Fifty Years of Fantastic Finishes
50
Scotch-Brite™
Since 1958

Scotch-Brite™
Surface Conditioning Wheels

Convolute, Unitized & Molded Wheels

3M

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Scotch-Brite™ Wheels

Scotch-Brite™ wheels, one of the most complete selections of surface conditioning wheels, continue to raise the bar for performance even after five decades.

Today, 3M develops wheels with new and advanced technology while continuously improving its existing product line.

Customers choose Scotch-Brite™ surface conditioning wheels because of their ease of use and consistent results. In addition, to assist in increasing productivity, customers are supported by dedicated Technical Service teams and 3M Innovation Centers around the world.

Scotch-Brite™ Wheels

- Can improve surfaces without significantly changing the shape or dimension of the workpiece.
- Are well-suited for an array of cleaning, blending, deburring, finishing and polishing applications.
- Help prevent undercutting or gouging through their controlled abrasive action.
- Provide consistent, uniform finishes as fresh abrasives are continually exposed to the work surface.
- Run cool and resist loading due to their open web construction, which reduces the risk of part discoloration and warping, while extending the life of the wheel.

Factors to consider when choosing a starting point for your application

- Composition of workpiece and material type
- Material hardness
- Desired results to be achieved
- Size and shape of the work piece (area to be conditioned)
- Part variability
- Tool/machinery type, including speed capability
- Previous and possible subsequent abrasive steps

Selecting Convolute vs. Unitized

This choice will often be determined by the part configuration, wheel size availability, tool speed or other fixed circumstances.

Convolute is a wrapped construction on a standard sized core and the "flat" of the web becomes the cutting tool. The wheels are one directional, which is indicated by an arrow on the side of the wheel and arrows printed in the core.

Unitized is a layered construction with a selection of center hole sizes and no core. The "edge" of the web becomes the cutting tool. The wheels are non-directional.

See Convolute and Unitized equivalency chart on page 25.

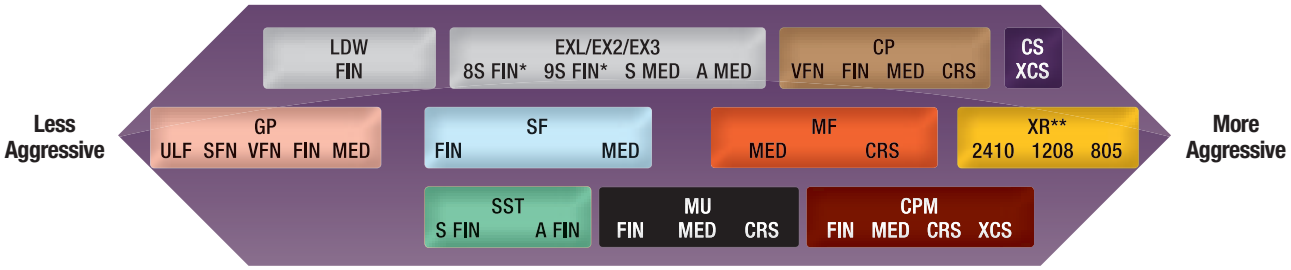
Basic Performance Differences

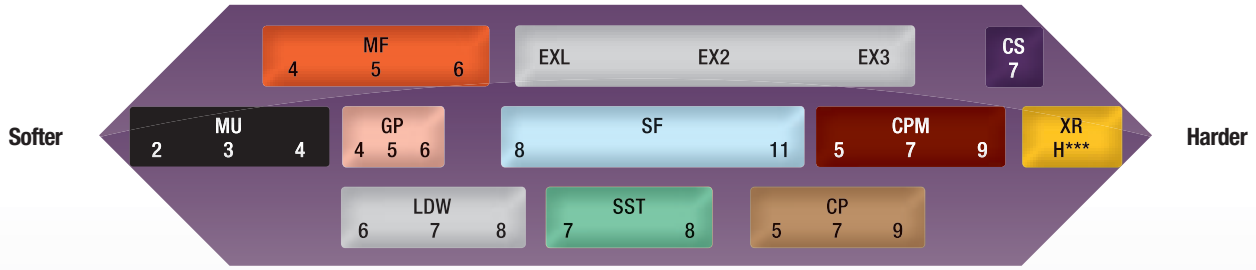
	Construction	Finish	Density	Size
Convolute	Wrapped construction on a standard sized core. One directional	Finer finish (grade for grade)	Softer and more conformable*	4"–24" dia. 1/2"–36" wide
Unitized	Layered construction with no core. Non-directional.	More aggressive and durable (grade for grade)	Harder and less conformable	1/2"–14" dia. 1/8"–1" wide

Exceptions depend on product type. Refer to the specific description page for availability.
* When comparing same density numbers

Convolute / Molded Wheels

Scotch-Brite™ Convolute Wheel performance differences can be attributed to mineral (aggressiveness) and density (hardness). The combination of these two characteristics and subtle variations determine if the wheel will cut more aggressively or will be more durable and less conformable (See depiction below).





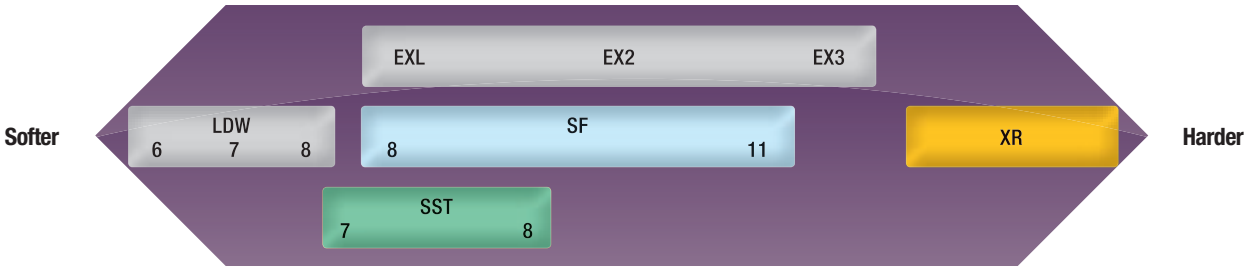
Legend								
	CP	Cut and Polish Wheel		GP	General Purpose Wheel		SF	SF Finishing and Deburring Wheel
	CPM	CPM Wheel		LDW	Light Deburring Wheel		SST	SST Deburring Wheel
	CS	Clean and Strip Rim Wheel		MF	Metal Finishing Wheel		XR	XR Metalworking Wheel
	EXL	EXL Deburring Wheel		MU	Multi-Finishing Wheel			

* Numeric designators (8/9) represent mineral aggressiveness; not density.
** XR Wheel Grades: **2410** = 240/100 Grade Mineral; **1208** = 120/80 Grade Mineral; **805** = 80/50 Grade Mineral
*** XR Wheel Density: **H** = Hard

Convolute Wheel Diameters and Standard Core Sizes

Wheel Diameter	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Standard Core Size	1"	1", 1-1/4"	3"	5"	5"	8"	10"	10"	12"	12"

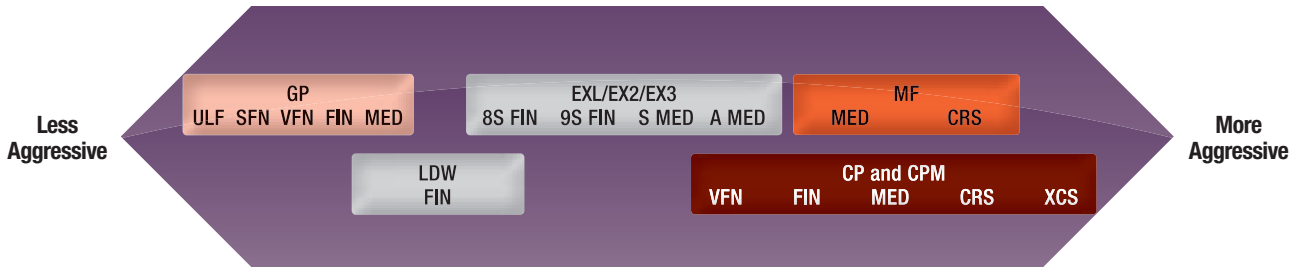
Scotch-Brite™ Wheels for Deburring



	Deburring Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Deburr machined or formed parts	EXL Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Deburr shear edges	EX2 Deburring Wheel, 9S-fine (FIN)	EX2 Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 9S-fine (FIN)
	Deburr keyways	EXL Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
Stainless Steel, Titanium (Nickel Alloys)	Deburr turbine blades	EXL Deburring Wheel, 9S-fine (FIN)	SF Finishing and Deburring Wheel, 11S-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Remove wire edges on surgical instruments	EXL Deburring Wheel, 9S-fine (FIN)	SF Finishing and Deburring Wheel, 8S-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Radius edges on stamped parts	EX2 Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Deburr piston rings	EXL Deburring Wheel, 8S-fine (FIN)	EX2 Deburring Wheel, 9S-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN)
Aluminum, Copper, Brass (Soft Metals)	Remove aluminum flashing	EX2 Deburring Wheel, 9S-fine (FIN)	EX2 Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Radius edges of aluminum extrusions	EXL Deburring Wheel, 8S-fine (FIN)	EXL Deburring Wheel, 9S-fine (FIN)	Light Deburring Wheel, 8S-fine (FIN)
	Deburr automotive or appliance trim	EXL Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	Light Deburring Wheel, 7S-fine (FIN)
	Deburr brass medallions	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 9S-fine (FIN)	General Purpose Wheel, 5A-very fine (VFN)
Other — Composites, Plastics, Glass, etc.	Deburr plastic parts	Light Deburring Wheel, 6S-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN)	General Purpose Wheel, 5A-very fine (VFN)

A=Aluminum Oxide S=Silicon Carbide

Scotch-Brite™ Wheels for Polishing

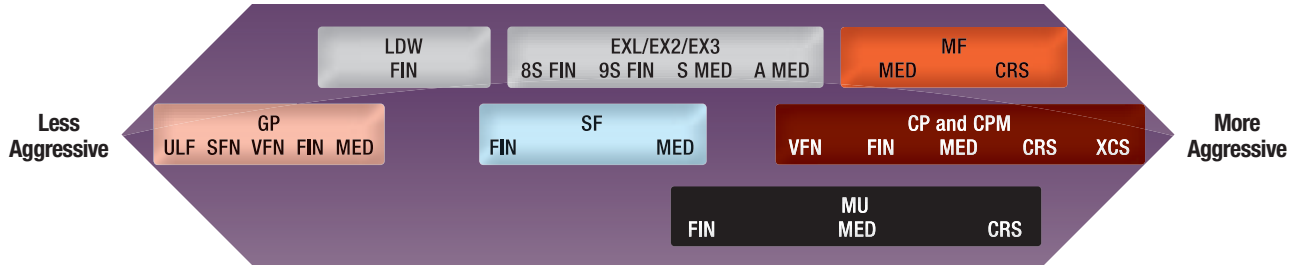


	Polishing Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Centerless polishing of hydraulic rods	Cut and Polish Wheel, 5A-fine (FIN)	Cut and Polish Wheel, 7A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Polish roller bearings	EXL Deburring Wheel, 8S-fine (FIN)	Cut and Polish Wheel, 5A-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN)
	Polish hydraulic rod spools	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 8S-medium (MED)	Light Deburring Wheel, 6S-fine (FIN)
	Polish molds and dies	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 8S-fine (FIN)	General Purpose Wheel, 6S-super fine (SFN)
Stainless Steel, Titanium (Nickel Alloys)	Final polish of surgical instruments	EX2 Deburring Wheel, 9S-fine (FIN)	Cut and Polish Wheel, 7A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Final polish on orthopaedic implants	EXL Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	Light Deburring Wheel, 7S-fine (FIN)
	Polish turbine engine components	EXL Deburring Wheel, 8S-fine (FIN)	EXL Deburring Wheel, 9S-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN)
Aluminum, Copper, Brass (Soft Metals)	Pre-plating polish	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 9S-fine (FIN)	General Purpose Wheel, 6S-very fine (VFN)
	Polish brass medallions	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 8S-fine (FIN)	Light Deburring Wheel, 6S-fine (FIN)
	Polish name plates	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 8S-fine (FIN)	Light Deburring Wheel, 6S-fine (FIN)
	Polish jewelry	Light Deburring Wheel, 6S-fine (FIN)	EXL Deburring Wheel, 8S-fine (FIN)	Buff and Polish Wheel,* soft density
Other — Composites, Plastics, Glass, etc.	Polish bevel edges of glass	General Purpose Wheel, 6A-very fine (VFN)	Light Deburring Wheel, 8S-fine (FIN)	General Purpose Wheel, 6S-super fine (SFN)

A=Aluminum Oxide S=Silicon Carbide

*Buff and polish wheels are non-abrasive unitized wheels designed to work with compounds.

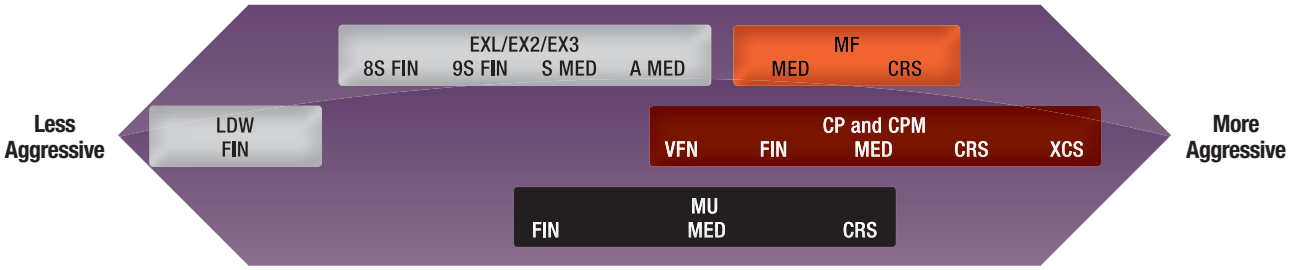
Scotch-Brite™ Wheels for Finishing



	Finishing Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Pre-plating finish on hand tools	EXL Deburring Wheel, 9S-fine (FIN)	Cut and Polish Wheel, 7A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Decorative satin finish	Metal Finishing Wheel, 5A-medium (MED)	Metal Finishing Wheel, 6A-coarse (CRS)	Multi-Finishing Wheel, 2S-fine (FIN)
	Gun barrel finish	Cut and Polish Wheel, 5A-fine (FIN)	Cut and Polish Wheel, 5A-medium (MED)	Cut and Polish Wheel, 7A-very fine (VFN)
	Pre-plating finish	EXL Deburring Wheel, 8S-fine (FIN)	Cut and Polish Wheel, 5A-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN)
Stainless Steel, Titanium (Nickel Alloys)	#3 Finish	Multi-Finishing Wheel, 2S-coarse (CRS)	Metal Finishing Wheel, 5A-coarse (CRS)	Metal Finishing Wheel, 5A-medium (MED)
	#4 Finish	Multi-Finishing Wheel, 2S-medium (MED)	Metal Finishing Wheel, 5A-medium (MED)	Multi-Finishing Wheel, 2S-fine (FIN)
	Satin finish on cutlery	Metal Finishing Wheel, 5A-medium (MED)	Metal Finishing Wheel, 5A-coarse (CRS)	Multi-Finishing Wheel, 2S-fine (FIN)
	Pre-buff finish	Light Deburring Wheel, 7S-fine (FIN)	Cut and Polish Wheel, 5A-fine (FIN)	General Purpose Wheel, 5A-very fine (VFN)
Aluminum, Copper, Brass (Soft Metals)	Decorative finish for builders hardware	Metal Finishing Wheel, 5A-medium (MED)	Cut and Polish Wheel, 7A-medium (MED)	Light Deburring Wheel, 7S-fine (FIN)
	Final finish on aluminum	Multi-Finishing Wheel, 2S-medium (MED)	Metal Finishing Wheel, 5A-coarse (CRS)	Multi-Finishing Wheel, 2S-fine (FIN)
	Pre-buff and pre-plate finish	Light Deburring Wheel, 7S-fine (FIN)	EXL Deburring Wheel, 9S-fine (FIN)	General Purpose Wheel, 5A-very fine (VFN)
Other — Composites, Plastics, Glass, etc.	Satin finish on plastics	Multi-Finishing Wheel, 2S-medium (MED)	Metal Finishing Wheel, 5A-medium (MED)	Light Deburring Wheel, 6S-fine (FIN)

A=Aluminum Oxide S=Silicon Carbide

Scotch-Brite™ Wheels for Blending



	Blending Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Blend 80 grit scratch	Cut and Polish Wheel, 5A-medium (MED)	CPM Wheel, 5A-coarse (CRS)	Cut and Polish Wheel, 5A-fine (FIN)
	Blend steel tubing prior to plating	Metal Finishing Wheel, 5A-medium (MED)	CPM Wheel, 5A-medium (MED)	Cut and Polish Wheel 5A-fine (FIN)
	Blend compressor shafts	Cut and Polish Wheel 7A-fine (FIN)	Cut and Polish Wheel, 7A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Blend 60 grit scratch	Cut and Polish Wheel, 7A-coarse (CRS)	CPM Wheel, 9A-coarse (CRS)	Cut and Polish Wheel, 5A-fine (FIN)
Stainless Steel, Titanium (Nickel Alloys)	Refine turbine blades	SF Finishing and Deburring Wheel, 8S-medium (MED)	Cut and Polish Wheel 5A-fine (FIN)	EXL Deburring Wheel, 8S-fine (FIN)
	Remove parting lines on blades	EXL Deburring Wheel, 9S-fine (FIN)	EXL Deburring Wheel, 8A-medium (MED)	EXL Deburring Wheel, 8S-fine (FIN)
	Blend surgical instruments	EXL Deburring Wheel, 9S-fine (FIN)	Cut and Polish Wheel, 5A-fine (FIN)	Light Deburring Wheel, 7S-fine (FIN),
	Blend 100 grit scratch	Metal Finishing Wheel, 5A-medium (MED)	Cut and Polish Wheel 7A-medium (MED)	Cut and Polish Wheel, 5A-fine (FIN)
Aluminum, Copper, Brass (Soft Metals)	Blend 120 grit scratch	Cut and Polish Wheel, 5A-fine (FIN)	Cut and Polish Wheel, 7A-fine (FIN)	Multi-Finishing Wheel, 2S-fine (FIN)
	Remove small surface imperfections	Metal Finishing Wheel, 5A-medium (MED)	Cut and Polish Wheel, 7A-medium (MED)	Multi-Finishing Wheel, 2S-fine (FIN)
	Blend prior to plating	Multi-Finishing Wheel, 2S-fine (FIN)	Cut and Polish Wheel 5A-fine (FIN),	Light Deburring Wheel, 7S-fine (FIN)
Other — Composites, Plastics, Glass, etc.	Mold flash removal	Cut and Polish Wheel, 7A-fine (FIN)	Cut and Polish Wheel, 7A-medium (MED)	Light Deburring Wheel, 6S-fine (FIN)

A=Aluminum Oxide S=Silicon Carbide

Scotch-Brite™ EXL, EX2 and EX3 Deburring Wheels

The EXL convolute wheels are especially well suited for a broad range of deburring and finishing needs and are designed for top performance and value on a variety of applications. This wheel family contains a unique resin system, which helps minimize smearing. EXL wheels can demonstrate performance on stainless steel, titanium, and high nickel alloys.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade	
EXL Deburring Wheel	8, 9	Silicon Carbide	FIN	Hard
	8	Silicon Carbide	MED	
	8	Aluminum Oxide	MED	
EX2 Deburring Wheel	8, 9	Silicon Carbide	FIN	Harder
	8	Silicon Carbide	MED	
	8	Aluminum Oxide	MED	
EX3 Deburring Wheel	8, 9	Silicon Carbide	FIN	Hardest
	8	Silicon Carbide	MED	
	8	Aluminum Oxide	MED	

Diameters:	4" minimum 24" maximum
Widths:	3/8"–36" in 4, 6, 8" diameters 1/2"–36" in 10, 12" diameters 3/4"–36" in 14"–24" diameters
Typical Applications:	• Cutlery — deburring and edge radius • Turbine blades — blending, finishing, deburring • Gun barrels — polishing • Golf club heads — polishing, finishing • General use deburring

Some additional sizes may be available by special request.
See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Light Deburring Wheel

The Light Deburring Wheel is designed to provide a clean and economical system for removing fine burrs while providing a highly polished finish. Used for fine deburring, polishing and finishing because of their conformability, Light Deburring Wheels will maintain critical tolerances while still providing a fine polished finish.

Product Name	Density	Mineral Type	Grade
Light Deburring Wheel	6, 7, 8	Silicon Carbide	FIN

Diameters:	4" minimum 24" maximum	
Widths:	6 density	1/2"–36" in 4"–12" diameters
		3/4"–36" in 12"–24" diameters
	7, 8 density	3/8"–36" in 4, 6, 8" diameters
		1/2"–36" in 10, 12" diameters
		3/4"–36" in 14"–24" diameters
Typical Applications:	• Deburring of fine threads • Mold and die polishing • Finishing prior to buffing • Conditioning surface prior to welding on soft metal	

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ SST Deburring Wheel

SST Deburring Wheels are designed for deburring on most stainless steel, titanium and other demanding alloys. Burrs from drilling, stamping, punching and other machining operations can easily be removed with SST wheels.

Unlike some higher density products, SST wheels are somewhat softer and more conformable, making them ideal for use on more intricate shapes and contours.

SST wheels are used extensively in the aerospace industry for deburring and finishing parts, and for finishing cast and threaded products used in medical and surgical applications.

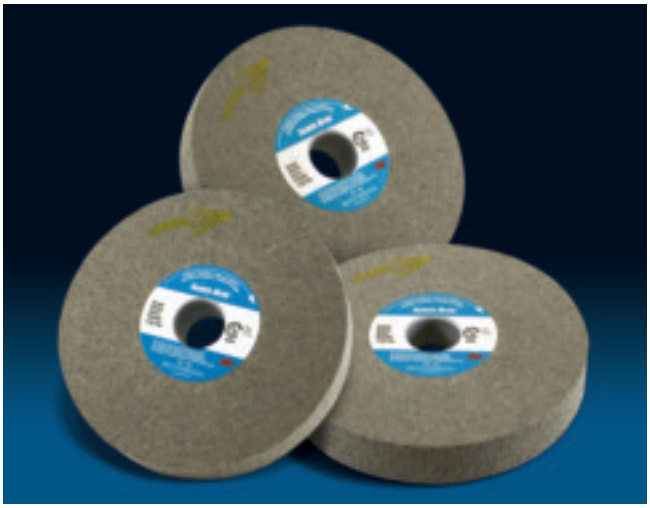
See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
SST Deburring Wheel	7	Aluminum Oxide	FIN
	8	Silicon Carbide	FIN

Diameters:	4" minimum 24" maximum
Widths:	3/8"–36" in 4, 6, 8" diameters 1/2"–36" in 10, 12" diameters 3/4"–36" in 14"–24" diameters
Typical Applications:	• Deburring and finishing turbine blades and vanes • OD polishing roller bearings • Polishing/blending of surgical instruments • Deburring of aluminum die cast flashing

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ SF Finishing and Deburring Wheel



The SF Wheel is loaded with mineral that is smear resistant yet durable when exposed to metal burrs. This results in a wheel that delivers excellent finishes while still handling burrs. In some applications, this wheel can handle three surface modifying elements — combining finishing, deburring and blending into one operation.

The SF wheel's unique resin construction allows it to run smooth and resist chunking while requiring less frequent dressing. It is an excellent option when finish is critical on deburring applications.

Product Name	Density	Mineral Type	Grade
SF Finishing and Deburring Wheel	8, 11	Silicon Carbide	FIN
	8, 11	Silicon Carbide	MED

Diameters:	4" minimum 24" maximum
Widths:	3/8"–36" in 4, 6, 8" diameters 1/2"–36" in 10, 12" diameters 3/4"–36" in 14"–24" diameters
Typical Applications:	• General deburring of machined and formed parts • Deburring and finishing turbine blades • Gun barrel polishing • Golf club finishing • Medical component deburring and finishing

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Cut and Polish / CPM Wheels

Cut and Polish / CPM Wheels are heavy duty wheels for more aggressive blending and finishing. These long lasting wheels perform well on tough blending and finishing applications such as removing surface defects, coarse grindlines, blending forging marks and machining mismatches while leaving a uniform grain finish.

Cut and Polish / CPM Wheels are very similar but have subtle variations. The CPM Wheel is slightly harder and more aggressive in demanding applications.

Both wheels can demonstrate value in a variety of applications, and are especially well suited for centerless finishing.

Product Name	Density	Mineral Type	Grade
Cut and Polish Wheel	5	Aluminum Oxide	FIN
	7	Aluminum Oxide	VFN, FIN, MED. CRS
CPM Wheel	5	Aluminum Oxide	FIN, MED, CRS, XCS
	7	Aluminum Oxide	FIN, MED, CRS, XCS
	9	Aluminum Oxide	FIN, MED, CRS, XCS

Diameters:	4" minimum 24" maximum
Widths:	3/8"–36" in 4, 6, 8" diameters 1/2"–36" in 10, 12" diameters 3/4"–36" in 14"–24" diameters
Typical Applications:	• Blending of abrasive grind lines • Centerless finishing of machined parts • Conditioning of machined compressor shafts • Surface finishing of hand tools prior to plating

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Metal Finishing Wheel

Highly conformable Metal Finishing Wheels are designed to apply uniform and consistent satin/antique finishes. They are used effectively to blend and match #3 or #4 mill finishes on stainless steel and to create brushed or satin finishes on cutlery.

On softer metals such as aluminum, copper and brass, they are used to blend out minor surface imperfections and handling marks while providing the desired decorative finish.

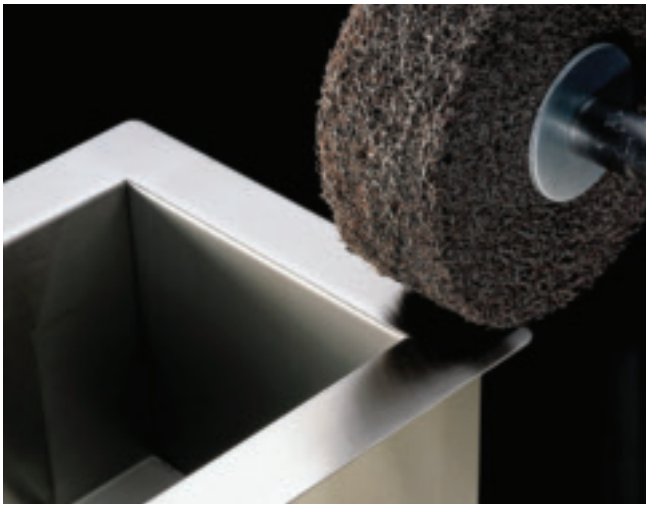
See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
Metal Finishing Wheel	4, 5, 6	Aluminum Oxide	CRS
	4, 5, 6	Aluminum Oxide	MED

Diameters:	4" minimum 18" maximum
Widths:	3/4"–36" 4 density in 4"–18" diameters 1/2"–36" 5, 6 density in 4"–2" diameters 3/4"–36" 5, 6 density in 14"–18" diameters
Typical Applications:	• Stainless steel blending and finishing • Finishing of aluminum molding • Satin finishing of builders hardware • Satin finishing of cutlery

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Multi-Finishing Wheel



Multi-Finishing Wheels are highly conformable, soft wheels that create uniform and attractive final finishes on ferrous and non-ferrous metals. They are tough enough to finish edges and welds and soft enough to apply a final finish on large surfaces.

The load resistant open web construction of these wheels removes surface contamination and dirt without re-depositing contaminates onto the work piece. The Silicon Carbide mineral contained in this wheel offers a unique bright surface that is often desired by stainless steel fabricators.

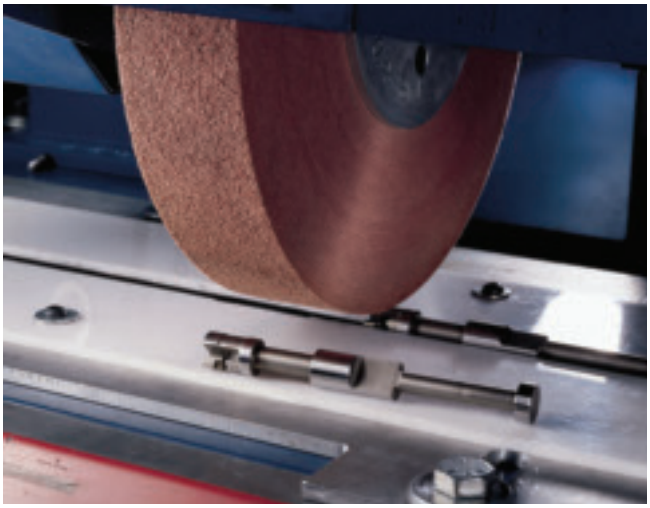
See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
Multi-Finishing Wheel	2	Silicon Carbide	FIN, MED, CRS
	3	Silicon Carbide	FIN, MED, CRS
	4	Silicon Carbide	FIN, MED, CRS

Diameters:	4" minimum 16" maximum
Widths:	1"–36" in 4"–16" diameters
Typical Applications:	• Cleaning of composite parts • Final finish of aluminum extrusions and stainless steel • Finishing/blending • Finishing hardware and cutlery

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ General Purpose Wheel



General Purpose Wheels offer the greatest selection of grades, densities and mineral types. They are an excellent starting point when the application calls for fine finishing or cleaning.

Like all Scotch-Brite™ products they produce consistent results and can be easier to use than buffs and compounds and other finishing abrasives.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
General Purpose Wheel	4, 5, 6	Aluminum Oxide	VFN
	4, 5, 6	Aluminum Oxide	FIN
	4, 5, 6	Aluminum Oxide	MED
	4, 5, 6	Silicon Carbide	ULF
	4, 5, 6	Silicon Carbide	SFN
	4, 5, 6	Silicon Carbide	VFN
	4, 5, 6	Silicon Carbide	FIN
	4, 5, 6	Silicon Carbide	MED

Diameters:	4" minimum 24" maximum
Widths:	3/4"–24" 4 density in 4"–24" diameters 3/8"–24" 5, 6 density in 4, 6, 8" diameters 1/2"–24" 5, 6 density in 10, 12" diameters 1/2"–24" 5, 6 density in 10, 12" diameters 3/4"–24" 5, 6 density in 14"–24" diameters
Typical Applications:	• Polishing jewelry prior to plating • Selective polish on nameplates • Polish bevel edge of furniture glass • Light oxide removal

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Clean and Strip Rim Wheel

An extra coarse open web in a layered construction makes this Scotch-Brite™ Clean and Strip Rim Wheel a perfect choice for the removal of rust, oxides and light scale. They can also show value in applications requiring a bright, coarse-grain finish.

These wheels can be adapted to a broad range of applications including bench grinders and automatic finishing equipment.

Product Name	Density	Mineral Type	Grade
Clean and Strip Rim Wheel	7	Silicon Carbide	XCS

Diameters:	8" minimum 16" maximum
Widths:	1"–4" in 8"–16" diameters
Typical Applications:	• Coarse grain finishing • Centerless finishing • Rust removal • Light coating removal

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Woodworking Wheel

This wheel is a custom designed non-woven abrasive product for use on white wood sanding. An advantage of this wheel is the open construction and the use of garnet mineral, reducing the potential for part burning. The Scotch-Brite™ Woodworking Wheel may be used in its straight form or shaped to various profiles.

Product Name	Density	Mineral Type	Grade
Woodworking Wheel	5	Garnet	MED

Diameters:	6" minimum 8" maximum
Widths:	3/4" minimum 36" maximum
Typical Applications:	• Profile sanding • Defuzzing

See pages 23–24 for recommended flanges/accessories.

3M™ XR Metalworking Wheel

The 3M™ XR Metalworking Wheel is loaded with mineral and is designed for demanding applications such as removing sharp burrs that may drastically reduce the life of a non-woven abrasive or rubber bonded wheel.

This wheel retains its shape when dressed, allowing access to tight areas and right angles. Unlike a bonded wheel, the XR won't grab the workpiece, thus requiring less pressure and reducing operator fatigue. It also includes a grinding aid to increase cut rate and run cooler.

The combination of 3M's molded technology and grinding aid helps the XR last longer, which can help save time and money.

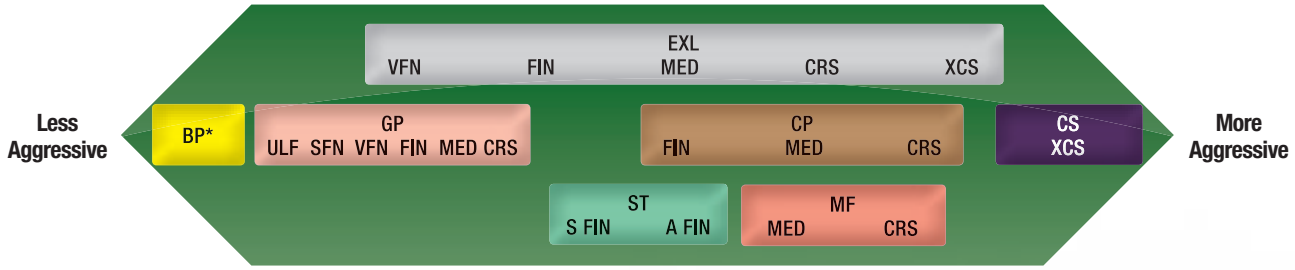
Product Name	Density	Mineral Type	Grade
XR Metalworking Wheel HA 805	Hard	Aluminum Oxide	CRS
XR Metalworking Wheel HA 1208	Hard	Aluminum Oxide	MED
XR Metalworking Wheel HA 2410	Hard	Aluminum Oxide	FIN

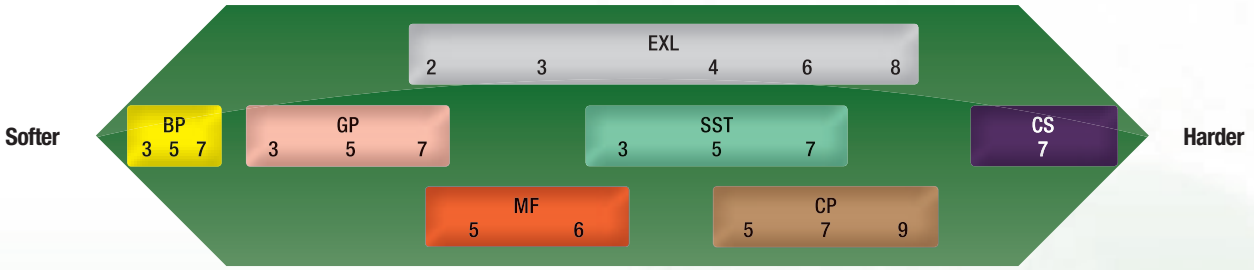
Diameters:	6", 8", 12"
Widths:	1/2"–2"
Typical Applications:	• Deburring stainless steel and titanium • Blending milling marks and grindlines • Removing light scale • Removing parting lines • Applying a radius to parts

See pages 23–24 for recommended flanges/accessories.

Unitized Wheels

Scotch-Brite™ Unitized Wheel performance differences can be attributed to mineral (aggressiveness) and density (hardness). The combination of these two characteristics and subtle variations determine if the wheel will cut more aggressively or will be more durable and less conformable (See depiction below).

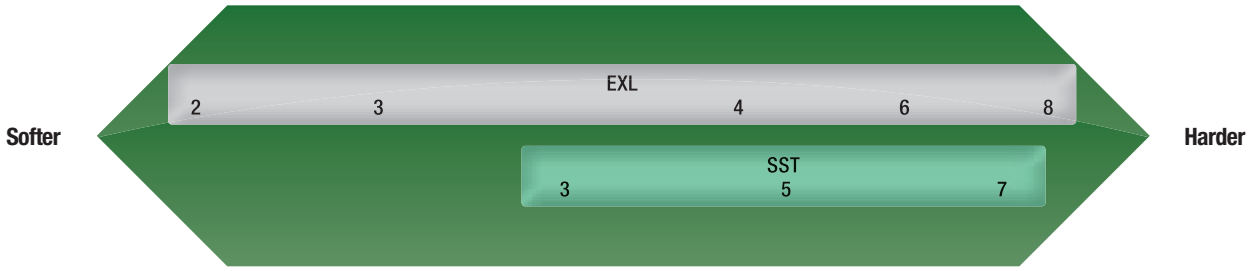




Legend					
	BP	Buff and Polish Unitized Wheel		GP	General Purpose Unitized Wheel
	CP	Cut and Polish Unitized Wheel		MF	Metal Finishing Unitized Wheel
	CS	Clean and Strip Unitized Wheel		SST	SST Unitized Wheel
	EXL	EXL Unitized Wheel			

* No mineral: Use with abrasive compound.

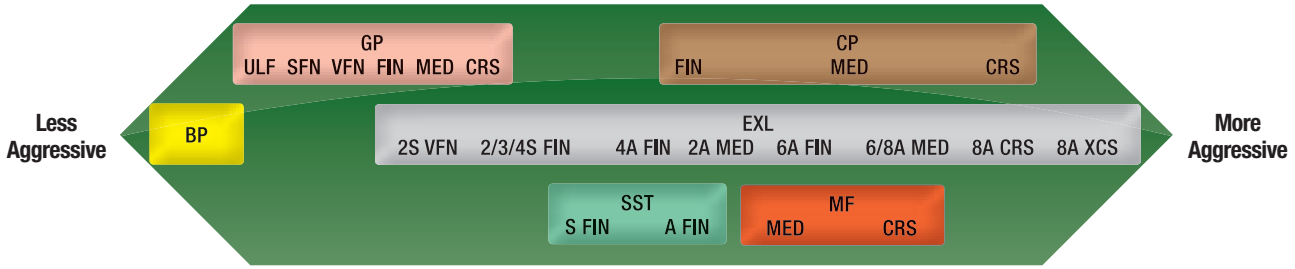
Scotch-Brite™ Wheels for Deburring



	Deburring Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Deburr machined parts	EXL Unitized Wheel, 6A-medium (MED)	EXL Unitized Wheel, 8A-coarse (CRS)	EXL Unitized Wheel, 4A-fine (FIN)
	Deburr keyways	EXL Unitized Wheel, 2S-fine (FIN)	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 2S-very fine (VFN)
	Radius stamped parts	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 6A-medium (MED)	EXL Unitized Wheel, 4S-fine (FIN)
	Remove laser cut burrs	EXL Unitized Wheel, 8A-medium (MED)	EXL Unitized Wheel, 8A-coarse (CRS)	EXL Unitized Wheel, 6A-medium (MED)
Stainless Steel, Titanium (Nickel Alloys)	Deburr and radius root of turbine blades	EXL Unitized Wheel, 2S-fine (FIN)	SST Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 2S-very fine (VFN)
	Deburr piston rings	EXL Unitized Wheel, 4S-fine (FIN)	EXL Unitized Wheel, 6A-medium (MED)	EXL Unitized Wheel, 3S-fine (FIN)
	Deburr threaded parts	EXL Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 4S-fine (FIN)	EXL Unitized Wheel, 2S-fine (FIN)
	Radius sharp edges of stainless steel parts	EXL Unitized Wheel, 6A-medium (MED)	EXL Unitized Wheel, 8A-medium (MED)	EXL Unitized Wheel, 4A-fine (FIN)
Aluminum, Copper, Brass (Soft Metals)	Remove aluminum flashing	EXL Unitized Wheel, 6A-medium (MED)	EXL Unitized Wheel, 8A-coarse (CRS)	EXL Unitized Wheel, 2A-medium (MED)
	Deburr intricate cast parts	EXL Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 4S-fine (FIN)	EXL Unitized Wheel, 2S-fine (FIN)
Other — Composites, Plastics, Glass, etc.	Deburr plastic	EXL Unitized Wheel, 4S-fine (FIN)	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 2S-fine (FIN)

A=Aluminum Oxide S=Silicon Carbide

Scotch-Brite™ Wheels for Polishing, Finishing and Blending

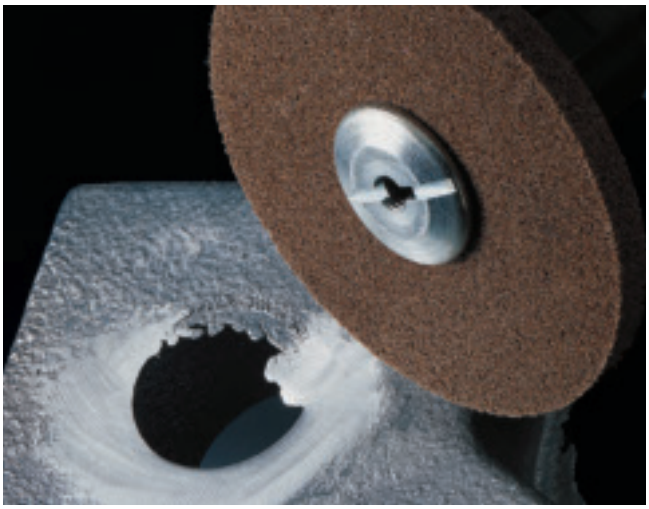


	Polishing, Finishing and Blending Applications	Starting Point	Alternatives: More Aggressive	Alternatives: Less Aggressive
Carbon Steels	Polish roller bearings	EXL Unitized Wheel, 3S-fine (FIN)	Cut and Polish Unitized Wheel, 5A-fine (FIN)	EXL Unitized Wheel, 2S-fine (FIN)
	Polish molds and dies	EXL Unitized Wheel, 2S-fine (FIN)	EXL Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 2S-very fine (VFN)
	Decorative satin finish	Metal Finishing Unitized Wheel, 5A-medium (MED)	Metal Finishing Unitized Wheel, 6A-coarse (CRS)	Cut and Polish Unitized Wheel, 5A-fine (FIN)
	Pre-plate finish	EXL Unitized Wheel, 2S-fine (FIN)	Cut and Polish Unitized Wheel, 5A-fine (FIN)	EXL Unitized Wheel, 2S-very fine (VFN)
	Blend 80-100 grit grind lines	Cut and Polish Unitized Wheel, 7A-medium (MED)	EXL Unitized Wheel, 8A-coarse (CRS)	Cut and Polish Unitized Wheel, 5A-fine (FIN)
Stainless Steel, Titanium (Nickel Alloys)	Polish medical devices	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 6A-fine (FIN)	EXL Unitized Wheel, 2S-fine (FIN)
	Polish turbine engine components	EXL Unitized Wheel, 2S-fine (FIN)	EXL Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 2S-very fine (VFN)
	Near mirror finish	EXL Unitized Wheel, 2S-very fine (VFN)	EXL Unitized Wheel, 2S-fine (FIN)	Buff and Polish Unitized Wheel*
	Blend parting lines from turbine blades	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 6A-fine (FIN)	EXL Unitized Wheel, 3S-fine (FIN)
Aluminum, Copper, Brass (Soft Metals)	Pre-plate polish	EXL Unitized Wheel, 2S-fine (FIN)	EXL Unitized Wheel, 4S-fine (FIN)	EXL Unitized Wheel, 2S-very fine (VFN)
	Polish jewelry plates	EXL Unitized Wheel, 2S-fine (FIN)	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 2S-very fine (VFN)
	Decorative finish on builders hardware	Metal Finishing Unitized Wheel, 5A-medium (MED)	Cut and Polish Unitized Wheel, 7A-medium (MED)	EXL Unitized Wheel, 2S-fine (FIN)
	Blend light imperfections	Metal Finishing Unitized Wheel, 5A-medium (MED)	Cut and Polish Unitized Wheel, 7A-medium (MED)	EXL Unitized Wheel, 2A-medium (MED)
Other — Composites, Plastics, Glass, etc.	Remove flash from plastic parts	EXL Unitized Wheel, 3S-fine (FIN)	EXL Unitized Wheel, 2A-medium (MED)	EXL Unitized Wheel, 2S-fine (FIN)

A=Aluminum Oxide S=Silicon Carbide

*Buff and polish wheels are non-abrasive unitized wheels designed to work with compounds.

Scotch-Brite™ EXL Unitized Wheel



EXL Unitized Wheels products are an excellent choice for deburring and polishing of all metal alloys as well as many plastics and composites. Similar to the EXL Convolute Wheels (EXL, EX2, EX3 Deburring Wheels) they resist smearing and minimize heat buildup on the workpiece.

There are a wide variety of densities and grades available starting from a very soft 2 density for applications requiring a conformable product extending to a hard, aggressive 8 density for maximum cut and durability.

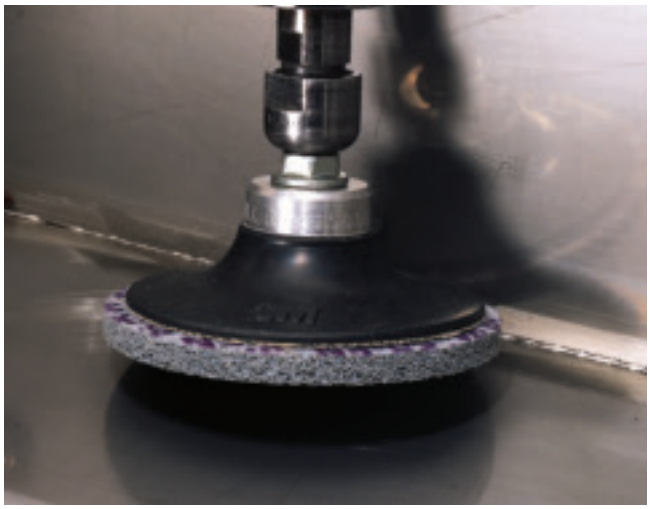
See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
EXL Unitized Wheel	2	Silicon Carbide	VFN
	2, 3, 4, 6	Silicon Carbide	FIN
	4, 6	Aluminum Oxide	FIN
	2, 6, 8	Aluminum Oxide	MED
	8	Aluminum Oxide	CRS
	2, 4, 6, 8	Aluminum Oxide	XCS

Diameters:	1/2" minimum 14" maximum
Widths:	3, 6, 8 density in 1/8" minimum 2, 4 density in 1/4" minimum 1" maximum all diameters
Typical Applications:	• Weld cleaning • Finishing threaded parts • Turbine blade polishing • Metal stampings

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Roloc™ EXL Unitized Wheel



Scotch-Brite™ Roloc™ EXL Unitized Wheels are strong and efficient for edge deburring and finishing. They perform well in a variety of metal working applications and machined parts where close tolerances are important.

Changing wheels is quick and easy with Roloc™ TR, Roloc™ TS, or Roloc™ + holding systems. They allow for use of both the edge and surface of the wheel without interruption of mounting hardware. The mounting system is interchangeable with Scotch-Brite™ Surface Conditioning Discs and Coated Abrasive Discs.

Product Name	Density	Mineral Type	Grade
Roloc™ EXL Unitized Wheel	2, 3, 6	Silicon Carbide	FIN
	2, 6, 8	Aluminum Oxide	MED
	8	Aluminum Oxide	CRS
	2, 4, 6, 8	Aluminum Oxide	XCS

Diameters:	2" and 3"
Widths:	N/A
Typical Applications:	• Weld polishing • Deburring aircraft parts • Blending and finishing on a variety of metals, plastics and composites

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ SST Unitized Wheel

SST Unitized Wheels offer the same deburring and finishing advantages as SST Convolute Wheels *(SST Deburring Wheels; refer to page 8)*. The unitized version of the SST wheel is recommended when the application requires very narrow widths and/or small diameter ranges.

SST Unitized Wheels run well on equipment such as bench motors, floor lathes and portable power tools.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
SST Unitized Wheel	3, 5, 7	Silicon Carbide	FIN
	3, 5, 7	Aluminum Oxide	FIN

Diameters:	1/2" minimum 14" maximum
Widths:	3 density in 1/4"–1" 5, 7 density in 1/8"–1" 1" maximum all diameters
Typical Applications:	• Deburring and finishing of aircraft engine components • Finishing of parts used in medical and surgical instruments • Mold and die polishing

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Cut and Polish Unitized Wheel

Cut and Polish Unitized Wheels are long lasting and aggressive for heavy duty blending and finishing with uniform results. The layered "unitized" construction of this wheel provides an excellent starting point for jobs requiring the availability of small diameters and narrow widths.

These wheels show value in the industry as they can often be used to replace many conventional abrasive products such as rubber bonded wheels and small set-up wheels.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
Cut and Polish Unitized Wheel*	5	Aluminum Oxide	FIN
	7, 9	Aluminum Oxide	MED, CRS
	7, 9	Silicon Carbide	MED

Diameters:	1/2" minimum 14" maximum
Widths:	5, 7 density in 1/8", 1/4", 3/8", 1/2", 5/8", 3/4", 1" 9 density in 1/8", 1/4", 3/8", 1/2" 1" maximum all diameters
Typical Applications:	• Parting line removal • Pipe thread deburring • Heavy-duty deburring of aerospace components

See pages 23–24 for recommended flanges/accessories.
*Also available in Roloc™

Scotch-Brite™ Metal Finishing Unitized Wheel

Metal Finishing Unitized Wheels offer the same unique finishing capability of Metal Finishing Convolute wheels *(Metal Finishing Wheels; refer to page 9)*. These wheels are available in small diameters and narrow widths. In essence, they provide durability and value for finishing of parts that are too narrow, tight or small to finish efficiently with wider width wheels.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
Metal Finishing Unitized Wheel	5	Aluminum Oxide	MED
	6	Aluminum Oxide	CRS

Diameters:	1" minimum 14" maximum
Widths:	1/4", 3/8", 1/2", 1" 1" maximum all diameters
Typical Applications:	• Weld cleaning and blending in stainless steel tank • Manufacturing finishing of builders hardware • Finishing/blending builders hardware • Finishing prior to buffing

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Clean and Strip Unitized Wheel / Cup Wheel

Scotch-Brite™ Clean and Strip Unitized Wheel products are excellent for heavy duty cleaning applications.

The extra coarse silicon carbide mineral combined with a tough synthetic web is perfect for removing scale, rust, surface contaminants, paints and coatings. They are also well suited for removing weld discoloration and splatter.

The open construction and the aggressive properties provide a smooth running wheel that resists loading when removing soft coatings.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
Clean and Strip Unitized Wheel	7	Silicon Carbide	XCS
Clean and Strip Cup Wheel	7	Silicon Carbide	XCS

Diameters:	Unitized Wheels: 1"–14" Cup Wheels: 3" (3/8"–24 threaded nut size) 4" (5/8"–11 threaded nut size) 4" (M–10 x 1.25 threaded nut size) 4" (M–10 x 1.50 threaded nut size) 4" (3/8"–24 threaded nut size) 6" (7/8"–CH threaded nut size)
Widths:	Unitized Wheels: 1/4"–1" Cup Wheels: N/A
Maximum Operating Speeds (RPM)	Unitized Wheels: See chart on page 21 Cup Wheels: 3" dia. — 18,100 RPM 4" dia. — 12,100 RPM 6" dia. — 7,000 RPM
Typical Applications:	• Rust removal • Coating removal • Gasket removal • Light scale removal • Bright finishing–coarse scratch pattern

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ General Purpose Unitized Wheel

Similar to the General Purpose convolute wheel, this unitized wheel offers a wide range of grades and densities. Designed for applications requiring fine finishes or light cleaning, the General Purpose Unitized Wheel also tends to be a good starting point when the part shape or size calls for small diameters or narrow width product.

See page 1 for convolute vs. unitized

Product Name	Density	Mineral Type	Grade
General Purpose Unitized Wheel	3, 5, 7	Silicon Carbide	ULF
	3, 5, 7	Silicon Carbide	SFN
	3, 5, 7	Aluminum Oxide and Silicon Carbide	VFN
	3, 5, 7	Aluminum Oxide and Silicon Carbide	FIN
	3, 5, 7	Aluminum Oxide and Silicon Carbide	MED
	3, 5, 7	Aluminum Oxide	CRS

Diameters:	1/2" minimum 14" maximum
Widths:	1/4", 3/8", 1/2", 5/8", 3/4", 1" 1" maximum all diameters
Typical Applications:	• Fine thread polishing • Mold polishing • Jewelry polishing • Polishing turbine blades

See pages 23–24 for recommended flanges/accessories.

Scotch-Brite™ Buff and Polish Unitized Wheel

Buff and Polish Unitized Wheels are a unitized constructed, non-abrasive carrier for compounds used for polishing flat and symmetrical contoured surfaces. They can often replace felt or leather wheels, as they hold more compound with even distribution allowing for faster cut and less frequent compound application.

Product Name	Density	Mineral Type	Grade
Buff and Polish Unitized Wheel	3, 5, 7	N/A	N/A Use with compound

Diameters:	1/2" minimum 14" maximum
Widths:	1/8"–1" 1" maximum all diameters
Typical Applications:	• Jewelry polishing • Surgical instruments • Honing and deburring of knife edges • Fiber optic ends • Medical Instruments

See pages 23–24 for recommended flanges/accessories.

Factors Affecting Performance

Product Surface Speed

Because product speed has a significant effect on performance (cut, life, and finish), it is important to select the proper speed for a particular operation and work piece.

Generally, low speeds are desired for generating very uniform satin finishes, for finishing aluminum alloys without lubricants, and for use on composite or other soft material applications. High speeds are recommended when it is desired to remove or blend surface imperfections and tough burrs. This high speed will result in a faster cut along with finer finishes.

Recommended Operating Speeds

(**SFPM** = **S**urface **F**eet **P**er **M**inute)

Decorative finishing	500–3000 SFPM
Composites/Soft materials	1200–2700 SFPM
Deburring	5000–6500 SFPM
Blending / Polishing	6000–8000 SFPM

Lubricant–Coolant

Coolants, like water and some water soluble oils, reduce heat and extend product life while providing a greater cut. In the case of most oils or tallow lubricants, surface roughness can be reduced. The higher viscosity lubricants produce lower surface roughness, i.e., grease produces a finer surface finish than oil. In automatic or semi-automatic operations, it is desirable to use lubricants or coolants whenever possible.

Product Hardness (Density)

3M™ Wheels are available in a number of densities or hardnesses. Generally, the softer products (2, 3, 4, and 5 density) are used for decorative finishing. They will conform more readily to surface contours along with generating a more uniform finish. The harder products (6, 7, 8, and 9 density) are to be used for the more difficult blending, cleaning and deburring operations.

Surface Speed Conversion Chart

RPM at Arbor or Spindle	Wheel Diameter								
	2"	4"	6"	8"	10"	12"	14"	16"	18"
	Surface Speed in Feet Per Minute (SFPM)								
100	52	104	157	207	260	314	364	419	471
200	105	208	314	414	520	628	728	838	942
300	157	312	471	621	780	942	1092	1257	1414
400	209	416	628	828	1040	1256	1456	1676	1885
500	262	520	785	1045	1310	1570	1820	2094	2356
600	314	630	940	1255	1570	1885	2195	2513	2827
700	367	735	1100	1465	1835	2200	2560	2932	3299
800	419	837	1256	1675	2094	2513	2932	3351	3770
900	471	942	1413	1885	2356	2827	3298	3770	4241
1000	524	1047	1570	2094	2618	3141	3665	4189	4712
1100	576	1152	1727	2304	2880	3455	4031	4608	5184
1200	628	1256	1884	2513	3142	3769	4398	5027	5655
1300	681	1361	2042	2723	3404	4084	4764	5445	6126
1400	733	1466	2199	2932	3666	4398	5131	5864	6597
1500	785	1571	2356	3142	3927	4712	5497	6283	7069
1600	838	1675	2513	3351	4189	5026	5864	6702	7540
1700	890	1780	2670	3560	4451	5340	6230	7121	8011
1800	942	1885	2827	3770	4713	5650	6597	7540	8482
1900	995	1989	2984	3979	4975	5969	6963	7959	8954
2000	1047	2094	3141	4189	5236	6283	7330	8378	9425
2100	1100	2199	3298	4398	5498	6497	7696	8796	9896
2200	1152	2304	3455	4608	5760	6911	8063	9215	10367
2300	1204	2408	3612	4817	6022	7225	8429	9634	10839
2400	1257	2513	3770	5027	6284	7540	8796	10053	11310
2500	1309	2618	3927	5236	6545	7854	9162	10472	11781
2600	1361	2722	4084	5445	6807	8168	9529	10891	12252
2700	1414	2827	4241	5655	7069	8482	9895	11310	12723
2800	1466	2932	4398	5864	7331	8796	10262	11729	13195
2900	1518	3037	4555	6074	7592	9110	10629	12148	13666
3000	1571	3141	4712	6283	7854	9425	10996	12566	14137
3200	1676	3351	5026	6702	8378	10053	11729	13404	15080
3400	1780	3560	5340	7121	8901	10681	12462	14242	16022
3600	1885	3769	5654	7539	9425	11309	13193	15080	16965
3800	1990	3979	5969	7958	9948	11938	13927	15917	17907
4000	2094	4188	6283	8377	10472	12566	14661	16755	18850

SFPM = RPM x Diameter x π/12

Convolute Wheels

Maximum Operating Speeds (RPM)

Diameter	All Wheels (RPM)
4"	9,000
6"	6,000
8"	4,500
10"	3,600
12"	3,000
14"	2,550
16"	2,250
18"	2,000
20"	1,800
24"	1,500

Unitized Wheels

Maximum Operating Speeds (RPM)

Size (Diameter x Width)	BP-UW	CS-UW	CP-UW	EXL-UW 2S, 3S	EXL-UW 2A MED, 2A XCS, 4A XCS	EXL-UW 4, 6, 8 Except 4A XCS	GP-UW	ST-UW 3	ST-UW 5, 7	MF-UW
Less than 1"	40,100	40,100	40,100	35,100	30,100	40,100	35,100	40,100	40,100	—
1" x All	35,100	35,100	35,100	30,100	25,100	35,100	30,100	35,100	35,100	35,100
1-1/2" x All	30,100	25,100	30,100	20,100	18,100	30,100	20,100	25,100	30,100	25,100
2" x 1/4"–1/2"	24,100	20,100	22,100	16,100	16,100	22,100	16,100	20,100	22,100	18,100
2" x 3/4"–1"	24,100	20,100	22,100	16,100	14,100	22,100	16,100	18,100	22,100	18,100
2-1/2" x 1/8"	22,100	—	20,100	—	—	20,100	12,500	—	20,100	15,100
2-1/2" x 1/4"	22,100	16,100	20,100	14,100	14,100	20,100	12,500	18,100	20,100	15,100
2-1/2" x 3/8"	22,100	16,100	20,100	14,100	12,100	20,100	12,500	18,100	20,100	15,100
2-1/2" x 1/2"	22,100	16,100	18,100	14,100	12,100	18,100	12,500	18,100	18,100	15,100
2-1/2" x 3/4"–1"	22,100	16,100	18,100	12,500	10,000	18,100	12,500	15,100	18,100	15,100
3" x 1/8"	18,100	—	18,100	—	—	18,100	10,000	—	18,100	12,500
3" x 1/4"	18,100	14,100	18,100	12,100	12,100	18,100	10,000	14,100	18,100	12,500
3" x 3/8"	18,100	14,100	18,100	12,100	10,000	18,100	10,000	14,100	18,100	12,500
3" x 1/2"	18,100	14,100	15,100	10,000	10,000	15,100	10,000	12,500	15,100	12,500
3" x 3/4"–1"	18,100	14,100	15,100	10,000	9,000	15,100	10,000	12,500	15,100	12,500
4" x 1/8"	14,100	10,000	12,100	—	—	—	8,000	—	12,100	9,000
4" x 1/4"–1/2"	14,100	10,000	12,100	8,500	8,000	12,100	8,000	10,000	12,100	9,000
4" x 3/4"–1"	14,100	10,000	12,100	8,000	7,000	12,100	8,000	9,000	12,100	9,000
5" x All	12,100	8,000	9,000	6,000	5,500	9,000	6,000	7,500	9,000	7,500
6" x All	10,000	7,000	7,500	5,000	4,500	7,500	5,000	6,000	7,500	6,000
7" x All	8,000	6,000	6,000	4,500	4,000	6,000	4,500	5,000	6,000	5,000
8" x All	7,000	5,000	5,500	4,000	3,500	5,500	4,000	4,500	5,500	4,500
9" x All	6,000	4,500	5,000	3,500	3,000	5,000	3,500	4,000	5,000	4,000
10" x All	5,000	4,200	4,500	3,200	2,800	4,500	3,200	3,750	4,500	3,750
11" x All	4,500	3,800	4,000	2,900	2,500	4,000	2,900	3,400	4,000	3,400
12" x All	4,000	3,500	3,750	2,600	2,300	3,750	2,600	3,100	3,750	3,100
13" x All	3,500	3,200	3,450	2,400	2,100	3,450	2,400	2,800	3,450	2,800
14" x All	3,200	3,000	3,200	2,200	2,000	3,200	2,200	2,650	3,200	2,650
15" x All	3,000	—	—	—	—	—	—	—	—	—
16" x All	2,800	—	—	—	—	—	—	—	—	—
17" x All	2,600	—	—	—	—	—	—	—	—	—
18" x All	2,500	—	—	—	—	—	—	—	—	—
19" x All	2,300	—	—	—	—	—	—	—	—	—
20" x All	2,250	—	—	—	—	—	—	—	—	—

Identifies product with "Dual" rating and higher maximum operating speed (see page 22).

UW = Unitized Wheel
BP = Buff and Polish Unitized Wheel
CS = Clean and Strip Unitized Wheel
CP = Cut and Polish Unitized Wheel

EXL = EXL Unitized Wheel
GP = General Purpose Unitized Wheel
ST = SST Unitized Wheel
MF = Metal Finishing Unitized Wheel

Unitized Wheels

The following Unitized Wheels (in either 1/4" or 3/8" I.D.) have been certified to run at higher maximum operating speeds when using the following hardware (or their equivalents) #990 or #991 Mandrel — or used with 1-1/2" O.D. and 3/8" I.D. flat washers.

Products with "Dual" ratings and higher Maximum Operating Speeds (MOS)

Product Name	Density/Grade	Size (Diameter x Width)	RPM
Clean and Strip Unitized Wheel	7S XCS	3" x 1/4"	18,100
Cutting and Polish Unitized Wheel	5A FIN	3" x 1/2"	18,100
		3" x 3/4"	
	7A MED	3" x 1/2"	
		3" x 3/4"	
	7S MED	3" x 1/2"	
		3" x 3/4"	
	7A CRS	3" x 1/2"	
	5A FIN	2-1/2" x 1/2"	22,100
		2-1/2" x 3/4"	
	7A MED	2-1/2" x 1/4"	
		2-1/2" x 1/2"	
	7S MED	2-1/2" x 1/4"	
		2-1/2" x 1/2"	
EXL Unitized Wheel	4A FIN	3" x 1/2"	18,100
	4S FIN	3" x 1/2"	
	6A FIN	3" x 1/2"	
	6S FIN	3" x 1/2"	
	6A MED	3" x 1/2"	
	8A MED	3" x 1/2"	
	8A CRS	3" x 1/2"	
	6A MED	2-1/2" x 1/2"	20,100
	8A MED	2-1/2" x 1/2"	
General Purpose Unitized Wheel	5A MED	3" x 1/2"	18,100
		3" x 3/4"	
	5A FIN	3" x 1/2"	
		3" x 3/4"	
	7A FIN	3" x 1/4"	
		3" x 1/2"	
	7S FIN	3" x 1/4"	
		3" x 1/2"	
SST Unitized Wheel	5S FIN	3" x 1/2"	18,100
	7S FIN	3" x 1/2"	

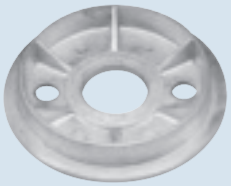
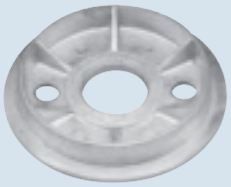
These products have a "Dual" rating and higher maximum operating speed. See page 21 for additional options.

O.D. = Outside diameter
I.D. = Inside diameter

Accessories

Convolute Wheels

Flanges

Product Name	Product Image	Used With	Diameter x CH
3M™ Flange Adapter 3		1" CH Wheels	1" x 1/2" 1" x 5/8" 1" x 3/4" 1" x 7/8"
3M™ Flange Adapter 5		1/2" Wide x 1" CH or 1" Wide x 1" CH Wheels*	1" x 1/2" x 1/2" 1" x 1" x 1/2"
Flange Adapter 356**		3" CH Wheels	3" x 1-1/2"
Flange Adapter 356**		4" CH Wheels	4" x 1/2" 4" x 3/4" 4" x 1" 4" x 1-1/4"
Flange Adapter 356**		8" CH Wheels	8" x 1-3/4"
Flange Adapter 356**		12" CH Wheels	12" x 1-1/4" 12" x 1-1/2"

*Telescoping wheel Adapters 1" and 1/2" wide are used to reduce 1" wheel center holes to fit 1/2", 5/8", 3/4" or 7/8" shafts.
**Currently available from CPS, call 1-800-843-0619
CH = Center Hole

Unitized Wheels

Mandrels

Product Name	Product Image	Used with Unitized Wheels	Overall Length x Shank Size x Washer Diameter	Maximum Operating Speed (RPM)
3M™ Mandrel 931		1" to 1-1/2" diameter x 1/4" wide x 1/8" CH	1-1/2" x 1/8" x 1/2"	13,000
3M™ Mandrel 932		1-1/2" to 2" diameter x 1/4" to 1/2" wide x 1/4" CH Note: 5/16" CH is recommended for wheels 6 density and harder.	2" x 1/4" x 13/16"	20,000
3M™ Mandrel 933		2", 2-1/2" or 3" diameter x 1/4", 1/2", 3/4" or 1" wide x 1/4" CH Note: 5/16" CH is recommended for wheels 6 density and harder.	2" x 1/4" x 1"	14,000
3M™ Mandrel 934		3" to 6" diameter x 1/4", 1/2", 3/4" or 1" wide x 1/2" CH	3-1/16" x 1/4" x 2-1/2"	12,000 for 3" dia 8,500 for 4" dia 6,000 for 6" dia
3M™ Mandrel 936		1" diameter x 1" wide x 3/16" CH	2-1/16" x 1/4" x 3/4"	22,200
Mandrel 946*		1" diameter x 1" wide x 3/16" CH	1-3/4" x 1/4" x 1/2" Hex Nut Dia.	35,200
3M™ Mandrel 990		2" to 3" diameter x 1/8"–1/2" wide x 3/8" CH	1-3/4" x 1/4"	25,100 for 2" dia 22,100 for 2-1/2" dia 18,100 for 3" dia
Mandrel 991*		2" to 3" diameter x 3/4" to 1" wide x 3/8" CH	1-7/8" x 1/4"	25,100 for 2" dia 22,100 for 2-1/2" dia 18,100 for 3" dia
Mandrel 992*		1" to 1-1/2" diameter x 1/8" to 1/2" wide x 3/16" CH	1-1/2" x 1/8"	35,200 for 1" dia 30,200 for 1-1/2" dia
Mandrel 994*		1" to 1-1/2" diameter x 1/8" to 1/2" wide x 3/16" CH	1-1/2" x 1/4"	35,200 for 1" dia 30,200 for 1-1/2" dia
Mandrel 996*		1/2" to 3/4" diameter x 1/8" to 1/4" wide x 1/8" CH	1-11/16" x 1/8"	40,200 for 1/2" and 3/4" dia
Mandrel 998*		1/2" to 3/4" diameter x 1/8" to 1/2" wide x 1/8" CH	1-11/16" x 1/4"	40,200 for 1/2" and 3/4" dia

*Currently available from CPS, call 1-800-843-0619
CH = Center Hole

Convolute and Unitized Equivalency Chart

Convolute Wheel		Unitized Wheel
Light Deburring Wheel, 6/7/8S-fine (FIN)	≅	EXL Unitized Wheel, 2S-very fine (VFN)
EXL Deburring Wheel, 8S-fine (FIN)	≅	EXL Unitized Wheel, 2 and 3S-fine (FIN)
EXL Deburring Wheel, 9S-fine (FIN) and EXL Deburring Wheel, 8S-medium (MED)	≅	↕ N/A
EXL Deburring Wheel, 8A-medium (MED)	≅	EXL Unitized Wheel, 2A-medium (MED)
SST Deburring Wheel, 7A-fine (FIN)	≅	SST Unitized Wheel, 3/5/7A-fine (FIN) and EXL Unitized Wheel, 4/6A-fine (FIN)
SST Deburring Wheel, 8S-fine (FIN)	≅	SST Unitized Wheel, 3/5/7S-fine (FIN) and EXL Unitized Wheel, 4/6S-fine (FIN)
Cut and Polish Wheel, 5A-fine (FIN)	≅	EXL Unitized Wheel, 6A-medium (MED) and Cut and Polish Unitized Wheel, 5A-fine (FIN)
Cut and Polish Wheel, 5/7A-medium (MED)	≅	Cut and Polish Unitized Wheel, 7/9A-medium (MED)
Cut and Polish Wheel, 7A-coarse (CRS)	≅	Cut and Polish Unitized Wheel, 7/9A-coarse (CRS)
CPM Wheel, 5/7/9A-medium (MED)	≅	EXL Unitized Wheel, 8A-medium (MED)
CPM Wheel, 5/7/9A-coarse (CRS)	≅	EXL Unitized Wheel, 8A-coarse (CRS)
CPM Wheel, 5/7/9A-extra coarse (XCS)	≅	EXL Unitized Wheel, 2/4/6/8A-extra coarse (XCS)
N/A	≅	Cut and Polish Unitized Wheel, 7/9S-medium (MED)
Metal Finishing Wheel, 5A-medium (MED)	≅	Metal Finishing Unitized Wheel, 5A-medium (MED)
Metal Finishing Wheel, 6A-coarse (CRS)	≅	Metal Finishing Unitized Wheel, 6A-coarse (CRS)

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