CERAMIC ALUMINA HOOK & LOOP
MULTI-HOLE VACUUM DISCS & ROLLS

NEXT GENERATION DESIGN

- Create a cleaner work space with virtually dust-free sanding.
- Deliver more productivity with fewer product changes.
- Reduce labor costs per job with less sanding time.
- Generate more profit to the bottom line with longer product life, better surface quality, and higher sanding performance without loading.

www.nortonabrasives.com
IT’S NATURAL TO Evolve

Nature has the ability to evolve and adapt as conditions change. To succeed in the business world, the same applies. Evolution is necessary to survive and can be revolutionary in terms of productivity gains.

In the mid-80s, health, safety and environmental concerns motivated the government to enact rules and regulations to improve air quality. Central vacuum systems were installed and discs were diepunched with 6 holes for 6” and 5 holes for 5” in a circle for vacuum extraction to minimize dust and to extend disc life.

By the 21st century, EHS requirements became even more stringent related to reduction of airborne particulates making increased dust extraction critical, therefore, more holes were needed.

The first leap in multi-hole sanding went from 6 holes to the Norton Multi-Air System with 181 die-punched holes laid out in a grid. However, it was necessary to properly align the disc holes with the Norton Multi-Air back-up pad for optimal dust extraction. This unique system provided a massive increase in dust extraction and cut rate over the 6-hole configuration, but there was room for improvement.

Using Mother Nature as an evolutionary guide and using our latest manufacturing technology, Norton has developed the most advanced abrasive disc on the market. The patent-pending Multi-Air Cyclonic disc has 346 holes in a 6” disc that are precisely cut by a laser. Unlike a die-punched hole which causes deformation at the hole where dust can collect thereby reducing cut and the ability to extract dust, the precision laser cut holes are true and flat and aid in directing dust into the holes to reduce contamination in the shop. Multi-Air Cyclonic discs can attach to any multi-hole (54+ holes) back up pad since the holes in the disc do not have to be matched up with the holes in the pad, so changeover is fast and easy. This ingenious hole pattern was inspired by Mother Nature, developed by R&D specialists and can be explained using the Golden Ratio.
THE SCIENCE BEHIND THE DESIGN

The Golden Ratio

If you divide a line into two parts so that:
- the longer part divided by the smaller part
- is also equal to
- the whole length divided by the longer part
then you will have the golden ratio.

\[
\frac{a}{b} = \frac{a+b}{a} = 1.618... = \varphi
\]

Cyclones, galaxies, and sea shells all have inherent spiral shapes that conform almost perfectly to the ’Golden Spiral’, which is a logarithmic spiral based on a series of identically proportioned golden rectangles, each having a golden ratio of 1.618 of the length of the long side to that of the short side of the rectangle.
Mother Nature has had millions of years to fine tune sea shells, galaxies and cyclones to be as perfect as can be. Norton applied the laws of nature to create the most perfect and powerful sanding disc.

The power and velocity of air movement in a cyclone is hard to conceive. Yet, the A975 Norton Multi-Air Cyclonic disc is designed on the same cyclone pattern using the Golden Spiral which is why it is the most effective disc when it comes to keeping your shop free of contaminants.

Dust is constantly being pulled away through multi-holes (5" 246 holes, 6" 346 holes) for more controlled sanding, which is critical for thinner waterborne coatings. The Golden Spiral configuration of the holes allows the vacuum to pull the dust through the pad creating an upward force, like a cyclone, and the random orbital motion of the sander provides the lateral force creating an ideal balance between the abrasive surface and the dust-extraction holes.

WHAT DOES A CYCLONE HAVE TO DO WITH SANDING?

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FASTER CHANGEOVER

With Norton Multi-Air Cyclonic, there's no need to align disc and back-up pad holes as the disc design does the work, resulting in quicker and simpler handling of disc changes by a technician.

Multi-Air Cyclonic discs are compatible with any 54+ multi-hole pad, but they are recommended for use on the Norton Multi-Air back-up pad as a total system.

IMPROVED DUST EXTRACTION

The original Multi-Air design had 181 die punched holes in a 6" disc yet retained 90% abrasive surface coverage. While there was plenty of abrasive to sand the surface, the action of the die punch caused deformation and captured dust around the hole rather than cleanly extracting it through the vacuum system.

Because the hole placement of the Multi-Air Cyclonic discs are optimized based on the Golden Spiral, they are 89% more effective than conventional 6" x 6-hole and 42% more effective than the original Multi-Air design in targeting dust. Multi-Air Cyclonic discs offer clear pathways to effectively suction dust through the holes and out of the shop.

INCREASED PRODUCTIVITY

The upgrade to precise, flat, laser-cut holes instead of die-punched holes, dramatically increases surface area contact allowing Multi-Air Cyclonic to improve productivity by 32% versus conventional multi-hole sanding and by 60% versus non-vacuum sanding.

The precisely cut holes of the Multi-Air Cyclonic discs have no deformation; therefore, the full surface of the sanding disc is available for cutting through coatings.

Amazingly, the laser-cut 346-hole count in a Multi-Air Cyclonic 6" disc is almost double that of the original Multi-Air disc; however, the abrasive surface coverage is higher at 93% versus 90%. The end result is more holes for dust extraction, more abrasive coverage for a better cut and no deformation for full surface contact utilizing all the cutting power of the premium ceramic grain.
**AVAILABILITY**

The Norton SG ceramic alumina A975 grain is available in the entire grit range, P80–P1000. The sharp, cool-cutting ceramic grain performs well on conventional paints and primers as well as hard-to-sand surfaces like ceramic clears, E-coated panels, aluminum and composites. The strong, yet flexible backing provides long life and resists tearing to get the full life out of the product.

Watch the technology come to life.

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**Norton Multi-Air Cyclonic Dry Ice NorGrip Discs**

Norton Dry Ice premium ceramic A975 hook and loop (NorGrip) discs offer the longest life and fastest cut and maximum dust extraction for any sanding job.

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<th>GRIT</th>
<th>3&quot; DISCS</th>
<th>5&quot; DISCS</th>
<th>6&quot; DISCS</th>
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CERAMIC ALUMINA HOOK & LOOP
MULTI-HOLE VACUUM DISCS & ROLLS

NORTON MULTI-AIR CYCLONIC DRY ICE DISCS & ROLLS
A perfect combination of abrasive grain innovation, design technology and specialized laser cutting for maximum productivity.

FEATURES | BENEFITS
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• Precision laser-cut, spiral-hole design based on the Golden Ratio | • Maximum dust extraction for cleaner work environment and less potential for contamination
• Norton SG ceramic alumina grain for the entire grit range | • Consistent cut throughout the life of the product
• Unique fiber-reinforced latex/paper backing | • Superior cut on difficult to sand surfaces
• Water-based stearate coating (No-Fil) | • Substantially longer life and faster cut than conventional abrasives
• Quick/cool cut | • Load resistant for extended product life

Norton Multi-Air Cyclonic NorGrip Perforated Rolls
The innovative laser converted rolls feature the same Cyclonic spiral hole-design found on the Multi-Air Cyclonic disc range which optimizes dust extraction while reducing surface imperfections. Another benefit of the new hole-design is that it does not need to be lined up with the holes on the vacuum file boards or vacuum hand blocks to achieve optimal performance so changeover is fast and easy. In addition, the rolls are perforated every 2-3/4" to allow it to be torn easily to fit multiple file board lengths.

<table>
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<tr>
<th>GRIT</th>
<th>2-3/4&quot; x 12 YDS.</th>
<th>4-1/2&quot; x 13 YDS.</th>
<th>QTY. PER PK.</th>
<th>PKS. PER CS.</th>
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P600B | 63642506124 | — | 1 | 4 |
P500B | 63642506123 | — | 1 | 4 |
P400B | 63642506122 | 66261156071 | 1 | 4 |
P320B | 63642506121 | 66261156070 | 1 | 4 |
P240B | 63642506120 | 66261156068 | 1 | 4 |
P220B | 63642506119 | 63642504663 | 1 | 4 |
P180B | 63642506118 | 66261156067 | 1 | 4 |
P150B | 63642506117 | 66261156066 | 1 | 4 |
P120C | 63642506114 | 66261156065 | 1 | 4 |
P80C | 63642506113 | 66261156064 | 1 | 4 |
Norton Multi-Air NorGrip Back Up Pads
Innovative design optimized for maximum air flow and powerful dust extraction. The medium pads are engineered with a durable, heat-resistant plastic, a molded-in 5/16”-24 spindle, and longer hooks.
Multi-Air Cyclonic discs can attach to any multi-hole (54+ holes) back up pad since the holes in the disc do not have to be matched up with the holes in the pad, so changeover is fast and easy. However, we do recommend the Norton Multi-Air pad for optimal results.

<table>
<thead>
<tr>
<th>PART #</th>
<th>DIAMETER x THREAD DENSITY COLOR RPM</th>
<th>QTY. PER PK.</th>
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Norton Multi-Air NorGrip Interface Pads
Designed for use with fine grit Multi-Air Cyclonic NorGrip sanding discs to improve both surface finish and cut rate. Use with Multi-Air NorGrip Disc Back-Up Pads. Align the interface pad with the Multi-Air back up pad then simply attach the disc to the interface pad as the holes do not have to be lined up.

<table>
<thead>
<tr>
<th>PART #</th>
<th>DIAMETER x THREAD DENSITY COLOR RPM</th>
<th>QTY. PER PK.</th>
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