INCREASE PRODUCTIVITY

Combining cutting-edge technology and product innovation, Nylox abrasive nylon filament brushes were developed to provide increased productivity, thereby cutting production costs. Nylox brushes were specifically designed as flexible deburring and edge radiusing tools for CNC, robotic and automated processes.

The nylon filaments of these brushes are impregnated with abrasive grain. As the nylon wears, new sharp grains are constantly exposed to the work surface, enabling the brush to maintain consistent brushing action throughout its life.

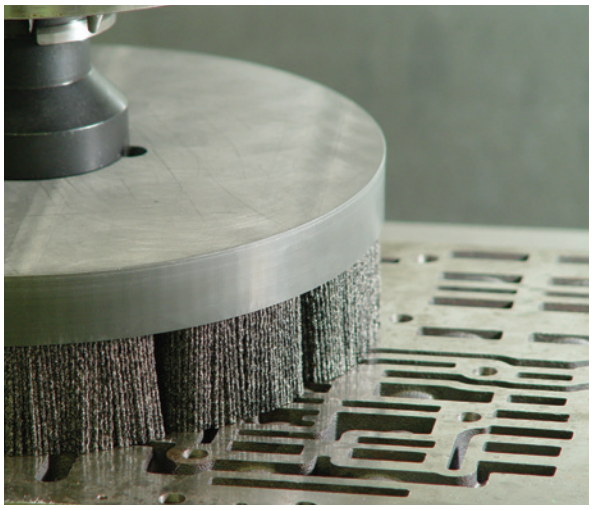
NYLOX® BRUSHES

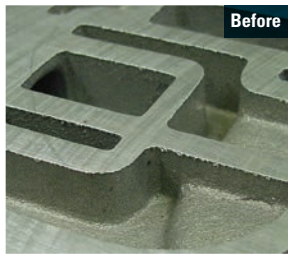
SOLUTIONS SHOWCASE

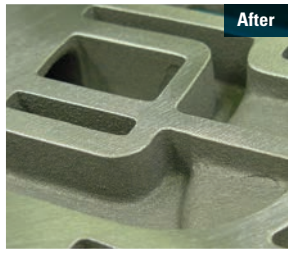
TRANSMISSION VALVE BODY

Problem: Burrs on transmission components can break away from parent components during use and cause transmission wear and eventual failure. Therefore, fluid passages must be completely burr-free.

Solution: A 10" Nylox® disc brush operating at 825 RPM in a vertical CNC machining center is an ideal solution for deburring this component. Since all of the burrs are on a single plane, the non-directional nature of a Nylox disc brush produces a part on which all edges have been uniformly deburred.



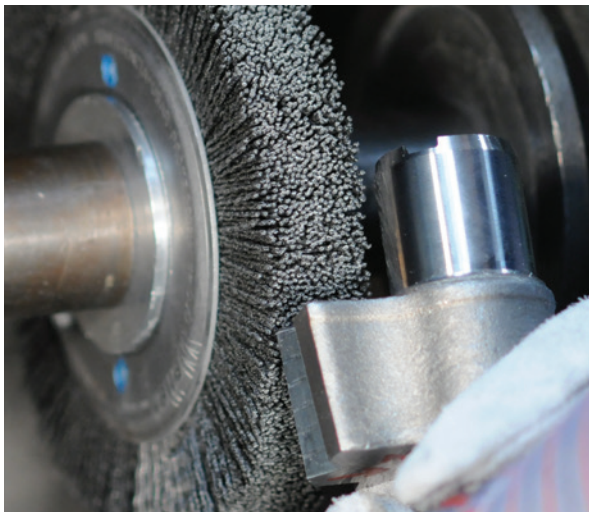




STEERING COMPONENT

Problem: Manual deburring can be costly in many respects. Hard deburring tools and aggressive abrasive wheels do not allow much margin for operator error and the result is often high scrap rates.

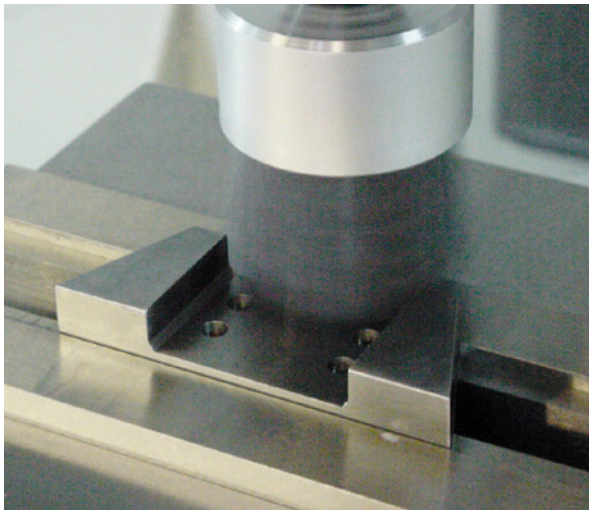
Solution: Nylox brushes produce a flexible filing action that concentrates all of the abrasive cutting action on sharp edges, giving them the ability to remove burrs without altering overall part dimensions. For example, a 6" Burr-Rx® wheel mounted onto a 1,725 RPM pedestal buffer is capable of deburring this steering component just as quickly as a convolute wheel but without the fear of over-radiusing the edges of the teeth or producing flat spots.

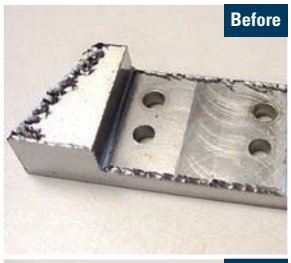


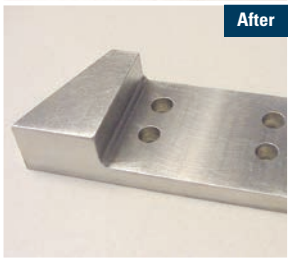
TOOL STEEL DEBURRING

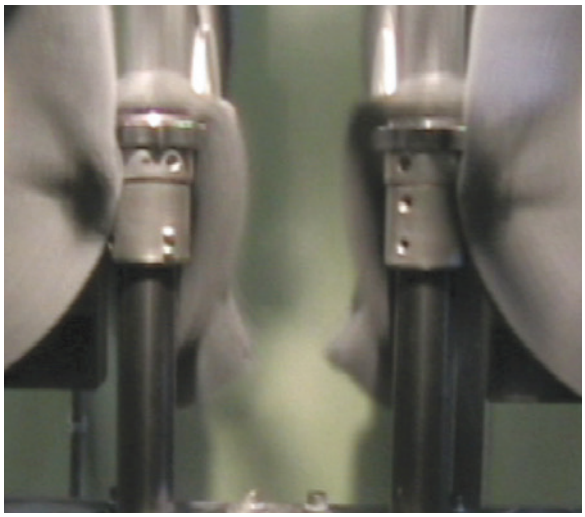
Problem: Traditional nylon abrasive brushes were not sufficiently aggressive to remove large burrs from materials like tool steels and stainless steels.

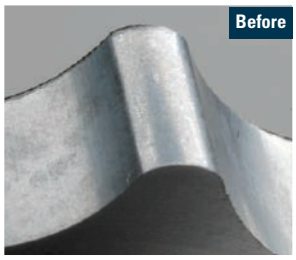
Solution: Weiler's next generation filament technology, embodied in the company's line of Burr-Rx brushes, creates sufficient aggression to handle the toughest deburring jobs. This enables more users to capture the benefits offered by in-machine deburring.







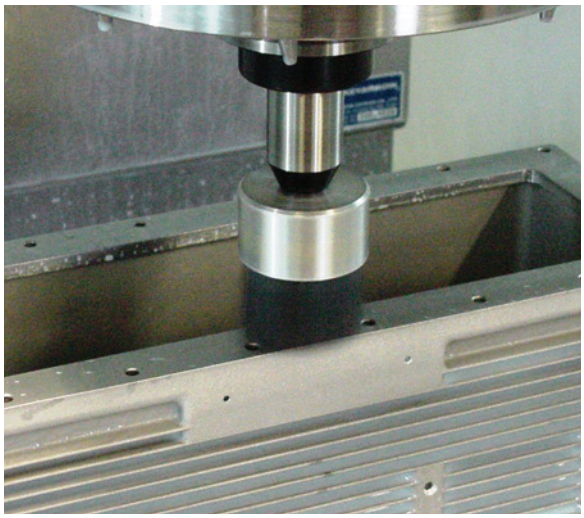


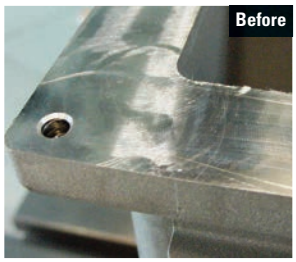


PUMP GEAR

Problem: Pumps are extremely susceptible to failure due to burrs. Due to the tight fit between components, all edges must be deburred and radiused to ensure proper function. Proper deburring of rotating pump gears is especially important.

Solution: A dedicated machine running 14" Nylox® wheel brushes at 900 RPM was a low-cost solution for deburring these gears. By using dedicated equipment, cycle time was minimized and an acceptable edge condition was achieved.





CAST ALUMINUM HOUSING

Problem: Although deburring the face-milled surfaces of castings is a very straight forward application for Nylox disc brushes, the limited availability of valuable machine time can be a perceived obstacle that prevents users from reaping the many benefits of implementing in-machine deburring operations.

Solution: The advanced ceramic grain technology of Weiler's Burr-Rx® tools offer a deburring action that is up to 400% greater than traditional abrasive nylon brushes that contain silicon carbide or aluminum oxide filaments. This allows Burr-Rx deburring tools to be used at feed rates that dramatically reduce the amount of additional machine time required to perform a brushing operation.

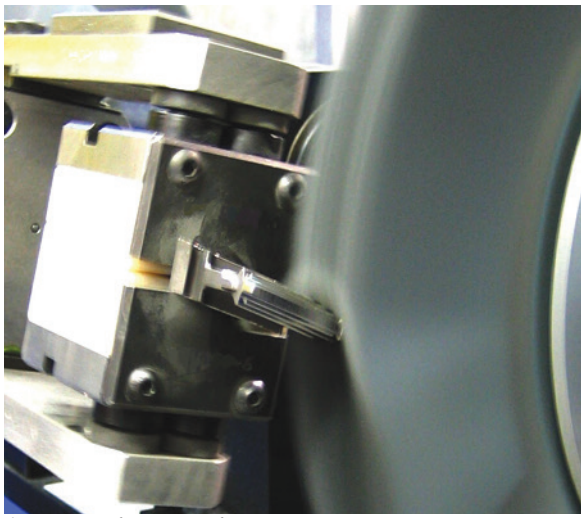


Photo courtesy of ACME Manufacturing.

TURBINE BLADE

Problem: Protecting turbine engine components against high-temperature fatigue is critical to ensure safe, reliable engine operation. Component edges must be burr-free and generally require an edge radius in the range of 0.005" to 0.060".

Solution: Robots are extremely well-suited for this application because they can manipulate the component in many orientations in relation to the brush. Weiler works closely with users and robot integrators to develop products and process programs that maximize brush life while generating exceptional part quality and consistency.

SELECTING THE RIGHT BRUSH

WHERE TO START?

Sometimes it's necessary to design and manufacture a unique, custom-tailored product to meet your application requirements. Although Weiler offers such engineered solutions in all of our product lines, the innovative construction and value-added nature of the Nylox® line of nylon abrasive filament brushes showcases the creativity and expertise of our Application Engineering Team in designing products that have been tailored to the needs of the customer.

- Custom-engineered Nylox brushes can be designed and manufactured as variations on our standard products.
- Wide face brush assemblies for finishing flat surfaces or deburring cylindrical parts can also be designed and manufactured using Nylox nylon abrasive filaments. (See pages 100-101 for more information)

FOR SOLUTIONS TO DIFFICULT APPLICATIONS

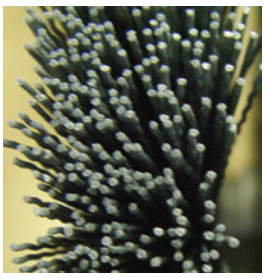
Call our Application Engineering Hotline at 888-299-APPS (2777).

If the problem is too complex to be solved over the phone, we will determine if an evaluation should be conducted at our in-house lab or the user's facility.

TRIM LENGTH AND FILL DENSITY

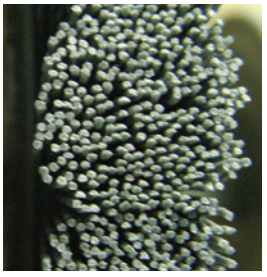
To maximize brush life and reduce costs, always use the shortest trim, highest density brush that will adequately conform to the surface or part edges.

LONG TRIM, LOW DENSITY



These brushes offer a greater degree of flexibility that is ideal for applications requiring a high degree of brush conformability. However, the lower fill density can result in shorter brush life and less consistent performance.

SHORT TRIM, HIGH DENSITY



These brushes work with a faster action and less engagement with the brush face. This produces shorter cycle times, more consistent performance and longer life in applications that do not require a high degree of brush conformability.

GRIT SIZE COLORS

Grit size is indicated by a dot on the product with the following colors:

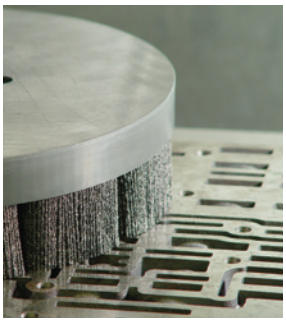
- **Black** 46 Grit
- **Red** 60 Grit
- **Yellow** 80 Grit
- **Green** 120 Grit
- **Grey** 180 Grit
- **Orange** 240 Grit
- **Gold** 200 Grit
- **White** 320 Grit
- **Brown** 500 Grit
- **Purple** 600 Grit
- **Blue** 1000 Grit
- **Lt. Blue** 800 Grit
- **Pink** 1200 Grit

PRODUCT ADVANTAGES

AGGRESSIVE YET COMPLIANT

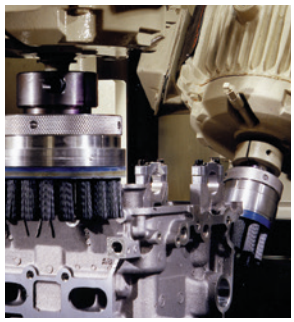
- Nylox® brushes do not alter the overall dimensions or geometry of a part.
- Filament compliance allows these brushes to conform to complex part shapes and reduces the need for ultra-precise programming and fixturing.

IDEAL FOR DEBURRING



- Nylox filaments act like flexible files, deburring and radiusing edges as they wipe across them.
- Their limited aggression and flexible filing action also make them suitable for deburring a wider range of materials in comparison to wire-filled power brushes.

IDEAL FOR AUTOMATION



- Abrasive grain is evenly distributed throughout the nylon filament.
- Extremely consistent performance throughout their product life.
- Ideal media for use in automated deburring and finishing processes.
- Ideal for dedicated production equipment or robotic cells.
- Can be directly integrated into the cycle of CNC machining centers.
- Improve part quality and consistency.
- Reduce direct labor cost.

ENHANCED SURFACE FINISHES

- The compliant cutting action not only limits their ability to alter part dimensions, but it makes them an effective tool for refining surface texture characteristics without removing significant amounts of base material.
- Although they contain the same abrasive grain sizes, Nylox brushes will not generate the same prominent scratch pattern as a comparable coated abrasive product.

CONSTRUCTION ADVANTAGES

COMPETITOR'S METAL HUB

- Metal hub components are assembled under high pressure, potentially damaging the filaments and causing premature breakage.
- Retaining ring displaces filament material, creating a void in the center of the brush face.
- Lower fill density can result in shorter life and less consistent performance.

WEILER'S COMPOSITE HUB

- Molded hub construction eliminates filament breakage.
- Uniform distribution of fill material and superior balance.
- Higher fill density provides more aggressive brushing and longer life.
- Consistent performance as the brush wears.

WEILER'S COMPOSITE METAL HUB

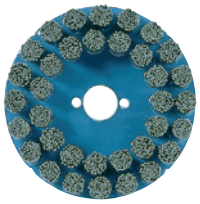
- Filaments retained using the latest polymer technology to prevent filament breakage.
- Metal components add impact resistance and dimensional stability.
- The highest filament density in the market ensures lowest cost-per-part.

WEILER'S PVC SHELL MILL

The PVC construction results in a very consistent, flat brush face. Their high dimensional precision makes them suitable for the most critical applications. They perform more consistently from the first part to the last.

WEILER'S TUFTED FILAMENTS

This construction style offers increased aggression due to added filament density. This enables processing of severe burrs or generating larger edge radii in shorter cycle times. The longer trim length allows for greater conformability and longer life.



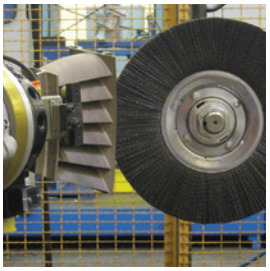
WEILER'S MAXIMUM DENSITY

Maximum density brushes are uniquely suited for demanding applications characterized by large burrs and rapid feed rates.

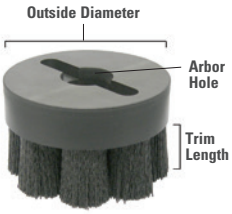
PRODUCT CHARACTERISTICS

WHEEL BRUSHES

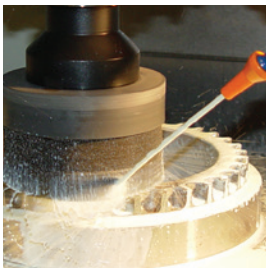
- Precision deburring of component parts after machining or grinding.
- Improving surface texture on machined or ground surfaces.
- Honing cutting tools and generating specific edge profiles and radii.
- Light duty cleaning and finishing of metals; light sanding of woods and composites.



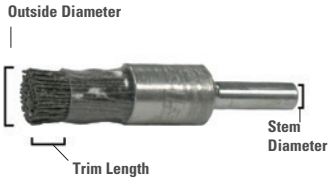
DISC BRUSHES



- Deburring flat surfaces on machined components.
- Improving texture on machined or ground surfaces.
- Deburring face-milled castings or forgings.
- Blending tool marks after machining or grinding.



END BRUSHES



- Deburring flat surfaces on machined components.
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- Deburring face-milled castings or forgings.
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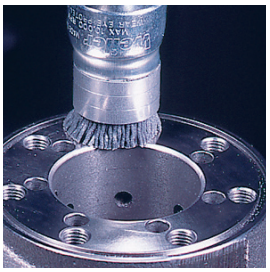
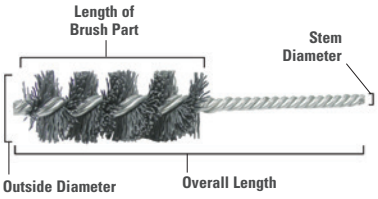
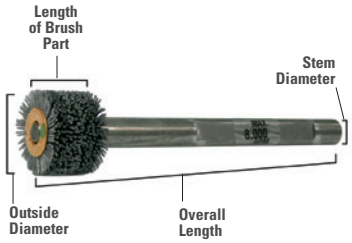


TUBE BRUSHES



- Deburring and finishing applications in tubular component parts, drilled and tapered holes and machined bores and passages.

CROSSHOLE DEBURRING BRUSHES



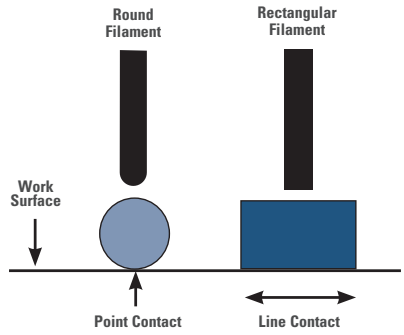
- Deburring internal edges.
- Improving surface texture on internal bores.

FILAMENT CONFIGURATIONS

ROUND FILAMENTS - Due to their cross-sectional shape and the reduced contact with the work surface or part edges that result, round filaments provide a more compliant brushing action for less aggression and enhanced conformability.

RECTANGULAR FILAMENTS - Due to their shape, larger cross-sectional area and increased contact with the work, rectangular filaments provide a less compliant brushing action for much greater aggression and reduced conformability.

Crimping either type of filament along its length enhances conformability, allowing greater penetration of part edges into the brush face, often increases aggression. Crimped filaments are especially beneficial in maximum density disc brush designs.



ABRASIVE FILAMENTS

Abrasive brush filaments are manufactured by extruding a mixture of liquefied polymer and abrasive grain. Unlike the filaments used in DIY grade abrasive brushes, industrial grade products like Weiler's Nylox® and Burr-Rx® brushes feature the highest grade of abrasive filament manufactured using a Type 6.12 nylon polymer. Industrial grade filaments also feature the highest quality abrasive materials that have been sifted and sorted to ensure that the grains are consistent in size. These grains may be one of four different types of abrasive:

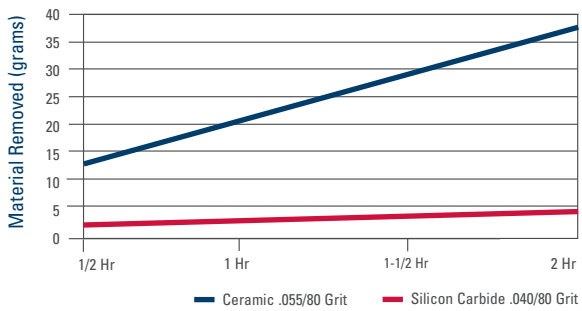
- **ALUMINUM OXIDE (AO) -** is a duller, less aggressive grain typically used in finishing applications requiring a less pronounced scratch line pattern or deburring applications on materials where the use of SiC may be prohibited
- **SILICON CARBIDE (SIC)** is a sharp-edged grain that produces an effective cutting action. It is the most common grain used in industrial grade brushes.
- **BURR-RX CERAMIC (CG)** is an engineered abrasive grain that produces a superior cutting action and is compatible with the widest range of materials. It is the most effective grain available today!
- **DIAMOND FILAMENT** is a sharp-edged grain typically used for producing edge radii on hard materials like diamond, ceramic, CBN and glass.

ADVANTAGES OF BURR-RX CERAMIC

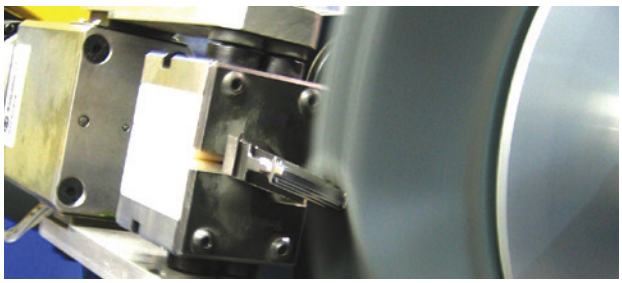
Nylox brushes containing the Burr-Rx black ceramic filament provide the following advantages over SiC and AO filaments.

- 400% greater cutting action
- Most cost-effective deburring brush
- Deburr tougher materials
- Minimize cycle time
- Maximize tool life
- Reduce finishing costs
- Eliminate hand deburring

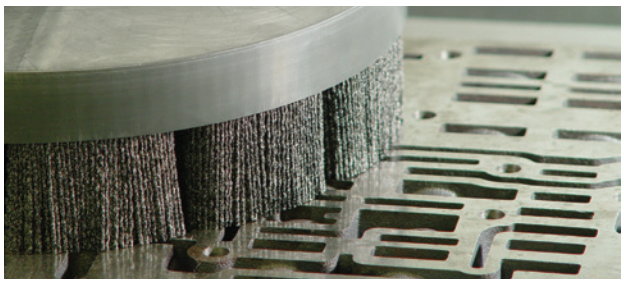
DEBURRING ACTION - BURR-RX (CG VS. SIC)



WHEEL VS. DISC BRUSH



Nylox wheel brushes are for applications where a targeted brushing action is required.

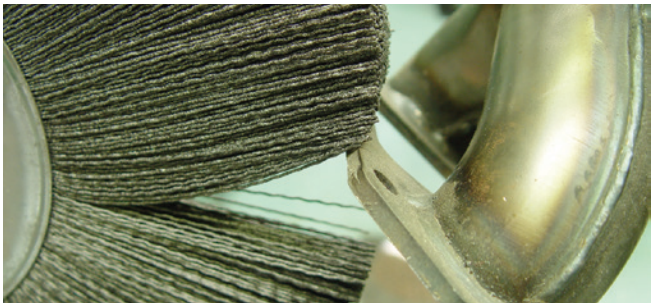


Disc brushes are for applications where the burrs lie along a single plane.

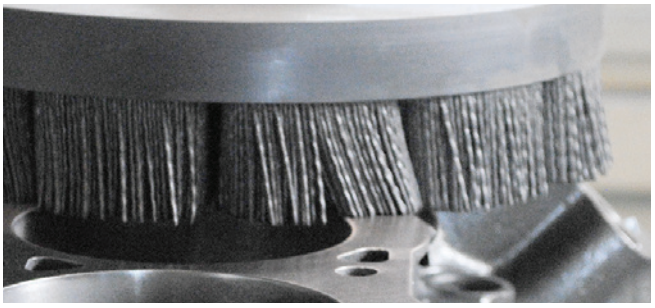
OPERATING PARAMETERS

Nylox® abrasive brushes work with a wiping and filing action. Think of them as flexible files. The sides of the Nylox filament actually do the work. To achieve a maximum edge radius and complete burr removal, parts should be buried into a slow running brush face. They work best when operated at speeds that allow fairly deep penetration of the work-piece into the brush filaments. Usually, faster speeds do not work as well as slower speeds. The maximum RPM marked on the brush is not the optimum working speed. A good rule of thumb is to stay under 2,500 SFPM in dry applications and 3,500 SFPM in wet applications.

WHEEL BRUSHES
PENETRATE 10% OF TRIM LENGTH



DISC BRUSHES
0.075" - 0.100" DEPTH OF INTERFERENCE



OPERATING SPEEDS - WHEEL BRUSHES

Diameter	RPM
2"	3,450 - 5,000
3"	2,500 - 3,450
4"	1,750 - 2,500
6"	1,350 - 1,750
8"	1,150 - 1,350
10"	950 - 1,150
12"	750 - 950
14"	650 - 850

OPERATING SPEEDS - DISC BRUSHES

Diameter	RPM
1-3/4" & 2"	1,750 - 2,000
3"-4"	1,500 - 1,750
5" - 6"	1,250 - 1,500
8"	800 - 1,000
10"	700 - 800
12"	600 - 700
14"	500 - 600

FEED RATE is determined by the amount of deburring, edge radiusing or surface finishing required and the type of material that is being processed. It is generally application specific. Slower feeds result in a more aggressive brushing action. Based on the brushing action desired for a specific application, the feed rate can be increased or decreased.

Material	SiC and AO Grain Feed Rate	Burr-Rx Grain Feed Rate
Non-Ferrous	50 in./min.	80 in./min.
Cast Iron	30 in./min.	60 in./min.
Mild Steel and Ductile Iron	25 in./min.	50 in./min.
Stainless and Alloy Steels	15 in./min.	30 in./min.
Titanium and High Nickel Alloys	10 in./min.	30 in./min.

RECOMMENDED MOTOR SIZES

Brush Diameter	Motor Size	RPM*
3"-4"	1/4 HP	3,450
6"	1/2 HP	1,725
8"	3/4 HP	1,725
10"	1 HP	1,140
12"	1 HP	1,140
14"	1-1/2 HP	900

Note: This chart is based on 1" brush face.

* A variable-speed motor control may be required to achieve optimum operating RPM; see operating speed charts above.

MINIMUM RECOMMENDED SPINDLE DIAMETER
(from ANSI Standard B165.1)

Outside Dia. of Wheel Brush	Maximum Face Width of Wheel Brush	Minimum Outside Dia. of Spindle (Shaft)
2"	1/4"	1/4"
3"	3/4"	1/4"
3" (heavy-duty)	1"	3/8"
4"	1"	3/8"
6"	1-1/4"	1/2"
8"	1-1/4"	5/8"
10"	2"	3/4"
12"	3"	1"
14"	3"	1-1/4"
15"	3"	2"
16"	3"	2"

Note: These diameters are based on the wheel brush being mounted next to the supported end of the shaft rather than the unsupported end in order to minimize overhang.

COOLANT & WEAR COMPENSATION

COOLANTS

Nylox® brushes can be run dry, without coolants. However, certain deburring conditions such as higher speeds, material properties and greater depth of penetration can create excessive heat buildup, causing the nylon filaments to melt and smear on the work surface. If the speed or depth of penetration cannot be changed, coolants are recommended to overcome heat smear. Coolants will also help produce finer finishes.

WEAR COMPENSATION

On dedicated equipment, it is possible to automate wear compensation by using electronic controls to monitor the load on drive motors and adjust the position of the brushing tool to maintain a relatively consistent amount of interference or pressure. Since this is typically not possible with standard CNC machine tools, there are three other possible methods of compensating for tool wear for "in-machine" implementations of Nylox brushes.

AUTOMATIC INDEXING

Most CNC controllers allow tool wear compensation to be accomplished by programming a "macro" - routine to periodically adjust the position of the tool based upon the number of parts produced. Some experimentation may be required to determine the frequency and amount of adjustment that will result for most consistent performance and maximum brush life.

PROBING

If the machining center has the capability to probe the face of the brush, this feature can be used to gauge the true position of the filament tips. Adjustments to the brush position can then be made to maintain a consistent amount of interference between the tool and the part.

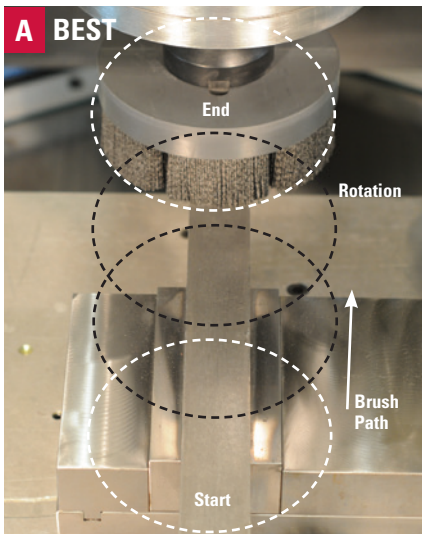
MANUAL

If the other methods cannot possibly be used, machine operators can adjust the brush position based on either statistical process control data or visual inspection of completed parts.

THE IDEAL TOOL PATH for a Nylox Disc brush is very similar to the path of the face mill that produced the burr. However, three differences exist:

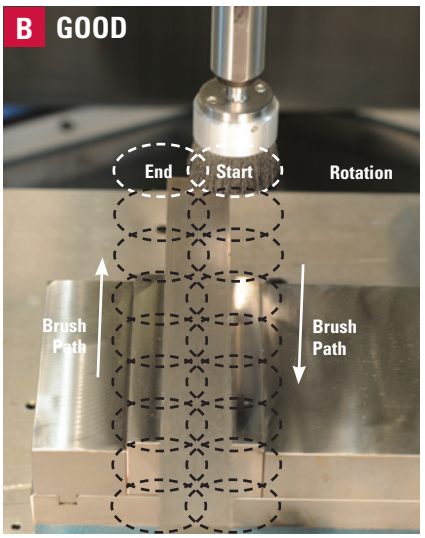
- The rotation direction of the brush should be opposite of the cutting tool that created the burr.
- The length of the path must be longer than the part. Unlike a cutter path that can stop when the leading edge of the cutter reaches the end of the part, the tool path of a brush should continue until the trailing edge of the brush reaches the end of the part.
- The centerline of the brush may need to be off-set from the center of the part in order to maximize the number of filaments that strike the part at a perpendicular angle. This is especially important when the diameter of the brush is similar to the width of the part.

The part is deburred in the shortest cycle time with the lowest consumable cost-per-part.



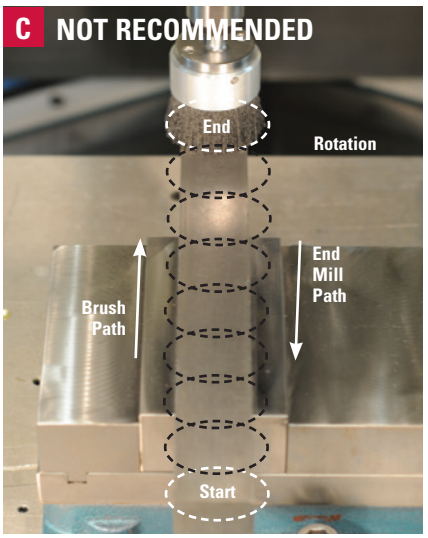
If a large diameter brush can be used, the centerline of the brush should be positioned on the center of the part. Ideally, the brush should be 3-4" wider than the part.

The part is deburred, but requires a longer cycle time. When a large brush will not fit in the tool changer, this method is recommended.



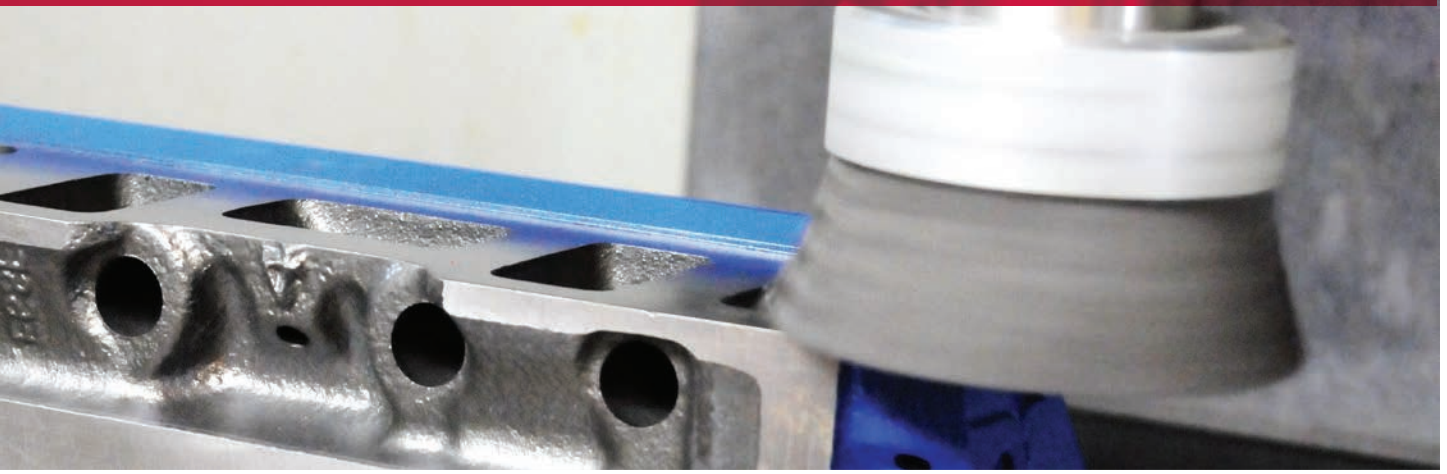
If a small diameter brush must be used, the centerline of the brush should be positioned on the edge of the part. This maximizes aggression by increasing the amount of perpendicular contact between the brush filaments and the burred edge.

Produces less deburring than A & B.



Positioning a small diameter brush with its centerline on the center of the part is not recommended. This configuration will not allow perpendicular contact of the filaments against the burred edge.

COOLANT COMPATIBILITY



NYLOX® BRUSHES IN AUTOMATED ENVIRONMENTS

MYTH: The abrasive grain in the Nylox brush will affect the accuracy of the equipment over time.

FACT: The abrasive grain in the Nylox brushes will not result in accelerated machine wear over time when used with proper filtration (50-micron or finer).

Automotive Case Study

In the auto industry a five year study was conducted on the use of Weiler Nylox brushes with silicon carbide (SiC) grain in the manufacturing of aluminum intake and exhaust manifolds. Over the period of the study, there was no noticeable difference in way wear between machines that ran brushes and those that did not. A 50-micron coolant filter worked as specified to remove the residuals from the brushing process.

Aerospace Case Study

A three year study was conducted on the use of Weiler Nylox brushes with ceramic grain (CG) in the manufacture of jet engine components. Over the period of the study, there was no loss in accuracy in the aerospace manufacturer's machines. A 50-micron coolant filter worked as specified to remove the residuals from the brushing process.

ENGINEERED PRODUCTS AND CUSTOMIZED SOLUTIONS

Two members of our Application Engineering Team discuss the results after testing an engineered product.

WE PROVIDE YOU WITH THE MOST COST-EFFECTIVE APPLICATION SOLUTIONS

Sometimes it is necessary to design and manufacture a unique, custom tailored product to meet your application requirements. Although Weiler offers such engineered solutions in all of our product lines, the innovative construction and value-added nature of the Nylox® line of nylon abrasive filament brushes showcases the creativity and expertise of our Application Engineering Team in designing products that have been tailored to the needs of the customer.

- Custom-engineered Nylox brushes can be designed and manufactured as variations on standard product configurations such as wheel, disc, cup, end, or tube brushes.
- Weiler's exclusive Burr-Rx® and Bore-Rx™ brushing tools can be engineered to meet the demands of a specific application.
- Wide face brush assemblies for applications such as finishing flat surfaces or deburring cylindrical parts can also be designed and manufactured using Nylox nylon abrasive filaments. (See pages 100-101 for more information)

FOR SOLUTIONS TO DIFFICULT APPLICATIONS

Call our Application Engineering Hotline at 888-299-APPS (2777).

If the problem is too complex to be solved over the phone, we will determine if an evaluation should be conducted at our in-house lab or the user's facility.

TROUBLESHOOTING GUIDE

There are many variables in Nylox® applications. If the Nylox brush you are using does not accomplish the desired results, select a solution from the suggestions below for your specific application or call Weiler's Application Engineering Hotline at 888-299-APPS (2777).

Problem	Recommended Solutions
Brush not aggressive enough	• Increase filament diameter and/or grit size • Increase filament density by using round straight rather than round crimped • Increase surface contact by using rectangular rather than round • Increase pressure/depth of interference • Increase surface speed by increasing spindle RPM • Use a larger diameter brush • Reduce trim length or feed rate
Brush too aggressive	• Reduce filament diameter and/or grit size • Reduce filament density by using round crimped rather than round straight • Reduce surface contact by using round rather than rectangular • Reduce pressure/depth of interference • Reduce surface speed by reducing spindle RPM • Use a smaller diameter brush • Increase trim length or feed rate
Brush not conformable enough	• Increase trim length • Reduce filament diameter • Reduce filament density by using round crimped rather than round straight or rectangular • Reduce surface speed by reducing spindle RPM • Reduce feed rate
Finer final finish required	• Increase surface speed by increasing spindle RPM • Decrease grit size • Use brush with a coolant
Coarser final finish required	• Reduce surface speed by reducing spindle RPM • Increase grit size • Use brush without a coolant
Filaments melt/smear on workpiece	• Reduce surface speed by reducing spindle RPM • Use a smaller diameter brush • Use brush with a coolant
Short brush life	• Increase filament density • Reduce pressure/depth of interference

NEED HELP?

Call our Application Engineering Hotline at 888-299-APPS (2777). If the problem is too complex to be solved over the phone, we will determine if an evaluation should be conducted at our in-house lab or your facility. Either way, Weiler will provide the most cost-effective solution for your specific application.

SMALL DIAMETER WHEELS

Ideal for recesses and internal features or delivering targeted brushing action to a specific area. Our Burr-Rx® black ceramic grain filament wheels deliver up to a 400% greater edge-cutting action compared to traditional silicon carbide and aluminum oxide filaments for the fastest, most aggressive action for minimum cycle times and maximum life.

APPLICATIONS

- Deburring keyways, slots and crosshole intersections
- Honing and finishing of cylindrical bores
- Honing and finishing of cylindrical bores

Deburring the edges of a machined aluminum component.

BURR-RX® SMALL DIAMETER WHEELS - **Metal Hub** - Crimped Round Black Ceramic Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Max. RPM	Standard Pack	Item Number
1-1/4"	.026/120	1/4"	5/16"	5/16"	10,000	10	17551
1-1/2"	.026/120	1/2"	3/8"	1/4"	10,000	10	17541
2"	.026/120	1/2"	3/8"	1/2"	10,000	10	17548
	.035/80						17555
	.055/80						17542
2-1/2"	.026/120	5/8"	1/2"	11/16"	10,000	10	17556
	.035/80						17557
3"	.026/120	1/2"	1/2"	1"	10,000	10	17565
	.035/80						17567
	.043/120						17568

Other diameters and grit sizes available upon request.

17568

SMALL DIAMETER WHEELS - **Metal Hub** - Crimped Round Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Max. RPM	Standard Pack	Item Number
1-1/8"	.022/120	1/4"	5/16"	1/4"	10,000	10	17532
1-1/4"	.022/120	1/4"	5/16"	5/16"	10,000	10	17535
1-3/8"	.018/500	1/4"	5/16"	3/8"	10,000	10	16316
1-1/2"	.022/120	1/2"	3/8"	1/4"	10,000	10	17628
	.035/180						29353
2"	.018/500	1/2"	3/8"	1/2"	10,000	10	17533
	.022/320						17543
	.040/120						17633
2"	.022/120	5/8"	7/16"	7/16"	10,000	10	17629
2-1/2"	.022/320	5/8"	1/2"	11/16"	10,000	10	29356
	.022/120						29123
	.035/180						29280
3"	.035/180	1/2"	1/2"	1"	10,000	10	29088
	.022/320						17563
	.022/120						16315
	.040/120						16263

Other diameters and grit sizes available upon request.

17533

DRIVE ARBORS - For mounting small diameter wheels into a collet or chuck.

Arbor Diameter	Stem Diameter	Stem Length	Length of Shaft	For Brushes with Max. Dia. of	Overall Length	Max. RPM	Standard Pack	Item Number
Unthreaded Shaft								
1/4"	1/4"	1-1/8"	3/16"	2"	2-1/16"	20,000	5	07723
Threaded Shaft								
1/2"	1/4"	3/4"	3/4"	3"	1-3/4"	25,000	5	07724
5/8"	1/4"	3/4"	3/4"	3"	1-13/16"	25,000	5	07729
1/2"	1/4"	7/8"	3/4"	3"	1-11/16"	20,000	5	07721
1/4"	1/4"	1-1/16"	1-1/8"	2"	2-9/16"	20,000	5	07725

07723

07724

07729

07721

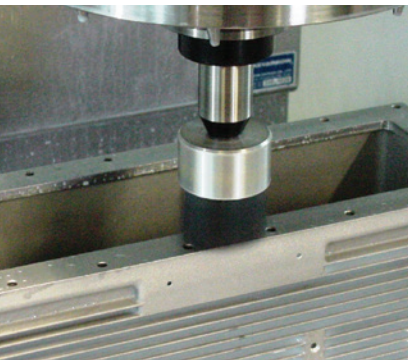
07725

PLASTIC ADAPTERS for mounting small diameter wheels onto various arbor sizes.

Fixed Arbor Hole Size	Adapted Arbor Hole Size	Standard Pack	Item Number
1/2"	1/4"	10	04400
1/2"	3/8"	10	04401
5/8"	1/2"	10	04402

04401 04402

NOTE
See adapters on pages 128-129



Deburring the machined face of an aluminum component.

END BRUSHES

Featuring an integral stem for convenient mounting into a tool holder or collet, Nylox® end brushes and miniature end brushes are suitable for addressing recesses and internal features, or delivering a targeted brushing action to a specific area on a part.

APPLICATIONS

- Deburring small recessed areas and internal part features
- Finishing slots and recessed surfaces on machined parts

86104

BURR-RX® END BRUSHES - **Banded** - Crimped Round Black Ceramic Filament - Mounted on 1/4" Stems

Diameter	Filament Dia./Grit	Trim Length*	Recommended RPM	Overall Length	Max. RPM	Standard Pack	Item Number
3/8"	.026/120	1/4"	4,500 - 5,000	2-3/8"	10,000	10	86098
	.043/120						86099
1/2"	.026/120	1/4"	4,500 - 5,000	2-7/16"	10,000	10	86100
	.043/120						86101
3/4"	.026/120	1/4"	4,200 - 5,000	2-7/16"	10,000	10	86102
	.043/120						86103
1"	.026/120	1/4"	3,500 - 3,800	2-5/8"	10,000	10	86104
	.043/120						86105
	.055/80						86097

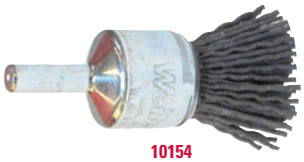
* Trim length from bands

11166

END BRUSHES - **Banded** - Crimped Round Silicon Carbide Filament - Mounted on 1/4" Stems

Diameter	Filament Dia./Grit	Trim Length*	Overall Length	Max. RPM	Standard Pack	Item Number
1/2"	.022/320	3/8"	2-9/16"	10,000	10	11160
	.035/180					11161
	.040/120					11162
3/4"	.035/180	3/8"	2-7/16"	10,000	10	11165
	.040/120					11166
1"	.035/180	3/8"	2-11/16"	10,000	10	11169
	.040/120					11170

* Trim length from bands



10154

END BRUSHES - Crimped Round Silicon Carbide Filament - Mounted on 1/4" Stems

Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
1/2"	.022/320	7/8"	2-9/16"	10,000	10	10172
	.035/180					10173
	.040/120					10174
3/4"	.022/320	7/8"	1-1/2"	10,000	10	10152
	.035/180					10153
	.040/120					10154
1"	.022/320	7/8"	2-3/4"	10,000	10	10155
	.035/180					10156
	.040/120					10157

26136

MINIATURE END BRUSHES - **Plastic Ferrule** - Crimped Round Silicon Carbide Filament Mounted on 1/8" stems

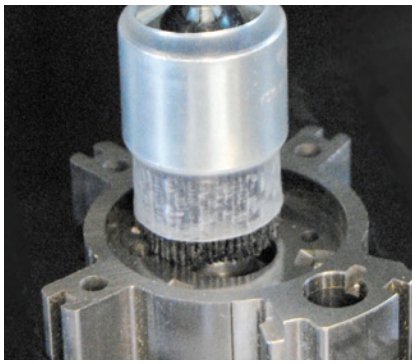
Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
3/16"	.018/500	1/4"	1-7/8"	37,000	144	26136
1/4"	.018/500	3/8"	2-1/8"	37,000	144	26138
5/16"	.018/500	9/16"	2-11/32"	25,000	144	26146

MINI DISC BRUSHES

Featuring a precision machined aluminum cup, Weiler's mini-disc brushes are designed to be the most cost-effective media for applications requiring a smaller brushing tool.

APPLICATIONS

- Deburring flat surfaces on machined components
- Improving texture characteristics on machined or ground surfaces
- Deburring face-milled castings or forgings
- Blending tool marks after machining or grinding



Deburring small features on a powdered metal part.

BURR-RX® MINI DISC BRUSHES - **Maximum Density** - Crimped Black Ceramic Filament

Diameter	Filament Dia./Grit	Arbor Hole	Drive Arbor + Recommendation	Trim Length	Max. RPM	Standard Pack	Item Number
Round Filament							
2"	.026/120	3/8"	89029 or 89033	1-1/4"	4,500	2	86106
	.035/80					1	85738
	.043/120					2	86107
	.055/80					2	85733
3"	.026/120	3/8"	89029 or 89033	1-1/4"	4,500	1	86109
	.035/80						86013
	.043/120						86110
	.055/80						86111
Rectangular Filament							
2"	80	3/8"	89029 or 89033	1-1/4"	4,500	1	85736
3"	80	3/8"	89029 or 89033	1-1/4"	4,500	1	86014

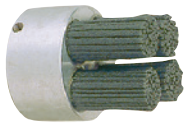
+ See page 129 for drive arbor specifications.

85733

MINI DISC BRUSHES - Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Drive Arbor + Recommendation	Trim Length	Max. RPM	Standard Pack	Item Number
Round Filament							
1-3/4"	.035/180	5/8"	89023 or 89024	1-1/4"	6,000	2	85753
	.022/120						85751
	.040/80						85750
Rectangular Filament							
1-3/4"	80	5/8"	89023 or 89024	1-1/4"	6,000	2	85752
2"	80	3/8"	89023 or 89024	1-1/4"	4,500	2	85773*
3"	80	3/8"	89023 or 89024	1-1/4"	4,500	1	85981*

+ See page 129 for drive arbor specifications. * Maximum density



85752

85981

CUP BRUSHES

Weiler also offers an assortment of Nylox® tools featuring traditional cup brush construction for deburring and finishing use in lighter duty applications. These brushing tools can be used on dedicated machines in automated processes or on low speed/high torque hand-held tools for manual applications.

APPLICATIONS

- Deburring and finishing complex or contoured parts

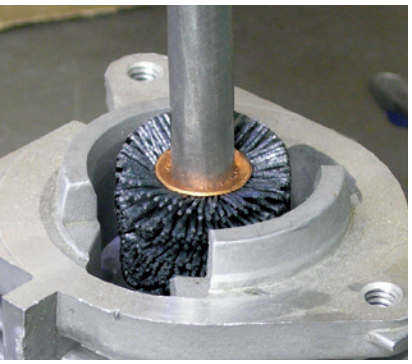
CUP BRUSHES - Crimped Round Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Trim Length	Max. RPM	Standard Pack	Item Number
2-3/4"	.022/320	1/4" Stem	1-1/4"	6,000	1	14401
	.035/180					14403
	.040/120					14404
3-1/2"	.035/180	5/8"-11	1-1/2"	12,000	1	14413
	.040/120					14414
5"	.040/120	5/8"-11	1-1/4"	8,000	1	14576
6"	.040/120	5/8"-11	1-1/4"	6,600	1	14516*
	.040/80					14506*

* With internal nut

14413

NOTE
See adapters on pages 128-129



Deburring internal bores of a cylinder head.

CUSTOMIZABLE CROSSHOLE DEBURRING SOLUTIONS

Replacement Bore-Rx Brush Heads and Reusable Bore-Rx Arbors

In high production applications, reusable arbors reduce manufacturing costs by allowing the use of inexpensive brush head replacements. Brush heads are made-to-order in diameters ranging from 7/8" to 1-1/2" with face widths of 1/4" to 1". They are available on 3/16" and 1/4" pins. The pin diameter is based on the application and determines brush density. Contact Application Engineering at 888-299-APPS (2777) for more information.

Replacement Head

Reusable Arbor 03993

Reusable Extension 03991

BORE-RX™ CROSSHOLE DEBURRING BRUSHES

These brushes are designed for automated applications in CNC machining centers and dedicated machines. They are ideal for removing burrs from internal edges and finishing bores. Since they eliminate off-hand deburring, they improve part-to-part consistency and reduce direct labor content. Bore-Rx brushes are available in sizes ranging from 7/8" to 4" and can be readily adapted into a machining center's tool changer using an end-mill holder or 3/8" collet.

Operating Parameters For Bore-Rx Brushes

Brush Diameter	Recommended RPM	Recommended Feed Rate
5/8" - 7/8"	3000	20"/min
1" - 1-1/2"	3000	20"/min
2" - 2-1/2"	2000	20"/min
3" - 4"	1500	20"/min

Tool Paths for Crosshole Deburring

An effective tool path for most crosshole deburring jobs is circular interpolation using the following guidelines to determine diameter of interpolation. The interpolation should be performed at a depth where the center of the brush face is at the center of the intersecting hole.

■ Diameter of Interpolation = Hole Dia. - 0.975 x Brush Dia.

Tool Paths for Bore Finishing

Nylox® brushes can be used to improve the surface finish of bores. The best tool path normally involves helically interpolating the bore. The above recommendations for speed, feed and diameter of interpolation are also valid for bore finishing. The use of coolant is highly recommended in order to achieve maximum surface finish improvement.

86155

17208

BORE-RX BRUSHES - 3/8" Stem - Crimped Round Black Ceramic Filament

Diameter	Filament Dia./Grit	Face Width	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
7/8"	.026"/120	3/4"	.160"	4-3/4"	8,000	1	17206
1"	.026"/120	3/4"	.215"	4-3/4"	8,000	1	17208
1-1/4"	.026"/120	3/4"	.345"	4-3/4"	8,000	1	17210
1-1/2"	.026"/120	1"	.475"	5"	8,000	1	17212
2"	.026"/120	1"	.535"	3-1/4"	6,000	1	17215
2-1/2"	.055"/80	1"	.765"	3-1/4"	6,000	1	17217
3"	.026/120 .043/120 .055/80	1"	.560"	3-1/4"	6,000	1	86150 86151 86152
4"	.026/120 .043/120 .055/80	1"	1.040"	3-1/4"	6,000	1	86154 86155 86156

Note: All Bore-Rx brush stems have a 2" long flat for use in end mill holders. Alternatively, they can be mounted in 3/8" collets.

TUBE BRUSHES

Nylox® power tube brushes are ideal for internal deburring and finishing applications in tubular component parts, drilled and tapered holes, and machined bores and passages. These brushes are suitable for use in drill presses and manual and CNC machine tools. See page 88 for operating guidelines.

26904

26908

26915

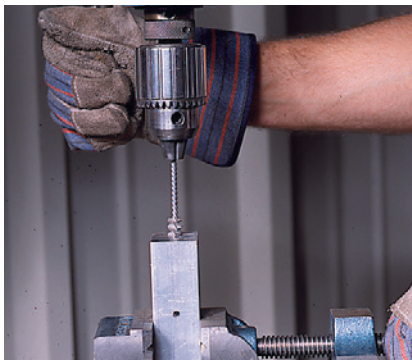
TUBE BRUSHES - Micro Abrasive - For ultra-fine deburring and finishing of small internal holes.

Diameter	Length of Brush Part	Stem Diameter	For Hole Diameters Decimal	For Hole Diameters Fraction	Overall Length	Standard Pack	Item Number
2000 Grit Aluminum Oxide Filament							
.030"	1/2"	.015	.031"	1/32"	4"	10	26900
.050"	1/2"	.022	.047"	3/64"	4"		26901
.075"	3/4"	.033	.063"	1/16"	4"		26902
.090"	3/4"	.041	.078"	5/64"	4"		26903
.105"	1"	.041	.094"	3/32"	4"		26904
.125"	1"	.064	.109"	7/64"	4"		26905
.135"	1"	.075	.125"	1/8"	4"		26906
600 Grit Aluminum Oxide Filament							
.165"	1"	.087	.156"	5/32"	5"	10	26907
.190"	1"	.087	.188"	3/16"	5"		26908
.260"	1"	.115	.250"	1/4"	5"		26909
.325"	1"	.115	.313"	5/16"	5"		26910
.385"	1"	.147	.375"	3/8"	5"		26911
.515"	1"	.194	.500"	1/2"	5"		26912
.640"	1"	.194	.625"	5/8"	5"		26913
.765"	1"	.212	.750"	3/4"	5"		26914
.890"	1"	.212	.875"	7/8"	5"		26915

NEW! **NOW OFFERING MORE SIZE OPTIONS**

BURR-RX® TUBE BRUSHES - Crimped Black Ceramic Filament - 1/4" Cadmium Plated Stems

Nominal Diameter	Traditional Diameter	Metric Diameter	Filament Dia./Grit	Length of Brush Part	Stem Diameter	Overall Length	Standard Pack	Item Number
6mm	0.236"	6.00 mm	.026/120	1"	1/4"	3-1/2"	10	22602
1/4"	0.250"	6.35 mm	.026/120	1"	1/4"	3-1/2"	10	21757
7mm	0.276"	7.00 mm	.026/120	1"	1/4"	3-1/2"	10	22603
8mm	0.315"	8.00 mm	.026/120	1"	1/4"	3-1/2"	10	22604
9mm	0.354"	9.00 mm	.026/120	1"	1/4"	3-1/2"	10	22605
3/8"	0.375"	9.53 mm	.026/120	1"	1/4"	3-1/2"	10	21758
10mm	0.394"	10.00 mm	.026/120	1"	1/4"	3-1/2"	10	22606
11mm	0.433"	11.00 mm	.026/120	1"	1/4"	3-1/2"	10	22607
12mm	0.472"	12.00 mm	.026/120	1"	1/4"	3-1/2"	10	22608
1/2"	0.500"	12.70 mm	.026/120	1"	1/4"	3-1/2"	10	21759
14mm	0.551"	14.00 mm	.026/120	1"	1/4"	3-1/2"	10	22610
9/16"	0.563"	14.29 mm	.026/120	1"	1/4"	3-1/2"	10	21760
5/8"	0.625"	15.88 mm	.026/120	1"	1/4"	3-1/2"	10	21761
18mm	0.709"	18.00 mm	.026/120	1"	1/4"	3-1/2"	10	22614
3/4"	0.750"	19.05 mm	.026/120	1"	1/4"	3-1/2"	10	21762
20mm	0.787"	20.00 mm	.026/120	1"	1/4"	3-1/2"	10	22616
7/8"	0.875"	22.23 mm	.026/120	1"	1/4"	3-1/2"	10	21763
1"	1.000"	25.40 mm	.026/120	1"	1/4"	3-1/2"	10	21764
1-1/4"	1.250"	31.75 mm	.026/120	1"	1/4"	3-1/2"	10	21765



Crosshole deburring an aluminum manifold.

21759

TUBE BRUSHES - Crimped Round Silicon Carbide Filament - Double Stem, Single Spiral

Diameter	Filament Dia./Grit	Length of Brush Part	Stem Diameter	Overall Length	Standard Pack	Item Number
1/4"	.022/320	2"	5/32"	5"	10	21126
3/8"	.022/320	2"	5/32"	5"	10	21128
1/2"	.022/320 .040/80	2"	3/16"	5"	10	21130 21325
5/8"	.022/320 .040/80	2"	7/32"	5"	10	21132 21326
11/16"	.022/320	2"	7/32"	5"	10	21133
3/4"	.022/320 .040/80	2-1/2"	1/4"	5-1/2"	10	21134 21327
7/8"	.022/320 .040/80	2-1/2"	1/4"	5-1/2"	10	21136 21976
1"	.022/320 .040/80	2-1/2"	1/4"	5-1/2"	10	21138 21328
1-1/4"	.022/320 .022/120 .035/180 .040/80	2-1/2"	1/4"	5-1/2"	10	21306 21304 21305 21329
1-1/2"	.022/320 .035/180 .040/80	2-1/2"	1/4"	5-1/2"	10	21309 21308 21330
1-3/4"	.040/80 .035/180	2-1/2"	1/4"	5-1/2"	10	21311 21312
2"	.022/320 .040/80	2-1/2"	1/4"	5-1/2"	10	21473 21345

21128

21138

21473

Deburring a bearing cage in a CNC machining center.

DISC BRUSHES

Manufactured using a tufted filament configuration and longer trim length for increased aggression, greater conformability and longer product life in comparison to monofilament disc brushes, which feature a distribution of short individual bristles.

Burr-Rx® disc brushes feature Weiler's advanced black ceramic grain filament, which delivers up to a 400% greater edge cutting action in comparison to traditional silicon carbide and aluminum oxide filaments for the fastest, most aggressive deburring action for minimum cycle times and maximum life.

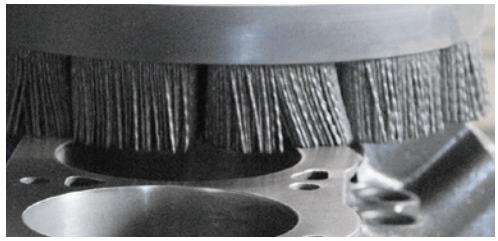
All Burr-Rx disc brushes are manufactured using a new process that results in a very consistent, flat brush face in comparison to traditional construction, which utilizes a molded backing. The high dimensional precision of these tools means that the brushes are suitable for the most critical applications and perform more consistently from first part to last. In addition, the machined polymer backings are designed to mount directly onto a standard shell mill holder for convenient use in CNC machining centers.

APPLICATIONS

- Deburring flat surfaces on machined components
- Improving texture characteristics on machined or ground surfaces
- Deburring face-milled castings or forgings
- Blending tool marks after machining or grinding

Disc brush shown with shell mill holder

DISC BRUSHES
0.075" - 0.100" DEPTH OF INTERFERENCE



OPERATING SPEEDS - DISC BRUSHES

Diameter	RPM
1-3/4" & 2"	1,750 - 2,000
3"-4"	1,500 - 1,750
5" - 6"	1,250 - 1,500
8"	800 - 1,000
10"	700 - 800
12"	600 - 700
14"	500 - 600

FEED RATE RECOMMENDATIONS

Feed rate is determined by the amount of deburring, edge radiusing or surface finishing required, and the type of material that is being processed. It is generally application specific. Slower feeds result in a more aggressive brushing action. Based on the brushing action desired for a specific application, the feed rate can be increased or decreased.

Material	SiC and AO Grain Feed Rate	Burr-Rx Grain Feed Rate
Non-Ferrous	50 in./min.	80 in./min.
Cast Iron	30 in./min.	60 in./min.
Mild Steel and Ductile Iron	25 in./min.	50 in./min.
Stainless and Alloy Steels	15 in./min.	30 in./min.
Titanium and High Nickel Alloys	10 in./min.	30 in./min.

86112

86143

BURR-RX SHELL MILL HOLDER DISC BRUSHES - Crimped Black Ceramic Filament

Compatible with 3" shell mill holders.

Diameter	Filament Dia./Grit	Arbor Hole	Trim Length	Max. RPM	Standard Pack	Item Number
Round Filament						
4"	.026/120	1-1/4"	1-1/2"	2,500	1	86112
	.043/120					86113
	.043/120					86204*
	.055/80					86114*
6"	.026/120	1-1/4"	1-1/2"	2,500	1	86115
	.043/120					86116
	.055/80					86117*
8"	.026/120	1-1/4"	1-1/2"	2,000	1	86141
	.043/120					86142
	.055/80					86143*
10"	.026/120	1-1/4"	1-1/2"	2,000	1	86125
	.043/120					86121
	.055/80					86122*
Rectangular Filament						
4"	80	1-1/4"	1-1/2"	2,500	1	86167*
6"	80	1-1/4"	1-1/2"	2,500	1	86198*
8"	80	1-1/4"	1-1/2"	2,500	1	86199*

* Maximum Density

COMPOSITE HUB DISC BRUSHES - Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Drive Arbor Recommendation	Trim Length	Max. RPM	Standard Pack	Item Number
Crimped Round Filament							
3"	.035/180	7/8"	07700	1-1/2"	2,500	1	85776
	.040/120						85778
3-1/2"	.022/320	7/8"	07700	1-1/2"	2,500	1	85792
	.035/180						85794
	.040/80						85798
4"	.022/320	7/8"	07700	1-1/2"	2,500	1	85812
	.035/180						85814
	.040/120						85816
	.040/80						85818
5"	.035/180	7/8"	07700	1-1/2"	2,500	1	85832
	.040/80						85836
6"	.035/180	7/8"	07701	1-1/2"	2,000	1	85850
	.040/120						85852
	.040/80						85854
8"	.035/180	7/8"	07702	1-1/2"	2,000	1	85908
	.040/120						85912
	.040/80						85914
10"	.040/120	7/8"	07703	1-1/2"	1,750	1	85930
	.040/80						85932
12"	.035/180	7/8"	07703	1-1/2"	1,750	1	85946
	.040/120						85948
Rectangular Filament							
3"	120	7/8"	07700	1-1/2"	2,500	1	85786
	80						85788
3-1/2"	320	7/8"	07700	1-1/2"	2,500	1	85800
	80						85806
4"	180	7/8"	07700	1-1/2"	2,500	1	85822
	120						85824
	80						85826
	80						85995•
	80						85900*•
5"	120	7/8"	07700	1-1/2"	2,500	1	85842
	80						85844
	80						85978•
6"	120	7/8"	07701	1-1/2"	2,000	1	85860
	80		07701				85862
	80		07715				85996•
	80		07715				85901*•
8"	120	7/8"	07702	1-1/2"	2,000	1	85920
	80						85922
9"	80	7/8"	07702	1-1/2"	1,750	1	85997•
10"	120	7/8"	07703	1-1/2"	1,750	1	85938
	80						85940

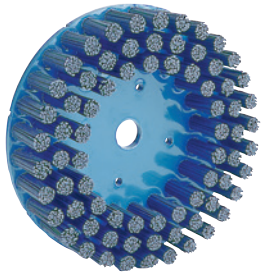
* Banded for extra aggression

• Maximum density

Deburring the edges of an aluminum engine cover.

85852

85978



85920

Arbor & Drive Hole Specifications for Composite Hub Disc Brushes

Brush Diameter	Arbor Hole Diameter	Drive Holes
3"-5", 6" Max. Density	7/8"	(2) 1/4" dia. on a 1-1/4" dia. bolt circle
6"	7/8"	(3) 1/4" dia. on a 3" dia. bolt circle
8"	7/8"	(4) 1/4" dia. on a 3" dia. bolt circle
10"	7/8"	(4) 1/4" dia. on a 1.625" dia. bolt circle
12"	7/8"	(4) 1/4" dia. on a 1.625" dia. bolt circle

NOTE
See adapters on pages 128-129

Removing burrs and breaking sharp edges on a transmission component.

MINI DISC BRUSHES

Featuring a precision machined aluminum cup, Weiler's mini-disc brushes are designed to be the most cost-effective media for applications requiring a smaller brushing tool.

APPLICATIONS

- Deburring flat surfaces on machined components
- Improving texture characteristics on machined or ground surfaces
- Deburring face-milled castings or forgings
- Blending tool marks after machining or grinding

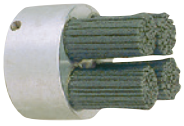
BURR-RX® MINI DISC BRUSHES - **Maximum Density** - Crimped Black Ceramic Filament

85733

Diameter	Filament Dia./Grit	Arbor Hole	Drive Arbor + Recommendation	Trim Length	Max. RPM	Standard Pack	Item Number
Round Filament							
2"	.026/120	3/8"	89029 or 89033	1-1/4"	4,500	2	86106
	.035/80					1	85738
	.043/120					2	86107
	.055/80					2	85733
3"	.026/120	3/8"	89029 or 89033	1-1/4"	4,500	1	86109
	.035/80						86013
	.043/120						86110
	.055/80						86111
Rectangular Filament							
2"	80	3/8"	89029 or 89033	1-1/4"	4,500	1	85736
3"	80	3/8"	89029 or 89033	1-1/4"	4,500	1	86014

+ See page 129 for drive arbor specifications.

MINI DISC BRUSHES - Silicon Carbide Filament

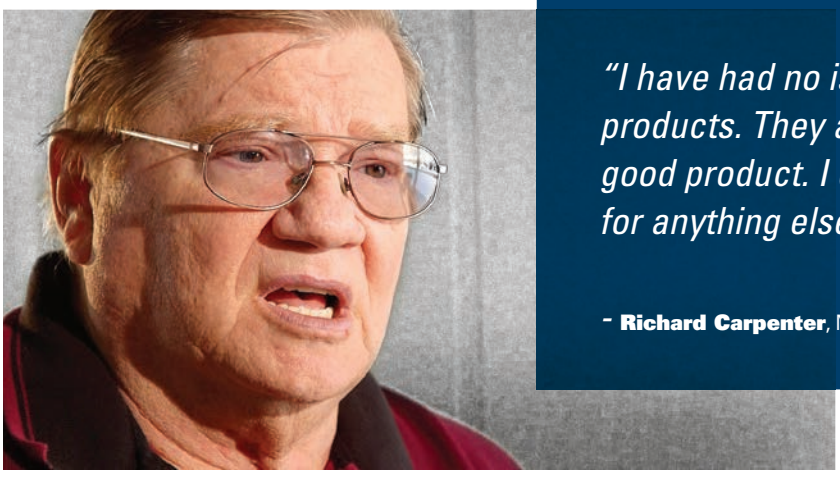


85752

85981

Diameter	Filament Dia./Grit	Arbor Hole	Drive Arbor + Recommendation	Trim Length	Max. RPM	Standard Pack	Item Number
Round Filament							
1-3/4"	.035/180	5/8"	89023 or 89024	1-1/4"	6,000	2	85753
	.022/120						85751
	.040/80						85750
Rectangular Filament							
1-3/4"	80	5/8"	89023 or 89024	1-1/4"	6,000	2	85752
2"	80	3/8"	89023 or 89024	1-1/4"	4,500	2	85773*
3"	80	3/8"	89023 or 89024	1-1/4"	4,500	1	85981*

+ See page 129 for drive arbor specifications. * Maximum density



"I have had no issues with any Weiler products. They are reliable. They make a good product. I don't think you could ask for anything else."

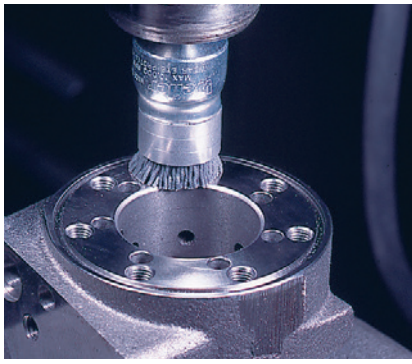
- **Richard Carpenter**, Nuclear Industry Worker

END BRUSHES

Featuring an integral stem for convenient mounting into a tool holder or collet, Nylox® end brushes and miniature end brushes are suitable for addressing recesses and internal features, or delivering a targeted brushing action to a specific area on a part.

APPLICATIONS

- Deburring small recessed areas and internal part features
- Finishing slots and recessed surfaces on machined parts



Blending tool marks on a hydraulic component.

BURR-RX® END BRUSHES - **Banded** - Crimped Round Black Ceramic Filament - Mounted on 1/4" Stems

Diameter	Filament Dia./Grit	Trim Length*	Recommended RPM	Overall Length	Max. RPM	Standard Pack	Item Number
3/8"	.026/120	1/4"	4,500 - 5,000	2-3/8"	10,000	10	86098
	.043/120						86099
1/2"	.026/120	1/4"	4,500 - 5,000	2-7/16"	10,000	10	86100
	.043/120						86101
3/4"	.026/120	1/4"	4,200 - 4,500	2-7/16"	10,000	10	86102
	.043/120						86103
1"	.026/120	1/4"	3,500 - 3,800	2-5/8"	10,000	10	86104
	.043/120						86105
	.055/80						86097

* Trim length from bands

86104

END BRUSHES - **Banded** - Crimped Round Silicon Carbide Filament - Mounted on 1/4" Stems

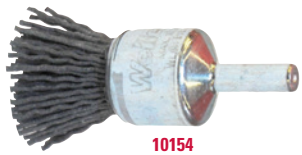
Diameter	Filament Dia./Grit	Trim Length*	Overall Length	Max. RPM	Standard Pack	Item Number
1/2"	.022/320	3/8"	2-9/16"	10,000	10	11160
	.035/180					11161
	.040/120					11162
3/4"	.035/180	3/8"	2-7/16"	10,000	10	11165
	.040/120					11166
1"	.035/180	3/8"	2-11/16"	10,000	10	11169
	.040/120					11170

* Trim length from bands

11166

END BRUSHES - Crimped Round Silicon Carbide Filament - Mounted on 1/4" Stems

Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
1/2"	.022/320	7/8"	2-9/16"	10,000	10	10172
	.035/180					10173
	.040/120					10174
3/4"	.022/320	7/8"	1-1/2"	10,000	10	10152
	.035/180					10153
	.040/120					10154
1"	.022/320	7/8"	2-3/4"	10,000	10	10155
	.035/180					10156
	.040/120					10157



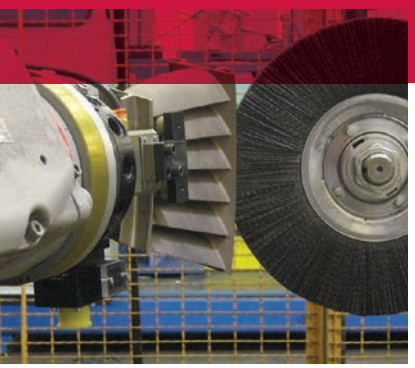
10154

MINIATURE END BRUSHES - **Plastic Ferrule** - Crimped Round Silicon Carbide Filament

Mounted on 1/8" stems

Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
3/16"	.018/500	1/4"	1-7/8"	37,000	144	26136
1/4"	.018/500	3/8"	2-1/8"	37,000	144	26138
5/16"	.018/500	9/16"	2-11/32"	25,000	144	26146

26136



Deburring a vane section for a jet engine.

WHEEL BRUSHES

Weiler's Nylox® abrasive nylon wheel brushes featuring composite metal hub and composite hub construction are manufactured using a molded polymer material to retain the filaments. In comparison to traditional metal hub construction that folds the fill material around an internal retaining ring or wrap wire, these techniques result in a significant increase in fill density and elimination of filament breakage, offering the lowest cost-of-use and greatest consistency of performance in production applications.

Weiler's composite metal hub wheels marry the high density and superior filament retention of composite hub wheels with the dimensional stability and shock resistance of metal hub construction, and they feature 2" arbor holes, which allows for convenient mounting on many pieces of equipment.

Burr-Rx® wheels feature Weiler's advanced black ceramic grain filament, which delivers up to a 400% greater edge cutting action in comparison to traditional silicon carbide and aluminum oxide filaments for the fastest, most aggressive deburring action to minimize cycle times and maximize media life.

86123

86131

86135

83394

APPLICATIONS

- Precision deburring of component parts after machining or grinding
- Improving texture characteristics on machined or ground surfaces
- Honing cutting tools and generating specific edge profiles and radii
- Light duty cleaning and finishing of metals; light sanding of woods and composites

BURR-RX CRIMPED FILAMENT WHEELS

Composite Metal Hub* - Crimped Round Black Ceramic Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness At Face Plates	Max. RPM	Standard Pack	Item Number
6"	.026/120	2"	3/4"	1"	15/16"	4,000	1	86123
	.035/80							86181
	.043/120							86124
	.055/80							86120
8"	.026/120	2"	7/8"	2"	15/16"	4,000	1	86126
	.043/120							86127
	.055/80							86128
10"	.026/120	2"★	1-1/8"	2"	7/8"	1,800	2	86129
	.035/80							86182
	.043/120							86130
	.055/80							86131
12"	.026/120	2"★	1-1/4"	3"	7/8"	1,800	2	86132
	.043/120							86133
	.055/80							86134
14"	.026/120	2"★	1"	1-3/4"	3/4"	1,800	2	86135
	.035/80							86108
	.043/120							86136
	.055/80							86137
14"	.026/120	2"★	1-1/4"	4"	7/8"	1,800	2	86138
	.043/120							86139
	.055/80							86140

*Patent Pending

★ 1/2" x 1/4" Double Keyway

BURR-RX CRIMPED FILAMENT WHEELS

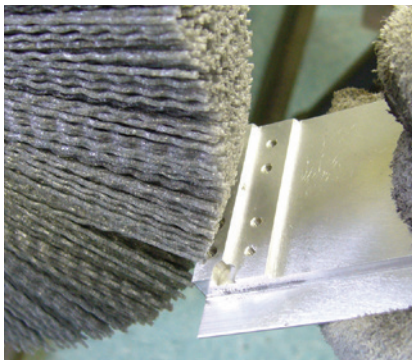
Composite Hub - Crimped Round Black Ceramic Filament

O.D. x I.D.	Filament Dia./Grit	Face Width	Trim Length	Thickness At Face Plates	Max. RPM	Standard Pack	Item Number
8" x 3-1/4"	.043/120	1"	1-5/16"	13/16"	1,800	2	83394
14" x 7-1/4"	.026/120	1"	2-3/4"	15/16"	1,800	2	84926
	.043/120						84941
	.035/80						84925
	.055/80						83405

CRIMPED FILAMENT WHEELS - **Composite Metal Hub*** - Crimped Round Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
6"	.018/500	2"	1"	1-1/4"	1-1/16"	4,000	1	83000
	.022/320							83010
	.022/120							83011
	.035/180							83030
	.040/120							83040
	.040/80							83050
	.060/46							83070
8"	.018/500	2"	1"	2-1/4"	3/4"	4,000	2	83100
	.022/320							83110
	.022/120							83111
	.035/180							83130
	.040/120							83140
	.040/80							83150
10"	.022/320	2"★	1-1/8"	2"	7/8"	1,800	2	83513
	.035/180							83514
	.040/120							83515
	.040/80							83516
12"	.022/320	2"★	1-1/4"	3"	7/8"	1,800	2	83715
	.035/180							83716
	.040/120							83717
	.040/80							83718

*Patent Pending ★ 1/2" x 1/4" Double Keyway



Removing burrs from an aluminum heat sink.

83000

83516

RECTANGULAR FILAMENT WHEEL - **Composite Metal Hub*** - Straight Silicon Carbide Filament

Diameter	Grit Size	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
12"	80	2"★	1-1/4"	3"	7/8"	1,800	2	85014

*Patent Pending ★ 1/2" x 1/4" Double Keyway

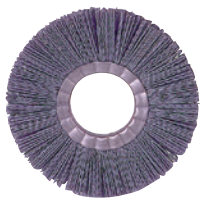
85014

METAL HUB BASIC SECTIONS

CRIMPED FILAMENT BASIC SECTIONS - **Metal Hub** - Crimped Round Silicon Carbide Filament

For light-duty deburring and finishing in applications such as low-volume manual deburring or general use in a tool room or shop.

O.D. x I.D.	Filament Dia./Grit	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
6" x 2"	.022/320	5/8"	1-1/2"	9/16"	6,000	2	20600
	.035/180						20610
	.040/120						20620
8" x 2"	.022/320	5/8"	2-1/2"	9/16"	5,000	2	20630
	.040/120						20650
10" x 3-1/4"	.035/180	9/16"	2-7/8"	17/32"	4,500	2	20661
14" x 5-1/4"	.035/180	9/16"	3-7/8"	9/16"	3,000	2	20730



20620

NOTE
See adapters on pages 128-129

Deburring the tip of a turbine blade.

NARROW FACE WHEELS

BURR-RX® HEAVY-DUTY NARROW FACE WHEELS - **Metal Hub** - Crimped Round Black Ceramic Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
3"	.026/120	5/8"-1/2"	9/16"	1/2"	7/16"	6,000	2	31240
	.035/80							31241
4"	.026/120	5/8"-1/2"	5/8"	1"	7/16"	6,000	2	31110
	.035/80							31270
	.043/120							31280
	.055/80							31290

31110

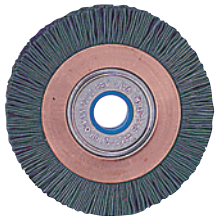
BURR-RX NARROW FACE WHEELS - **Metal Hub** - Crimped Round Black Ceramic Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
3"	.035/80	1/2"-3/8"	3/8"	1/2"	7/16"	6,000	2	31102
	.043/120							31101
4"	.026/120	1/2"-3/8"	1/2"	7/8"	7/16"	6,000	2	86165
	.035/80							31103
	.043/120							31100
	.055/80							31105
6"	.026/120	5/8"-1/2"	5/8"	7/8"	11/16"	4,500	2	31134
	.043/120							31135
	.035/80							31136
	.055/80							31137

86165

HEAVY-DUTY NARROW FACE WHEELS - **Metal Hub** - Crimped Round Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
3"	.040/80	5/8"-1/2"	9/16"	1/2"	7/16"	6,000	2	31245
4"	.022/320	5/8"-1/2"	5/8"	1"	7/16"	6,000	2	31255
	.035/180							31265
	.040/120							31275
	.040/80							31285



31255

NARROW FACE WHEELS - **Metal Hub** - Crimped Round Silicon Carbide Filament

Diameter	Filament Dia./Grit	Arbor Hole	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
3"	.022/320	1/2"-3/8"	3/8"	1/2"	7/16"	6,000	2	31074
	.035/180							31084
	.040/120							31094
4"	.022/320	1/2"-3/8"	1/2"	7/8"	7/16"	6,000	2	31104
	.035/180							31114
	.040/120							31124
6"	.022/320	5/8"-1/2"	5/8"	7/8"	11/16"	4,500	1	31121
	.035/180							31122
	.040/120							31123

31124

APPLICATION ENGINEERED WHEELS

CRIMPED FILAMENT WHEELS - **Composite Hub** - Crimped Round Silicon Carbide Filament

O.D. x I.D.	Filament Dia./Grit	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
6" x 2"	.040/80	1/2"	1-1/4"	9/16"	3,600	1	83116
8" x 2"*	.040/120	7/8"	2-1/8"	13/16"	3,600	2	83190
	.040/80						83180
8" x 3-1/4"	.040/80	1"	1-5/16"	13/16"	1,800	2	83393
10" x 2"	.018/500	1"	3"	1-1/16"	3,600	2	83300
	.022/320						83310
	.035/180						83330
	.040/120						83340
	.040/80						83350
10" x 3-1/4"	.035/180	1"	2-5/16"	13/16"	1,800	2	83430
	.040/120						83440
	.040/80						83450
10" x 5-1/4"	.040/80	1"	1-5/8"	15/16"	1,800	2	83550
12" x 3-1/4"	.035/180	1-1/8"	3-5/16"	13/16"	1,800	2	83630
	.040/120						83640
12" x 4-1/4"	.022/320	1"	3-1/8"	15/16"	1,800	2	84710
	.035/180						84730
	.040/120						84740
	.040/80						84750
12" x 5-1/4"	.040/120	1-1/8"	2-3/4"	15/16"	1,800	2	83740
	.040/80						83750
12" x 5-1/4"-2"*	.022/320	1-1/8"	2-3/4"	1-1/16"	1,800	2	85156•
14" x 5-1/4"	.022/320	1-1/8"	3-3/4"	15/16"	1,800	2	83910
	.035/180						83930
	.040/120						83940
	.040/80						83950
14" x 5-1/4"-2"*	.022/320	1-1/8"	3-3/4"	1-1/16"	1,800	2	85150•
	.040/80						85153•
20" x 12"	.035/180	1-1/4"	3-1/4"	1-1/16"	1,000	1	85440

• Same density as our standard 5-1/4" I.D. brushes, but requires no adapters for mounting on a 2" diameter shaft.
* 1/2" x 1/4" Double Keyway

RECTANGULAR FILAMENT WHEEL - **Composite Hub** - Straight Silicon Carbide Filament

O.D. x I.D.	Grit Size	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
14" x 5-1/4"	120	1-1/8"	3-3/4"	1-1/16"	1,800	2	84640

Other diameters and grit sizes available upon request.

DIAMOND FILAMENT WHEEL BRUSHES

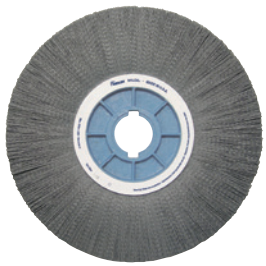
Weiler's diamond filament wheels are ideal for producing edge radii on hard materials such as diamond, CBN, ceramic and glass. Our wheel brushes are made-to-order in a wide range of diameters and thicknesses. Additional configurations are available such as; tube brushes, composite hub disc brushes and end brushes. Other sizes and pricing are available on request. Please contact Customer Service at 800-835-9999.

DIAMOND FILAMENT WHEELS - **Composite Hub** - Round Diamond Filament

O.D. x I.D.	Filament Dia./Grit	Face Width	Trim Length	Thickness Through Arbor	Max. RPM	Standard Pack	Item Number
6" x 2"	.024/200	5/16"	1-1/4"	1/4"	3,600	1	83002
	.014/600						83003
	.012/1000						83004
8" x 2"	.024/200	5/16"	2-1/4"	1/4"	3,600	1	83005
	.014/600						83006
	.012/1000						83007

Deburring a camshaft with a Nylox wheel.

83190



85150

84640

83005

NOTE
See adapters on pages 128-129

ADAPTERS AND DRIVE ARBORS

03809

METAL ADAPTERS - **Reusable** - Used in pairs and priced per pair.

Diameter	Arbor Hole Size	Used With	Standard Pack	Item Number
2"	1/2"	All 2" I.D.	1	03809
	5/8"	Wheels		03810
	3/4"			03811
	7/8"			03824
	1"			03812
	1-1/4"			03813
	1-1/2"			03814
3-1/4"	3/4"	3-1/4" I.D.	1	03910
	7/8"	Wheels		03911
	1"	(When mounting		03912
	1-1/4"	only one wheel)		03913
	2"			03915
5-1/4"	3/4"	5-1/4" I.D.	1	03920
	7/8"	Wheels		03921
	1"	(When mounting		03922
	1-1/4"	only one wheel)		03923
	2"			03925

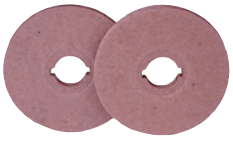
03923

03944

STEEL FLANGES - **Reusable** - Used on the ends of a gang mount. Used in pairs and priced per pair.

Must be used in conjunction with Pressboard Adapters in chart below.

Flange O.D.	Arbor Hole Size	Used With	Standard Pack	Item Number
5-5/8"	3/4"	3-1/4" & 4-1/4"	1	03931
	1"	I.D. Wheels		03933
	1-1/4"			03934
	2"			03936
6-1/2"	1-1/4"	5-1/4" I.D.	1	03944
	1-1/2"	Wheels		03945
	2"			03946
8-3/4"	1-1/4"	7-1/4" I.D.	1	03954
	1-1/2"	Wheels		03955
	2"			03956



03403

PRESSBOARD ADAPTERS - Used for centering 10", 12" and 14" Nylox® Wheels when gang mounting.

Must be used in conjunction with Steel Flanges in chart above.

Brush I.D.	Arbor Hole Size	Standard Pack	Item Number
3-1/4"	3/4"	1	03890
	1"		03892
	1-1/4"		03893
	2"		03895
4-1/4"	3/4"	1	03960
	1-1/4"		03963
	2"		03965
5-1/4"	1-1/4"	1	03403
	1-1/2"		03404
	2"		03405
7-1/4"	1-1/4"	1	03973
	1-1/2"		03974
	2"		03975

NOTE

The adapters and drive arbors listed on this page are for use with small diameter wheel brushes only; do not attempt to use them with cutting or grinding wheels, buffing wheels, or any type of abrasive wheel or disc.

83999

Lubricut™ Lubricant

Prevents Smearing.
Improves the Finish.
Lowers Costs.

1. Turn off machine.

2. Slowly rotate wheel by hand.

3. While rotating, direct a light spray of Lubricut into the wheel face.

Use with Nylox® wheels operating above the recommended surface speed. Directing a light spray of Lubricut into the face of the wheel permits the wheel to be operated at higher surface speeds and up to twice the normal load without smearing - while improving the finish.

Description	Ounces	Standard Pack	Item Number
Lubricut Lubricant	8	1	83999

PLASTIC ADAPTERS

Fixed Arbor Hole Size	Adapted Arbor Hole Size	Used With	Standard Pack	Item Number
1/2"	1/4"	Small Dia. Wheels	10	04400
1/2"	3/8"	Small Dia. Wheels	10	04401
5/8"	1/2"	Small Dia. Wheels	10	04402

04401 04402

MINIATURE & BURR-RX® DISC BRUSH DRIVE ARBORS - Includes drive arbor, set screw and hex key.

For Brush Diameter	Stem Diameter	Stem Length	Max. RPM	Standard Pack	Item Number
1-3/4"	1/4"	1-3/4"	6,000	1	89023*
1-3/4"	3/8"	1-3/4"	6,000	1	89024*
2"-3"	1/2"	1-3/4"	6,000	1	89029*

* For use with Burr-Rx Mini Disc brushes on page 117 & 122 only. Products supplied with set screw and wrench.

89029

MINIATURE & BURR-RX DISC BRUSH DRIVE ARBORS - Includes drive arbor, set screw and hex key. Recommended for operations in which brush rotation alternates between forward and reverse.

For Brush Diameter	Stem Diameter	Stem Length	Max. RPM	Standard Pack	Item Number
2"-3"	1/2"	1-3/4"	6,000	1	89033*

*For use with Burr-Rx Mini Disc brushes on page 117& 122 only. Products supplied with set screw and wrench.

89033

DISC BRUSH FLOW-THROUGH DRIVE ARBORS

Mounts Weiler disc brushes to any type of milling machine or CNC machine.

Fits	Arbor Hole	Drive Studs	Bolt Circle	Plate O.D.	Shaft Dia.	Stem Length	Std. Pack	Item Number
3", 4" and 5" Disc Brushes	7/8"	2	1-1/4"	2-7/8"	3/4"	2-3/4"	1	07700
6" Std. Tuft Disc Brushes NOT Max. Density	7/8"	3	3"	5-7/8"	3/4"	2-1/2"	1	07701
6" Max. Density Disc Brushes, also 5" Std. Tuft	7/8"	2	1-1/4"	4-7/8"	3/4"	2-1/2"	1	07715
8" and 9" Disc Brushes	7/8"	4	3"	7-7/8"	3/4"	2-1/2"	1	07702
10" and 12" Disc Brushes	7/8"	4	1-5/8"	9-7/8"	3/4"	2-1/2"	1	07703
Replacement kit includes: (1) 1/2"-13 locking flow-through bolt & (1) Belleville spring washer							1	07718

07700

07718

NOTE

- Do not adapt a wheel brush for use on a shaft diameter less than that specified by ANSI B165.1 (see page 61) or exceed the maximum wheel diameter specified for a drive arbor.
- Never mount a drive arbor onto a tool that operates above the maximum RPM rating of either the arbor or the brush (whichever may be lower) and be sure that the stem of the arbor is properly secured in the collet or chuck before use.

FME AREA PRODUCT SOLUTIONS

Removing gasket material from a pipe flange.

In nuclear power plants, Foreign Material Exclusion (FME) programs may limit or even exclude the use of wire brushes in some areas during the performance of routine maintenance, repair or shut-down activities. Weiler has developed a FME-compliant tooling system to address the needs of plant operators and maintenance contractors working in these facilities as well as other industries where the potential introduction of broken wire filaments may be of concern. Weiler's FME Solutions program is a complete system consisting of non-wire brushing tools designed to perform a broad range of surface cleaning and preparation applications.

BLACK NYLOX® CERAMIC BRUSHES - The engineered ceramic grain in Weiler's Black Nylox filament is up to 400% more aggressive than the silicon carbide and aluminum oxide grain in other abrasive filaments, making it much more effective in surface cleaning applications. The efficient cutting action of the Black Nylox filament also generates less heat and makes it much more resistant to "smearing" than traditional nylon abrasive filaments.

31112

86160

86148

86159

86171

44144

95016

NARROW FACE WHEELS - Crimped Ceramic Filament

Used on edge for weld prep and cold weld cleaning.

Diameter	Filament Dia./Grit	Face Width	Arbor Hole	Max. RPM	Standard Pack	Item Number
4"	.055/80	1/2"	5/8"-11 Nut	4,800	5	31112
4"	.043/120	1/2"	5/8"-11 Nut	4,800	5	31111

CUP BRUSH - Rectangular Ceramic Filament

Used on its face for heavy-duty cleaning of broad surfaces.

Diameter	Filament Dia./Grit	Arbor Hole	Max. RPM	Standard Pack	Item Number
4"	.049 x .098 - 80 Grit	5/8"-11 Nut	4,800	1	86160

END BRUSH - Crimped Ceramic Filament - 1/4" Stem

For spot-facing or cleaning in tight areas.

Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
1"	.055/80	1/4"	3-3/32"	4,800	10	86148

CONTROLLED FLARE END BRUSH - Crimped Ceramic Filament - 1/4" Stem

For cleaning corners and tight areas.

Diameter	Filament Dia./Grit	Trim Length	Overall Length	Max. RPM	Standard Pack	Item Number
1"	.035/80	1-1/8"	2-1/2"	4,800	10	86159

CONFLEX BRUSHES - Crimped Ceramic Filament - 1/4" Stem

For O.D. and I.D. cleaning in confined areas.

Diameter	Filament Dia./Grit	Face Width	Trim Length	Max. RPM	Standard Pack	Item Number
3"	.043/120	1"	15/16"	4,800	10	86171
3"	.055/80	1"	15/16"	4,800	10	86172

HAND SCRATCH BRUSHES - Crimped Ceramic Filament - For general purpose, light-duty cleaning.

Overall Length	Block Type	Brush Part	Grit Size	Trim Length	Standard Pack	Item Number
10"	Wood	5"	80	3/4"	12	44144
8-3/4"	Wood	2 x 9 Rows	120	5/8"	36	95016

NOTE

Nylon abrasive filament brushes require a lower operating RPM than most other power tool accessories and they cannot be used effectively on standard grinders.