonded to a 3ml backing. Discs have PSA backing. Use wet or dry for finishing a wide assortment of work pieces.

Applications: Paints, lacquers, plastics, CD/DVD repair.

Machine Systems: Compatible with all random orbital sanding machines utilising Stikit type back-up pads.



3M™ Wetordry™ Polishing Paper

A range of silicon carbide and aluminium oxide non-woven backed disc products for extra fine finishing and surface refinement. Best used wet but can be used dry.

3M 286Q Discs

Common Conversions: 5" discs

Source of Supply: US

Grades Available: 9, 3, 2 & 1 micron

Description: Micron graded aluminium oxide mineral, slurry coated for extra fine finishing. Discs have PSA backing.

Applications: Plastic, polyurethane, solid surface composites, CD/DVD repair, fibreglass, wood, aluminium, precious metals. Further refinement of 3M 268L and 3M 266L processes.

Machine Systems: Compatible with all random orbital sanding machines utilising 125mm Stikit face back-up pads.

3M 486Q Discs

Common Conversions: 5" discs

Source of Supply: US

Grades Available: 30 & 15 micron

Description: Micron graded silicon carbide mineral, slurry coated for extra fine finishing. Discs have PSA backing.

Applications: Plastic, polyurethane, solid surface composites, CD/DVD repair, fibreglass, wood, aluminium, precious metals. Further refinement of 3M 268L and 3M 266L processes.

Machine Systems: Compatible with all random orbital sanding machines utilising 125mm Stikit™ face back-up pads.



3M™ Trizact™ Film

Produced with 3M's microreplication technology, this film backed abrasive ensures a fast, consistent cut rate through the long life of the abrasive. Fantastic results on solid surface composites, plastics and glass defect repair. To be used wet.

3M 268XA PSA Discs

Common Conversions: 5" x 5/8" centre hole

Source of Supply: US

Grades Available: A35 (green), A20 (pink), A10 (blue) & A5 (orange).

Description: Micro-structured aluminium oxide on a waterproof backing.

Applications: Glass repair system.

Machine Systems: For use on variable speed, rotary centre water feed machines. Use with 125mm Stikit™ back-up pad with centre water feed hole.

3M 568XA PSA Discs

Common Conversions: 5" x 5/8" centre hole

Source of Supply: US

Grades Available: Cerium Oxide (white).

Description: Micro-structured cerium oxide on a flexible, waterproof backing.

Applications: Glass repair system.

Machine Systems: For use on variable speed, rotary centre water feed machines. Use with 125mm Stikit back-up pad with centre water feed hole.

3M 268XA Hookit™ II Discs

Common Conversion: 6"

Source of Supply: US

Grades Available: A35 (green), A20 (pink), A10 (blue) & A5 (orange).

Description: Micro-structured aluminium oxide on a waterproof backing. Utilises 3M's proprietary hook and loop system.

Applications: Ideal for damp finishing solid surface and acrylic materials. A35 grade provides an excellent finish on aluminium.

Machine Systems: Compatible with all random orbital sanding machines utilising Hookit II back-up pads.

3M 568XA Hookit™ II Discs

Common Conversion: 6"

Source of Supply: US

Grades Available: Cerium Oxide (white).

Description: Micro-structured cerium oxide on a flexible, waterproof backing. Utilises 3M's proprietary hook and loop system.

Applications: Provides an excellent high gloss finish on solid surface materials following A35, A10 & A5 process.

Machine Systems: Compatible with all random orbital sanding machines utilising Hookit II back-up pads.



3M™ Lapping Film

Micron graded aluminium oxide mineral particles coated on a polyester film backing to provide precision finishes. To be used wet.

3M 261X, 3M 262X & 3M 263X Discs

Common Conversions: 4.25" & 5" discs

Source of Supply: US

Grades Available: 30, 12, 9, 5, 3, 2, 1, 0.5, 0.3 & 0.05 micron

Description: Slurry coated for polishing rather than cutting action.

Applications: Polishing fibre-optic connectors.

Machine Systems: Compatible with disc machines in fibre optic industry.

3M™ Diamond Lapping Film

Micron graded diamond particles resin bonded to a polyester backing, offers a cleaner, more consistent alternative to diamond compounds or slurries. To be used wet.

3M 662XW Discs

Common Conversions: 4.25" & 5" discs

Source of Supply: US

Grades Available: 9, 6, 3, 1 & 0.5 micron

Description: Slurry coated for extra fine finishing.

Applications: Polishing fibre optic connectors.

Machine Systems: Compatible with disc machines in fibre optic industry.





3M™ Microfinishing Film

3M 262L & 3M 272L Sheets

Common Conversions: 230mm x 280mm

Source of Supply: UK

Grades Available: 80, 60, 40, 30, 20, 15 & 9 micron

Description: Micron graded aluminium oxide resin bonded to a 3ml or 5ml polyester film backing. Closed coat abrasive surface is coated with a dry lubricant to resist loading.

Applications: Metallurgical & flat lapping applications.

3M 262L = 3ml (75 microns)

3M 272L = 5ml (125 microns)

3M 262L & 3M 272L Rolls

Common Conversions: 50mm, 100mm & 200mm x 50m

Source of Supply: UK

Grades Available: 80, 60, 40, 30, 20, 15 & 9 micron

Description: Micron graded aluminium oxide resin bonded to a 3ml or 5ml polyester film backing. Closed coat abrasive surface is coated with a dry lubricant to resist loading.

Applications: Used primarily for industrial cylinder / roll finishing and cam & crank shaft microfinishing.

Machine Systems: Primarily used in conjunction with a dedicated microfinishing unit. In AOEM plants, can be used with a variety of roll widths or a Lathe Superfinisher (typically with 75mm cores).

3M 972L Cubitron rolls also available in 40 and 30 micron.



3M™ Wetordry™ Polishing Paper

A range of silicon carbide and aluminium oxide non-woven backed sheets providing superior flexibility for extra fine finishing and surface refinement on contoured surfaces. Best used wet but can be used dry.

3M 281Q Sheets

Common Conversions: 8.5" x 11"

Source of Supply: US

Grades Available: 9, 3, 2 & 1 micron

Description: Micron graded aluminium oxide mineral, slurry coated for extra fine finishing.

Applications: Plastic, polyurethane, solid surface composites, CD/DVD repair, fibreglass, wood, aluminium and precious metals.

3M 481Q Sheets

Common Conversions: 8.5" x 11"

Source of Supply: US

Grades Available: 30 & 15 micron

Description: Micron graded silicon carbide mineral, slurry coated for extra fine finishing.

Applications: Plastic, polyurethane, solid surface composites, CD/DVD repair, fibreglass, wood, aluminium and precious metals.



3M™ Lapping Film

Micron graded aluminium oxide mineral particles coated on a polyester film backing to provide precision finishes. To be used wet.

3M 261X, 3M 262X & 3M 263X Sheets & Rolls

Common Conversions: 8.5" x 11" sheets and 2" & 4" x 150' rolls

Source of Supply: US

Grades Available: 30, 12, 9, 5, 3, 2, 1, 0.5, 0.3 & 0.05 micron

Description: Slurry coated for polishing rather than cutting action.

Applications: Roll superfinishing and flat lapping applications.

Machine Systems: Rolls are used in conjunction with a dedicated lathe microfinishing unit Superfinisher (typically with 75mm cores).



3M™ Diamond Lapping Film

Micron graded diamond particles resin bonded to a polyester backing, offer a cleaner, more consistent alternative to diamond compounds or slurries. To be used wet.

3M 661X, 3M 662XW & 3M 663X Sheets & Rolls

Common Conversions: 9" x 11" sheets and 4" x 50' rolls

Source of Supply: US

Grades Available: 45, 30, 15, 9, 6, 3, 1 & 0.5 micron

Description: Slurry coated for extra fine finishing.

Applications: Roll superfinishing to polish hard to grind materials such as ceramics, hardened metals and composites. Flat lapping applications.

Machine Systems: Rolls are used in conjunction with a dedicated lathe microfinishing unit Superfinisher (typically with 75mm cores).

Accurately graded diamond abrasive particles, electroplated nickel or resin construction. Offering either high cut rate and long life or milder abrasive action for finishing and polishing.

3M™ Flexible Diamond Belts

Product Code	Flexibility 1 (High) - 5 (Low)	Diamond Abrasive Pattern	Backing Colour	Grades Available	Length (Min/Max) metres	Characteristics	Application/Market
3M 6400J	3	Dot	Light Green	R2, R10, R30, N10, N20, N40, N50, N74, N125 & N250	0.31/6.00 metres	Durable 2-ply cotton /polyester backing. Weldloc splice	Heavy duty multipurpose belt. Typical applications - roll grinding & glass seaming
3M 6405J	3	Chevron	Light Green	N20, N40, N74, N125 & N250	0.31/6.00 metres	Durable 2-ply cotton/polyester backing. Weldloc splice.	Heavy duty multipurpose belt. Typical applications - glass seaming.
3M 6430J	3	Dot	Brown	R2, R10, R30, N10, N20, N40, N74, N125 & N250	0.16/6.00 metres	1-ply strong woven Y weight backing. Excellent water resistance. Angled butt splice.	Ideal belt for expanding drums for use in wet applications.
3M 6440J	2	Dot	Green	R2, R10, R30, N10, N20, N40, N74, N125 & N250	0.31/6.00 metres	1-ply thin, flexible backing. Welded splice.	Medium duty multipurpose belt. Ideal for use on file belt machines.
3M 6480J	1	Dot	Grey	R2, R10, R30, N10, N20, N40, N75 & N125	0.31/6.00 metres	1-ply thin and flexible backing. Reinforced welded splice.	Light duty belt. Typical applications - chinaware / crystal glass deburring.
3M 6465J	5	Chevron	White	N20, N40, N74, N125 & N250	0.80/6.00 metres	Durable 2-ply cotton/polyester backing. Strong welded splice	Heavy duty multipurpose belt. Typical applications - glass seaming
3M 6466J	5	Chevron	White	N20, N40, N74, N125 & N250	0.80/6.00 metres	Durable 2-ply cotton/polyester backing. Strong welded splice.	Heavy duty multipurpose belt. Typical applications - roll grinding due to superior heat resistance.

Source of Supply: UK
Max Length with Single Splice: 1.18 metres

3M™ Flexible Diamond Discs

3M 6000J (canvas backed), 6002J (QRS backed) & 6008J (PSA backed) Discs

Common Conversions: 100mm and 200mm

Source of Supply: UK

Grades Available: 250, 125, 74, 40, 20 micron metal (nickel) bond and 30, 10, 2 micron resin bond

Applications: Edge work on glass, stone, ceramic and hard metals.

Machine Systems: Central water-feed angle grinders (100mm) and flat lapping machines (200mm).

Micron graded diamond abrasive, in metal or resin bond matrices in an open dot pattern. Excellent for a wide range of industrial uses including grinding and finishing non-ferrous metals, glass and ceramic materials.

3M 6234J Roloc™ Discs

Common Conversions: 75mm, 50mm and 25mm discs

Source of Supply: UK

Grades Available: 250, 125, 74, 40, 20 micron metal (nickel) bond and 30, 10, 2 micron resin bond

Applications: Edge work on glass, stone ceramic and hard metals.

Machine Systems: Use with 3M Roloc Quick Release System.



3M™ Flexible Diamond Files

Micron graded diamond abrasive, anchored to a rigid plastic file, in metal or resin bond matrices, in an open dot pattern. Excellent for deburring and finishing non-ferrous metals, stone, glass and ceramic materials.

3M 6210J Files

Common Conversion: 44mm x 12mm

Source of Supply: UK

Grades Available: N125, N74, N40 & N20

Applications: General deburring of hard metals and for restoring the cutting edges of hand tools, router blades etc.



3M™ Flexible Diamond Hand Laps

Micron graded diamond abrasive, anchored to a firm foam handblock, in metal or resin bond matrices, in an open dot pattern. Excellent for deburring and finishing non-ferrous metals, stone, glass and ceramic materials.

3M 6200J Hand Laps

Common Conversion: 90mm x 55mm

Source of Supply: UK

Grades Available: N250, N125, N74, N40, N20, R30 & R10

Applications: Dressing the edge of flat glass, trimming and finishing composite materials as well as general industrial deburring applications on hard materials.

3M™ Flexible Diamond Whetstones

Micron graded diamond abrasive, metal bonded on a steel printed circuit board.

3M 6223J Professional Whetstone

Common Conversions: 150mm x 50mm

Source of Supply: UK

Grades Available: N74, N40 & N20

Applications: Sharpening all types of edge tools, for example chisels and knives.



Mineral Grading Comparison

FEPA	Micron Grade	3M Flexible Diamond		3M Trizact
		Nickel Bonded	Resin Bonded	
P14000			R2*	
P9000	3			
P3800	6			
P3000	7			A6
P2500	9			
P2000		N10		
P1500			R10*	
P1200	15			A16
P1000	20			A20
P800		N20		
P600				A30
P500	30		R30*	A40
P400				A45
P360	40	N40		
P320				A60
P280				A65
P240	60			A80
P220				A90
		N74		A100
P180				A110
P150				A130
P120	100	N125		A160
P100				
P80				A300
P60		N250		
P50				
P40				
P38				
P36				
P24				
P20				
P16				
P12				

*Resin Bonded grades will give reduced cut and finer surface finish than Nickel Bonded equivalent grades.





**Abrasive Systems
Customer Service Group**

3M United Kingdom PLC
3M House
28 Great Jackson Street
Manchester M15 4PA
Tel: 0161 237 6390
Fax: 0161 237 5911
E-mail: abrasives.uk@mmm.com
www.3M.com/uk

**Abrasive Systems
Customer Service Group**

3M Ireland
3M House, Adelphi Centre,
Upper Georges Street,
Dun Laoghaire,
Co. Dublin, Ireland
Tel: (01) 280 3555
Fax: (01) 280 3509