

3M Science.
Applied to Life.™

Random Orbital Sanding Guide

Abrasive Discs and System Solutions



3M Abrasive Systems Division

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Disc availability by grade and attachment type

Focus on the health and safety of your workers

Match the right backup pad to enhance sanding disc performance

Find the best abrasive for the job

Choose the tool to optimize the system

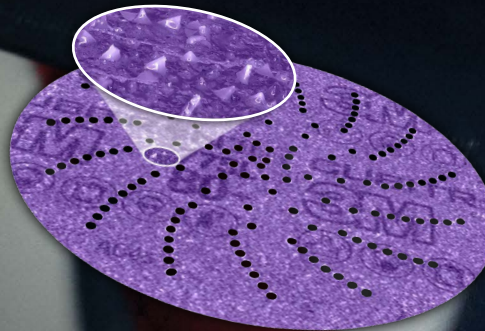
**In Random Orbital Sanding,
it's all about putting together
the optimal system.**



CUBITRON™ II
Industrial Abrasives

High-performance 3M™ Cubitron™ II Abrasives

3M™ Cubitron™ II Abrasives are designed with revolutionary 3M Precision-Shaped Grain technology. As the grain wears, it continuously fractures to form sharp points and edges that slice through material, wear evenly and provide super-long life and consistency.

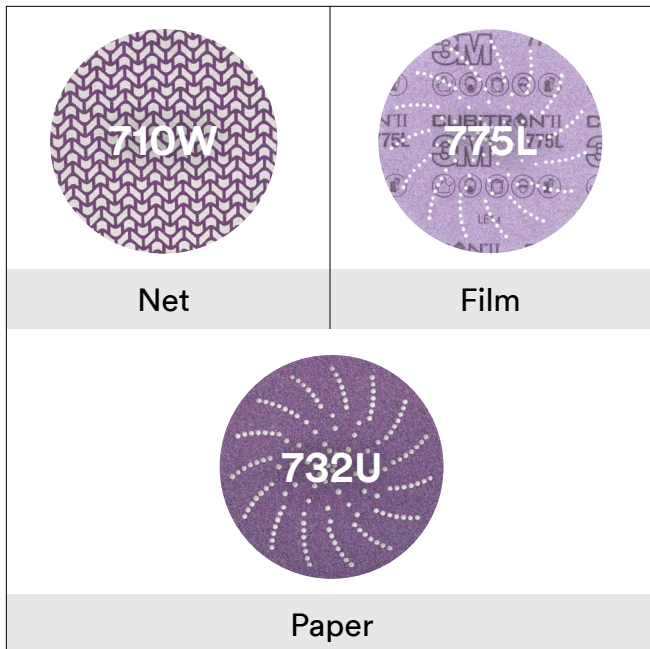


Revolutionary sanding technology. Designed with 3M Precision-Shaped Grain.

Our line of 3M™ Cubitron™ II Premium Series abrasives is designed with the exclusive 3M Precision-Shaped Grain technology, providing industry leading cut rate and prolonged abrasive life for a variety of applications and substrates.

- Industry-leading cut rate - **up to 2x faster cut¹** than conventional abrasives
- Engineered to require less pressure
- Discs **last up to 6x longer²** than conventional abrasives
- Consistent, quality finish for less rework
- 3M™ Hookit™ attachment system

Last up to
6x
Longer²
than conventional abrasives

Dust is a problem.

Airborne particles

The creation of airborne particles is inherent in most abrasive processes. The composition and physical cross section (quantity and distribution of particles sizes) depends on the workpiece and the properties of the abrasive product being used.

Airborne particles are hazardous to operators through contact with exposed skin or eyes, and especially by inhalation.

Extremely fine airborne particles can be particularly hazardous, as they are often invisible to the naked eye and are more easily absorbed into lungs and respiratory tracts, leading to long-term health risks.



Why dust extraction matters.



Shop Cleanliness
Shop environment and operator satisfaction



Productivity / Rework
Impacts cycle time



Health & Safety
Increase focus on operator health

Sanding discs cut better and last longer when dust isn't loading the cutting surface of the abrasives.

Dust extraction capability is influenced by several factors.

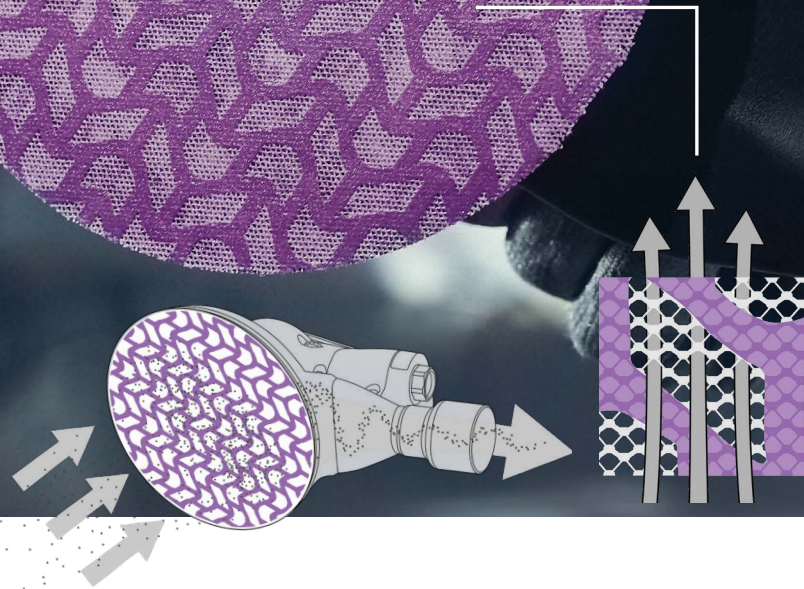
- Number of holes in abrasive disc
- Type of vacuum
- Power of the vacuum
- Volume of swarf
- Consistent pneumatic air supply
- Shape of workpiece



Xtract™
Clean Sanding Solutions

3M Xtract™ Clean Sanding Solutions

Imagine a cleaner workspace, where sanding is virtually dust-free and performance and dust extraction are not compromised. Now that's possible.



As you sand, any dust produced is easily pulled through the net backing, continuously extracting and collecting into the vacuum system.

Cut the dust. Full system solution.

Tools designed for ease of use.

Introducing a new line of tools and accessories designed for ease of use and optimal dust extraction. So that you don't have to compromise high performance for dust management.

- Designed to be quieter, lighter and easier to operate
- Virtually dust-free working environment for easy cleanup
- Helps reduce dust exposure
- Pneumatic and electric tool options available
- Portable Dust Extractor designed for cleaner work through mobile collection









3M Xtract™ tools attach to a filter bag or dust extraction unit, so you'll have little to no additional cleaning to do after the job is done.



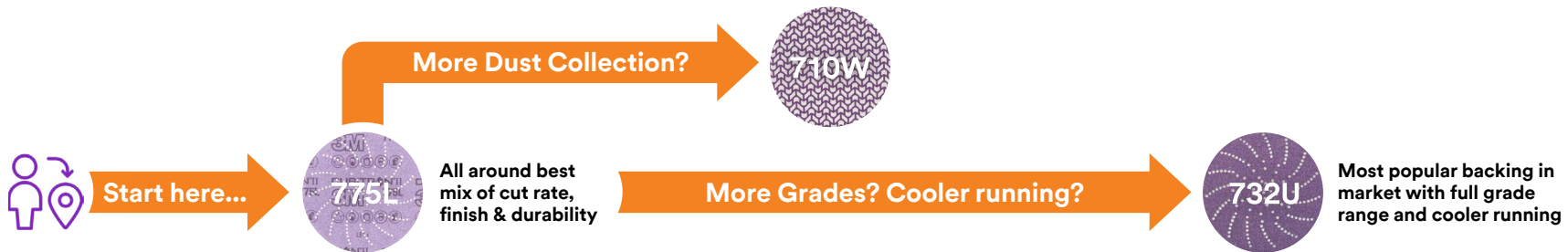
Scan QR code for more information about the 3M Xtract™ Portable Dust Extractor



Sanding Made Simple ▶ Always have these in your bag

	← Lighter backing Net	Paper	Film	→ Heavier backing
 <h2>Premium Series</h2> <p>For quality and growth-minded sanding process owners, who are focused on optimization, product performance, and are continuously looking to improve their operations.</p>	<ul style="list-style-type: none"> • Best dust extraction • Flexible and conformable • Tear resistance similar to C-wt paper  <ul style="list-style-type: none"> ▶ Contains Precision Shaped Grain ▶ Net backing ▶ 80+ to 320+ 	<ul style="list-style-type: none"> • Most common backing • Good flexibility  <ul style="list-style-type: none"> ▶ Contains Precision Shaped Grain ▶ C-wight paper ▶ 80+ to 1000+ 	<ul style="list-style-type: none"> • Great durability, tear resistance & flexibility • Best for a uniform, consistent finish  <ul style="list-style-type: none"> ▶ Contains Precision Shaped Grain ▶ 3 mil film ▶ 80+ to 1000+ 	
	<h2>Advanced Series</h2> <p>For the sanding process owner looking for improved performance over a Standard product and a wider grade range than the PSG Premium series.</p>		 <ul style="list-style-type: none"> ▶ Contains Aluminium Oxide ▶ C-wight paper ▶ 80+ to P500 	 <ul style="list-style-type: none"> ▶ Contains Aluminium Oxide ▶ 3 mil film ▶ 60 to P2000

How To Sell Decision Tree



Random Orbital Sanding Portfolio

Net backed sanding disc

Industry-leading cut rate with optimal dust extraction for long life. Unique hole pattern available only from 3M. Helps maintain cleaner work environment. Ideal for stock removal and fine finishing.



710W

- ▶ 3M Precision-Shaped Grain on an open weave net backing
- ▶ Ideal for difficult coating removal and leveling fillers and putties
- ▶ Finer grades are great for final finishes or softer substrates such as wood and paint

Film backed sanding discs

Best for a uniform consistent finish. Have good tear resistance and durability. Longer life than paper.



268XA*

- ▶ Microreplicated abrasive on 3 mil film
- ▶ Used in a variety of solid surface and AOEM tier prep for paint applications



366L

- ▶ Aluminum Oxide on 3 mil film
- ▶ A versatile disc that delivers in paint removal, prep for paint and solid surface finishing

Specialized Applications



775L

- ▶ Precision-Shaped Grain on 3 mil film
- ▶ The go-to choice for all applications that require premium performance



375L

- ▶ Aluminum Oxide on 3 mil film
- ▶ A multi-purpose value disc where finish and durability are musts



360L*

- ▶ Aluminum Oxide on 3 mil film
- ▶ Ideal for composite, primer and gelcoat applications where finish is crucial

Lighter backing

Heavier backing

*Stearate-free

Random Orbital Sanding Portfolio

Paper backed sanding discs

Most versatility and most common backing type. Have good flexibility. Performance can range from value to top tier.



236U

- ▶ Aluminum Oxide on C-weight paper
- ▶ The multi-purpose, multi-application value disc



732U

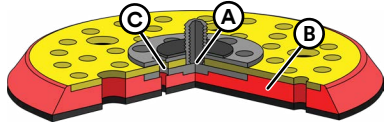
- ▶ Precision-Shaped Grain on C-weight paper
- ▶ A premium choice for all applications that require fast cut and long life



*Stearate-free

Sanding System Solutions

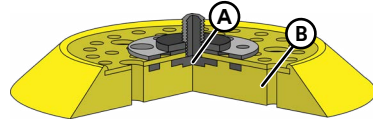
Select the right backup pad.



Low Profile Design

Extra Firm (black foam) and Firm (red foam) for stock removal and leveling

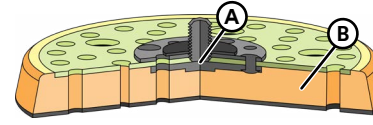
► Most Aggressive



Standard Design

Tapered edge and medium yellow foam for blending and feather edging

► General Purpose

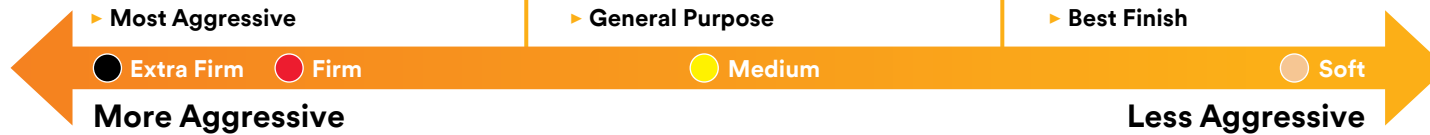


Low Profile Finishing Design

Soft beige foam for better finish and conformance

► Best Finish

- A** One piece stud design for improved balance and reduced vibration
- Color-coded pads with customized features make it simpler to achieve the exact finish desired
- B**
- C** Upgraded hole placement for clean sanding pads for the ultimate in dust extraction



Select the right tool.

- Available in 5" and 6" diameters
- Can be used with 3M Xtract™ and Hookit™ backup pads
- Using vacuum during sanding, increases disc life and productivity, improves work cleanliness and reduces airborne dust



3M Xtract™ Pneumatic Random Orbital Sander Central-Vacuum
Attaches to existing central vacuum systems for dust extraction



3M Xtract™ Pneumatic Random Orbital Sander Self-Generated Vacuum
Featuring 3M patented Clean Sanding System and 3M Filter Bag

3M Random Orbital Sander also available in non-vacuum

Factors affecting performance checklist.

Abrasive

- Ensure disc backing matches how aggressive the sanding application is
- Follow basic sanding technique
- Frequently inspect discs for tears, folds or loading
- Make sure work surface is debris-free before moving on to finer grade disc

Backup Pad

- Match backup pad to the job (i.e. low profile for stock removal)
- Confirm that tool and disc pad are the same diameter
- Inspect for damaged pad — adhesion loss, worn foam
- If increased conformability is needed attach a 3M foam interface pad

Pneumatic Random Orbital Sander

- Check tool lubrication schedule (1–3 drops of tool lubricant daily is recommended)
- Ensure that the speed control adjusted to 3/MAX
- Test that the lever is undamaged and muffler is not clogged

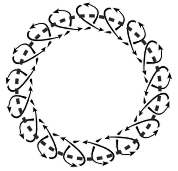
Electrical Random Orbital Sander

- Ensure sander is always attached to dust extraction in use
- Check that electrical cable and lever are undamaged and that muffler is not clogged

Air Pressure

- Check your gauge to make sure tools is running at 90 PSI
- Use minimum length of air hose necessary — no more than 25 ft.
- Ensure inside air line diameter is at a minimum 3/8"
- Check airline fittings: 9/32" is best, 3/16" is marginal

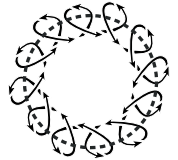
Select the right orbit.



**3/32" (2.5 mm)
Diameter Orbit**
Fine finish sanding

Why choose 3/32" (2.5 mm) orbit?

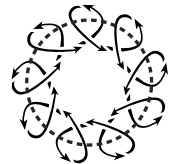
- ▶ To use with finer grades
- ▶ Least amount of stock removal



**3/16" (5 mm)
Diameter Orbit**
General purpose sanding

Why choose 3/16" (5 mm) orbit?

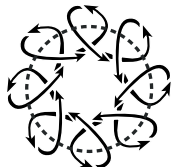
- ▶ Most commonly used orbit pattern
- ▶ Good balance of stock removal and finish



**5/16" (8 mm)
Diameter Orbit**
Aggressive sanding*

Why choose 5/16" (8 mm) orbit?

- ▶ More stock removal needed than 3/16" (5 mm) orbit
- ▶ Not as aggressive as 3/8" (10 mm) orbit



**3/8" (10 mm)
Diameter Orbit**
Most aggressive sanding*

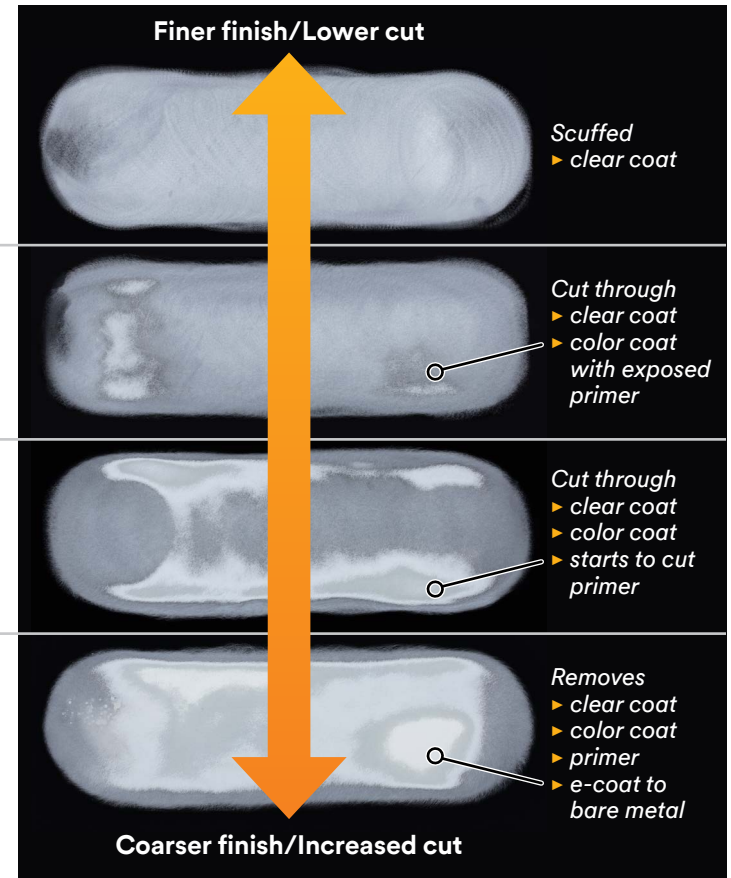
Why choose 3/8" (10 mm) orbit?

- ▶ Most aggressive stock removal
- ▶ Good for large area sanding or if high cut rate is needed

*Not recommended for woodworking applications

Material removal

After sanding with 775L 80+ for 30 seconds on a painted panel





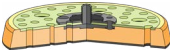


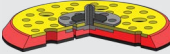



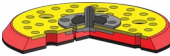

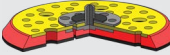






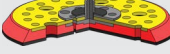






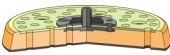


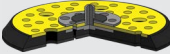


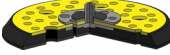



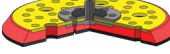
Basic sanding technique.

- 1** Start the sander ON the surface and stop OFF the surface. This will help to avoid swirl marks.
- 2** Apply light hand pressure on the tool and allow the backup pad to orbit freely. Let the tool do the work.
- 3** Run the tool flat on the work piece to prevent gouging.
- 4** Follow a set pattern when sanding. This ensures that previous scratches are removed and a uniform finish is reached.



Application Guide

The 3M recommendations below are starting points for the ideal system solutions. Be sure to conduct trials to find the right system for the application.

Application	Lead With Disc	Alternative Discs	Common Grades	Suggested Backup Pad	Suggested Tool Orbit	Process
Primer Sanding			180 – 600	Low Profile Finishing 	3/16" (5 mm)	Sanding workpiece for consistent scratch prior to paint
Coating Removal			80 – 240	Red Low Profile 	3/8" (10 mm)	Removing coatings from workpiece prior to application of primers and paints
Surface Refining/ Flattening		 	80 – 220	Red Low Profile 	3/16" (5 mm)	Smoothing and leveling workpiece prior to paint for consistent paint adhesion
Deflashing Plastic			60 – 120	Red Low Profile 	3/16" (5 mm)	Removing excessive plastic flash by knocking off sharp edges
Gelcoat Sanding		 	240 – 1000	Low Profile Finishing 	3/16" (5 mm)	Flattening or removing defects in gelcoat while refining for following buff and polish or paint step
Removing Parting Lines			180 – 320	Red Low Profile 	3/16" (5 mm)	Removing raised lines in manufacturing to blend surface geometry
Whitewood Sanding		 	150 – 220	Red Low Profile 	3/16" (5 mm)	Leveling or smoothing wood surface and removing machining marks from saw cuts or routers
Sealer Sanding			180 – 400	Low Profile Finishing 	3/32" (2.5 mm)	Leveling orange peel and scuffing for adhesion of next layer of coatings or finish
Prep for Paint on Metal			60 – 180	Black Low Profile 	3/16" (5 mm)	Refining a fiber disc scratch used in stock removal for an even scratch prior to paint
Removing Handling Scratches			80 – 120	Black Low Profile 	5/16" (8 mm)	Identifying defects in metal parts caused by upstream handling
Prep for Polish		 	600 – 2000	Red Low Profile 	3/32" (2.5mm)	Levelling orange peel and paint defects to refine surface prior to compound and polish

For applications needing a bright final finish, follow up with a Scotch-Brite™ Nonwoven finishing disc.

Optimize your sanding system with 3M™ Cubitron™ II and 3M Xtract™ Clean Sanding Systems.

Create a safer and cleaner workspace.

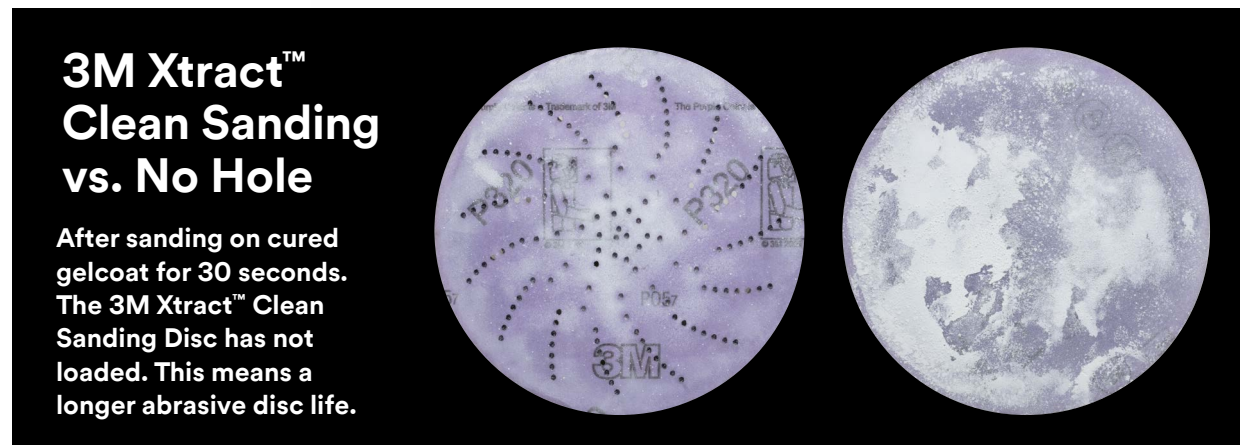
Sanding debris is removed directly from the workpiece as an operator sands with the system. With a convenient and efficient dust free system, the work environment is cleaner and more comfortable for all workers.

Improve sanding disc performance.

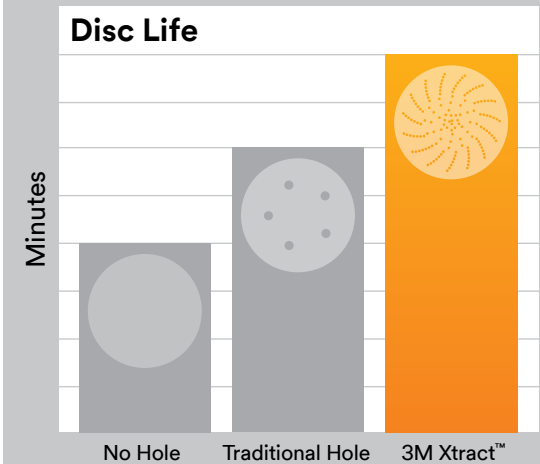
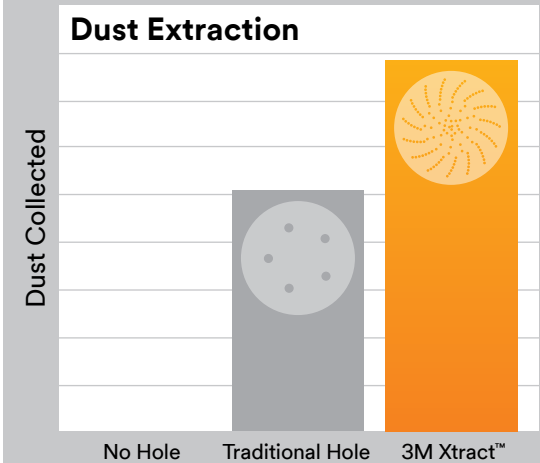
A disc loads less when the dust it generates is vacuumed away. Less loading means more of the disc's abrasive surface is in direct contact with the workpiece. More direct disc contact provides better cut rate and less disc loading equals longer life.

Save \$\$\$ on abrasives and improve productivity.

With longer life and a faster cut rate, less discs are used to complete a job. Not only can disc consumption be reduced, each job can be done faster, improving a shop's overall productivity.



3M Xtract™ Clean Sanding Abrasives removes more dust and lasts longer than traditional hole pattern discs of a similar diameter.



Test results are based on dry sanding applications. Results will vary by application, material being sanded and tool used.

Availability Guide: Sanding Made Simple

► Always have these in your bag

- ▲ = 3M™ Cubitron™ II or Precision-Shaped Grain grade
- ▲ = ANSI (American National Standards Institute) grades
- = FEPA (Federation of the European Producers of Abrasives) grades

				Grade																									
Premium Series	Product	Backing	Attachment	Forms	24	36	40	50	60	80	100	120	150	180	220	240	280	320	360	400	500	600	800	1000	1200	1500	2000		
	Premium Series	710W	Net	Hookit™	3M Xtract™ Clean Sanding						▲		▲	▲	▲	▲	▲		▲										
775L		Film	Hookit™	No Hole						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲				
				3M Xtract™ Clean Sanding						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		
			Stikit™	No Hole						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲				
732U		Paper	Hookit™	No Hole						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			
				3M Xtract™ Clean Sanding						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
			Stikit™	No Hole						▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
360L		Film	Hookit™	No Hole													■	■	■	■		■	■	■	■	■			
				3M Xtract™ Clean Sanding															■	■	■	■		■	■	■	■	■	
	Stikit™		No Hole														■	■		■		■	■	■	■	■			
375L	Film	Hookit™	No Hole						▲	■	■	■	■	■	■	■		■		■	■	■	■	■	■	■	■	■	
			3M Xtract™ Clean Sanding						▲	■	■	■	■	■	■	■		■		■		■							
		Stikit™	No Hole						▲	■	■	■	■	■	■	■		■		■	■	■	■	■	■	■	■	■	
236U	Paper	Hookit™	No Hole							■	■	■	■	■	■	■		■		■	■								
			3M Xtract™ Clean Sanding							■	■	■	■	■	■	■		■		■	■								
		Stikit™	No Hole							■	■	■	■	■	■	■		■		■	■								



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Claims References

- ¹ Cuts up to twice as fast: Compared to 3M Aluminium Oxide Abrasive Products. Results are based on total cut over four x ninety second cycles on an automated test with maple material using 5 inch / 127mm 80 grit discs and 3M Xtract™ Low Profile Finishing Back-up Pad 20290. End of life is defined as when the 3M disc cut rate drops to 75% of the initial cut rate of the conventional abrasive disc.
- ² Lasts up to six times as long: Compared to 3M Aluminium Oxide Abrasive Products. Results are based total cut over twenty four x ninety second cycles on an automated test with maple material using 5 inch / 127 mm 180 grit discs and 3M Xtract™ Low Profile Finishing Back-up Pad 20290.

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