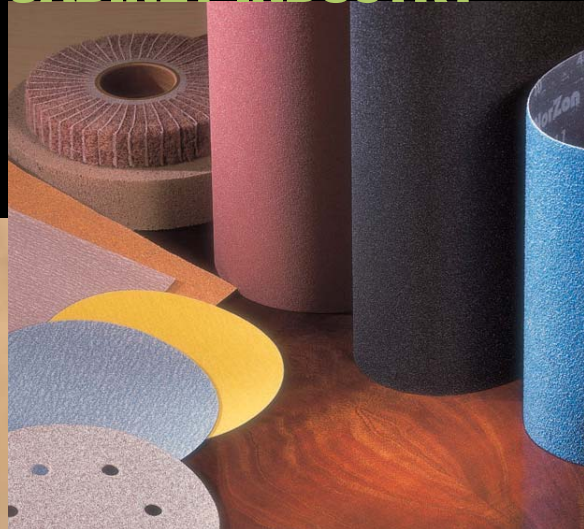


NORTON

**NORTON ABRASIVES APPLICATION
TECHNOLOGY GUIDE
FOR THE PRODUCTION
CABINET INDUSTRY**

**High-Performance Abrasives to
Take You From Stock to Finish
for Cabinet Production**



www.nortonabrasives.com



Saint-Gobain – A World Leader With a Focus on Technology

Saint-Gobain is a leading producer of abrasives, building materials, flat glass, glass containers, industrial ceramics, insulation, and pipe. It is one of the world's top 100 industrial companies with more than 117,000 employees worldwide and annual sales of over 40 billion dollars. In the United States and Canada, Saint-Gobain employs about 25,000 people and has approximately 200 manufacturing locations. Saint-Gobain is committed to be the leader in all markets it serves by being responsive to customer needs, development of state-of-the-art products, and maintaining the most modern manufacturing facilities.

With brands like Norton and CORA Abrasives, Saint-Gobain is the parent company of many of the world's most highly-regarded suppliers to the cabinet industry.



Delivering Optimum Performance Through Superior Product and Application Engineering

Norton Abrasives has focused on providing innovative abrasive products that solve our customers' manufacturing needs wherever materials are cut, shaped, or finished. Collectively, our Norton and CORA products provide our cabinet manufacturing customers with the industry's most comprehensive line of quality abrasives that is unmatched for wood-processing solutions. To ensure your abrasive application needs are met, Norton sales engineers are thoroughly cross-trained on all abrasives that are used in the cabinet industry. To continually develop superior sanding results, the abrasives industry's largest research and development team works on producing state-of-the-art abrasive products.

Backed by the most complete line of advanced sanding products and technical product and application experts, knowledgeable Norton sales engineers can provide the most effective abrasive solutions to meet even the most demanding requirements for quality, productivity, and total cost-effectiveness.

World Grinding Technology Centers

Saint-Gobain Abrasives operates a number of technology centers around the world. These facilities are dedicated to bringing better solutions to abrasives applications including breakthroughs in the abrasives featured in this brochure. The technical equipment used in these facilities include: Gas Chromatography/Mass Spectroscopy, Scanning Electron Microscopy (SEM), Fourier Transform Infrared Spectroscopy (FTIR), Micro/Macro Photography, and many others. This technology is used to conduct elemental analysis, chemical compound and contaminant identification, microscopic analysis, surface topography, as well as many other types of analyses that result in better understanding of the overall sanding process.

▼ Wood Products Testing Equipment Gathering Data



▲ SEM Identifying Coarse Grain Particle on Belt Surface

Saint-Gobain Abrasives' technology centers' capabilities also include sanding studies designed to evaluate "new" and existing products on equipment specifically designed for the evaluation of the wood-sanding process. This high technology equipment can measure, chart, and report a number of different sanding parameters throughout the life of the product tests. These include horsepower draw, stock removal rates, platen head temperature readings (leading and trailing edge) to measure backing frictional characteristics and sanding pressure variables, conventional/tangential forces, and other important sanding parameters which can have a direct impact on product performance and the wood surface finish.

One Cord of Wood Yields...

- 7,500,000 toothpicks
- 1,200 copies of National Geographic
- 30 Boston rockers
- 460,000 paychecks

If your paycheck depends on how efficiently and effectively you transform a cord of wood into fine cabinetry, you should consider Norton Abrasives.

From laid-up panels to the final finish of your cabinetry, Norton Abrasives' products can work for you throughout every stage of your cabinet production. From heavy-duty cloth-backed belts to light-weight paper discs, Norton SG abrasive products offer the best performance in many critical sanding applications. This ceramic grain technology breakthrough provides the greatest productivity at the lowest total cost than any other abrasive product. Applications include wide belt, planing and intermediate sanding; narrow belt, edge, profile, and stroke sanding; as well as wide orbital and orbital disc sanding. Complete your final finish with Norton abrasive sponge products, and Bear-Tex (non-woven) surface finishing products.

By advancing the state of abrasive technology through such product innovations as Norton SG ceramic products, Saint-Gobain product and application engineers can help you achieve high levels of surface finish and lower total sanding cost. You can count on Saint-Gobain to be your single source supplier for all your abrasives needs.

Saint-Gobain manufacturing quality control, assures you of product consistency and product reliability. Excellent product performance and superior local distributor capabilities mean better inventory management and cost control. Timely and reliable deliveries assure you of a constant supply of premium quality abrasives when you need them. This is all part of the service you will receive from Saint-Gobain, the world leader in abrasives.

The success of your business depends on the consistency of your performance and output and that's why you should depend on Norton branded abrasives from Saint-Gobain.

High-Performance Abrasives to Take You From Stock to Finish for Cabinet Production

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Abrasive Planing

Typically, abrasive planing is the first sanding operation that takes place within a production cabinet facility. Bringing laid-up solid panels into dimensional tolerance for downstream operations such as raised panels, drawer fronts, and other component parts is its primary function. There are two basic types of abrasive planers: 1) utilizes abrasive belts, 2) utilizes a combination of a knife (carbide inserts) and abrasive belts. Not all cabinet facilities incorporate this type of equipment in their operations as they may source their component parts from sister plants or other manufacturers that would have this type of equipment. Planers are available in a number of different configurations such as: One Top Head; Two Top Heads; One or Two Top Heads followed by One or Two Bottom Heads, etc. Typically, they would have steel or hard rubber contact drums.



Primary Product Offering for Abrasive Planing

	NORTON SG R963	NORTON SG R984	NORZON R811
Shape	Wide Belts	Wide Belts	Wide Belts
Backing Weight/Type	Y-Weight Polyester	Y-Weight Polyester	Y-Weight Cotton
Abrasive Type	SG Ceramic	SG Ceramic	Zirconia Alumina
Available Grit Sizes	24 – 180	36 – 220	24 – 120
Common Grit Sizes for Application	36 – 60	36 – 60	36 – 60
Belt Joint Recommendation	Plyweld	Plyweld	Plyweld
Product Features	Longest Life Most Aggressive Cut Most Cost-effective Semi Openkote Anti-Static Washable: Wet & Dry Systems	Long Life Good Cut Closekote Washable: Wet & Dry Systems	Economic Performance Aggressive Cut Openkote Washable: Dry Systems Only



Cost-SavingsTip

Excessive glue use when laying up panels is one of the leading causes for premature belt failure on planing applications. We commonly see 10-30% excess glue being used in this process which leads to loading and burning of the abrasive belt surface. The cost associated with this is much higher than you would expect.

Let's do the numbers:

- 1) Annual glue cost for this area: \$ _____. Now take an honest look at the panels coming off your lay-up line and take an educated guess as to what percentage of excess glue is on the surface of the panels. Multiply this percentage by the annual glue cost to see your cost savings for glue if you were to correct the excessive glue use: Savings \$ _____.
- 2) Loading and the eventual burning on the abrasive belt surface associated with excessive glue is very costly. It is not uncommon to see belt life reduced by 20-40% due to this. Oftentimes the sander operators are not aware of this reduced belt life because the common thought is "that's the way we've always done it." On most planing operations, the minimum savings achieved by correcting the excessive glue issue is 20%, so multiply this percentage by your annual belt cost on this operation: Savings \$ _____.
- 3) By improving belt life, you've effectively increased your production capability on this sander due to less belt changes and the associated downtime. Multiply the total annual belt usage number for this operation by 20% and then multiply the resulting number of belts by 15 (minutes to do a proper belt change). Divide this number by four to determine the total hours of increased uptime. Multiply this number by your estimated downtime cost for this sanding operation: Savings \$ _____.

Now add the savings dollars for items 1, 2, and 3 to determine the approximate dollars saved by doing a simple glue adjustment: Total potential annual savings: \$ _____. Surprised?

The Systems Approach to Cost Savings

By evaluating the entire sanding process, Norton product, application and sales engineers can lower your sanding costs. This is an example of how utilizing the systems approach delivers cost savings to you. The highly-skilled Norton sales, product and application engineers work on delivering cost savings throughout all areas of your manufacturing facility. Challenge us to "Show You the Cost Savings."

Intermediate Wide Belt Sanding

Intermediate wide belt sanding is by far the most common wide belt sanding application in the cabinet industry. Its primary purpose is to finish-upgrade raised panels, doors, face frames, drawer fronts, and other component parts. These sanders typically have between two and five sanding heads with at least one being a contact roll head and one being a platen head, although a small percentage of these sanders utilize a very soft (40-50 Shore-A Durometer) rubber contact drum in the final head position where a platen head would normally be located. The total number of heads is usually dependant upon the parts that are designated to be processed through the sander, i.e.: straight-grained component parts such as most raised panels and drawer fronts are typically sanded with two- or three-head sanders while doors and face frames are typically sanded on three- to four-head sanders. The primary reason for this, is that the cross-grain scratch that occurs on the stiles of doors and face frames must be further refined prior to downstream orbital operations to ensure the cross-grain scratch is removed. The vast majority of intermediate wide belt sanding applications use heavy paper-backed abrasive belts. There are some applications that require cloth-backed belts due to older equipment being used, inadequate operator training, or other reasons.



Primary “Paper” Product Offering for Intermediate Wide Belt Sanding

	NORTON SG H968	DL ADALOX H231	DL ADALOX H258	DL ADALOX H248	DL DURITE H448
Shape	Wide Belts	Wide Belts	Wide Belts	Wide Belts	Wide Belts
Backing Weight/Type	F-Weight Paper	F-Weight Paper	F-Weight Paper	F-Weight Paper	F-Weight Paper
Abrasive Type	SG Ceramic	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
Available Grit Sizes	P80 – P220	P80 – P220	P80 – P180	P120 – P320, P400	P80 – P220, P280, P320, P400
Common Grit Sizes for Application	P80 – P120	P80 – P220	P80 – P180	P120 – P220	P180 – P220
Belt Joint Recommendation	Channel Norlok	Channel	Channel	Channel	Channel
Product Features	Longest Life Most Aggressive Cut Most Cost-effective Semi Openkote Anti-Static	Long Life Aggressive Cut Good Finish Openkote Anti-Static	Good Performance Good Finish Openkote Anti-Static	Good Performance Better Finish Closekote Anti-Static	Good Performance Best Finish Closekote Anti-Static

Technical Tip

- Thoroughly blow down sander during every belt change (especially after a belt rupture), without belts on the sander, to prevent debris from being trapped behind the abrasive belts during start-up and operation. Debris behind belts causes work-piece streaks and burn, excess platen wear, etc. The cleaner the sander is kept, the less finishing issues you’ll have and the less downtime you’ll encounter.
- Wide belts should be hung on appropriate diameter (6"-10") and length (at least as long as the belt width) tubes after removal from their boxes and for a period of time prior to them being installed on a sander. This allows them to “relax” after spending time in a coiled state, while in their boxes, and to acclimate to the environment that they’re going to be used in.
- When handling/installing paper wide belts, treat them with care to prevent edge damage, kinks, and other damage that will cause premature belt failure.



Intermediate Wide Belt Sanding

Primary “Cloth” Product Offering for Intermediate Wide Belt Sanding (Where Applicable)

	NORTON SG R963	NORTON SG R984	NORZON R811	METALITE R216
Shape	Wide Belts	Wide Belts	Wide Belts	Wide Belts
Backing Weight/Type	Y-Weight Polyester	Y-Weight Polyester	Y-Weight Cotton	Y-Weight Cotton
Abrasive Type	SG Ceramic	SG Ceramic	Zirconia Alumina	Aluminum Oxide
Available Grit Sizes	24 – 180	36 – 220	24 – 120	P60 – P180
Common Grit Sizes for Application	80 – 120	80 – 120	80 – 120	P80 – P120
Belt Joint Recommendation	Plyweld	Plyweld	Plyweld	Plyweld
Product Features	Best Performance Longest Life Most Aggressive Cut Most Cost-effective Semi Openkote Anti-Static Washable: Wet & Dry Systems	Better Performance Long Life Good Cut Closekote Washable: Wet & Dry Systems	Good Performance Aggressive Cut Openkote Washable: Dry Systems	Economical Performance Good Cut Openkote Anti-Static

Cost-Savings Tip

It is common to see conveyor-fed wide belt sanders that are not being used efficiently due to a number of different reasons. The most common is the under-utilizing of the abrasive belt width. This is commonly due to poor distribution of parts on the conveyor belt that eventually leads to uneven (center) wear on the conveyor and contact rolls. As this condition worsens, the outside areas of the conveyor and contact rolls can no longer be used due to having less wear than the center area. Not only does this cause an uneven sanding pattern on parts, it eventually causes

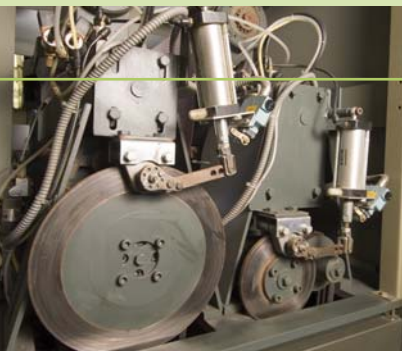
part and abrasive belt surface burn due to excessive stock removal in these less-worn areas. This prevents these areas as well as the outside area of the abrasive belts from being used and negatively effects the capacity/efficiency of the sander.

- We recommend that no more than one inch on both sides of the abrasive belts be left unused. Clearly marked part position guides on the feed side of the sander are very helpful to ensure the operators are using the full width capacity.

- We also recommend that when

feeding the conveyor belt, that the very outside areas are fed two parts to one over the center area. Due to the staggering pattern used when feeding a conveyor belt, the center area is double fed compared to the outside areas. If you have a hard time believing this, you can run your own test. Take a pencil and piece of paper and mark a number of “feed channels” across the width of the paper. Starting in any “feed channel,” make a mark in that channel and then using a typical back and forth staggering motion, mark each channel as if you were staggering parts on a

conveyor. As you’ll see, the center area of the paper will have roughly twice as many marks after a number of passes. Now do the same process but put two marks on the outside channels per pass. As you’ll see, the mark (part) count is relatively the same for all channels. These simple steps will save you money on belt costs, machine wear/repair, downtime, and productivity. Clearly, you do not even have to run the numbers to know this adds up to significant cost savings.



Technical Tip

- Good lighting on the feed and exit end of sander allows for easier and faster detection of defects.
- Use a straight edge with a flashlight to check for uneven wear on conveyors, contact rolls, and idlers.
- Clean tracking eyes and reflectors with isopropyl alcohol and a clean, soft cloth to avoid damage. Never use your hand (oil deposits) or dirty cloth (scratches lens) as this will eventually cause failures.
- “Clean” air blow offs on the tracking eyes and reflectors can help prevent sudden tracking failures and costly unplanned downtime.
- Never allow the emergency braking system on a sander to be used as a “quick stop” feature for belt changes, operator breaks, shift changes, etc. Far too often we see these occurrences and the eventual damage they do to the braking system due to their constant use. Because of this unnecessary wear and tear, the emergency braking systems cannot perform as well or at all during a true emergency. The only times the brakes should be “applied” are during an emergency and when maintenance is checking them to ensure they’re working at their peak performance.

Specialty Wide Belt Sanding

Wide Belt Veneered Panel Sanding

There's a number of applications where veneered panels are used in the cabinet industry, with the most common being side panels and recessed door panels that are flat in nature, as opposed to raised panels that are typically made from laid-up solid wood. Due to the relatively thin veneers used today, and/or the minimal stock removal requirement, these panels are usually sanded on one- or two-headed sanders that utilize segmented platen heads. Segmented platens are specifically designed for sensitive applications and they can help prevent cut-through of the veneer on the edges of the panel face. This is accomplished by sensors that detect where the panel is located while it's being conveyed through the sander. The sensors then indicate where and when the segments should apply pressure to the platen bar so that it doesn't apply too much pressure around the edges of the panels, thus preventing cut-through.

Primary Product Offering for Veneered Panel Sanding

	DL DURITE H448	DL ADALOX H248	DL ADALOX H231	DL ADALOX H258
Shape	Wide Belts	Wide Belts	Wide Belts	Wide Belts
Backing Weight/Type	F-Weight Paper	F-Weight Paper	F-Weight Paper	F-Weight Paper
Abrasive Type	Silicon Carbide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
Available Grit Sizes	P80 – P220, P280, P320, P400	P120 – P320, P400	P80 – P220	P80 – P180
Common Grit Sizes for Application	P180 – P220	P180 – P220	P180 – P220	P180
Belt Joint Recommendation	Channel	Channel	Channel	Channel
Product Features	Best Performance Best Finish for Veneer Closekote Anti-Static	Good Performance Better Finish Closekote Anti-Static	Better Performance Aggressive Cut Most Cost-effective Good Finish Openkote Anti-Static	Good Performance Good Finish Openkote Anti-Static

Wide Belt Sealer Sanding

On some finishing lines, mostly those using ultraviolet cured finish materials, wide belt sealer sanders are used. These sanders usually have one or two sanding heads that utilize large diameter rubber contact rolls that are very soft (30-45 Shore-A Durometer) in nature. As well, the abrasive belt speed on these types of sanders run very slow, oftentimes being less than 1,000 SFPM (surface feet per minute). Their primary function is to remove raised fibers and surface defects from flat surfaces of various component parts, after sealer and other coatings have been applied and cured, prior to the next application of finishing materials.

Primary Product Offering for Wide Belt Sealer Sanding

	DL DURITE H448	DL ADALOX H248
Shape	Wide Belts	Wide Belts
Backing Weight/Type	F-Weight Paper	F-Weight Paper
Abrasive Type	Silicon Carbide	Aluminum Oxide
Available Grit Sizes	P80 – P220, P280, P320, P400	P120 – P320, P400
Common Grit Sizes for Application	P220 – P400	P220 – P400
Belt Joint Recommendation	Channel	Channel
Product Features	Better Performance Best Finish Closekote Anti-Static	Good Performance Good Finish Closekote Anti-Static

Technical Tip

- Silicon carbide abrasive grain is sharper than aluminum oxide grain, so it is more commonly used on sealer sanding applications because it cuts raised fibers more “cleanly” and generally imparts a better finish.
- Aluminum oxide abrasive grain is “tougher” than silicon carbide grain, so it is more commonly used on applications where heavier stock removal is required and finish is not as critical.
- Due to the relative softness of the contact rolls on some applications, they should be checked for wear and tear more often than harder contact rolls.
- Belt folding/creasing is a classic sign that a contact roll or idler has significant uneven wear.

Cost-Savings Tip

It is estimated that at least 50% of the time the stock removal rates on wide belt sanders is improperly set up, meaning that too much or too little is being removed from the work-piece by the various sanding heads/grit sizes.

Each sanding head on any wide belt sanding line should be set up to remove an appropriate amount of stock for the grit or grit sequence in use. By doing this, you will achieve the best belt performance, best production rates and the most consistent finish.

We highly recommend that an SOP be set up, for all wide belt sanders in a facility, to have the stock removal set-up checked on a regular basis. Although it's difficult to put a dollar amount on the cost savings, we're very confident it would be substantial. Ask your

Norton sales engineer for assistance in establishing appropriate stock removal for a particular grit size/sequence.

Wide Orbital Sanding

Although wide orbital sanders do not use wide belts, they are often in line with wide belt equipment on finishing lines; so we've located it in this section. These units are designed to reduce the amount of hand sanding on various parts, such as face frames and doors, by removing the cross-grain scratch imparted on the stiles of these parts during wide belt sanding operations. They also blend the finish on the stiles and rails of these type parts in order to ensure color match. Although they are a very effective piece of equipment, there is still a large amount of hand sanding done in most cabinet manufacturing facilities. There are two general types of wide orbital sanders. One utilizes 10-1/2" wide abrasive strips that have PSA (pressure sensitive adhesive) on their backing, while the other type utilizes 17-3/4" wide strips, without PSA, that clip into place. They're manufactured in several different widths such as 36", 43", 52", etc. These sanders are manufactured with one to several orbital heads that work similarly to hand-held orbital sanders.

Primary Product for Wide Orbital Sanding

	NORTON SG R903
Shape	PSA & Non PSA Rolls and Sheets
Backing Weight/Type	J-Weight Cotton
Abrasive Type	Ceramic
Available Grit Sizes	P150 – P220
Common Grit Sizes for Application	P150 – P220
Product Features	Optimum Performance Most Cost-effective in Industry Most Consistent Finish in Industry



Technical Tip

- The cut rate for Norton SG R903 is far superior to any other product used on this application. This allows for increased feed-through speeds that almost double that of all other products. It also imparts a much more consistent finish, even at the higher feed speeds.
- The ceramic grain used in Norton SG R903 allows this product to run two to three times longer than conventional abrasives. It is advisable that when running this type of product, that the operators are informed of its performance level capability prior to running this material. This should prevent premature removal and unnecessary downtime.
- The machines that use 10-1/2" PSA strips have been known to have problems with PSA migrating to the surface of the felt pad used in the platen assembly. There are several ways to minimize the negative effects of this: when replacing the PSA strip, remove the used strip while the platen is still warm from the sanding process; apply a light coating of a release agent to the surface of the felt pad prior to the assembly of the platen bar; laminate material to the felt pad that is less susceptible to PSA migration and is relatively thin and pliable, i.e.: vinyl, plastic laminates, etc.

Edge Sanding

Edge sanding in the Cabinet Industry is somewhat limited in use. However, most conventional face frames require that the ends of their rails and outside edge of their stiles be sanded after assembly so that they are on an equal plane. The most efficient means of doing this is on the long platen head of an edge sander. This process takes seconds to sand the top and bottom of the face frame.

Primary Product Offering for Edge Sanding

	NORTON SG R963	NORZON R811	METALITE R236
Shape	Narrow Belts	Narrow Belts	Narrow Belts
Backing Weight/Type	Y-Weight Polyester	Y-Weight Cotton	X-Weight Cotton
Abrasive Type	SG Ceramic	Zirconia Alumina	Aluminum Oxide
Available Grit Sizes	24 – 180	24 – 120	P80 – P150
Common Grit Sizes for Application	80 – 120	80 – 120	P80 – P120
Belt Joint Recommendation	CRG	CRG	CRG
Product Features	Best Performance Longest Life Aggressive Cut Most Cost-effective Semi Openkote Anti-Static Washable: Wet & Dry Systems	Better Performance Long Life Aggressive Cut Openkote Washable: Dry Systems Only	Good Performance Good Cut Openkote Anti-Static



Technical Tip

Edge sanders are manufactured with a long steel platen that is ground flat. This platen is covered with graphite-coated canvas to reduce the frictional heat and wear that develops when abrasive belts run over the face of the platen at a relatively high rate of speed. Some manufacturing facilities have modified their edge sanders by removing the graphite-coated canvas from the platen. It is their belief that by running the abrasive belt directly against the steel platen, they can achieve a flatter or more crisp edge than they can with the graphite in place. This is somewhat true but several negative things occur as well. Due to the significant increase in frictional heat, the abrasive belt life deteriorates and more burn takes place on the work-piece. After a relative short period of time, the purpose of using this technique is all but defeated due to wear patterns being worn into the steel platen, making it even more difficult to get a flatter/crisper edge. In less than a year or two, depending upon use, this wear will make the platen unusable and it will have to be reground or replaced. We highly recommend that you use graphite-coated canvas on your edge sanders.

Stroke Sanding

Stroke sanding in the cabinet industry is also somewhat limited in use. However, some circular cabinets, used in corners or custom designs, require a more flexible means of sanding. In order to do this and to sand these unique cabinets uniformly, some manufacturers use a stroke sander modified with a special jiggling table. The jiggling table holds the cabinet frame or door while the entire assembly is rotated under the abrasive belt, allowing the frame or door to be sanded. Sometimes the operator will use a mitten covered with graphite-coated canvas, to “form” the abrasive belt around the curves of the cabinet during the sanding process.

Non-modified Stroke Sander Shown



Stroke sanding continued on next page

Primary Products for Stroke Sanding

	DL DURITE H448	DL ADALOX H248	DL ADALOX H231	DL ADALOX H258
Shape	Narrow Belts	Narrow Belts	Narrow Belts	Narrow Belts
Backing Weight/Type	F-Weight Paper	F-Weight Paper	F-Weight Paper	F-Weight Paper
Abrasive Type	Silicon Carbide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
Available Grit Sizes	P80 – P220, P280, P320, P400	P120 – P320, P400	P80 – P220	P80 – P180
Common Grit Sizes for Application	P180 – P220	P180 – P220	P180 – P220	P180
Belt Joint Recommendation	Channel	Channel	Channel	Channel
Product Features	Best Performance Best Finish Closekote Anti-Static	Good Performance Better Finish Closekote Anti-Static	Better Performance Aggressive Cut Most Cost-effective Good Finish Openkote Anti-Static	Good Performance Good Finish Openkote Anti-Static



Technical Tip

Due to being a relatively low-pressure application, stroke sanding tends to impart a slightly finer scratch pattern than a similar abrasive belt used on a wide belt platen head. Therefore, it is sometimes necessary to use one grit size coarser on a stroke sander to match the finish of a wide belt operation.

Profile Sanding

Profile sanding is the process in which shaped parts are sanded in order to remove knife marks from the shaping process. There are many abrasive products used today to sand shaped profiles on center panels, doors, drawer fronts, moldings, and other component parts in the cabinet industry. These include abrasive belts, abrasive discs, non-woven abrasive wheels, molded abrasive wheels, interleaf flap wheels, non-woven flap wheels, insert abrasive tooling (used on CNC equipment), and others. Due to the complexity added to this operation by having so many choices for sanding media and technique, we will only cover abrasive belts and wheels in this brochure. However, please contact your Norton sales engineer if you have any questions on the other types of abrasives used for profile sanding.

Primary Abrasive Belt Product Offering for Profile Sanding

	NORTON SG R938	DL METALITE R236	CORA KJ370
Shape	Narrow Belts	Narrow Belts	Narrow Belts
Backing Weight/Type	X-Weight Cotton	X-Weight Cotton	J-Weight Cotton
Abrasive Type	SG Ceramic	Aluminum Oxide	Aluminum Oxide
Available Grit Sizes	P80 – P180	P80 – P150	P80 – P220 & P320
Common Grit Sizes for Application	P80 – P150	P80 – P150	P80 – P150
Belt Joint Recommendation	ES or CRG	ES or CRG	ES or CRG
Product Features	Best Performance Aggressive Cut Most Cost-effective Openkote Anti-Static Mild Shapes	Good Performance Aggressive Cut Openkote Anti-Static Mild Shapes	Good Performance Good Cut Openkote Anti-Static Difficult Shapes

Technical Tip



- As simple as it may sound, the better the knife work, the easier and less costly it is to sand profiles. Far too often we see profiles that are clearly done with dull shaping knives, making it more difficult to remove these marks and retain the original profile.
- Steep leading and trailing edge approach angles to the profile/mold block creates excessive heat that reduces abrasive belt life and causes excessive belt stretch. The milder the angle, the better for optimum belt life.
- To reduce the frictional heat that develops during profile sanding, use a light coating of graphite stick on the back of the abrasive belt.

Profile Sanding Wheels

Profile sanding wheels have long been used in the process of upgrading finish on shaped parts. However, there has been continued growth in this area over the last several years, with more types of wheels being made to satisfy many different sanding parameters. Our trade name for these wheels is Norton Bear-TEX.

Profiling with Bear-TEX Wheels

Bear-TEX wheels offer an ideal alternative to other finishing methods, particularly on shaped wood parts and profiled edges on MDF. Bear-TEX wheels produce a consistent cut rate and can be readily shaped to conform to any shape or profile.



Bear-TEX Products for Profiling

	POLYBOND WOOD CONDITIONING WHEELS	BEAR-TEX SERIES 1000 CONVOLUTE WHEELS	BEAR-TEX CLEAN & FINISH WHEELS	BEAR-TEX SURFACE FINISHING WHEELS
Abrasive	Silicon Carbide (man-made board) Garnet (natural wood)	Aluminum Oxide and Silicon Carbide	Silicon Carbide	Aluminum Oxide and Silicon Carbide
Common Grit Sizes for Application	Garnet 60, 80, 100 Grit	Aluminum Oxide Medium Silicon Carbide Fine	Silicon Carbide Medium	Aluminum Oxide Medium, Silicon Carbide Coarse & Medium
Features	Foamed abrasive compound wheels for defuzzing prior to base coat	Non-woven nylon convolute wheel for fast cut rate	Non-woven nylon convolute wheel where loading is a problem prior to base coat	Denser wheel than Clean/Finish for longer life, faster cut rate without jeopardizing finish

	BEAR-TEX INTERLEAF FLAP WHEELS	BEAR-TEX FLAP WHEELS
Abrasive	Silicon Carbide	Aluminum Oxide and Silicon Carbide
Common Grit Sizes for Application	120, 180, 220, 320, S/C Fine, Hard Density	A/O and S/C Medium Fine and Very Fine, Hard Density
Features	Higher Cut Rate	Excellent Finish



▲ Bear-TEX Polybond Wheels ▲ Bear-TEX Convolute Wheels ▲ Bear-TEX Flap Wheels

Technical Tip

When using Bear-TEX wheels for finish upgrading of shaped edges, the Bear-TEX wheel direction is important. For best cutting action, the wheel rotation should be opposite the direction of the workpiece. For best finish, the Bear-TEX wheel and workpiece should run in the same direction. Only Bear-TEX Polybond and Unified wheels can be run in both directions. All other types of Bear-TEX wheels are unidirectional. Consult your Norton sales engineer for further details.

Dual Action Disc Sanding

Dual Action (DA) sanding in the cabinet industry is used for many different sanding needs. When perusing a cabinet manufacturing facility, you will find these tools and associated abrasive discs in virtually every working area of the plant. From removal of cross-grain scratch on panels in the white to repair/touch-up work after finish, these hand-held tools clearly play a major role in the production of cabinetry.

The range of Norton/CORA abrasive disc products available for these tools is broad in scope and leaves no application need unfilled. With ceramic, silicon carbide, and aluminum oxide grains being available with several different backing types as well as PSA (pressure sensitive adhesive) and Speed-Grip (hook & loop) attachment systems, our product line is second to none.



Primary “Paper” Product Offering for DA Sanding

	NORTON SG A975	ADALOX A275	ADALOX A290	DURITE A413	CORA PB273
Shape	PSA Disc Rolls & Speed-Grip Discs	PSA Disc Rolls & Speed-Grip Discs	PSA Disc Rolls	PSA Disc Rolls	PSA Disc Rolls & Tabled Discs
Backing Weight/Type	B-Weight Paper	B-Weight Paper	C-Weight Paper	B-Weight Paper	B-Weight Paper
Abrasive Type	SG Ceramic	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Aluminum Oxide
Available Grit Sizes	P80 – P320, P400	P80 – P400, P500, P600, P800	P60 – P320, P400	P80-P240, P320, P400	P80 – P240, P320, P400, P600, P800
Product Features	Best Performance Fastest Cut Rate Most Cost-effective Openkote No-Fil Treated Flexible Reinforced Backing	Better Performance Aggressive Cut Openkote No-Fil Treated Flexible Reinforced Backing	Good Performance Openkote No-Fil Treated Cost-effective	Best Finish Openkote No-Fil Treated	Good Performance Good Cut Openkote No-Fil Treated

Cost-SavingsTip

As you're probably well aware of, the cost of producing compressed air is expensive. Large compressor motors running on a regular basis consume a tremendous amount of energy over a year's time. However, when you walk the floor of most manufacturing facilities that use compressed air, it is inevitable that you will hear a number of air leaks; if you're listening. The loss of compressed air due to leaks of this nature is commonplace and sometimes it appears that it's "just accepted." Our theory on this is the proverbial "Penny Wise and Dollar Foolish" syndrome.

Significant dollars can be saved by simple repair work of air leaks. We suggest that you start this process by listening for air leaks as you're walking your own factory floor. Flagging the areas where the air leaks are will make it easier to find them when you assign your maintenance crew to repair them.



The Saint-Gobain Abrasives' testing facility has designed an automated disc sanding test process that simulates hand-sanding practices to measure and understand the parameters associated with DA sanding. The DA disc-sanding simulator ensures new generations of disc products meet or exceed customers' needs and provide consistently-superior performance.

Abrasive Cloth Disc Offering for DA Sanding

	NORTON SG R938	CORA KJ370
Shape	PSA Tabbed Discs	PSA Disc Rolls & PSA Tabbed Discs
Backing Weight/Type	Flexible X-Weight Cloth	Flexible J-Weight Cloth
Abrasive Type	SG Ceramic	Aluminum Oxide
Available Grit Sizes	P80 – P180	P80 – P220, P320
Product Features	Best Performance Fast Cut Rate Openkote	Better Performance Aggressive Cut Openkote



Technical *Tip*



- The most critical aspect of the performance of a DA sander is its air supply. Air pressure of 85-90 pounds and air volume of 12-18 CFM is required to maintain optimum sanding conditions. Without the proper pressure and volume, you will create swirl marks in your work-piece.
- “Maximum flow” hose couplers are highly recommended to ensure air flow is not restricted. Hose ID should be 5/16" to 3/8" and length should be as short as practical.
- When operating a DA sander, it is best to apply light down pressure so that the tool can do what it was designed for. Applying heavy down pressure prevents the tool from oscillating properly and disrupts the abrasive disc's finishing capability. This leads to premature disc failure and the heavy pressure leads to premature bearing failure on the DA.
- The standard orbital pattern used on industrial DA sanders is 3/16". However, a second orbital pattern of 3/32" is also available. Even if you put the same abrasive disc product on these two types of orbits, the finish they generate will be slightly different. As well, two different speeds, 10,000 and 12,000 rpm, are commonly used on DA sanders. Again, if the same abrasive disc product is used at these two different speeds, the finish produced will be slightly different.

Specialty Abrasive Sanding

Throughout cabinet manufacturing facilities, there are a large number of specialty abrasive products used such as sheets, sponges, non-woven pads, small-diameter discs, delaphe discs, inserts, brushes, etc. There are so many of these specialty items, that it is difficult to capture them all in this document; so we'll cover just a few. Please contact your Norton sales engineer if you have questions on any other specialty abrasive product.

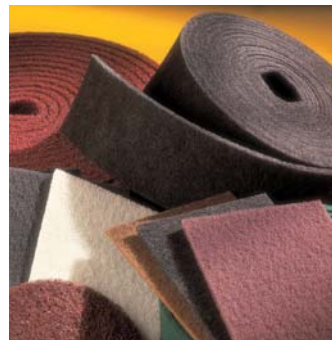
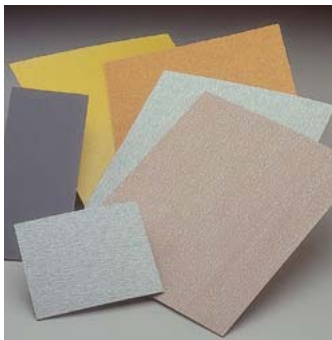
Abrasive Sheets

Abrasive sheets are used in several different areas in production cabinet facilities including touch-up, repair, and sealer sanding applications as well as on wide belt lines where some minor repair work is commonly done in process. From relatively flat work where less flexible backings are used to delicate applications where more backing flexibility is critical, Norton and CORA abrasive sheets fill these needs.



Primary Abrasive Sheets for Touch-up, Repair, Sealer Sanding

	ADALOX A275	DURITE A413	DURITE A414
Shape	Sheets	Sheets	Sheets
Backing Weight/Type	B-Weight Paper	B-Weight Paper	A-Weight Paper
Abrasive Type	Aluminum Oxide	Silicon Carbide	Silicon Carbide
Available Grit Sizes	P80 – P400, P500, P600, P800	P80 – P240, P320, P400	P220 – P320
Product Features	Better Performance Longest Life Aggressive Cut Most Cost-effective Openkote No-Fil Treated Flexible Reinforced Backing	Good Finish Openkote No-Fil Treated	Best Finish Best Flexibility Openkote No-Fil Treated



Norton
Bear-Tex

We also offer products from our Bear-Tex product line of non-woven abrasives for these applications.

Technical Tip



Matching an application flexibility requirement with the appropriate flexibility of an abrasive sheet allows for a much more efficient sanding process. It also reduces the chances of application issues such as shape/profile loss, un-sanded areas, color match, etc.



Abrasive Sponges

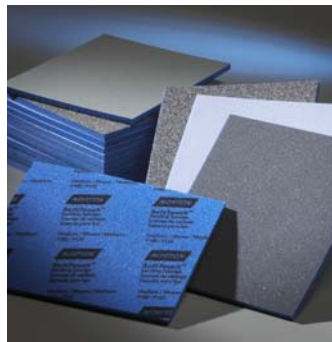
Abrasive sponges are also used in several areas in production cabinet facilities including touch-up, repair, and sealer sanding applications as well as on wide belt lines where some minor repair work is commonly done in process. Their unique designs, flexibility, and number of sides with abrasive grain, allow them to be used to sand many different hard-to-reach areas with relative ease. Norton currently offers a number of different types of abrasive sponges and will add additional designs as market application needs arise.

Primary Abrasive Sponges for Touch-up, Repair, Sealer Sanding

	SEALER SANDING	SOFTTOUCH CONTOUR	PROFILE	CONTOUR
Sponge Size	4-3/4" x 3-3/4" x 1/2"	4-1/2" x 5-1/2" x 3/16"	3-3/4" x 2-3/4" x 1/2"	4-1/2" x 5-1/2" x 3/16"
Abrasive Type	Silicon Carbide / Two Side	Aluminum Oxide / One Side	Aluminum Oxide / Three Side	Aluminum Oxide / One Side
Available Grit Sizes	60, 80, 100, 120, 150, & 220	Medium, Fine, Super Fine, Ultra Fine, Micro Fine	60 & 100	100, 150, & 220
Product Features	Very Flexible	Very Flexible	Firm Edge	Superior Flexibility
Primary Use	For sanding primers, sealers and between coats on furniture and cabinets	Designed with superior flexibility for hand sanding and finishing	For corners and flat surfaces on wood	For sanding and finishing in tight areas



▲ Sealer Sanding Sponges



▲ SoftTouch Sponges



▲ Profile Sponges

Technical Tip

As with abrasive sheets, matching an applications flexibility requirement with the appropriate flexibility of an abrasive sponge design allows for a much more efficient sanding process.

If the surface of an abrasive sponge prematurely loads up with the material being sanded, it can be washed/dried and reused.



High-Performance Abrasives to Take You From Stock to Finish for Cabinet Production

Norton Abrasives is committed to providing the products and sanding application expertise to optimize your production cabinet manufacturing process. Norton manufacturing and conversion facilities are predominately located in North America and the local Norton distributor network is the best in the industry. For the name of your local Norton distributor, visit www.ind.nortonabrasives.com or call **1-800-446-1119**.



To put Norton abrasives to work, contact your local Norton distributor. Call **1 800 446-1119** or email us at ContactNorton@saint-gobain.com and we will put you in contact with your local Norton industrial distributor. Or, visit our website at www.nortonabrasives.com to view our online catalog and learn about our latest products and applications.

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