

**NORTON**

SAINT-GOBAIN®

**CATALOG #7362**

**EFFECTIVE 2017**

ABRASIVE PRODUCT SOLUTIONS FOR THE  
**FULL-LINE STOCK  
INDUSTRIAL MARKET**



BECAUSE **RIGHT CHOICES** MATTER™

  
**SAINT-GOBAIN**

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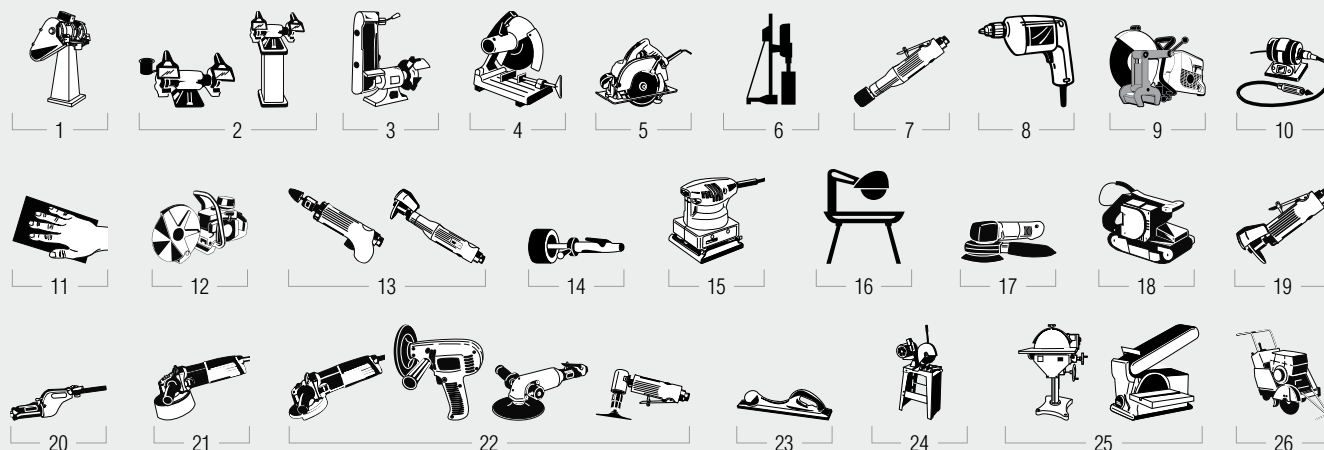
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A

# NON-WOVEN ABRASIVES QUICK-CHANGE DISCS

B

Norton and Merit non-woven quick-change discs are a combination of strong synthetic mesh and quality abrasives, bonded together by a time-resistant adhesive. The open construction of the non-woven material enables aggressive cutting action and improves surface finish while maintaining its non-loading features.

## Applications:

Use Range:  
Cut Range:  
Abrasive Grade:  
Mounting:  
Back up Pad:  
Machine Used:

Medium-light stock removal, leveling, deburring/finishing, not removal, blending, cleaning and finishing, polishing, and decorative finishing.

24" - 4" diameter  
X-Coarse, Coarse, Medium, Fine, Very Fine, Super Fine  
Cerium Oxide, Engineered Aluminum Oxide, Aluminum Oxide, Silicon Carbide  
Quick-Change Type T1 (Type R), Type T3 (Type R), and Type TP (Type R)  
Ratchet with features suitable for different applications

C

D

## QUICK-CHANGE ATTACHMENT SYSTEMS AND CROSS REFERENCE GUIDE

Each system enables quick, tool-free, on-the-fly disc changes, reducing downtime and operating expenses.

E

### Type T1 (Type R)

- Features a flat surface of disk below
- Features a made of metal
- Equivalent to Standard Abrasive Solutions backing system

### Type T3 (Type R)

- Features a flat surface of disk below
- Features a made of plastic
- Equivalent to 3M™ Rolux™ backing system

### Type TP (Type R)

- Features a wrap overlap of disk below
- Features a made of nylon

**NORTON**  
24"  
Standard  
Superior  
Air  
Plus  
Tool  
Control  
Microgrit  
Compton

T1  
Roller T1/T248  
T1 (Locking)  
Type R  
Type R  
Type C3  
Type C3  
Type C3  
Type C3  
Type C3

T3  
Roller T3  
T3 (Locking)  
Type R  
Type R  
Type C3  
Type C3  
Type C3  
Type C3  
Type C3

TP  
Roller TP  
TP (Locking)  
Type R  
Type R  
Type R  
Type R  
Type R

## APPLICATION/PRODUCT RECOMMENDATION GUIDE

### METAL APPLICATIONS

### LEAST AGGRESSIVE

**NORTON**  
**MERIT**

Scale Removal  
Stock Removal  
Heavy Deburring  
Light Deburring  
Light Grinding  
Blending  
Cleaning  
Coating

Rapid Strip

Best Choice  
Best Choice  
Second Choice

Various Rapid Strip  
Deburring & Blending

Second Choice  
Best Choice  
Best Choice

Various Rapid Strip

Best Choice  
Best Choice  
Best Choice  
Second Choice  
Second Choice

Rapid Strip

HE Buffing, Buffing

## MATERIAL TO PRODUCT RECOMMENDATION GUIDE

F

### TYPE 24 FOR STOCK REMOVAL

Stainless Steel / Titanium / Super Alloy  
Aluminum Steel / Metals  
Various Metals / Cast Iron  
Stainless Steel / Titanium / Super Alloy  
Aluminum Steel / Metals  
Various Metals / Cast Iron  
Stainless Steel / Titanium / Super Alloy

### TYPE 20 FOR BLENDING/REFINISHING

Stainless Steel / Titanium / Super Alloy  
Aluminum Steel / Metals  
Various Metals / Cast Iron  
Stainless Steel / Titanium / Super Alloy

**BEAR-TEX**

**MERIT**

Full Line Industrial Abrasives

100

## How Do I Match My End-User Needs?

## F Application recommendations

**G** Best / Better / Good performance color coding

## H Full application / grit guide

## How Do I Match or Upgrade from a Competitive Product?

## Cross reference guide

[illegible]

## Easy to Follow Page Guide

## Key Questions to Simplify Product Selection

## Am I in the Right Section?

## A Product

## B Category overview

### C General attributes

**D** Correct machine use

## How Do I Narrow my Choices?

### E Product design variations



## What are the Leading Products by Tier?

J Tiers by color-coding: Best, Better, Good

## K Features and benefits

**L** New, improved, and/or expanded offering

[illegible]

# COATED ABRASIVES FLAP DISCS

## NORTON BLAZE R98CP CERAMIC ALUMINA

BEST-IN-CLASS PERFORMANCE WITH 10% THICKNESS IN SELECTED GRITS AND FINISHES AVAILABLE

### FEATURES & BENEFITS

- Latest generation ceramic alumina abrasive gives up to 10% longer than any flap disc on the market in steel, cast-iron, chrome, Inconel, titanium and other hard-to-grind materials
- Throat-style abrasive flaps with a superior grinding and a polished finish improve the, grain retention, and flap resistance while providing a cool, non-sparking hot cut rate
- High-strength fiberglass back on Type 26 and Type 27 High Density is durable, lightweight, and abrasion resistant
- Thick, flexible plastic backing plate on Type 27 Quick-Trim is the industry standard for removability
- 17" and 27" quick-change metal flap discs are ideal for tight spaces

## NORTON RED HEAT R983 CERAMIC ALUMINA

BEST-IN-CLASS PERFORMANCE FOR MILD CARBON STEEL, CAST IRON AND REMOVING WELDLINE

### FEATURES & BENEFITS

- Destructive pattern ceramic alumina abrasive starts hot faster and withstands aluminum oxide and provides abrasives in most applications
- Blue, Bronze, 11" weight engineered backing provides increased durability and reduced edge wear
- Adhesive with ultraviolet grain treatment reduces heat and heat in grain materials
- Triangular Type 27 plastic backing discs are engineered for finishing
- Type 26 vertical fiberglass flap discs avoid all aggressive heat removal
- Type 25 fiberglass high density flap discs last 40% longer than standard density flap discs in reinforced surfaces

## NORTON BLUEFIRE R984P ZIRCONIA ALUMINA

BEST-IN-CLASS PERFORMANCE FOR MILD CARBON STEEL, CAST IRON AND REMOVING WELDLINE

### FEATURES & BENEFITS

- High performance zirconia alumina abrasive gives aggressive cut and long life, with up to 10% longer life than competitive zirconia alumina products
- Polymer flaps with semi-open cut provide improved flexibility and smooth finishing on aluminum
- High-strength fiberglass back on Type 26 and Type 27 High Density is durable, lightweight, and abrasion resistant
- Thick, flexible plastic backing plate on Type 27 Quick-Trim is the industry standard for removability
- Versatile 1/2" package is ideal for welding machines, small jobs, or reworking to a job site
- 17" and 27" quick-change metal flap discs are ideal for tight spaces

## PRECISION PRODUCTION ABRASIVES FROM VITRIFIED WHEELS

	17"	26"	27"
GRIT	120	150	180
FINISH	120	150	180
FINISH	120	150	180

## NORTON METAL R928 ZIRCONIA ALUMINA

BEST-IN-CLASS PERFORMANCE WITH LOW INITIAL PRICE

### FEATURES & BENEFITS

- Durable ceramic alumina abrasive provides great cut rate and life with consistent finish

40

www.nortonabrasives.com

## How Do I Find What I Want Now That I Know What I Want?

### M Visual identification

## N Key product attributes

0 Full specification and product number

## when the going gets rough **RELY ON NORTON INNOVATION**

For stock removal, rough blending, cleaning castings and welds...Norton depressed center, portable snagging, and floorstand wheels are constructed to tackle the demanding work of all material types.



### **Choose a Quantum Leap in Technology**

Maximum operator comfort – less cutting vibration means reduced hand fatigue. Sharper wheel for fastest cutting action; highest metal removal rate, less pressure, and longest life – for highest productivity.



### **Performance on Fire**

Engineered with a proprietary zirconia grain upgrade, the Norton BlueFire design offers faster removal rate, longer product life, and increased productivity for better performance value.



### **Conquering Your Toughest Jobs**

From foundry, welding, metal fabrication, steel mill to shipyard, master imperfection removal, cleaning, and beveling jobs with our line of strong, aggressive snagging products.



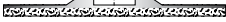


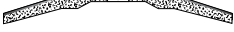

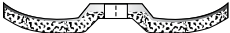



Depressed center wheels may also be referred to as raised hub wheels or by their shape designation of "Type", with Type 27 being the most popular. The depressed center design allows the flange/lock nut to recess within the wheel so that it can be used for various grinding and cutting applications. Depressed center wheels are designed to handle the most severe right angle grinding applications from heavy stock removal to rough blending. More recently, depressed center wheels have been designed to increase the utility of the tool for cut-off applications. While large right angle grinders (7" & 9") have been around for many years, small or mini grinders that handle 4", 4-1/2", 5", and 6" wheels have made this machine, and wheel category, the most popular in power tools.

Applications: Grinding, stock removal, edge chamfering, beveling, weld blending, and cutting-off  
Size Range: 2" – 9"  
Thickness Range: .040 – 1/4"  
Grit Range: 24 – 46 grits for stock removal;  
60, 80 grits for blending and finishing  
Abrasive Grain: Ceramic Alumina, Diamond, Zirconia Alumina, Aluminum Oxide, Silicon Carbide  
Mounting Options: Plain hole (3/8", 5/8" and 7/8") and discard mount (5/8"-11)  
Shape: Type 27, Type 28, Type 29  
Machine Used:



## TYPE-TO-APPLICATION RECOMMENDATION GUIDE

Wheel Type/Thickness	Applications		
<b>TYPE 27</b> 	Type 27 wheels are essentially straight wheels that have a "depressed center/ raised hub". Different types of fiberglass reinforcement mesh give the product stability for use on the periphery, on the face, or a combination of the two.		
		90° ANGLE	30° ANGLE
.040", .045", and 1/16" Type 27/42 RightCut	Cutting only, where fast cutting and low kerf loss are desired	■	
3/32" and .125" Type 27/42	For tough cutting and notching applications where stability is important; cutting and cleaning burr-free narrow root pass welds	■	
1/8" Type 27	For multiple applications ranging from cutting-off, notching and light-duty side grinding	■	■
1/8" Pipe Notcher Type 27	2-1/2 pieces of reinforcement; durable face grinding; root pass grinding without removing pipe material	■	■
1/8" Type 27 Flexible	For light stock/blending/finishing/polishing		■
.140" and 1/8" Type 27 Foundry Notchers	Triple-reinforced for grinding steel and dirty/scale-covered castings; removing and cleaning gates and risers	■	■
1/4" Type 27	For light- to heavy-duty grinding on the bottom/face of the wheel		■
1/4" Type 27 Foundry Snaggers	Designed for cleaning parting lines, pads and slag		■
1/4" Type 27 Heavy-Duty Foundry	Triple-reinforced for the most aggressive foundry applications		■
<b>TYPE 28</b> 	Type 28 wheels are constructed with a downward angle built into the grinding section to facilitate a flatter grinding angle. These wheels can only be used on the face and never on the periphery for cutting-off.		
		15° ANGLE	
1/4" Type 28 Saucers	Smooth, gouge-free grinding at shallow angles	■	
<b>TYPE 29</b> 	Type 29 wheels are constructed with an upward angle built into the grinding section to provide full face contact for light stock removal and blending operations. These wheels can only be used on the face and never on the periphery for cutting-off.		
		15° ANGLE	
1/8" Type 29 Flexible, AVOS	Polishing and blending applications	■	

## MATERIAL/APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & price	GOOD Consistent Performance; Low Initial Price
<b>CUTTING</b>			
Mild Carbon / High Tensile Steel	Norton NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Stainless Steel / Alloys	Norton NorZon Plus	Norton BlueFire	Norton Gemini INOX/SS / Norton Metal
Contaminate Free		Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Cast Iron	Norton NorZon Plus		Norton Gemini
Gray Iron			
Aluminum / Bronze / Brass			Norton Gemini Aluminum
Asphalt / Brick / Concrete			Norton Masonry
Fiberglass / Plastic			Norton Masonry
<b>NOTCHING</b>			
Mild Carbon / High Tensile Steel	Norton NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Stainless Steel / Alloys	Norton NorZon Plus	Norton BlueFire	Norton Gemini INOX/SS
Contaminate Free		Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Cast Iron	Norton NorZon Plus	Norton BlueFire Foundry	Norton Gemini
<b>GRINDING</b>			
Mild Carbon / High Tensile Steel	Norton Quantum3/NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Stainless Steel / Alloys	Norton Quantum3	Norton BlueFire INOX/SS	Norton Gemini INOX/SS
Contaminate Free	Norton Quantum3	Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Cast Iron	Norton NorZon Plus	Norton BlueFire Foundry	Norton Gemini
Gray Iron	Norton Quantum3	Norton BlueFire Foundry	Norton Gemini
Aluminum / Bronze / Brass			Norton Gemini Aluminum
Asphalt / Brick / Concrete			Norton Masonry
<b>BLENDING</b>			
Mild Carbon / High Tensile Steel			Norton Gemini Flexible
Stainless Steel / Alloys			Norton Gemini Flexible
Aluminum / Bronze / Brass			Norton Gemini Flexible
Fiberglass / Plastic			Norton Gemini Flexible

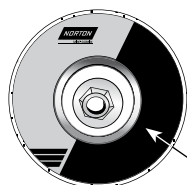
*Typical Steel, Stainless Steel, Cast Iron Products: Angle Iron, Bar Stock, Ductile Pipe, Channel Iron, Decking, Rebar, I-Beams, Rail Steel, Studs, Tubing, and Welds*

## HOW TO PICK THE RIGHT BOND TYPE

Standard	Unmarked	Where an excellent blend of cut rate and life is needed
Fast Cut	FC	Where fast stock removal is needed, or the application only allows for low-pressure or under-horsepowered grinders
Long Life	LL	Where durability is needed due to severe application, and when horsepower of the grinder allows for heavy pressure
Contaminate Free	INOX/SS	Contain <0.1% iron, sulfur or chlorine for rust-free and corrosion-free results. Will not contaminate stainless steel

## HOW TO PICK THE RIGHT MOUNT

Most wheel sizes come with a plain hole or a discard mount option. While the plain hole has a small, initial cost advantage, the discard mount can provide a labor cost advantage with the quicker wheel change.

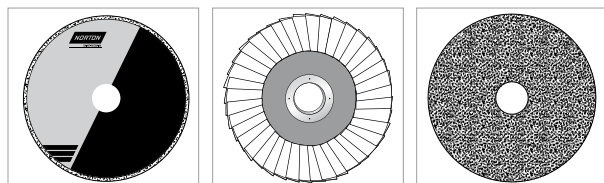


### Mini-Mount Hub

Our unique, patented mini-mount hub used on 4-1/2" and 5" depressed center wheels provides up to 30% more wheel life because the hub covers just a small surface area, providing maximum grinding area exposure and usage.

Standard throw-away hub size

## WHY CHOOSE DEPRESSED CENTER WHEELS?



### Depressed Center Wheels vs. Flap Discs or Fiber Discs

- Up to 5X life over flap discs, less downtime and inventory
- Up to 100X life over fiber discs, less downtime and inventory
- Rigidity for severe operations and high power grinders
- 1/8" wheels can be used for cutting and grinding
- Can be used to grind inside corners at outer edge of wheel



## CROSS REFERENCE GUIDES

Type 27/42 RightCut – .040" - 1/16"

TOTAL PERFORMANCE				INITIAL PRICE			SPECIALITY
	BEST	BETTER	GOOD				GOOD
<b>NORTON</b>	NorZon Plus	BlueFire	Gemini INOX/SS	Gemini Long Life	Gemini	Metal	Gemini Aluminum
Brilliant	—	—	—	Brill-Blade Heavy Duty	Brill-Blade Extra FC	Hornet	—
Bullard	—	ZA60T	—	TA46T, TA60T TA60U	SGA60U	A46T, A60T Comp.	AL46N
Camel	—	ZA Quickie Cut	A60-T-BF, WA60R Quickie Cut	Super Quickie Cut	A36-S-BF	—	A46 Quickie Cut
Flexovit	—	—	—	Razorblade A60SST	Razorblade A24T, 30V, 36T	—	—
Pearl	—	Redline Max Slimcut	—	Slimcut	—	Slimcut Pro-V, Silverline	—
Pferd	—	SGP-ZA-Q-INOX	SG-A-R-INOX, SGP-A-S-INOX	SG-A-S, SGP-A-T	—	PSF-A-P	S-G-N-ALU
Sait	—	Z-tech	XA46R	—	A60S, Saitech	SAIT.M.X	A46N
Spedecut	—	—	—	—	—	A46, 60 TBXX	—
Walter	—	—	A-60SS-ZIP	—	A-60-ZIP, A-30-ZIP	—	A-60-ZIP-ALU

Type 27 and 28 – 1/8" and 1/4"

	TOTAL PERFORMANCE					INITIAL PRICE					SPECIALITY		
	BEST		BETTER		GOOD					BETTER		GOOD	
NORTON	Quantum3	NorZon Plus LL	NorZon Plus	BlueFire	BlueFire FC/INOX/SS	Gemini XXL	Gemini	Gemini Fast Cut	Gemini SS	Metal	BlueFire Foundry	Gemini ALU	Masonry
3M	Cubitron II	—	—	—	—	High Perform., Green Corps	—	—	—	—	—	—	—
Arc	—	—	—	—	—	—	Predator A24R	—	—	—	—	—	—
Brilliant	—	—	—	—	Brill-Max Z24R	—	Brill-Tex A24UHPXL, A30T	Brill-Tex A24R Super-G	Brill-Tex A30P	Hornet Metal	—	Brill-Tex 30ALU	Brill-Tex C30P, Hornet Concrete
Bullard	—	—	TA24S	ZA24R Competitor	ZA24R	—	A24R	A24N	A46Q	A24R Competitor	—	AL36N	C24R
Camel	—	—	—	—	ZA24T	—	A24R	Ultra A24-N-BF, A24T Super Quickie Cut	WA24S	A24N, R&T Fast Cut	—	*A30N, Fast Cut*	C24R
DeWalt	—	XP Ceramic		XP	—	HP	—	—	HP SS	Metal	—	—	—
Flexovit	—	Flexon ZA24P ZA30T	Flexon ZA20Q	Metalhog, AXT24S	—	—	High Perform. A24/30T	High Performance A30S, Specialist A30Q & R	Free Grind A30Q	—	Flexon ZA16U	Specialist A24ALU	High Perform. C24/30P
Metabo	M-Calibur	—	—	ZA24T	—	—	A24R & T	A24N	A36Q	—	—	A36M	C24N
Pearl	—	—	—	—	Z24T	—	Premium Metal A24S, Redline Max A/WA24S	Premium Metal A24R, Redline Max A/WA24R	WA24R, SRT24	Silver Line A24R & S	—	D.A. Series AL24M	Silver Line C24S
Pferd	SG-Elastic Ceramic C024Q	—	—	ZA SGP, ZA T SGP	ZA R SGP, Z-SG	SG-Elastic	A-PS, A-SG	—	A-SG INOX, A-PS INOX	—	—	A-SG ALU	S-SG, Masonry
Sait	The Ultimate Grind	Saitech Ultimate Perform.	Saitech Attacker, Pipeline	Z24R Z-Tech	Stainless	—	A24R, A24Turbo	A24N	XA24Q	A24T	CA24R - Foundry	A46N-ALU	C24N
Tyrolit	—	—	—	ZA24P-BFX	ZA24N-BFX	—	A30S & Q-BFX	A30R-BFX	A30-BF INOX	A30-BF	ZZA24R-BFX	A36N-BFX WA46-BF	C30-BF
Walter	—	—	—	Allsteel XX	Double-X	Allsteel	HP	—	Stainless	—	—	—	—
Weiler	—	—	—	Tiger Zirc	Tiger Inox	Tiger LL	Wolverine A24R	—	—	Wolverine A24N	—	—	—

Type 27 – Flexible 1/8"

GOOD		GOOD		GOOD	
<b>NORTON</b>	Gemini Flexible	<b>NORTON</b>	Gemini Flexible	<b>NORTON</b>	Gemini Flexible
Brilliant	Brill-Flex	Flexovit	Flexcel	Pferd	SG-Flex
Bullard	Flexlite AC	Metabo	Z-Plus	Sait	Challenger II
Camel	FGF, Special Wheel	Pearl	Flexible AC	Walter	Flexcut

# DEPRESSED CENTER WHEELS

## NORTON QUANTUM3 CERAMIC ALUMINA

**BEST CHOICE FOR STAINLESS AND CARBON STEEL APPLICATIONS; EFFICIENTLY GRINDS AND CUTS A VARIETY OF MATERIALS FROM ALLOYS TO GRAY IRON**

### FEATURES & BENEFITS

- 5X–6X the life of aluminum oxide wheels and up to 100 percent increase in performance and life over competitive ceramic alumina wheels from our proprietary formulation of next-generation, uniquely-shaped, 100% ceramic alumina abrasive grain and tough new bond system
- Fastest metal removal rates, with less pressure (because of more uniform grain distribution and adhesion) significantly increase production, for the lowest total grinding cost of any wheel in the market place today
- Better operator control, improved comfort, and exceptional finished part quality with a more robust, sharper, yet smoother cutting action; wheels don't grab or dig
- Contaminate-free with <0.1% iron, sulfur or chlorine for rust-free results.

## NORTON NORZON PLUS C/A AND Z/A BLEND

**BEST/HIGH PRODUCTIVITY FOR STEEL, STAINLESS STEEL AND ALL OTHER FERROUS METALS**

### FEATURES

- Combination of Norton SG ceramic alumina and NorZon (zirconia alumina) with an advanced bond system
- The original All Purpose – lowest total cost and best overall value
- Long Life – longest lasting
- Foundry Snagger
- RightCut wheels for cutting only

### BENEFITS

- 50 to 200% better overall performance versus competitive zirconia and ceramic wheels
- Lowest total grinding cost; highest productivity for ceramic/zirconia blended wheels
- Up to 10X the performance of aluminum oxide wheels
- Easy on the operator and equipment
- Best option when the best combination of life, cut rate, and lowest heat generation is primary concern, and able to measure total cost
- Best option when longest possible life is primary concern, rough grinding conditions require wheel durability, using high cycle, high horsepower grinders and lower labor cost are key
- Designed to withstand the most aggressive foundry application
- Noticeably longer life and faster cut rate versus competitive wheels
- Less pressure required for first cut

## NORTON BLUEFIRE Z/A AND A/O BLEND

**BETTER CHOICE FOR STAINLESS STEEL, CARBON STEEL, ALLOYS AND GRAY IRON**

### FEATURES

- A blend of R&D advanced chemistry and shaped zirconia alumina abrasive and premium aluminum oxide grain
- Contaminate-free BlueFire FC (FastCut/Inox/SS)
- BlueFire Foundry
- IMPROVED PERFORMANCE! RightCut wheels for cutting only

### BENEFITS

- 2-3 times the life of aluminum oxide wheels
- Broad utility from light-to heavy-pressure applications, on a wide range of materials
- Excellent performance-to-price ratio for lower total grinding costs
- Contain <0.1% iron, sulfur, or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel
- Zirconia alumina/silicon carbide abrasive blend and an exceptionally strong reinforcement structure
- Versatile choice for aggressive, foundry applications
- Over 50% more life; the true choice for broad versatility and better value, to lower production costs.
- Less pressure required for first cut



# DEPRESSED CENTER WHEELS

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR STEEL AND FERROUS METALS AS WELL AS SPECIALTY APPLICATIONS IN ALUMINUM AND FOUNDRIES**

### FEATURES

- Quality aluminum oxide
- Gemini Contaminate Free INOX/SS
- 1/8" and 1/4" thick Gemini XXL grinding wheels
- .040 an .045 ultra-thin Gemini RightCut wheels for cutting only
- Gemini Aluminum wheels

### BENEFITS

- Consistent performance at a competitive price
- Contain <0.1% iron, sulphur or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel
- Fastest 100% aluminum oxide grinding wheels in the market today
- 50% more life and metal removal than standard aluminum oxide wheels
- Best on hard-grade carbon steel applications, weld repairs, flashing, and any job that requires a quick turnaround
- Precise cutting; very stable, with a narrow pass
- Up to 70% longer life and 20% faster cut rate than standard aluminum oxide wheels – for substantial savings
- Require less pressure, providing increased operator comfort
- Grind aluminum and soft metals without loading
- Contain no wax or rubber fillers

## NORTON METAL / NORTON MASONRY

**GOOD CHOICE FOR STEEL/FERROUS METAL AND MASONRY APPLICATIONS WITH LOW INITIAL PRICE**

### FEATURES

- Low initial price point
- Metal – aluminum oxide
- Masonry – sharp silicon carbide

### BENEFITS

- Ideal for small-volume jobs where performance need not be measured
- Engineered for all steel/ferrous materials
- Engineered for all masonry materials such as concrete, brick and asphalt

## NORTON DIALAST DIAMOND WHEELS

**BEST FOR METAL PLATE, PIPE, TUBING, CAST IRON, CARBON AND MILD STEEL, FOUNDRY AND WELDING APPLICATIONS, AND CERAMICS**

### FEATURES

- A combination of high-quality diamond and advanced brazed single-layer bonding technology
- Environmentally friendly grinding

### BENEFITS

- Extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains the diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for exceptional wheel life
- Less blade changes reduce downtime and labor costs
- Generate minimal dust for less clean-up and safer working conditions

### DEPRESSED CENTER WHEEL DESCRIPTION CODES

BLANK = All Purpose    FC = Fast Cut    HD = Heavy Duty    INOX/SS = Contaminant Free    LL = Long Life    1-2-3 = Cutting/Notching/Grinding  
 ■ = Aluminum    ■ = Foundry    ■ = Masonry    ■ = Stainless    ■ = Steel / Metal

## Less Body Stress, Shorter Work Days, and Bigger Pay Days!

- Let Norton Quantum3 wheels take a bite out of your daily grind so you can focus on your off hours
- Our R & D engineers met all your challenges with a proprietary, highest-performing formulation of uniquely-shaped, 100% ceramic alumina grain and a tough new resin bond
- 1. Less Grinding Time with a sharper wheel for highest metal removal and reduced pressure from faster cutting action
- 2. Less Downtime, Waste, and Cost with longer wheel life using fewer wheels
- 3. Operator Comfort with reduced hand fatigue from less cutting vibration

Try These New Wheels On Our Norton No Risk Test Policy –  
Because Right Choices Matter



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON NORZON PLUS</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON GEMINI</b>	<b>NORTON METAL</b>
SHAPE:	Type 27/42	Type 27/42	Type 27/42	Type 27/42
ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
MATERIAL:	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>
	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>
			<b>ALUMINUM</b>	

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>.040, .045, 1/16" – RightCut Cut-off – Type 27/42</b>						
4 x .045 x 5/8	15,280	25			66252842180	07660705249
4-1/2 x .040 x 5/8-11	13,580	10			66252843227	
4-1/2 x .045 x 5/8-11	13,580	10	66252842006		66252842025	
	13,580	10			66252841913 INOX/SS	
4-1/2 x .045 x 7/8	13,580	25	66252843320		66252842026	66252843604
	13,580	25			66252841912 INOX/SS	
	13,580	25			66252841909 ALU 36	
	13,580	25*			66252842161 5-Pk	
	13,580	250			66253370065 250-Pk	
4-1/2 x 1/16 x 5/8-11	13,580	10		66252843223		
4-1/2 x 1/16 x 7/8	13,580	10		66252843219		
5 x .040 x 5/8-11	12,225	10			66252843228	
5 x .045 x 5/8-11	12,225	10			66252841939	
5 x .045 x 7/8	12,225	25	66252843329		66252842036	66252843849
	12,225	25			66252841914 INOX/SS	
	12,225	25			66252841910 ALU 36	
	12,225	25*			66252842171 5-Pk	
	12,225	250			66253370066 250-Pk	
5 x 1/16 x 7/8	12,225	25		66252843220		
6 x .045 x 5/8-11	10,185	10	66252842007		66252830587	
6 x .045 x 7/8	10,185	25	66252842009		66252842202	66252842015
	10,185	25			66252841916 INOX/SS	
	10,185	25			66252841911 ALU 36	
	10,185	25*			66252842176 5-Pk	
	10,185	250			66253370067 250-Pk	
6 x 1/16 x 7/8	10,185	25		66252843221		
7 x .045 x 5/8-11	8,600	10			66252841919 INOX/SS	
7 x .045 x 7/8	8,600	20			66252912626	
	8,600	20			66252841918 INOX/SS	
7 x 1/16 x 7/8	8,600	10				07660705251
9 x 1/16 x 5/8-11	6,600	10			66253019115	
9 x 1/16 x 7/8	6,600	10			66253017734	
<i>RightCut wheels are to be used for cutting only.</i>						
<b>3/32", .125" – Cut-off – Type 27/42</b>						
4 x .125 x 3/8	15,280	25	66252842001			
4-1/2 x 3/32 x 5/8-11	13,580	10			66252841903	
	13,580	10			66252842027 INOX/SS	
4-1/2 x 3/32 x 7/8	13,580	25			66252841940	
	13,580	25			66252842028 INOX/SS	
	13,580	25			66252843582 1-2-3	
4-1/2 x .125 x 5/8-11	13,580	10	66252843321		66252843588	
4-1/2 x .125 x 7/8	13,580	25	66252843322		66252843589	
5 x 3/32 x 5/8-11	12,225	10			66252841904	
5 x 3/32 x 7/8	12,225	25			66252842037 INOX/SS	
	12,225	25			66252843587 LL	
	12,225	25			66252843583 1-2-3	
5 x .125 x 7/8	12,225	25			66252843595	
6 x 3/32 x 5/8-11	10,185	10			66252841905	
6 x 3/32 x 7/8	10,185	25			66252841906	
	10,185	25			66252832487 INOX/SS	
6 x .125 x 5/8-11	10,185	10			66252841192	
6 x .125 x 7/8	10,185	25			66252842021	
7 x 3/32 x 5/8-11	8,600	10			66252841907	
7 x 3/32 x 7/8	8,600	20			66252841908	
	8,600	20			66252914638 INOX/SS	
7 x .125 x 5/8-11	8,600	10	66252912625			
7 x .125 x 7/8	8,600	20	66252912624		66252900619	
9 x 3/32 x 5/8-11	6,600	10		66252842378		
9 x 3/32 x 7/8	6,600	20		66252842343		

These wheels are to be used for cutting only. \* 5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.



TIER:	<b>BEST</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON NORZON PLUS</b>	<b>NORTON GEMINI</b>
SHAPE:	Type 27/42	Type 27/42
ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Aluminum Oxide
MATERIAL:	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #
<b>1/8" (5/32") – Pipe Notching – Type 27</b>				
4-1/2 x 1/8 (5/32) x 5/8-11	13,580	10		66253370272 <b>XXL</b>
4-1/2 x 1/8 (5/32) x 7/8	13,580	25		66253370271 <b>XXL</b>
5 x 1/8 (5/32) x 5/8-11	12,225	10		66253370273 <b>XXL</b>
5 x 1/8 (5/32) x 7/8	12,225	25		66252842038 <b>XXL</b>
6 x 1/8 (5/32) x 5/8-11	10,185	10		66252841193 <b>XXL</b>
6 x 1/8 (5/32) x 7/8	10,185	20		66252835580 <b>XXL</b>
7 x 1/8 (5/32) x 5/8-11	8,600	10	66252939184	66253370274 <b>XXL</b>
7 x 1/8 (5/32) x 7/8	8,600	20		66252835581 <b>XXL</b>
9 x 1/8 (5/32) x 5/8-11	6,600	10	66253049066	66253370275 <b>XXL</b>
9 x 1/8 (5/32) x 7/8	6,600	20		66253370276 <b>XXL</b>

Pipe Notchers are to be used for cutting/notching only.

See Type 27 .040 – 1/4" Foundry, Type 28 Saucer, Type 27 Flexible, and Type 29 Blending Wheels at the end of this section.



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON NORZON PLUS</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON GEMINI</b>	<b>NORTON METAL</b>	<b>NORTON MASONRY</b>
SHAPE:	Type 27	Type 27	Type 27	Type 27	Type 27
ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
MATERIAL:	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b> <b>ALUMINUM</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>MASONRY</b>

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>1/8" – Cutting / Notching / Light Grinding – Type 27</b>						
3 x 1/8 x 3/8	18,000	25	66252842177			
4 x 1/8 x 3/8	15,280	25	66252842004	66252843178	66252842016	
4 x 1/8 x 5/8	15,280	25	66252842005	66252843176	66252842017	66252842014
4-1/2 x 1/8 x 5/8-11	13,580	10	66252843323	66252843211	66252843590	66252843609
	13,580	10		66252843191 <b>FC/INOX/SS</b>	66252842029 <b>ALU 46</b>	
	13,580	10 <b>V</b>			66252842166 <b>2-Pk</b>	
4-1/2 x 1/8 x 7/8	13,580	25	66252843324	66252843212	66252843591	66252843611
	13,580	25		66252843190 <b>FC/INOX/SS</b>	66252842030 <b>ALU 46</b>	66252843601
	13,580	10 <b>V</b>			66252842167 <b>2-Pk</b>	
5 x 1/8 x 5/8-11	12,225	10	66252843330	66252843215		66252843615
	12,225	10		66252843195 <b>FC/INOX/SS</b>		
5 x 1/8 x 7/8	12,225	25	66252843331	66252843216	66252843596	66252843616
	12,225	25		66252843194 <b>FC/INOX/SS</b>		
6 x 1/8 x 5/8-11	10,185	10	66252841891	66252843199 <b>FC/INOX/SS</b>	66252833965	
6 x 1/8 x 7/8	10,185	20		66252843202	66252801864	
	10,185	20		66252843198 <b>FC/INOX/SS</b>		
7 x 1/8 x 5/8-11	8,600	10	66252938855	66252843233	66252939259	07660702678
	8,600	10		66252843183 <b>FC/INOX/SS</b>		
7 x 1/8 x 7/8	8,600	20	66252938854	66252843234	66252939207	
	8,600	20		66252843182 <b>FC/INOX/SS</b>		
	8,600	25*				07660775956 <b>5-Pk</b>
9 x 1/8 x 5/8-11	6,600	10	66253048897	66252843244	66253048983	
	8,600	10		66252843187 <b>FC/INOX/SS</b>		
9 x 1/8 x 7/8	6,600	20	66253048896	66252843245	66253048994	
	6,600	20		66252843186 <b>FC/INOX/SS</b>		

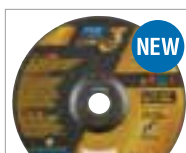
\* 5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.

**V** Vendible 2-wheel Package. Ideal for vending machinings and small jobs. 5 packs/carton. Order in multiples of 10.

## DEPRESSED CENTER WHEEL DESCRIPTION CODES

<b>BLANK</b> = All Purpose	<b>FC</b> = Fast Cut	<b>HD</b> = Heavy Duty	<b>INOX/SS</b> = Contaminant Free	<b>LL</b> = Long Life	<b>1-2-3</b> = Cutting/Notching/Grinding
<b>■</b> = Aluminum	<b>■</b> = Foundry	<b>■</b> = Masonry	<b>■</b> = Stainless	<b>■</b> = Steel / Metal	





TIER: **BEST**



**BEST**



**BETTER**



**GOOD**



**GOOD**

TRADENAME: **NORTON QUANTUM3**

**NORTON NORZON PLUS**

**NORTON BLUEFIRE**

**NORTON GEMINI**

**NORTON METAL  
OR NORTON MASONRY**

SHAPE: Type 27

Type 27

Type 27

Type 27

Type 27

ABRASIVE: Ceramic Alumina

Ceramic Alumina/  
Zirconia Alumina

Zirconia Alumina/  
Aluminum Oxide

Aluminum Oxide

Aluminum Oxide – Metal  
Silicon Carbide – Masonry

MATERIAL:

**STAINLESS  
STEEL/METAL**

**STAINLESS  
STEEL/METAL**

**STAINLESS  
STEEL/METAL**

**STAINLESS  
STEEL/METAL**



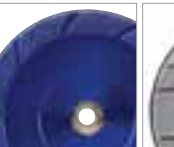


**STAINLESS  
STEEL/METAL  
MASONRY**

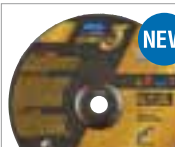





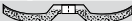
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>1/4" – Grinding – Type 27</b>							
3 x 1/4 x 3/8	18,000	25		66252842178		66252842179	
4 x 1/4 x 3/8	15,280	25	66253371180	66252842002	66252843179	66252842018	
4 x 1/4 x 5/8	15,280	25	66253371181	66252842003	66252843177	66252842020 FC	66252842011
	15,280	25				66252842019	66252842010 Masonry
	15,280	25				66252842183 ALU 46	
4-1/2 x 3/16 x 7/8	13,580	25				66252843592	
4-1/2 x 1/4 x 5/8-11	13,580	10	66253370793	66252843326	66252843213	66252843593	66252843605
	13,580	10		66252843327 LL	66252843193 FC/INOX/ss	66252843585 FC	66252843599 Masonry
	13,580	10				66252842032 INOX/SS	
	13,580	10				66252843785 XXL	
	13,580	10				66252842031 ALU 46	
	13,580	40					66252819559
	13,580	10 V		66252829541 2-Pk	66252842162 2-Pk	66252842163 2-Pk	
4-1/2 x 1/4 x 7/8	13,580	25	66253370794	66252843328	66252843214	66252843594	66252843607
	13,580	25			66252843192 FC/INOX/ss	66252843584 FC	66252843600 Masonry
	13,580	25				66252842033 INOX/SS	
	13,580	25				66252843784 XXL	
	13,580	25				66252842034 ALU 46	
	13,580	50					66252836796
	13,580	10 V		66252829540 2-Pk	66252842164 2-Pk	66252842165 2-Pk	
5 x 1/4 x 5/8-11	12,225	10	66253370795	66252843332	66252843217	66252843597	66252843613
	12,225	10		66252843333 LL	66252843197 FC/INOX/ss	66252843787 XXL	
	12,225	10					
5 x 1/4 x 7/8	12,225	25	66253370796	66252843334	66252843218	66252843598	66252843614
	12,225	25			66252843196 FC/INOX/ss	66252843586 FC	
	12,225	25				66252842040 INOX/SS	
	12,225	25				66252843786 XXL	
	12,225	25				66252842039 ALU 46	
	12,225	10 V				66252842172 2-Pk	
6 x 1/4 x 5/8-11	10,185	10	66253370797	66252841920	66252843224	66252832390	
	10,185	10			66252843201 FC/INOX/ss	66252843789 XXL	
6 x 1/4 x 7/8	10,185	20	66253370798	66252809376	66252843203	66252801865	
	10,185	20			66252843200 FC/INOX/ss	66252843788 XXL	
7 x 1/4 x 5/8-11	8,600	10	66253370799	66252917881	66252843235	66252940147 FC	66252912633
	8,600	10		66252835578 LL	66252843185 FC/INOX/ss	66252940148 LL	07660775942 Masonry
	8,600	10				66252843791 XXL	
	8,600	10				66252940514 ALU 24	
	8,600	10				66252940515 ALU 46	
	8,600	25*					07660775940 5-Pk
7 x 1/4 x 7/8	8,600	20	66253370800	66252917880	66252843236	66252940099 FC	
	8,600	20			66252843184 FC/INOX/ss	66252940098 LL	
	8,600	20				66252843790 XXL	
	8,600	20				66252940516 ALU 24	
	8,600	25*					07660775936 5-Pk
9 x 1/4 x 5/8-11	6,600	10	66253370801	66253021634	66252843246	66253049105 FC	07660775937 Masonry
	6,600	10		66252830728 LL	66252843189 FC/INOX/ss	66253049104 LL	
	6,600	10				66252843793 XXL	
	6,600	10				66253049045 ALU 24	
	6,600	25*					07660775938 5-Pk
9 x 1/4 x 7/8	6,600	20	66253370802	66253021633	66252843247	66253049077 FC	
	6,600	20		66253049069	66252843188 FC/INOX/ss	66253048991 LL	
				NorZon III – Rail Grind			
	6,600	20				66252843792 XXL	

\* 5-wheel Job Packs; wheels are packed 5 wheels/Pack. with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.

V Vendible 2-wheel Package. Ideal for vending machinings and small jobs. 5 packs/carton. Order in multiples of 10.

See 1/4 inch thick Type 27 Foundry and Type 28 Saucer Wheels on the next page.

							
		<b>NEW</b>					
TIER:		<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>
TRADENAME:		<b>NORTON QUANTUM3</b>	<b>NORTON NORZON PLUS</b>	<b>NORTON DIALAST</b>	<b>NORTON DIALAST</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON GEMINI</b>
SHAPE:		Type 28	Type 28	Type 29	Reversible	Type 28	Type 28
ABRASIVE:		Ceramic Alumina	Ceramic Alumina/ Zirconia Alumina	Diamond	Diamond	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide
MATERIAL:		<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>1/4" - Grinding - Type 28 Saucer</b> 							
7 x 1/4 x 5/8-11	8,600	10	66253370803	66252905369		66252843229	66252940149
7 x 1/4 x 7/8	8,600	20		66252905368			66252940095
9 x 1/4 x 5/8-11	6,600	10	66253370804	66253006335		66252843237	66253049106
9 x 1/4 x 7/8	6,600	20	66253370805				66253049081
<b>Light Grinding - Type 29</b> 							
4-1/2 x 5/8-11	13,600	1		66253370009			
5 x 5/8-11	12,225	1		66253370010			
6 x 5/8-11	10,200	1		66253370011			
7 x 5/8-11	8,600	1		66253370012			
9 x 5/8-11	6,600	1		66253370013			
<b>1/4" - Grinding - Reversible Grinding Disc</b> 							
4-1/2 x 1/4 x 5/8-11	13,600	1			66253370019		
7 x 1/4 x 5/8-11	8,600	1			66253370020		

						
		<b>NEW</b>				
TIER:		<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>
TRADENAME:		<b>NORTON QUANTUM3</b>	<b>NORTON NORZON PLUS</b>	<b>NORTON DIALAST</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON FOUNDRY X</b>
SHAPE:		Type 27	Type 27	Type 29	Type 27	Type 27
ABRASIVE:		Ceramic Alumina	Ceramic Alumina/ Zirconia Alumina	Diamond	Zirconia Alumina/ Silicon Carbide	Aluminum Oxide
MATERIAL:		<b>FOUNDRY</b>	<b>FOUNDRY</b>	<b>FOUNDRY</b>	<b>FOUNDRY</b>	<b>FOUNDRY</b>
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>.140", 1/8" - Cutting / Notching / Lt. Grinding - Type 27 and Type 29</b> 						
4-1/2 x 1/8 x 5/8-11	13,580	10			66252843206	
4-1/2 x 1/8 x 7/8	13,580	25			66252843204	
7 x .140 x 5/8-11	8,600	1		66253370014		
7 x 1/8 x 5/8-11	8,600	10			66252843232	
7 x 1/8 x 7/8	8,600	20			66252915526	
9 x .140 x 5/8-11	6,600	1		66253370015		
9 x 1/8 x 5/8-11	6,600	10			66252843240	
9 x 1/8 x 7/8	6,600	20			66252843238	
<b>1/4" - Grinding - Type 27 and Type 29</b> 						
4 x 1/4 x 3/8	15,280	25			66252843181	
4 x 1/4 x 5/8	15,280	25			66252843180	
4-1/2 x 1/4 x 5/8-11	13,580	10			66252843207	
4-1/2 x 1/4 x 7/8	13,580	25			66252843205	
7 x 1/4 x 5/8-11	8,600	10			66252843231	
7 x 1/4 x 7/8	8,600	20			66252843230	
9 x 1/4 x 5/8-11	6,600	10	66253370849 HD	66253007014	66252843241	
	6,600	10			66252843261 HD	
9 x 1/4 x 7/8	6,600	20	66253370848 HD	66253007013	66252843239	66252842776
	6,600	20			66252843260 HD	

## DEPRESSED CENTER WHEEL DESCRIPTION CODES

BLANK = All Purpose    FC = Fast Cut    HD = Heavy Duty    INOX/SS = Contaminant Free    LL = Long Life    1-2-3 = Cutting/Notching/Grinding  
 ■ = Aluminum    ■ = Foundry    ■ = Masonry    ■ = Stainless    ■ = Steel / Metal



TIER:	<b>GOOD</b>	<b>BETTER</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON GEMINI FLEXIBLE</b>	<b>NORTON GEMINI AVOS</b>	<b>NORTON GEMINI</b>
SHAPE:	Type 27	Type 29	Type 29
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
MATERIAL:	<b>ALUMINUM</b>	<b>ALUMINUM</b>	<b>ALUMINUM</b>
	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>

SIZE (D x T x H)	MAX. RPM	STD. PKG.	GRIT	PART #	PART #	PART #
<b>1/8", 1/4" – Blending – Type 27 and 29</b>						
2 x 1/8 x 3/8	30,560	25	60	66252835632*		
	30,560	25	80	66252835633*		
4 x 1/8 x 5/8	15,280	20	36	66243529721#		
	15,280	20	60	66243529722#		
4-1/2 x 1/8 x 5/8-11	12,000	10	36		66252842208	66252842203
4-1/2 x 1/8 x 7/8	12,000	25	36	66252830424#	66252842209	66252842204
	12,000	25	60	66252830425#	66252842211	
5 x 1/8 x 7/8	12,225	25	36		66252842212	66252842205
7 x 1/8 x 5/8-11	8,600	10	36	66252939024		66252917052
7 x 1/8 x 7/8	8,600	20	36	66252939028#		66252917051
<b>Plastic Back-up Pad for Type 27 Flexible Wheels</b>						
	5			66252844332		66252844332

\*5 wheels per display pack; 5 display packs per standard package.

# These wheels are packed 20 per box, and must be used with this specific back plate. Two back plates are included in each box.

**DEPRESSED CENTER WHEEL DESCRIPTION CODES**

BLANK = All Purpose	FC = Fast Cut	HD = Heavy Duty	INOX/SS = Contaminant Free	LL = Long Life	1-2-3 = Cutting/Notching/Grinding
■ = Aluminum	■ = Foundry	■ = Masonry	■ = Stainless	■ = Steel / Metal	



**Norton Depressed Center Adapter Kit**

This reusable adapter kit contains everything you need to mount depressed center wheels and saucers with 7/8" center holes on to portable right angle or vertical shaft grinders. Adapter hubs are threaded for mounting on to standard 5/8"-11 NCRH spindles.

KIT NO.	WHEEL DIAMETER	WHEEL THICKNESS	PART #	STD. PKG.
114	6" thru 9"	1/16" thru 1/4"	07660789275	1





For consistent, quality performance in foundries, welding shops, fabrication facilities, steel mills and shipyards, Norton portable snagging wheels maximize your productivity. Used on horizontal/straight shaft grinders or right angle portable cup grinders.

**Applications:** Removing flaws, cracks, gates, risers and parting lines, smoothing weld seams, cleaning castings, and rough beveling

**Size Range:** Type 01 Straight Wheels: 2-1/2" – 8" diameter  
Type 06 and 11 Cup Wheels: 4" – 6" diameter  
Cones and Plugs: Type 16, 17, 17R, 18 and 18R

**Grit Range:** 14 – 24

**Abrasive Types:** Zirconia Alumina NZ and NV; Zirconia Alumina/Silicon Carbide Blend NVC; Aluminum Oxide 57A and Metal; Aluminum Oxide/Silicon Carbide Blend 57AC, Silicon Carbide 37C and Masonry

**Machine Used:**



## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

		<b>BEST</b> Highest Productivity; Lowest Total Cost	<b>BETTER</b> Excellent Blend of Performance & Price	<b>GOOD</b> Consistent Performance; Low Initial Price
<b>IRON</b>	Gray	NorZon Plus NZ14-R	BlueFire NV16-Q	Gemini 57A16-Q, Metal
	Ductile/Malleable	NorZon Plus NZ14-R	BlueFire NV16-Q	Gemini 57A16-Q, Metal
	Dirty/Scale-covered		BlueFire NVC16-Q	Gemini 57AC16-Q
<b>STEEL</b>	Carbon and Low Alloy	NorZon Plus NZ16-Q	BlueFire NV16-Q	Gemini 57A16-Q, Metal
	Stainless and High Alloy	NorZon Plus NZ16-P	BlueFire NV16-Q	Gemini 57A16-Q, Metal
<b>ALUMINUM, COPPER, BRASS, &amp; BRONZE ALLOYS</b>			BlueFire NVC16-Q	Gemini 57AC16-Q

*NOTE: Grade, Grit and Abrasive tuning may be necessary to obtain optimum performance*

## CROSS REFERENCE GUIDE FOR TYPE 01, 06 AND 11 WHEELS

	TOTAL PERFORMANCE			INITIAL PRICE		
	<b>BEST</b>	<b>BETTER</b>		<b>GOOD</b>		
<b>NORTON</b>	NorZon Plus NZ	BlueFire NV	BlueFire NVC	Gemini 57A/Metal	Gemini 57AC	Gemini 37C/Masonry
Brilliant	—	ZA16QB	—	A16QB	—	C16QB
Bullard	—	ZA16PB	—	A16R	AC16	C16P
Camel	—	—	—	A	CA	C
Flexovit	ZA16PB	—	—	A16QB	AC16QB	C16PB
Gulf States	Zirconium	—	—	A16	—	C16
Pacific	Z, Z-GPC	—	—	A	CA	—
Pearl	—	—	—	A16Q	—	C16-Q
Pferd	ZA 16 Q SG	—	—	A 16 Q SG	—	C 16 Q SG
Sait	—	Z16	—	A16, 20	CA16	C16
Tyrolit	—	—	—	A16PB	—	C16PB
Walter	—	—	—	A	—	C

## NORTON NORZON PLUS ZIRCONIA ALUMINA

**BEST CHOICE FOR HEAVY-DUTY STOCK REMOVAL ON MEDIUM- AND HIGH-HORSEPOWER GRINDERS**

### FEATURES

- NZ Plus (NZ IV) – premium zirconia alumina grain

### BENEFITS

- Engineered for medium- and high-powered machines; 10X life, 50% faster grinding versus aluminum oxide products

## NORTON BLUEFIRE ZIRCONIA ALUMINA

**BETTER CHOICE FOR STOCK REMOVAL ON HIGH- AND MEDIUM-HORSEPOWER GRINDERS**

### FEATURES

- More friable zirconia alumina grain and durable resin bond technologies

### BENEFITS

- Higher metal removal rates, faster, freer-cutting than standard zirconia alumina blends
- Up to 5X the life of aluminum oxide products; better grinding action
- NVC – zirconia alumina/silicon carbide blend
- Highly effective on dirty, scale-covered castings

## NORTON NORZON III ZIRCONIA ALUMINA

**BETTER CHOICE FOR HIGH-POWERED MACHINES**

### FEATURES

- NorZon III (NZ III) – Durable zirconia alumina grain

### BENEFITS

- Engineered for high-powered machines; outstanding cut rate and wheel life

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR STEEL AND FERROUS METALS AS WELL AS SPECIALTY APPLICATIONS IN ALUMINUM AND FOUNDRIES**

### FEATURES

- Quality aluminum oxide

### BENEFITS

- Consistent performance at a competitive price

## NORTON METAL A/O AND MASONRY S/C

**GOOD CHOICE FOR STEEL/FERROUS METAL AND MASONRY APPLICATIONS WITH LOW INITIAL PRICE**



### FEATURES

- Norton Metal: aluminum oxide abrasive
- Norton Masonry: silicon carbide
- Low initial price point

### BENEFITS

- Engineered for all steel/ferrous materials
- Engineered for concrete and non-ferrous applications
- Ideal for small-volume jobs where performance need not be measured

					
TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>NZ IV</b>	<b>BLUEFIRE</b>	<b>NZ III</b>	<b>GEMINI</b>	<b>METAL/MASONRY</b>
SHAPE:	Type 01, 06, and 11	Type 01 and 11	Type 01, 06, and 11	Type 01 and 11	Type 11
ABRASIVE:	Premium Zirconia Alumina	Zirconia Alumina NV Zirconia Alumina/ Silicon Carbide NVC	Zirconia Alumina	Aluminum Oxide 57A, Silicon Carbide 37C, Aluminum Oxide/ Silicon Carbide 57AC	Metal – Aluminum Oxide Masonry – Silicon Carbide

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #	SPEC	PART #	SPEC	PART #
<b>Type 01 Straight</b> 												
2-1/2 x 1/2 x 3/8	21,700	20							57A24-R	66243522381		
3 x 1/4 x 3/8	20,370	25			NV20-T	66253343872**			57A24-T	66243528831		
3 x 3/8 x 3/8	18,080	10							57A24-R	66243522415		
3 x 1/2 x 3/8	18,080	10							57A24-P	66243522417		
4 x 1/4 x 3/8	15,280	10			NV20-T	66253344098			57A24-R	66243522221		
6 x 1 x 5/8	8,000	5			NV14-R	66253198589	NZ III 14-Q	66252838075	57A16-QS	66252809563		
S Webs	8,000	5					NZ III 14-R	66252837961				
8 x 3/4 x 5/8	6,000	10			NV14-S	66253344347						
S Webs												
8 x 1 x 5/8	6,000	5	NZ IV 16-Q	66253030778	NV16-Q	66253198590						
S Webs	6,000	5	NZ IV 16-Q	66253044532								
	6,000	10			NV14-R	66253344355						
	6,000	10			NV14-T	66253344365						
	6,000	10			NVC16-Q	66253198592						
<b>Type 06 Straight Cup</b> 												
6 x 2 x 5/8-11	6,000	5					NZ III 16-R	66252838577				
Rim 2" Back 3/4"												
<b>Type 11 Flaring Cup</b> 												
4/3 x 2 x 5/8-11	9,070	10	NZ IV 16-Q	66243530761	NV16-Q	66253198583			57A16-Q	66243510512	Metal 16-Q	66243510512
Rim 3/4" Back 3/4"											Masonry	07660789431
											C16-Q	
5/3-3/4 x 2 x 5/8-11	7,260	5			NV16-Q	66253146918			57A16-Q	66252809598	Metal 16-Q	07660789430
Rim 1" Back 3/4"											Masonry	07660789432
											AC16-P	
6/4-3/4 x 2 x 5/8-11	6,000	5			NV16-Q	66253146925	NZ III 16-Q	66252838568	57A16-Q	66252825201		
Rim 1" Back 3/4"	6,000	5					NZ III 16-R	66252838566				
6/4-3/4 x 2 x 5/8-11	6,000	5	NZ IV 16-P	66252830765	NV14-R	66253344371			37C16-P	66252809609	Masonry	66252809609
Rim 1-1/2" Back 3/4"											C16-P	
	6,000	5			NV16-Q	66253198584			57A16-Q	66252809618		
	6,000	5			NVC16-Q	66253146922			57AC16-Q	66252809608		
<b>Type 11 Flaring Cup with Steel Back</b> 												
4/3 x 2 x 5/8-11	9,070	10			NV16-Q	66253146917						
Rim 3/4" Back 3/4"												
5/3-13/16 x 2 x 5/8-11	7,260	10			NV16-Q	66253146920						
Rim 1" Back 3/4"												
6/4-13/16 x 2 x 5/8-11	6,000	5			NV14-R	66253344373			57A16-Q	66252809599		
Rim 1-1/2" Back 3/4"	6,000	5			NV16-Q	66253198586			57AC16-Q	66252809600		
	6,000	5			NVC16-Q	66253146929						

\*\* Std. Pkg. = 50










TIER: **BEST**  
TRADENAME: **NORTON NORZON PLUS**  
ABRASIVE: Zirconia Alumina

TIER: **BETTER**  
TRADENAME: **NORTON BLUEFIRE**  
ABRASIVE: Zirconia Alumina/Aluminum Oxide

TIER: **GOOD**  
TRADENAME: **NORTON GEMINI**  
ABRASIVE: Aluminum Oxide

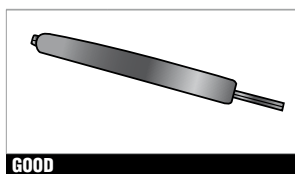
TIER: **GOOD**  
TRADENAME: **NORTON METAL**  
ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #	SPEC	PART #
<b>Type 16 Cones</b> 										
1 x 3 x 3/8-24 (ME 107019)	36,290	10			NV20-S	66253344376	57A24-R	61463622342	Metal 24	66253349752
1-1/2 x 2-1/2 x 3/8-24 (ME 44436)	24,190	10					57A24-R	61463622349	Metal 24	66253349754
1-1/2 x 3 x 3/8-24 (ME 139029)	24,190	10			NV20-S	66253344377				
1-1/2 x 3 x 5/8-11 (ME 70535)	24,190	10	NZ IV 20-R	61463644231	NV20-S	66253344379	57A24-R	61463622190	Metal 24	66253349757
	24,190	1 V					57A24-R	66253325911		
1-3/4 x 3 x 3/8-24 (ME49226)	20,735	10					57A24-R	61463614503	Metal 24	66253349840
1-3/4 x 3 x 5/8-11 (ME 33432)	20,740	10					57A24-R	61463622195	Metal 24	66253349841
2 x 3 x 5/8-11 (ME 28229)	18,145	10	NZ IV 20-R	61463644232	NV20-S	66253344381	57A24-R	61463622218	Metal 24	66253349846
2-3/4 x 3-1/2 x 5/8-11 (ME 18265)	13,195	10			NV20-S	66253344383	57A24-R	61463622387	Metal 24	66253349855
3 x 3 x 5/8-11 (ME70537)	12,100	10							Metal 24	66243496885
<b>Type 17 Cones, Square Tip</b> 										
1-1/2 / 1/2 x 3 x 3/8-24	24,190	10					57A24-R	61463622194	Metal 24	66253349753
2 / 1/2 x 3 x 5/8-11	18,145	10					57A24-R	61463615722	Metal 24	66253349845
<b>Type 17R Cones, Round Tip</b> 										
2 / 3/4 x 3 x 5/8-11 (ME 151373)	18,145	10			NV20-S	66253344384				
<b>Type 18 Plugs, Square Tip</b> 										
1-1/2 x 2-1/2 x 3/8-24	24,190	10					57A24-R	61463622217	Metal 24	66253349755
	24,190	1 V					57A24-R	66253325902		
1-1/2 x 2-1/2 x 5/8-11	24,190	10	NZ IV 20-R	61463644224	NV20-S	66253344385	57A24-R	61463622351		
	24,190	1 V					57A24-R	66253325905		
1-1/2 x 3 x 5/8-11	24,190	10			NV20-S	66253344386	57A24-R	61463622191	Metal 24	66253349838
	24,190	1 V					57A24-R	66253325909		
2 x 3 x 5/8-11	18,145	10	NZ IV 20-R	61463644234	NV20-S	66253344387	57A24-R	61463622219	Metal 24	66253349847
	18,145	10			NV24-S	66253344391				
2 x 4 x 5/8-11	18,145	10					57A24-R	61463622366	Metal 24	66253349850
<b>Type 18R Plugs, Round Tip</b> 										
1-1/2 x 3 x 3/8-24	24,190	10					57A24-R	61463622192	Metal 24	66253349756
	24,190	1 V					57A24-R	66253325907		
2 x 3 x 5/8-11	18,145	10			NV20-S	66253344389	57A24-R	61463622220	Metal 24	66253349849

V = Vendible Package. IDEAL FOR VENDING MACHINES & SMALL JOBS.

## Core Files

These files consist of coarse grit silicon carbide abrasive in a hard grade, resin-bonded to a reinforcing rod. Half-round in shape, they are a frequent choice for easy cleaning of rough castings.



TIER: **GOOD**  
BRAND: Norton  
ABRASIVE: Silicon Carbide

SIZE (T x W x L)	STD. PKG.	SPEC.	PART #
<b>Stock Resinoid Core Files – Silicon Carbide</b>			
1/2 x 1 x 10	5	37C24-SB	61463610314



Norton snagging wheels maximize your productivity in foundries, welding shops, fabrication facilities, steel mills, and ship yards.

Applications:	Removing unwanted metal on castings, removing flaws and cracks, removing gates, risers and parting lines
Size Range:	24" and 30" diameters in stock; other diameters available as made-to-order
Abrasive Grain:	Zirconia Alumina, Zirconia Alumina/Silicon Carbide blend, Aluminum Oxide
Shape:	Type 01 Straight
Reinforcement:	Strong fiberglass webbing and steel rings for maximum strength

## FLOORSTAND SNAGGING WHEEL MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

CASTING TYPE		BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
IRON	Gray	4ZF1434-R5B38S, ZI/25-R, ZI/26-Q	Charger Long Life	Gemini All Purpose
	Ductile / Malleable	4ZF1434-Q5B38S, ZI/25-R, ZI/26-Q	Charger Long Life	Gemini All Purpose
STEEL	Carbon and Low Alloy	4NZ1434-R5B38S	Charger Free Cut	Gemini All Purpose
	Stainless and High Alloy	4NZ1634-Q5B38S	Charger Free Cut	Gemini All Purpose

Note: Grade, Grit and Abrasive tuning may be necessary to obtain optimum performance

## SWINGFRAME SNAGGING WHEEL MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

CASTING TYPE		BEST Highest Productivity; Lowest Total Cost	GOOD Consistent Performance; Low Initial Price
IRON	Gray	4ZF1234-R5B38S, ZI/25-R, ZI/26-Q	Gemini All Purpose
	Ductile / Malleable	4ZF1234-R5B38S, ZI/25-R, ZI/26-Q	Gemini All Purpose
STEEL	Carbon and Low Alloy	4ZF1434-R5B38S	Gemini All Purpose
	Stainless and High Alloy		Gemini All Purpose
ALUMINUM ALLOY		NZC142-R5B38S	
COPPER ALLOYS / BRASS / BRONZE		NZC142-R5B38S	

Note: Grade, Grit and Abrasive tuning may be necessary to obtain optimum performance

## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	SUGGESTED CORRECTION
Poor stock removal	Insufficient pressure applied	Increase pressure to use all available power
	Wheel too coarse or hard	Use finer grit and/or softer grade wheel
	Inadequate abrasive	Try NorZon, 4ZF, or ZI/25 specification
Grinding costs too high	Wheel acting too soft	Use harder and/or coarser wheel
	Low performance specification	Try NorZon or ZI products
Wheel loading or glazing	Grade too hard	Try softer grade
	Grit too coarse	Try finer grit
	Dirty, scale-covered parts	Try NZC wheels
Wheels "dusty"	Wheel too soft	Try harder grade
Wheel doesn't hold corner or wheel spalling	Wheel too coarse	Use finer grit and/or 2 grit combination
	Wheel too soft	Use harder grade
Burning the workpiece	Wheel too hard	Use softer grade
	Wheel glazed or loaded	Dress the wheel face
	Grinding pressure too low	Increase grinding force
	Grinding pressure too high	Reduce grinding force
	Wheel speed too slow	Try higher speed machine (Do not exceed maximum operating speed of wheel)
Surface finish too rough	Wheel too coarse	Try finer grit or try ZI/26 specification
	Wheel speed too slow	Try higher speed machine (Do not exceed maximum operating speed of wheel)
	Worn machine bearings	Rebuild machine
	Wheel worn out of round	Try truing the wheel
	Faulty flanges	Check flanges for flatness and burrs (see ANSI B7.1)
Vibration	Bent machine spindle	Check spindle run-out
	Worn machine bearings	Rebuild machine
	Grinding force too high	Reduce pressure or contact area
	Wheel too hard	Use softer grade wheel
	Machine power too low	Replace machine with higher power grinder
Wheel stalls or slows		

# FLOORSTAND AND SWINGFRAME SNAGGING

## 4ZF, 4NZ, ZI, AND NZC ZIRCONIA ALUMINA

### BEST CHOICE FOR DEMANDING APPLICATIONS

FEATURES	BENEFITS
• 4ZF – zirconia alumina grain for long life	• Engineered for high-pressure, heavy-duty, snagging operations, particularly on iron
	• Exceptional wheel life
• 4NZ – zirconia alumina grain for sharpness	• Developed for low- to medium-pressure operations, especially on steel and steel castings
	• Exceptionally high cut rate
	• The most operator-friendly wheels
• ZI – zirconia alumina grain stays sharper, longer	• The choice for iron castings: ZI/25 for tough metal removal, ZI/26 for finer surface finish
• NZC – zirconia alumina and silicon carbide blend	• Ideal for dirty, scale-covered castings

## CHARGER ZIRCONIA ALUMINA

### BETTER CHOICE FOR STRONG PERFORMANCE TO PRICE RATIO

FEATURES	BENEFITS
• Strong zirconia alumina abrasive	• Very good cut rate and life

## 5ZF ZIRCONIA ALUMINA AND GEMINI ALUMINUM OXIDE

### GOOD CHOICE FOR NUMEROUS SMALL JOBS

FEATURES	BENEFITS
• Gemini – versatile aluminum oxide formulation	• Works well with a variety of machines, horsepower, and operations
• Low initial price	• The choice for initial-price-conscious end-users
• 5ZF – zirconia alumina	• Ideal for lower horsepower or low-pressure applications

SIZE (D x T x H)	MAX. RPM	STD. PKG.	TIER: BEST		BETTER		GOOD	
			SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
<b>Type 01 Straight</b>								
24 x 3 x 12	1,990	1	4ZF1234-R5B38S	69083166310			5ZF14-QS	69083166858
HS Steel Rings with Fine Centers, S Webs	1,990	1	ZI/25-R	66253119637			Gemini All Purp.	69083167173
30 x 2 x 12	1,595	1	4NZ1634-Q5B38S	69210421412	Charger Free Cut	69210421417	5ZF14-R	69210467105
HS Steel Rings with Fine Centers, S Webs	1,595	1	4ZF1434-R5B38S	69210466458	Charger Long Life	69210421418	Gemini All Purp.	69210417463
	1,595	1	4ZF1634-Q5B38S	69210466460				
	1,595	1	ZI/25-R	66253119636				
	1,595	1	ZI/26-Q	66253119638				
	1,595	1	NZC142-R5B38S	69210421414				

For your safety: all floorstand and swingframe wheels have strong fine centers, steel rings and high-strength fiberglass reinforcement construction.

## TECH TIP

- Always ensure proper mounting of floorstand and swingframe wheels by mounting with arrow down as marked on wheel
- Always use safety guard
- Always run wheel for 1 minute before grinding
- For optimum performance, ensure adequate air pressure and air volume when using pneumatic machines
- Use constant surface foot per minute machines for highest efficiency
- Do not overdress the wheel face
- Avoid loading or glazing by changing the contact angle
- Use pressure assist whenever possible to obtain maximum cut rate



It is the user's responsibility to refer to and comply with ANSI B7.1



# no short cuts taken here **SATISFY ALL YOUR CUT-OFF REQUIREMENTS**

From small diameter portable cut-off wheels to large diameter foundry cut-off wheels; from portable high-speed gas saw wheels to precision toolroom and Metlab wheels, our Norton offering encompasses the broadest range of applications.



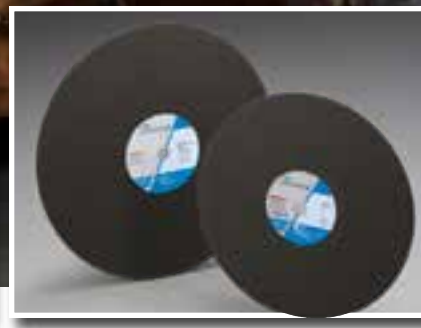
## **Work Smarter, Not Harder**

The fastest cutting wheels in today's market; the ultimate choice for highest productivity on steel, stainless steel, and all ferrous metals.



## **A Wheel for Every Chop Saw Job**

Free Cut side-reinforced wheels for large cross-sections, Long Life wheels for small cross-sections and centrally-reinforced non-binding wheels for burr and burn-free cuts.



## **Performance on Fire**

No job is too tough for our FoundryX wheels to tackle. Designed with tough, durable abrasives, bonds and reinforcement types specific to foundry machine parameters and materials.

# SMALL DIAMETER REINFORCED CUT-OFF

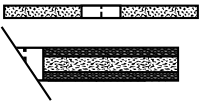



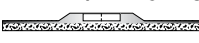



The Norton small diameter cut-off wheel line consists of Type 01/41 straight and Type 27/42 depressed center cut-off wheels from 1-1/2" to 9" diameters. These wheels come in ultra thin .035 for quick burn-free and burr-free cutting to .125" for more durable applications. All are reinforced for the demanding nature of portable cut-off.

Applications: Cutting sheet metal, cutting pipe, and metal fabrication  
 Size Range: 1-1/2" - 9" diameter  
 Thickness Range: .035, .040, .045, .050, .060, 1/16, .090, 3/32 and .125  
 Abrasive Grain: Ceramic Alumina/Zirconia Alumina, Zirconia Alumina/Aluminum Oxide, Aluminum Oxide, Silicon Carbide, Diamond  
 Shape: Type 01/41 Straight and Type 27/42 Depressed Center  
 Machine Used:



## TYPE-TO-APPLICATION RECOMMENDATION GUIDE

Wheel Type/Thickness	Applications	
<b>TYPE 01/41</b> 	Type 01/41 straight cut-off wheels are designed for portable cut-off tool applications. All are supplied with full fiberglass reinforcing.	
.035, .040, .060, and 1/16	Where fast cutting and low kerf loss are desired	■
.125	For tough cutting and notching applications where stability is important	■
<b>TYPE 01/41 RIGHTCUT</b> 	Type 01/41 RightCut straight cut-off wheels are designed for use on right angle grinder cut-off applications. All are supplied with full fiberglass reinforcing.	
.035, .040, .045, .050, 1/16	Where fast cutting and low kerf loss are desired	■
3/32	For tough cutting and notching applications where stability is important	■
<b>TYPE 27/42 RIGHTCUT</b> 	Type 27/42 RightCut depressed center cut-off wheels are designed for use on right angle grinder cut-off applications. Their depressed center shape provides a recess for the hub, which allows flush cutting. All are supplied with full fiberglass reinforcing.	
.040, .045, 1/16	Where fast cutting and low kerf loss are desired	■
3/32, .125	For tough cutting and notching applications where stability is important	■

## HOW TO PICK THE RIGHT BOND TYPE

All Purpose	Unmarked	Where an excellent blend of cut rate and life is needed
Free Cut	FC	Where fast stock removal is needed, or the application only allows low-pressure or under-horsepowered grinders
Long Life	LL	Where durability is needed due to severe application, and when horsepower of the grinder allows heavy pressure
Contaminate Free	INOX/SS	Contain <0.1% iron, sulfur or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel
Aluminum	ALU	Specially formulated bond for reduced loading and surface contamination while cutting aluminum and soft materials

## SAFETY

### Dangerous Pairing: Die Grinders and Cut-off Wheels

While die grinders and cut-off tools may look similar, they are not interchangeable. Small diameter cut-off wheels can be used only on portable cut-off tools. Several crucial differences exist between the two handheld machines.

- Small diameter cut-off wheels must be used on portable cut-off tools with guards for the safety of the operator and bystanders. Also, portable cut-off tool guards prevent use of an oversize wheel.
- These cut-off wheels must be mounted between proper flanges on portable cut-off tools as described in the national safety standard for abrasive wheels, ANSI B7.1. Die grinders make use of a collet for mounting.
- All cut-off wheels must be used at or below their maximum operating speed, marked clearly on the side of the wheel. Die grinders operate above cut-off wheel speeds. Excessive speed can result in breakage and serious personal injury.



It is the user's responsibility to refer to and comply with ANSI B7.1

# SMALL DIAMETER REINFORCED CUT-OFF

## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & price	GOOD Consistent Performance; Low Initial Price
<b>CUTTING</b>			
Mild Carbon / High Tensile Steel	Norton NorZon Plus	Norton BlueFire	Norton Metal
Stainless Steel / Alloys	Norton NorZon Plus	Norton BlueFire INOX/SS	Norton Gemini INOX/SS
Contaminate Free		Norton BlueFire INOX/SS	Norton Gemini INOX/SS
Cast Iron	Norton NorZon Plus	Norton BlueFire	Norton Gemini
Aluminum / Bronze / Brass			Norton Gemini ALU
Asphalt / Brick / Concrete			Norton Masonry

## CROSS REFERENCE GUIDES

Type 01/41 .035 - .125 Reinforced Cut-off Wheels for Portable Cut-off Tools



	TOTAL PERFORMANCE		INITIAL PRICE		
	BEST	BETTER	GOOD		
<b>NORTON</b>	NorZon Plus	BlueFire	Gemini Free Cut	Gemini Long Life	Metal
Brilliant	—	Brill-Max ZA	—	—	Safe-Tex FC, LL
Bullard	—	ZA46T, ZA60T	TA36T	TA46T, TA60T	A36T, A60T Comp.
Camel	—	ZA60-TBF	A36 RBF	A60 RBF	Fast Cut RBF
Flexovit	Flexon Fast Cut A46, 60	—	High Perf Fast Grind A36	High Perf Fast Cut A36, 46, 60	—
Pearl	—	SRT, Zirconia	—	Premium	Silver Line
Pferd	—	—	—	—	PSF-A
Sait	Saittech	—	A60S	A24R, A36T, A60T	—
Spedecut	—	—	—	—	A46, 60 TBXX
Walter	—	—	A24 ZIP	A60 ZIP	—

Type 01/41 and Type 27/42 .035 - .125 Reinforced Cut-off Wheels for Right Angle Grinders



	TOTAL PERFORMANCE		INITIAL PRICE			SPECIALITY	
	BEST	BETTER	GOOD			GOOD	
<b>NORTON</b>	NorZon Plus	BlueFire	Gemini Free Cut	Gemini	Metal	Gemini ALU	Gemini INOX/SS
Brilliant	—	—	Brill-Blade Extra FC	Brill-Blade Heavy Duty	Hornet Stinger	—	—
Bullard	—	ZA60T	SGA60U	TA46T, TA60T, TA60U	A46T, A60T Comp.	AL46N	—
Camel	—	ZA Quickie Cut	A36-S-BF	Super Quickie Cut	Quickie Cut	A46 Quickie Cut	A60-T-BF, WA60R Quickie Cut
Flexovit	—	—	Razorblade A60SST	Razorblade A24T, 30V, 36T	—	Razorblade A30Q	—
Metabo	—	A 60 XP Super Slicer	—	A 60 TX Slicer-Plus	A 60 TZ Slicer	—	—
Pearl	—	Redline Max Slimcut	—	Slimcut	Slimcut Pro-V, Silverline	—	—
Pferd	—	SGP-ZA-Q-INOX	—	SG-A-S, SGP-A-T	PSF-A-P	S-G-N-ALU	SG-A-R-INOX, SGP-A-S-INOX
Sait	Saittech	Z-tech	SAIT.M.X	A60S	—	A46N	XA46R
SpedeCut	—	—	—	—	A46, 60 TBXX	—	—
Walter	—	—	A-30-ZIP	A-60-ZIP	—	A-60-ZIP-ALU	A60-SS-ZIP



# SMALL DIAMETER REINFORCED CUT-OFF

## NORTON NORZON PLUS CERAMIC/ZIRCONIA BLEND

**BEST CHOICE FOR HIGHEST PRODUCTIVITY FOR STEEL, STAINLESS STEEL AND ALL FERROUS METALS**



### FEATURES

- Norton SG (ceramic alumina) / NorZon (zirconia alumina) grain combination
- Highly-advanced bond system
- RightCut right angle grinder wheels

### BENEFITS

- Fastest cutting wheel available on the market, up to 3X faster cutting versus aluminum oxide
- 3X – 10X life versus aluminum oxide wheels on carbon steel, stainless and cast iron
- Noticeably longer life and faster cut rate
- Less pressure required for first cut

## NORTON BLUEFIRE ZIRCONIA ALUMINA/AO BLEND

**BETTER CHOICE FOR STAINLESS STEEL, CARBON STEEL, ALLOYS AND GRAY IRON**



### FEATURES

- A blend of R&D advanced chemistry and shaped zirconia alumina abrasive and premium aluminum oxide grain
- IMPROVED PERFORMANCE! RightCut right angle grinder wheels

### BENEFITS

- 2-3 times the life of aluminum oxide wheels
- Broad utility from light-to heavy-pressure applications
- Excellent performance-to-price ratio for lower total grinding costs
- Over 50% more life; the true choice for broad versatility and better value, to lower production costs
- Less pressure required for first cut

## NORTON GEMINI ALUMINUM OXIDE

**GOOD, VERSATILE CHOICE FOR STEEL AND FERROUS METALS**



### FEATURES

- Quality, versatile aluminum oxide
- Gemini Contaminate-Free **INOX/SS**
- .040 and .045 ultra-thin Gemini RightCut right angle grinder Type 01/41 straight and T27/42 depressed center cut-off wheels

### BENEFITS

- Consistent performance at a competitive price
- Contain <0.1% iron, sulfur or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel
- Precise cutting; more stability and a narrower pass
- Up to 70% longer life and 20% faster cut rate than standard aluminum oxide wheels – for substantial savings
- Require less pressure, providing increased operator comfort

## NORTON METAL ALUMINUM OXIDE

**GOOD CHOICE FOR GRINDING ALLOYS, METALS, STEELS, AND FERROUS METALS**



### FEATURES

- Quality aluminum oxide
- Low initial cost per wheel

### BENEFITS

- Consistent performance at a competitive price
- Ideal for small-volume jobs where performance need not be measured

## NORTON DIALAST DIAMOND WHEELS

**BEST FOR METAL PLATE, PIPE, TUBING, CAST IRON, CARBON AND MILD STEEL, FOUNDRY AND WELDING APPLICATIONS, AND CERAMICS**









### FEATURES

- A combination of high-quality diamond and advanced brazed single-layer bonding technology
- Environmentally-friendly grinding

### BENEFITS

- Extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains the diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for exceptional wheel life
- Less blade changes reduce downtime and labor costs
- Generate minimal dust for less clean-up and safer working conditions

# SMALL DIAMETER REINFORCED CUT-OFF

						
TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON NORZON PLUS</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON A60-OBNA2</b>	<b>NORTON GEMINI</b>	<b>NORTON GEMINI LONG LIFE</b>	<b>NORTON METAL</b>
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
MATERIAL:	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>	<b>STAINLESS</b> <b>STEEL/METAL</b>
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>.035", .040", .060", 1/16" and .125" Type 01/41 – Cut-off</b>						
1-1/2 x .035 x 1/16	40,745	25		66243427764		
1-1/2 x .035 x 1/8	40,745	25		66243427831		
1-1/2 x .035 x 1/4	40,745	25		66243427875		
2 x .035 x 1/8	30,560	25			66243411392 FC	
2 x .035 x 1/4	30,560	25		66243428014	66243411393 FC	
2 x .035 x 3/8	30,560	25			66243411394 FC	
2 x .060 x 1/8	30,560	25		66243428041		
2 x 1/16 x 1/4	30,560	25			66243411395 FC	
2 x 1/16 x 3/8	30,560	25			66243411396 FC	
2 x .125 x 1/4	30,560	25			66243411402 FC	
2 x .125 x 3/8	30,560	25			66243411403 FC	
2-1/2 x .035 x 1/8	30,560	25		66243528476		
2-1/2 x .035 x 1/4	30,560	25		66243528425		
2-1/2 x 1/16 x 1/4	30,560	25			66243510640 FC	
2-1/2 x 1/16 x 3/8	30,560	25			66243510641 FC	
3 x .035 x 1/4	25,465	25	66243510668	66243528573	66243510627 FC	
	25,465	25*	66243531753 5-Pk			
3 x .035 x 3/8	25,465	25	66243510669	66252843174	66243528574	66243510628 FC
	25,465	25*		66243534821 5-Pk		66243537271 LL
3 x 1/16 x 1/4	25,465	25	66243510670	66243528471	66243510645 FC	66243510649 LL
3 x 1/16 x 3/8	25,465	25	66243510671	66252843175	66243528552	66243510647 FC
	25,465	25	66243510835 LL			66243510648 LL
	25,465	25*				
	25,465	100				07660747767 5-Pk
	25,465	10-Pk+				07660789012
						66252843624 5 Whls & 1 Mandrel/Pack
3 x .125 x 1/4	25,465	25			66243510650 FC	66243510652 LL
3 x .125 x 3/8	25,465	25	66243510673		66243510651 FC	66243510653 LL
4 x .035 x 1/4	19,100	25		66243529606		
	19,100	25			66243510629 FC	
4 x .035 x 3/8	19,100	25	66243510675	66252843173	66243510630 FC	66243537273 LL
4 x .035 x 1/2	19,100	25				07660789453
4 x .035 x 3/4	19,100	25				
4 x .040 x 3/8	19,100	25				
4 x 1/16 x 1/4	19,100	25	66243510676		66243510654 FC	
4 x 1/16 x 3/8	19,100	25	66243510677	66252843171	66243510655 FC	66243510657 LL
4 x 1/16 x 5/8	19,100	100		66243527827 FabCut		66252843848
4 x .125 x 1/4	19,100	25			66243510658 FC	
4 x .125 x 3/8	19,100	25	66243510841	66252843172	66243510659 FC	66243510661 LL
	19,100	25	66243510680 LL			
Drill Mount Mandrel		5				07660747769+

+ For mounting 2" and 3" x 3/8" hole cut-off wheels on to a drill

\* 5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.

+ Order per number of pack, in multiples of 10 packs. Priced per pack.

## WHEEL DESCRIPTION CODES

BLANK = All Purpose

■ = Masonry

FC = Fast Cut

■ = Stainless

INOX/SS = Contaminant Free

■ = Steel / Metal

LL = Long Life

# SMALL DIAMETER REINFORCED CUT-OFF



TIER:

BEST

BEST

BETTER

GOOD

GOOD

TRADENAME:

**NORTON NORZON PLUS  
RIGHTCUT**
**NORTON DIALAST  
RIGHTCUT**
**NORTON BLUEFIRE  
RIGHTCUT**
**NORTON GEMINI  
RIGHTCUT**
**NORTON METAL  
RIGHTCUT**

SHAPE:

Type 01/41

Type 01/41

Type 01/41

Type 01/41

Type 01/41

ABRASIVE:

Ceramic Alumina/  
Zirconia Alumina

Diamond

Zirconia Alumina/  
Aluminum Oxide

Aluminum Oxide

Aluminum Oxide

MATERIAL:

**STAINLESS  
STEEL/METAL**
**STAINLESS  
STEEL/METAL**
**STAINLESS  
STEEL/METAL**
**STAINLESS  
STEEL/METAL**
**STAINLESS  
STEEL/METAL**

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>.035", .040", .045", .050", 1/16, and 3/32" Type 01/41 – RightCut Cut-off</b>							
4 x .040 x 5/8	15,280	25					07660701616
4 x .045 x 5/8	15,280	25				66243527956	
4 x 3/32 x 5/8	15,280	25				66243527955	
4-1/2 x .035 x 7/8	13,580	25					66252843846
4-1/2 x .040 x 7/8	13,580	25				66252843225	07660701617
	13,580	50					66253370222
	13,580	250•					66252840001 250-Pk
	13,580	25*					66252842158 5-Pk
4-1/2 x .045 x 7/8	13,580	25	66252830730			66252823602	
	13,580	25				66252841994 ALU	
	13,580	25				66252841997 INOX/SS	
	13,580	250•				66252841213 250-Pk	
	13,580	25*				66252842160 5-Pk	
4-1/2 x .050 x 7/8	13,580	1		66253370016			
4-1/2 x 1/16 x 7/8	13,580	25			66252843208		66252843845
	13,580	25*			66252842159 5-Pk		
	13,580	250•			66253371660		
4-1/2 x 3/32 x 7/8	13,580	25				66252823599	
5 x .040 x 5/8	12,225	25					66252843847
5 x .040 x 7/8	12,225	25				66252843226	07660701618
5 x .045 x 7/8	12,225	25	66252830731			66252823603	
	12,225	25				66252841995 ALU	
	12,225	25				66252841998 INOX/SS	
	12,225	250•				66252841214 250-Pk	
	12,225	25*				66252842170 5-Pk	
5 x .050 x 7/8	12,225	25	66252809829 NZ ThinCut				
	12,225	1		66253370017			
5 x 1/16 x 7/8	12,225	25			66252843209		
	12,225	250•			66253371661		
	12,225	25*			66252842169 5-Pk		
5 x 3/32 x 7/8	12,225	25				66252823600	
6 x .040 x 7/8	10,185	25					07660702757
	10,185	50					66253370223
	10,185	250•					66252841212 250-Pk
6 x .045 x 7/8	10,185	25	66252842008			66252823604	
	10,185	25				66252841996 ALU	
	10,185	25				66252841999 INOX/SS	
	10,185	250•				66252841215 250-Pk	
	10,185	25*			66252842174 5-Pk	66252842175 5-Pk	
6 x .050 x 7/8	10,185	1		66253370018			
6 x 1/16 x 7/8	10,185	25			66252843210		
	10,185	250•			66253371662		
6 x 3/32 x 7/8	10,185	25				66252823601	
7 x .045 x 7/8	8,600	25				66252832323	
	8,600	20				66252842000 INOX/SS	
7 x 1/16 x 7/8	8,600	25	66252900652				
	8,600	1		70184694055			
9 x .060 x 7/8	6,600	1		70184694056			

RightCut wheels are to be used for cutting only

\* 5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.

• Bulk packed 250 Wheels/carton; 5 inner boxes of 50 wheels each. Order in multiples of 250 wheels.



## BlueFire RightCut Right Angle Grinder Cut-off Wheels

- Double your production with the improved performance of Norton BlueFire RightCut right angle grinder wheels
- Gain over 50% more wheel life with our advanced-chemistry blend of zirconia and aluminum oxide abrasives
- Excellent performance/price ratio, with broadest versatility, guaranteed to lower your production costs
- Available in Type 01/41 straight and Type 27/42 depressed center wheels.

And, that's money in the bank!

# SMALL DIAMETER REINFORCED CUT-OFF



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON NORZON PLUS</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON GEMINI</b>	<b>NORTON METAL</b>
SHAPE:	Type 27/42	Type 27/42	Type 27/42	Type 27/42
ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
MATERIAL:	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>
	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>
			<b>ALUMINUM</b>	

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>.040, .045, 1/16" – RightCut Cut-off – Type 27/42</b>						
4 x .045 x 5/8	15,280	25			66252842180	07660705249
4-1/2 x .040 x 5/8-11	13,580	10			66252843227	
4-1/2 x .045 x 5/8-11	13,580	10	66252842006		66252842025	
	13,580	10			66252841913 INOX/SS	
4-1/2 x .045 x 7/8	13,580	25	66252843320		66252842026	66252843604
	13,580	25			66252841912 INOX/SS	
	13,580	25			66252841909 ALU 36	
	13,580	25*			66252842161 5-Pk	
	13,580	250			66253370065 250-Pk	
4-1/2 x 1/16 x 5/8-11	13,580	10		66252843223		
4-1/2 x 1/16 x 7/8	13,580	10		66252843219		
5 x .040 x 5/8-11	12,225	10			66252843228	
5 x .045 x 5/8-11	12,225	10			66252841939	
5 x .045 x 7/8	12,225	25	66252843329		66252842036	66252843849
	12,225	25			66252841914 INOX/SS	
	12,225	25			66252841910 ALU 36	
	12,225	25*			66252842171 5-Pk	
	12,225	250			66253370066 250-Pk	
5 x 1/16 x 7/8	12,225	25		66252843220		
6 x .045 x 5/8-11	10,185	10	66252842007		66252830587	
6 x .045 x 7/8	10,185	25	66252842009		66252842202	66252842015
	10,185	25			66252841916 INOX/SS	
	10,185	25			66252841911 ALU 36	
	10,185	25*			66252842176 5-Pk	
	10,185	250			66253370067 250-Pk	
6 x 1/16 x 7/8	10,185	25		66252843221		
7 x .045 x 5/8-11	8,600	10			66252841919 INOX/SS	
7 x .045 x 7/8	8,600	20			66252912626	
	8,600	20			66252841918 INOX/SS	
7 x 1/16 x 7/8	8,600	10				07660705251
9 x 1/16 x 5/8-11	6,600	10			66253019115	
9 x 1/16 x 7/8	6,600	10			66253017734	
<i>RightCut wheels are to be used for cutting only.</i>						
<b>3/32", .125" – Cut-off – Type 27/42</b>						
4 x .125 x 3/8	15,280	25	66252842001			
4-1/2 x 3/32 x 5/8-11	13,580	10			66252841903	
	13,580	10			66252842027 INOX/SS	
4-1/2 x 3/32 x 7/8	13,580	25			66252841940	
	13,580	25			66252842028 INOX/SS	
	13,580	25			66252843582 1-2-3	
4-1/2 x .125 x 5/8-11	13,580	10	66252843321		66252843588	
4-1/2 x .125 x 7/8	13,580	25	66252843322		66252843589	
5 x 3/32 x 5/8-11	12,225	10			66252841904	
5 x 3/32 x 7/8	12,225	25			66252842037 INOX/SS	
	12,225	25			66252843587 LL	
	12,225	25			66252843583 1-2-3	
5 x .125 x 7/8	12,225	25			66252843595	
6 x 3/32 x 5/8-11	10,185	10			66252841905	
6 x 3/32 x 7/8	10,185	25			66252841906	
	10,185	25			66252832487 INOX/SS	
6 x .125 x 5/8-11	10,185	10			66252841192	
6 x .125 x 7/8	10,185	25			66252842021	
7 x 3/32 x 5/8-11	8,600	10			66252841907	
7 x 3/32 x 7/8	8,600	20			66252841908	
	8,600	20			66252914638 INOX/SS	
7 x .125 x 5/8-11	8,600	10	66252912625			
7 x .125 x 7/8	8,600	20	66252912624		66252900619	
9 x 3/32 x 5/8-11	6,600	10		66252842378		
9 x 3/32 x 7/8	6,600	20		66252842343		

These wheels are to be used for cutting only. \* 5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.



# SMALL DIAMETER REINFORCED CUT-OFF



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON DIALAST</b>	<b>NORTON CHARGER</b>	<b>NORTON GEMINI</b>	<b>NORTON METAL</b>	<b>NORTON MASONRY</b>
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Diamond	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
MATERIAL:	<b>STAINLESS</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>MASONRY</b>

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>Type 01/41 – Circular Saw</b>							
6 x .035 x 5/8	10,185	25		66252809714			
6 x 1/16 x 5/8	10,185	25		66252809718			
6-1/2 x .125 x DM-5/8	9,405	10			07660789098		07660789089
7 x 1/16 x 5/8	8,730	25		66252905957			
7 x .060 x 7/8	8,600	1	70184694055				
7 x 1/8 x DM-5/8	8,730	25			07660789097		07660789088
8 x 1/16 x 5/8	7,640	25		66253017771 LL	66253007025		
	7,640	10			66253017795		
8 x 1/8 x DM-5/8	7,640	10				07660789096	07660789086
9 x .060 x 7/8	6,600	1	70184694056				



DM Denotes Diamond Mount; 5/8" hole bushings included

## WHEEL DESCRIPTION CODES

BLANK = All Purpose	FC = Fast Cut	INOX/SS = Contaminant Free	LL = Long Life
■ = Masonry	■ = Stainless	■ = Steel / Metal	



## Dialast Diamond: Introducing The Last Cut-Off and Depressed Center Wheels Standing!

Metal working demands tools that will cut or grind fast, throw a minimum of sparks, and above all, LAST.

Norton DiaLast diamond cutting and grinding wheels give the operator everything needed to get the job done right, the very first time:

- Right angle grinder, circular saw, and chop saw blades for cutting steel, metal studs, stainless steel, nonferrous materials, tile, brick, plastic, and much more.
- DiaLast depressed center cutting and grinding wheels are an excellent choice on steel, cast iron, ductile pipe, tubing, and metal plate when high stock removal is desired

To learn more, see DiaLast depressed center (page 11) and cut-off wheel Features and Benefits (page 19).

# HIGH-SPEED REINFORCED CUT-OFF



Norton high-speed cut-off abrasive wheels provide the industry's leading performance in all high-speed gas and electric-powered applications.

Applications:	<p>Metalworking: steel, stainless, ductile, cast iron, rail steel and metal decking</p> <p>Non-Metal Building Materials: concrete, brick, masonry, asphalt aggregate, stone and schedule 40 and 80 PVC pipe</p> <p>Rescue and Demolition: steel, acrylic, fiberglass, rubber, glass, wood, concrete, brick and asphalt</p>
Size Range:	12" – 16" diameter
Thickness Range:	1/8" and 5/32"
Abrasive Grain:	Aluminum Oxide, Silicon Carbide, Silicon Carbide/Aluminum Oxide Blend
Shape:	Type 01/41 Straight
Reinforcement:	Wheels are offered in standard two-layer reinforcement as well as three-layer reinforcement for higher-speed saws and heavy-duty applications
Arbor:	Wheels are offered with patented universal arbor that accommodates both 20mm and all other machines with 1" arbors
Machine Used:	



## MATERIAL / APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

Icon		Application
	Metal	High-performance aluminum oxide grain wheels designed for general purpose cutting of all steel and stainless parts including rebar, steel pipe, structural steel, sheet metal, cable and small to medium diameter solid pieces.
	Metal Decking	High-performance aluminum oxide abrasive combined with a thicker wheel (5/32") that stands up to the sharp edges of sheet metal and roof decking.
	Ductile/Cast Iron	A special blend of silicon carbide abrasive for cutting and aluminum oxide abrasive for life, designed to cut ductile and cast iron pipe, concrete-lined water pipes, sewer construction and heavy duty PVC.
	Rescue	For ventilation, forcible entry, rescue and demolition. A versatile abrasive formula that can be used on a wide range of materials including all types of metals and masonry.
	Concrete	Coarse grit silicon carbide abrasive provides a low initial cost solution for cutting brick, block, concrete or other masonry materials. For higher-production applications that require optimum speed of cut and product life, please see our complete selection of high-speed diamond wheels in our Norton Construction diamond product line.
	Asphalt	A special blend of extra coarse silicon carbide abrasive grains provides a low initial cost solution for cutting asphalt, green concrete, asphalt over concrete, a wide range of aggregates and abrasive materials. For higher-production applications that require optimum speed of cut and product life, please see our Norton Construction diamond blade product offering in the Construction Product section of this catalog -and the complete offering in our "Diamond, Abrasives and Equipment for the Construction Market Catalog" #7719 found on <a href="http://www.nortonabrasives.com">www.nortonabrasives.com</a>

## HOW TO PICK THE RIGHT REINFORCEMENT

	Two full layers of reinforcing are offered for lower power machines, and light-to-medium applications where speed of cut is the primary selection criterion.
	Three full layers of reinforcing are recommended for high-speed, high-power machines where the application is heavy-duty, and durability is the primary selection criterion.



## Universal Arbor







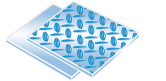

### Two Blade Sizes in One

Our Norton patented 1"/20mm knock-out arbor fits all gas and electric high-speed saws. A 20mm bushing is pre-mounted into the 1" molded arbor hole. The wheel, with the 20mm bushing, can be mounted directly on any 20mm arbor high-speed saw. With the bushing removed, exposing the 1" arbor hole, the wheel can be mounted on any 1" arbor high-speed saw. Combining this arbor, with heavy-duty triple reinforcing results in a higher performing, extra strong, longer lasting cutting wheel. Once the 20mm bushing is removed, it cannot be replaced.

### CROSS REFERENCE GUIDE










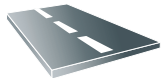
SPECIALITY

NORTON	GOOD Gemini Metal	Gemini Metal Decking	Gemini Ductile	Gemini Concrete	Gemini Asphalt
Abmast	A 24 R, Kompetitor Metal	A 24 T	AC 24 R, Kompetitor Ductile Iron	C 24 R, Kompetitor Concrete	C 16 T, Kompetitor Asphalt
Brilliant	Metal/Stainless	—	—	Concrete/Masonry	—
Bullard Blaze	A24R, ZA24Q,	TA24R	AC24R	C24R, The Competitor	CC20R
& Road Warrior	The Competitor				
Camel	A24-R	A24-T	AC24-R	C24-R	C16-U
Flexovit	A24/30SB	A24TB	AC24SB	C30UB	C16UB
Husqvarna	Blue XHS, Blue QMS-CM, Blue EHS	Grey QMS-CM	Green QMS-CM, Green EHS	Red XHS, Red QHS-CM, Red EHS	Black QMS-AS
Pearl	SRT, Premium A36S, Silver Line A30R	—	AC30S	Premium C36S, Silver Line C24R	—
Pferd	A 24 R SG	A 24 Q SG-RAIL	AC 24 Q SG	C 24 R SG	—
Sait	A24R, A30S, XFC	Brute	Ductile	C24R	Big M.A.C, XFC
Tyrolit	A30P, A30BF	—	AC24, AC30BF	1C24, C30BF	—
Virginia Abrasives	Metal	—	Ductile	Concrete	Asphalt
Walter	A-24	—	—	—	—

				
TIER:	GOOD	GOOD	GOOD	GOOD
BRAND:	Norton	Norton	Norton	Norton
TRADENAME:	GEMINI METAL HD	GEMINI METAL	GEMINI METAL DECKING	GEMINI RESCUE
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide/ Aluminum Oxide Blend
REINFORCING:	3 Layers	2 Layers	2 Layers	2 Layers
MATERIAL:				

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>Type 01/41 Cut-off – for Gas &amp; Electric-Powered Saws</b>						
12 x 1/8 x 1" / 20mm	6,300	10	66252836708	66252837838		
14 x 1/8 x 1" / 20mm	5,400	10	66252835386	66252837841		66243578262
14 x 5/32 x 1" / 20mm	5,400	10			66252832521	
16 x 1/8 x 1" / 20mm	4,800	10		66252830886		
16 x 1/8 x 1"	4,800	10				

See additional Rail Cut wheels on the next page for larger-volume jobs.

					
TIER:	GOOD	GOOD	GOOD	GOOD	GOOD
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	GEMINI DUCTILE HD	GEMINI DUCTILE	GEMINI CONCRETE HD	GEMINI CONCRETE	GEMINI ASPHALT
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Silicon Carbide / Aluminum Oxide Blend	Silicon Carbide / Aluminum Oxide Blend	Silicon Carbide	Silicon Carbide	Silicon Carbide
REINFORCING:	3 Layers	2 Layers	3 Layers	2 Layers	2 Layers
MATERIAL:					

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>Type 01/41 Cut-off – for Gas &amp; Electric-Powered Saws</b>							
12 x 1/8 x 1" / 20mm	6,300	10		66252837840		66252837839	70184670243
14 x 1/8 x 1" / 20mm	5,400	10	66252835388	66252837843	66252835387	66252837842	70184672877
16 x 1/8 x 1" / 20mm	4,800	10				70184623029	

# RAIL REINFORCED CUT-OFF



The Norton RailCut line is designed for high-speed fixtured hydraulic or gas-powered rail saws.

Applications: Fixed rail track cutting  
 Size range: 14" and 16" diameter  
 Thickness range: 1/8"  
 Grit range: 14 – 16  
 Abrasive grain: Zirconia Alumina/Aluminum Oxide Blend, Zirconia Alumina, and Aluminum Oxide  
 Shape: Type 01/41 Straight  
 Reinforcement: Side reinforced with R (rough) sides  
 Speed rating: All wheels are rated for 20,000 SFPM applications  
 Machines Used:



## CROSS REFERENCE GUIDE AND MACHINE-TO-PRODUCT RECOMMENDATION GUIDE

	BEST	BETTER	GOOD	GOOD
NORTON	RailCut X	RailCut NorZon III	RailCut A30X	RailCut Metal
Bullard Abrasive	Trackmaster Pro ZA24 Q-BF (Blue)	Trackmaster Pro ZA24 Q-BF (Blue)	Trackmaster A30 R-BF (Red)	
DiaTool				RailMaster Rail Cut 27
Flexovit USA	-		A30-PB	
Giesmar	AM303-R	AM303-R	NR242-Q	NR242-Q
Klingspor	A 24 SX Special	A 24 SX Special	-	
Portaco	A30 R-BF	A30 R-BF	-	
Racine Kwik Kut	A24R	A24R	-	

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
<b>HYDRAULIC SAW</b>	RailCut X		RailCut A30X, RailCut Metal
<b>GAS SAW</b>			
High-Horsepower / Newer Machine	RailCut X	RailCut NorZon III	RailCut A30X, RailCut Metal
Low-Horsepower / Older Machine	RailCut X	RailCut NorZon III FastCut	RailCut A30X, RailCut Metal

## NORTON RAILCUT X ZIRCONIA ALUMINA / A/O BLEND

BEST CHOICE FOR HIGH PERFORMANCE CUTTING OF RAILS ON APPLICATIONS WHERE THE HYDRAULIC OR GAS SAW IS FIXTURED AND HAS ADEQUATE POWER

### FEATURES

- High-performance zirconia alumina/ engineered aluminum oxide blend; R (rough) sides

### BENEFITS

- Expertly cuts a broad range of materials
- Longest lasting and fastest cutting wheels

## NORTON RAILCUT METAL ALUMINUM OXIDE

GOOD CHOICE FOR PRICE-SENSITIVE JOBS WITH LOWEST INITIAL PRICE

### FEATURES & BENEFITS

- Good choice for small jobs, applications where performance is not measured, and price-sensitive operations
- Great versatility from multi-purpose aluminum oxide abrasive formulated specifically for cutting rail
- Consistent performance at a low initial price



TIER:	BEST	BETTER	BETTER	GOOD	GOOD
TRADENAME:	NORTON RAILCUT X	NORTON RAILCUT NORZON III	NORTON RAILCUT NORZON III FASTCUT	NORTON RAILCUT A30X	NORTON RAILCUT METAL
ABRASIVE:	Zirconia Alumina/ Aluminum Oxide Blend	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide	Aluminum Oxide
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #
<b>Type 01/41 Cut-Off</b>					
14 x 1/8 x 1	5,400	10	66253337716	66253360493	66253363694
16 x 1/8 x 1	4,800	10	66253335024	66253364607	66253364415
				66253260462	66253259935
					66243482068
					66243482066


NEW



# WALK-BEHIND REINFORCED CUT-OFF



These powerful, self-propelled machines are designed to cut concrete slabs and asphalt and are normally fitted with diamond blades. For inexperienced operators or small jobs, the machines can accommodate these low initial cost, conventional abrasives wheels.

Applications:	Cutting straight sections of concrete surfaces
Size Range:	14" and 18" diameter
Thickness Range:	3/16" – 3/8"
Abrasive Grain:	Silicon Carbide
Bond:	Hot Pressed (HP) – for higher-horsepower machine applications where additional durability is needed, may be used wet or dry Cold Pressed (CP) – for lower-horsepower machines, which need a free-cutting wheel
Shape:	Type 01/41 Straight
Arbor:	All are 1" with a drive pin
Machine Used:	

## CROSS REFERENCE GUIDE

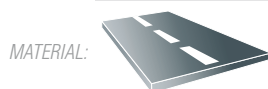
	SPECIALITY		
	BETTER	GOOD	GOOD
<b>NORTON</b>	Gemini Asphalt / Green Concrete – HP	Gemini Asphalt - CP	Gemini Concrete - CP
Abmast	—	C 16 T. Kompetitor Asphalt/ Concrete	C 24 R
Bullard Blaze & Road Warrior	—	C16R & T, C16R3	—
Camel	—	C16-U	C24-R
Flexovit	HPC16AG	C16 G.P. C16UB	C20SB/C16TB
Husqvarna	Red GC-7A	Black EWC	Gold RTC, Blue RTC, Blue EWC
Pearl	—	—	Premium C36S, Silver Line C24R
Pferd	—	C 24 R SG ASP	C 24 R SG GP
Sait	Street Runner	C16	C24R, Street Walker
Tyrolit	Concrete/Asphalt CHP	Asphalt CP	Concrete CP
Virginia Abrasives	—	GC/Asphalt	Concrete
Walter	—	—	C-24



TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **GEMINI ASPHALT - HP**  
 SHAPE: Type 01/41  
 ABRASIVE: Silicon Carbide  
 BOND: Hot Pressed - Long Life

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **GEMINI ASPHALT - CP**  
 SHAPE: Type 01/41  
 ABRASIVE: Silicon Carbide  
 BOND: Cold Pressed - Free Cut

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **GEMINI CONCRETE - CP**  
 SHAPE: Type 01/41  
 ABRASIVE: Silicon Carbide  
 BOND: Cold Pressed - Free Cut



SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #
<b>Type 01/41 Cut-off – For Walk-Behind Saws</b>					
14 x 3/16 x 1 Pin Hole	4,365	10		70184680324	70184680323
14 x 1/4 x 1 Pin Hole	4,365	5			70184670533
18 x 1/4 x 1 Pin Hole	4,250	5	70184670103	70184670098	



For higher-production applications, optimum speed of cut and product life, please see our diamond blade product offering for walk-behind saws in the Construction Product section of this catalog and the complete offering in our Diamond, Abrasives and Equipment for the Construction Market Catalog #7719 found on [www.nortonabrasives.com](http://www.nortonabrasives.com).

# CHOP SAW REINFORCED CUT-OFF



A chop saw is a light, low-horsepower portable machine. Although very similar to a compound miter saw, it is designed for cutting denser materials, like metal bar, tubing or pipe. Chop saw cut-off wheels are designed specifically for this machine with finer grit, softer grades, and reinforcement layers that match the application.

Applications: Cutting small-diameter metal pieces, bar stock, metal pipe, tubing, decking, cable, drywall studs, and metal plate dimensioning

Size Range: 10" - 16" diameter

Thickness Range: 3/32" and 7/64"

Abrasive Grain: Zirconia Alumina/Aluminum Oxide Blend, Aluminum Oxide, and Diamond

Shape: Type 01/41 Straight

Reinforcement Type: Side reinforced, centrally reinforced

Machine Used:



## CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE			INITIAL PRICE			SPECIALITY	
	BETTER			GOOD			GOOD	
<b>NORTON</b>	BlueFire Free Cut	BlueFire Rapid Cut	BlueFire Long Life	Gemini Free Cut	Gemini Rapid Cut	Gemini Long Life	Stud Cutter	Gemini Aluminum
Brilliant	—	—	—	Super-G	Tube/Pipe	—	Drywall Stud	Aluminum
Bullard	ZA36T	—	—	TA36T	A36R	A36R	A46T	AL36R
				A46T	The Competitor	Ironmaster	Studmaster	
Camel	—	—	ZA24-S	A36-P, WA36-P	—	A36-S	A30-R Mr. Stud	A30-N
Dewalt	—	—	XP	GP, Stainless Fabrication	—		Stud Cutting	—
Flexovit	—	—	—	A30R Fast Cut	—	A30S Long Life	A30T Drywall Stud	
				A30-Q Free Cut				
Makita	—	—	—	—	General Purpose	—	—	—
Pearl	SRT36	—	—	A36P Premium	A30P Silver Line		A46S Stud Cutting	—
Pferd	—	—	—	A 36 K SG CHOP	PSF CHOP		A 36 K SG-STUD	—
Sait	Saitech Steel Worker	Z-tech	—	EZ-Chop	EZ-Chop Attacker	Iron Worker	Stud King	Aluminum
Walter	—	—	—	—	A-30	A-30-HC+	—	A30-ALU

## APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

Wheel Type/Reinforcement

### TYPE 01/41 STRAIGHT SIDE-REINFORCED CUT-OFF WHEEL

Side-reinforced wheels have two full layers of reinforcing and are designed for a fast cut and the most aggressive applications. All Purpose, Free Cut, and Long Life are side reinforced.



### TYPE 01/41 STRAIGHT CENTRALLY-REINFORCED CUT-OFF WHEEL

Centrally-reinforced wheels have a single layer of reinforcing with exposed rough sides for free-cutting, non-binding applications where minimal burr and burn are the key requirements. Rapid Cut wheels are centrally reinforced.



## HOW TO PICK THE RIGHT BOND TYPE

All Purpose	Unmarked	Where an excellent blend of cut rate and life is needed
Free Cut	FC	Used when fast, burn-free cutting is desired or when cutting pieces with larger cross sections
Long Life	LL	Where durability is needed due to severe application, and when cutting parts with small cross sections
Rapid Cut	RC	Where a free cutting, non-binding wheel is needed for burn-free and burr-free cuts
High-Performance	STUD	High-performance aluminum oxide/resin bond combination designed for cleaner cuts and longer life when cutting steel studs
Aluminum	ALU	Specially formulated bond for reduced loading/surface contamination when cutting aluminum/soft materials

# CHOP SAW REINFORCED CUT-OFF

## NORTON BLUEFIRE ZIRCONIA ALUMINA / A/O BLEND

**BETTER CHOICE FOR STEEL, STAINLESS STEEL AND ALL OTHER FERROUS METALS**

### FEATURES

- Durable zirconia alumina / premium aluminum oxide abrasive blend
- Free Cut: side reinforced
- Long Life: side reinforced
- Rapid Cut: centrally reinforced, rough sides

### BENEFITS

- 2X the life and cut rate of aluminum oxide
- Engineered for larger cross-sections and/or hard-to-cut materials
- Ideal for small cross-section workpieces
- Free cutting, non-binding; burr- and burn-free cuts

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR ALL STEEL AND FERROUS METALS AS WELL AS SPECIALTY APPLICATIONS IN ALUMINUM**

### FEATURES

- Free Cut: side reinforced
- Long Life: side reinforced
- Rapid Cut: centrally reinforced, rough sides
- Aluminum: specially formulated bond for aluminum and other soft, nonferrous metals; no wax or rubber fillers

### BENEFITS

- Engineered for larger cross-sections and/or hard-to-cut materials
- Ideal for small cross-section workpieces
- Free cutting, non-binding; burr- and burn-free cuts
- Free cutting; resist loading
- No surface contamination

## NORTON METAL STUD CUTTER ALUMINUM OXIDE

**GOOD CHOICE FOR DRYWALL STUDS**

### FEATURES

- Stud Cutter: thin, side-reinforced; with high-performance aluminum oxide abrasive

### BENEFITS

- Designed specifically for cutting steel studs

## NORTON DIALAST DIAMOND

**DESIGNED FOR CUTTING STEEL, METAL STUDS, STAINLESS STEEL, NONFERROUS MATERIALS, TILE, BRICK, PLASTIC AND MUCH MORE**


### FEATURES

- A combination of high-quality diamond and advanced brazed single-layer bonding technology
- Environmentally friendly grinding
- Engineered with sound-dampening technology

### BENEFITS

- Extra-long life vs. conventional abrasives or other vacuum-brazed diamond tools
- Retains the diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for exceptional wheel life
- Less blade changes reduce downtime and labor costs
- Generates minimal dust for less clean-up and safer working conditions
- Makes the blade environmentally-friendly when cutting indoors or out

# CHOP SAW REINFORCED CUT-OFF

							
TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
TRADENAME:	<b>NORTON DIALAST</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON BLUEFIRE</b>	<b>NORTON GEMINI</b>	<b>NORTON GEMINI</b>	<b>NORTON METAL</b>	<b>NORTON METAL</b>
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Diamond	Zirconia Alumina/Aluminum Oxide	Zirconia Alumina/Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
REINFORCING:		Side	Central	Side	Central	Side	Central
MATERIAL:	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>	<b>STAINLESS</b>
		<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>	<b>STEEL/METAL</b>
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>Type 01/41 Straight Cut-off</b>							
10 x 7/64 x 1	6,110	10			66253106109 <b>LL</b>		
12 x 7/64 x 1	5,095	10	66252843250		66253207554 <b>LL</b>	66253214561 <b>RC</b>	
	5,095	5					07660789400
14 x 3/32 x 1	4,365	10			66253306627 <b>FC</b>	66253313588 <b>RC</b>	66252835554
	4,365	10			66253306626 <b>LL</b>		07660789405 <b>STUD</b>
	4,365	5 <b>V</b>					07660789399
14 x 7/64 x 1	4,365	10	66252843252 <b>FC</b>	66252843254 <b>RC</b>	66253314816 <b>ALU</b>		
	4,365	10	66252843253 <b>LL</b>				
	4,365	25					07660703970 5-Pk
14 x .155 x 1	5,400	1	70184694053				
16 x 3/32 x 1	3,820	10			66253410198 <b>LL</b>		
16 x 7/64 x 1	3,820	10	66252843256 <b>FC</b>				
	3,820	10	66252843257 <b>LL</b>				



## CUT-OFF WHEEL DESCRIPTION CODES

<b>BLANK</b> = All Purpose	<b>ALU</b> = Aluminum	<b>FC</b> = Free Cut	<b>LL</b> = Long Life	<b>RC</b> = Rapid Cut	<b>STUD</b> = Stud Cutter
<b>M</b> = Masonry	<b>S</b> = Stainless	<b>ST</b> = Steel / Metal			





# STATIONARY SAW REINFORCED CUT-OFF



The Norton stationary saw reinforced cut-off wheel line consists of Type 01/41 straight 10" - 24" wheels, designed to fit on fixed-base stationary saws that are free-standing or mounted on a workbench.

## Applications:

Primary applications are cutting of all metal parts (flat stock, bars, studs, pipes, tubes, angle iron, cable), wire rope and hydraulic hose used in fabrication, construction and plant maintenance.

## Size Range:

10" – 20" diameter

## Thickness Range:

3/32", 1/8", 5/32", 3/16"

## Abrasive Grain:

Zirconia Alumina/Aluminium Oxide Blend, Aluminum Oxide, Silicon Carbide

## Shape:

Type 01/41 Straight

## Machine Used:



## CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE				INITIAL PRICE	SPECIALITY
	← BETTER		GOOD			GOOD →
	NORTON					
	BlueFire	Gemini Free Cut	Gemini Long Life	Gemini Rapid Cut*	Norton Masonry	Foundry Cut**
Abmast	Z 24 R3	A 30 R	—	—	—	AC 24 R3
Brilliant	—	GP Fast Cut	GPX Long Life	XL , XLX	—	—
Bullard	—	A30-R	A30-T	A300	C20R	—
Camel	ZA24-R	A24-R, A46-T	—	—	C24-R	WA24-S
Flexovit	—	A30RB Multi Purpose	A30SB Long Life, A24TB Long Life	—	C24RB	AC24PB Heavy Duty
Metabo	—	A30N, A30R	A30S, A30V	—	C30S	—
Pearl	SRT36	A30P Premium, A30Q Silver Line	A30S Premium, A36R Premium	—	C24 Silver Line	—
Pferd	ZA 24 Q/R SG-HD	A 24 N/P SG-HD	A 24 Q/S SG-HD	—	C 24 0 SG	—
Sait	—	A24N, A36R	A24R	—	C24R	—
Tyrolit	—	A30BF	—	—	C30BF	—
Walter	—	A-24-FC	A-24-RIP	—	—	—

\* For Burr-Free applications, please see centrally-reinforced BlueFire Rapid Cut and Gemini Rapid Cut wheels in Chop Saw cut-off wheel section or at [www.nortonabrasives.com](http://www.nortonabrasives.com)

\*\* For Foundry and other cut-off wheels, please refer to that section of this Norton Full Line Catalog #7362 or at [www.nortonabrasives.com](http://www.nortonabrasives.com)



TIER:	BETTER	GOOD	GOOD	GOOD
TRADENAME:	NORTON BLUEFIRE	NORTON GEMINI FREE CUT	NORTON GEMINI LONG LIFE	NORTON MASONRY
SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41
ABRASIVE:	Zirconia Alumina/Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
MATERIAL:	STAINLESS STEEL/METAL	STAINLESS STEEL/METAL	STAINLESS STEEL/METAL	MASONRY

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
<b>Type 01/41 Straight Cut-Off</b>						
10 x 3/32 x 5/8	6,110	10	66252843248	66253106101 FC	66253106102 LL	
	6,110	5				07660789391
12 x 1/8 x 1	5,095	10	66252843249		66253207548 LL	
	5,095	5				
14 x 1/8 x 1	4,365	10	66252843251	66253306609 FC	66253306611 LL	
	4,365	5				
16 x 1/8 x 1	3,820	10		66253422942		
16 x 5/32 x 1	3,820	10	66252843255	66253410183 FC	66253410184 LL	
18 x 5/32 x 1	3,015	10		66253410185 FC		
20 x 5/32 x 1	2,710	5	66252843258 FC	69078609031 FC	69078609032 LL	
	2,710	5	66252843259 LL			
20 x 3/16 x 1	2,710	5		69078609033 FC	69078609034 LL	

## CUT-OFF WHEEL DESCRIPTION CODES

BLANK = All Purpose FC = Free Cut LL = Long Life ■ = Masonry ■ = Stainless ■ = Steel / Metal



Foundry cut-off wheels are designed with abrasives, bonds and reinforcement types specific to foundry machine parameters and materials. Most of the specifications are non-stock. This stock listing is designed to provide popular size and starting specifications.

Size Range:	Reinforced: 14" – 30" diameter; Non-reinforced: 12" – 20" diameter
Grit Range:	24 – 46 grit
Abrasive Grain:	Ceramic Alumina (Norton Quantum; non-stock only), Zirconia Alumina, Aluminum Oxide
Reinforcement:	Reinforced: Engineered with strengthening fabric or filaments, which make wheels resistant to cross-bending breakage. All portable cut-off, swingframe, locked-head push-through and foundry chop stroke operations require reinforced cut-off wheels.  B: One or more full diameter pieces of filament molded inside each wheel. This construction leaves the abrasive exposed on the side of the wheel, improving freeness of cut. Used for fixed work operations with low probability of side pressure.  N: Full diameter pieces of reinforcement on the side of the wheel. Offers greatest possible resistance to side pressure and bending.  Non-Reinforced: Designed for use on fixed-base types of machines where the work is securely clamped and guarded, and where the wheel operates on a controlled cutting plane.  W: Reinforcement around the center hole only. These wheels are not considered to be truly reinforced.
Side Patterns:	Smooth sides: Used for precision cutting applications  Rough (R) sides: Abrasive particles protrude from sides of wheel  Used wet or dry on most metals

### MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	<b>BEST</b> Highest Productivity; Lowest Total Cost	<b>BETTER</b> Excellent Blend of Performance & Price	<b>GOOD</b> Consistent Performance; Low Initial Price
<b>INVESTMENT CAST ALLOYS</b>			
Stainless Steel	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
Titanium	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
<b>CAST IRON</b>	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
<b>CAST STEEL</b>			
Carbon and Low Alloy	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
Stainless Steel and High Alloy	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
Aluminum Alloy	Foundry X Quantum	Foundry X BlueFire	Foundry Metal
Copper Alloys, Brass, Bronze	Foundry X Quantum	Foundry X BlueFire	Foundry Metal

Foundry X Quantum wheels are custom, made-to-order to your exact requirements. Contact your Norton representative for recommendations, quotations, and lead-times.

### CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE		INITIAL PRICE	
	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
<b>NORTON</b>	Foundry X Quantum and B97 (Non-stock; custom-made to your exact requirements)	Foundry X BlueFire	Foundry X	Foundry Metal
Allison	TA362 R6 8045HA, YW462 MR B2HA	TA302-T6-B6HA, A46-T6-BX5T6A, HF 1247 K – CHALLENGER		Economiser
Avery		TA30-V680	A 3226 C7A, C11922 W071	92871H
Buckeye		Steel Shark		
DiaTool	BV1734R 710	BV 1397-5284-C		
Flexovit		ZAX30TB	A24PB, A30RB	
Klingspor	20A24-QBF		T 1584 HA	
NATAB				
Rappold		6Z30U-B3F2		

## NORTON FOUNDRY X BLUEFIRE REINFORCED

**BETTER CHOICE ON STAINLESS STEEL, AEROSPACE ALLOYS, CAST IRON, AND STEEL**

#### FEATURES

- Durable zirconia alumina/aluminum oxide blend with Foundry X bond technology

#### BENEFITS

- Excellent value on stainless steel and exotic aerospace alloys
- More aggressive; can withstand demanding applications
- Improved durability and heat resistance result in longer abrasive life, showing up to 80% better G-ratios (material removed/wheel wear); cost effective wheels



## NORTON FOUNDRY X ALUMINUM OXIDE

GOOD CHOICE ON GENERAL PURPOSE APPLICATIONS

### FEATURES

- Strong aluminum oxide abrasive with Foundry X bond technology

### BENEFITS

- Consistent performance
- Tough and versatile abrasive
- Low initial price



## NORTON FOUNDRY METAL ALUMINUM OXIDE

GOOD CHOICE FOR PRICE-SENSITIVE JOBS WITH LOWEST INITIAL PRICE

### FEATURES & BENEFITS

- Good choice for small jobs, applications where performance is not measured, and price-sensitive operations
- Great versatility from multi-purpose aluminum oxide abrasive formulated specifically for typical foundry cutting applications
- Lowest initial price
- Consistent performance

Reinforced

								
					<b>BETTER</b>		<b>GOOD</b>	
					Norton		Norton	
					<b>FOUNDRY X BLUEFIRE</b>		<b>FOUNDRY X</b>	
					Zirconia Alumina/ Aluminum Oxide		Aluminum Oxide	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
<b>Type 01/41 Straight Cut-off – Foundry Reinforced</b>								
14 x 1/8 x 1	4,365	10	NV24-TB75N	66253347674	U57A30-TB75N	66253345779	Side Reinforced	66243485918
	4,365	10	NV24-VB75N	66253179193	U57A30-VB75N	66253179191		
	4,365	10	NV24-YB97N	66253347698	U57A30-YB97N	66253347692		
16 x 5/32 x 1	3,820	10	NV24-TB75N	66253347676	U57A30-TB75N	66253345781	Side Reinforced	66243485919
	3,820	10	NV24-VB75N	66253179147	U57A30-VB75N	66253179148		
	3,820	10	NV24-YB97N	66253347693				
20 x 5/32 x 1	2,710	10	NV24-TB75N	66253347683	U57A30-TB75N	66253347546	Side Reinforced	66243485920
	2,710	10	NV24-VB75N	66253179363	U57A30-VB75N	66253179364		
	2,710	10	NV24-YB97N	66253347694	U57A30-YB97N	66253347701		
20 x 3/16 x 1	2,710	10	NV24-TB75B	66253347684	U57A30-TB75B	66253347547	Centrally Reinforced	66243485921
	2,710	10	NV24-VB75B	66253179366	U57A30-VB75B	66253179367		
	2,710	10	NV24-YB97B	66253347699	U57A30-YB97B	66253347702		
24 x 7/32 x 1-3/4	2,260	10	NV24-TB75B	66253347685				
	2,260	10	NV24-VB75B	66253179374	U57A30-VB75B	66253179375		
	2,260	10	NV24-YB97B	66253347697				
30 x 1/4 x 1-3/4	1,810	10	NV24-TB75B	66253347722	U57A30-TB75B	66253347720		
	1,810	10	NV24-YB97B	66253347723	U57A30-YB97B	66253347721		

Specifications ending in "B" are centrally reinforced; specifications ending in "N" are side reinforced.

Non-Reinforced

						
					<b>BETTER</b>	
					Norton	
					<b>U57A</b>	
					Aluminum Oxide	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC	PART #	SPEC	PART #
<b>Type 01/41 Straight Cut-off – Foundry Non-Reinforced R-Sides</b>						
12 x 3/32 x 1	5,095	10	U57A461-PB25	66253261887	AP	66253422942
16 x 1/8 x 1	3,820	10				
20 x 1/8 x 1	2,710	10	U57A304-VB25W	69078665497		

Ask your Norton representative about our custom, made-to-order Norton Foundry X Quantum ceramic alumina wheels for high alloys, stainless steel, and aerospace applications.

### CUT-OFF WHEEL DESCRIPTION CODES

AP = All Purpose

Where a good blend of cut rate and life is needed



Reinforced and non-reinforced engineered cut-off wheels for cutting all types of tool steel with fixed-based cut-off machines.

**Applications:**

Reinforced cut-off wheels are designed to resist breakage caused by severe cross-bending and are required on any operation where the work is not securely clamped.

Non-Reinforced cut-off wheels are designed for use on fixed-based machines where the work is securely clamped, guarded, and where the wheel operates on a controlled cutting plane.

**Size range:**

6" – 12" diameter

**Grit range:**

36 – 90 grit

**Abrasive grain:**

Aluminum Oxide

**Bond:**

Resinoid, Rubber, and Shellac

**Shape:**

Type 01/41 Straight

## CROSS REFERENCE GUIDE

	BETTER		
NORTON	Reinforced A60-OBNA2	Reinforced 57A364-TB25N	Non-Reinforced 57A60-M8B
Bates	A602-T-BF	A36-R-BF	-
Buffalo	A60-R-BF2	-	-
Dia. Tool	A80-SP	A46-SP	-
Radiac	A54-N6-B20	-	A54-N6-B20
Tyrolit	A60-QBF38A2	-	-

## TECH TIP

- Smooth side pattern – Used when a precise thickness tolerance is needed
- Rough (R) side pattern – Abrasive particles protrude from sides of wheel

## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	SUGGESTED CORRECTION
Poor cut rate	Insufficient power used	Increase feed or pressure to full power
	Wheel too hard	Use softer grade, or thinner wheel
	Contact area too large	Reduce contact area
	Wheel too coarse	Use finer grit
	Wheel side out of truth	Check spindle runout
Non-square cuts	Work not clamped properly	Check clamp and clean to remove swarf
	Misaligned spindle bearings	Check for bearing truth and alignment
	Poor coolant distribution	Ensure equal volume of coolant to each wheel side
	Wheel is too hard	Use softer acting wheel: softer grade, or finer grit
Workpiece burn	Insufficient feed rate	Work machine to maximum power available
	Poor coolant flow	Increase volume and direct at cutting point
	Wheel is too coarse	Use finer grit or more machine power
	Wheel is too hard	Use softer grade wheel
	Wheel is running out	Check spindle and flanges
	Wheel speed is too slow	Ensure tight flanges and maximum safe operating speed being used
Poor finish	Too much burr	Use finer grit, or softer grade
	Wheel too coarse	Use finer grit

## TECH TIP

- Wheels with a "W" reinforcement (reinforcement around the hole) are not considered to be truly reinforced.
- Clamp or fixture the workpiece for straightest cuts.
- Run wheels at the highest possible speed marked on the wheel and make cuts as quickly as possible. Do not overspeed wheels.
- It is recommended that a cut-off machine should have 1 horsepower for every inch of wheel diameter. For less than this, we recommend using a softer specification.
- Using a harder grade wheel increases wheel life, but it also increases burn, power required and decreases cut rate.
- Using a coarser grit wheel increases wheel life and cut rate, but it also increases burr and power required.



## TOOLROOM REINFORCED ALUMINUM OXIDE

BETTER CHOICE FOR CUTTING TOOL STEEL ON FIXED-BASED MACHINES WHEN WORK IS NOT SECURELY CLAMPED

### FEATURES

- OBNA2 full side reinforced, resin bond
- B25N full side reinforced, resin bond

### BENEFITS

- Yields maximum cut rate and minimum kerf loss; ideal when thin cut is desired
- Versatile; durable, free cutting; offer greatest stiffness

SIZE (D x T x H)	MAX. RPM	STD. PKG.	TIER: BETTER SPEC.	PART #
<b>Type 01/41 Straight Cut-off – Reinforced</b>				
6 x .035 x 1/2	10,190	25	A60-OBNA2	66252835053
6 x .035 x 1-1/4	10,190	25	A60-OBNA2	66252835055
6 x .060 x 1/2	10,190	25	A60-OBNA2	66252835164
6 x .060 x 1/2	10,190	25	57A364-TB25N	66252822969
6 x .060 x 1-1/4	10,190	25	A60-OBNA2	66252835165
7 x .035 x 1/2	8,730	25	A60-OBNA2	66252938786
7 x .035 x 1-1/4	8,730	25	A60-OBNA2	66252938788
7 x .060 x 1/2	8,730	25	A60-OBNA2	66252938816
7 x .060 x 1-1/4	8,730	25	A60-OBNA2	66252938796
7 x .060 x 1-1/4	8,730	25	57A364-TB25N	66252922676

SIZE (D x T x H)	MAX. RPM	STD. PKG.	TIER: BETTER SPEC.	PART #
<b>Type 01/41 Straight Cut-off – Reinforced</b>				
8 x .035 x 1/2	7,640	25	A60-OBNA2	66253043014
8 x .035 x 1-1/4	7,640	25	A60-OBNA2	66253042980
8 x .060 x 1/2	7,640	25	A60-OBNA2	66253043009
8 x .060 x 1-1/4	7,640	25	A60-OBNA2	66253042983
8 x .060 x 1-1/4	7,640	25	57A364-TB25N	66253022705
10 x .060 x 5/8	6,110	25	A60-OBNA2	66253149317
10 x .060 x 1-1/4	6,110	25	A60-OBNA2	66253149186
12 x .060 x 1	5,095	10	A60-OBNA2	66253261811
12 x .075 x 1	5,095	10	A60-OBNA2	66253261910
12 x .075 x 1-1/4	5,095	10	A60-OBNA2	66253261858

## TOOLROOM NON-REINFORCED ALUMINUM OXIDE

BETTER CHOICE FOR CUTTING TOOL STEEL ON FIXED-BASED MACHINES WHEN THE WORK IS SECURELY CLAMPED

### FEATURES

- B bond (smooth sides)
- B25 bond (smooth sides)
- E7 bond (smooth sides)
- R30 bond (smooth sides)

### BENEFITS

- A mild acting resin bond for light cut-off applications
- A versatile, free-cutting, more durable resin bond
- Ideal for dry cutting metal in high production runs
- A shellac bond with very mild cutting action, recommended for highly critical applications where no burr, heat checks, or discoloration is permitted
- Mild acting rubber bond primarily for wet, ultra-thin cutting

SIZE (D x T x H)	MAX. RPM	STD. PKG.	TIER: BETTER SPEC.	PART #
<b>Type 01/41 Straight Cut-off – Non-Reinforced</b>				
6 x .015 x 1-1/4	6,370	25	57A90-R0R30	66252822953
6 x .020 x 1-1/4	6,370	25	57A90-R0R30	66252822954
6 x .035 x 1-1/4	6,370	25	57A60-M8B	66252822958
6 x .060 x 1/2	7,640	25	57A541-RB25	66252822970
6 x .060 x 1-1/4	7,640	25	57A60-M8B	66252822975
7 x .035 x 1-1/4	5,460	25	57A60-M8B	66252922983
	5,460	25	57A60-Q8B	66252922986
	5,460	25	57A60-Q8B	66252922987
7 x .035 x 1-1/4	5,460	25	57A601-PB25	66252922988
	5,460	25	57A601-RB25	66252922989
7 x .035 x 1-1/4	5,185	25	57A60-OE7	66252922985
7 x .035 x 1-1/4	5,460	25	23A601-PB25	66252938701
7 x .050 x 1-1/4	5,460	25	23A601-PB25	66252938724*
7 x .060 x 1/2	6,550	25	57A60-Q8B	66252922672

\*Exception: rough sides

SIZE (D x T x H)	MAX. RPM	STD. PKG.	TIER: BETTER SPEC.	PART #
<b>Type 01/41 Straight Cut-off – Non-Reinforced</b>				
7 x .060 x 1-1/4	6,550	25	57A46-M8B	66252922677
	6,550	25	57A60-M8B	66252922681
	6,550	25	57A60-Q8B	66252922684
	5,185	25	57A60-OE7	66252922683
7 x .090 x 1-1/4	6,550	25	57A60-M8B	66252922690
7 x .125 x 1-1/4	6,550	25	57A60-M8B	66252922692
8 x .035 x 1-1/4	4,775	25	57A60-N8B	66253022694
8 x .060 x 1/2	5,730	25	57A60-M8B	66253022702
8 x .060 x 1-1/4	5,730	25	57A60-M8B	66253022708
8 x .060 x 1-1/4	4,540	25	57A60-OE7	66253022709
10 x .060 x 5/8	4,585	25	57A46-Q8BW	66253122816
	4,585	25	57A60-M8BW	66253122818
10 x .090 x 5/8	4,585	25	57A60-M8BW	66253122824

# METALLURGICAL NON-REINFORCED CUT-OFF



The Norton metallurgical line of Type 01/41 straight cut-off wheels was developed specifically for sectioning off metal samples; burr-free cutting, minimal burn and distortion.

Applications: Designed specifically for cutting off metal samples ranging from mild steel to super alloys on fixed-based machinery by scientists, engineers, and lab technicians

Size range: 9" – 13.75" diameter

## CROSS REFERENCE GUIDE

SIZE	MATERIAL CUT	NORTON		BUEHLER		LECO	LECO	STRUERS	
		SPEC.	PART #	METABRASE PART #	BUEHLERMET II PART #	PART #	PART #	PART #	AXITOM/-5 PART #
9 x .063 x 1-1/4 (229mm x 1.6mm x 32mm)	Very Hard Steels (Rc 55 - 68)	ML-109	66253117874	10-4110-010				60A24*	
	Medium Steels (Rc 30 - 40)	ML-309	66253117877	10-4116-010	10-5112-010	811-043-010		40A24*	
	Soft Steels (Rc 20 - 30)	ML-409	66253117828	10-4120-010	10-5116-010	811-049-010		30A24*	
10 x .063 x 1-1/4 (254mm x 1.6mm x 32mm)	Very Hard Steels (Rc 55 - 68)	ML-110	66253117879	10-4210-010		808-673	812-231	60A25•	
	Hard Steels (Rc 40 - 55)	ML-210	66253117880	10-4212-010	10-5210-010	811-059-010	810-310-010	54A25•	
	Medium Steels (Rc 30 - 40)	ML-310	66253117881	10-4216-010	10-5212-010	811-067-010	810-310-010	40A25•	
12 x .078 x 1-1/4 (305mm x 2.0mm x 32mm)	Soft Steels (Rc 20 - 30)	ML-410	66253117830	10-4220-010	10-5216-010	811-073-010		30A25•	
	Very Hard Steels (Rc 55 - 68)	ML-112	66253322151	10-4410-010		808-674	811-065-010	60A30†	
	Hard Steels (Rc 40 - 55)	ML-212	66253322152	10-4412-010	10-5410-010	811-081-010	810-311-010	50A30†	
13.75 x .098 x 1-1/4 (350mm x 2.5mm x 32mm)	Very Hard Steels (Rc 55 - 68)	ML-114	66253322863	10-4310-010		808-675	812-232	60A35▲	50A35
	Hard Steels (Rc 40 - 55)	ML-214	66253322156	10-4312-010	10-5310-010	809-346	811-977-010	50A35▲	40A35

\*Discotom/Labotom • Discotom-5/-6/Labotom-3 † Unitom/Discotom-50/-60/-65 ▲ Exotom/Unitom-2/-5/-50

					TIER: <b>BEST</b>
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PRODUCT #	APPLICATION	PART #
<b>Type 01/41 Straight Cut-off – Non-Reinforced</b>					
9 x .063 x 1-1/4 (229mm x 1.6mm x 32mm)	4,025	10	ML-109	Very Hard Steels (Rc 55 - 68)	66253117874
	4,025	10	ML-309	Medium Steels (Rc 30 - 40)	66253117877
	5,085	10	ML-409	Soft Steels (Rc 20 - 30)	66253117828
10 x .063 x 1-1/4 (254mm x 1.6mm x 32mm)	3,500	10	ML-110	Very Hard Steels (Rc 55 - 68)	66253117879
	3,500	10	ML-210	Hard Steels (Rc 40 - 55)	66253117880
	3,500	10	ML-310	Medium Steels (Rc 30 - 40)	66253117881
	4,585	10	ML-410	Soft Steels (Rc 20 - 30)	66253117830
12 x .078 x 1-1/4 (305mm x 2.0mm x 32mm)	3,820	10	ML-112	Very Hard Steels (Rc 55 - 68)	66253322151
	3,820	10	ML-212	Hard Steels (Rc 40 - 55)	66253322152
13.75 x .098 x 1-1/4 (350mm x 2.5mm x 32mm)	2,770	10	ML-114	Very Hard Steels (Rc 55 - 68)	66253322863
	2,770	10	ML-214	Hard Steels (Rc 40 - 55)	66253322156

## B82 BOND NON-REINFORCED WHEELS

A HIGH-PERFORMANCE RESIN BOND FOR WET CUTTING METALLURGICAL APPLICATIONS

TIER:			BETTER	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART #
Type 01/41 Straight Cut-off – Non-Reinforced				
10 x 1/16 x 1-1/4	4,585	5	88A901-HB82 Metlab	66253149449
12 x 1/16 x 1-1/4	3,820	5	88A901-HB82 Metlab	66253262172

## the NEW Norton Clipper brand **HITS THE PAVEMENT**

The leader for diamond blades, tools, and light machines for construction and cutting materials is  
"Redefining Jobsite Muscle – Rugged. Reliable. Affordable."



### **4X4 MaxCut High-Speed Blades**

A new level of high-speed cutting versatility. Our new bond and diamond specification improve blade life on a wide range of materials, excelling in steel.

### **Infiltrated High-Density Cup Grinders**

A revolutionary product, the iHD cup grinders offer a unique segment design, low vibration levels, and enhanced comfort on your right angle grinder.

### **Get to the Core of the Matter**

Get a BIT more from the innovative Norton Clipper Paradigm design. Our turbo segment permits the core to penetrate the toughest cured concrete, quickly and easily.





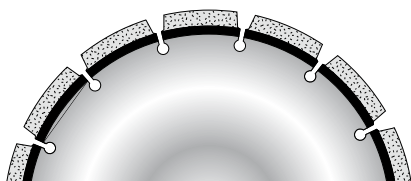
With faster cut rates, constant depth of cut, and less downtime, Norton diamond blades are the choice of professionals versus conventional abrasive blades. Norton diamond blades are available for high-speed saws, portable hand-held saws, and walk-behind saws. For the full offering of diamond blades, see the Norton Construction Products Catalog #7719.

Applications: Cutting concrete, stone, tile, and other building materials  
Size Range: 4" – 18"  
Thickness Range: .080" – .375"  
Segment Height Range: .210" – .550"  
Abrasive Grain: Diamond  
Mounting Options: 1 1/20mm universal arbor, 7/8"-5/8"-20mm, DM-7/8"-5/8", 5/8"-11  
Shape: Type 01  
Machines Used:



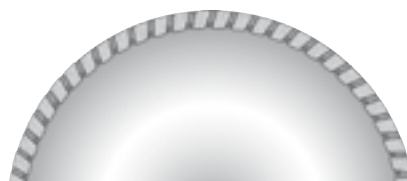
## DIAMOND BLADE RIM TYPES

There are three main diamond blade rim types: segmented, turbo, and continuous rim.



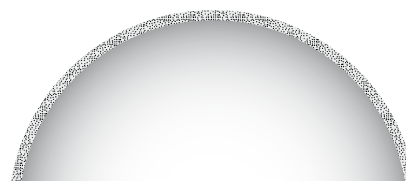
### Segmented

- Most aggressive cutting action for general-purpose and masonry applications
- Use when cutting speed and productivity are more important than finish
- Best life, best cut rate, good finish



### Turbo

- Aggressive cutting action with a smoother quality of cut than segmented rim blades
- For use on harder materials, such as granite, marble, and stone to reduce chipping
- Better life and cut rate, better finish



### Continuous

- Provides the smoothest of cuts
- Best performance when used wet
- Use on porcelain, tile, marble, and other hard materials requiring a high-quality cut
- Good life, good cut rate, best finish

## MATERIAL / APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

Icon	Description	Application
	Multi-Purpose, All Materials	Concrete, reinforced concrete, granite, building materials, thin steel sections, angle iron up to 1/2" material thickness, rebar up to no. 5.
	Natural Stone and Tiles	Ceramic and stone tiles, granite, marble, very hard bricks and other very hard and dense materials.
	Reinforced Concrete and Harder Building Materials	Reinforced concrete, hard bricks, limestone, terrazzo, and other hard materials.
	General Purpose and Masonry Building Materials	Blocks, medium-hard building bricks, paving slabs, concrete roof tiles and other medium-hard materials.
	Asphalt	Asphalt, green concrete, asphalt over concrete, abrasive blocks, mortar and other abrasive materials.

## DIAMOND PERFORMANCE TIERS

	5	<b>Best</b> Best Performance
	4	<b>Better</b> High Performance
	3	<b>Value and Good</b> Consistent Performance
	2	
	1	

## TECH TIP

- Never twist or turn a segmented wheel in the cut because it may result in segment breakage
- Never use wet wheels dry
- Remove dry wheels from cut for 10 seconds of each minute of cut to air cool
- Never operate any saw, wet or dry, without the blade guard



It is the user's responsibility to refer to and comply with ANSI B7.1



### For Reinforced Concrete and Harder Building Materials

DRY – Segmented Rim  

#### NORTON CLIPPER DUO EVO

The unique shape of the DUO EVO segments optimizes the angle of attack while enhancing the evacuation of the debris. With a new manufacturing process, the DUO EVO segments provide an exceptional cutting speed for optimum performance and increased life up to 20% over the original DUO EVO design.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.472"	6300	DUOEVO12110	70184684217 4
14 x .118 x 1/20mm	.590"	5460	DUOEVO14118	70184684218 1
16 x .125 x 1/20mm	.472"	4500	DUOEVO16125	70184684549 6



#### NORTON CLIPPER DUO

Our exclusive design has become a dominant name in the market. The unique dual segment per land technology provides excellent cutting speed with low vibration and high comfort of cut. The exclusive arrow shape gullets not only indicate blade direction, but also assist in fast removal of cutting debris. Maximum general purpose performance when cutting medium to low reinforcement, hard materials.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6300	DUO12110	70184683611 1
14 x .110 x 1/20mm	.393"	5460	DUO14110	70184683612 8
14 x .110 x 1/20mm	.393"	5460	DUO14110 6PK	70184684430 7
14 x .110 x 1/20mm	.393"	5460	DUO14110 12PK	70184684431 4
14 x .125 x 1/20mm	.393"	5460	DUO14125	70184683613 5
14 x .125 x 1/20mm	.393"	5460	DUO14125 6PK	70184684432 1
14 x .125 x 1/20mm	.393"	5460	DUO14125 12PK	70184684433 8
16 x .125 x 1/20mm	.393"	4500	DUO16125	70184683798 9



### For Asphalt and Abrasive Materials

DRY – Segmented Rim  

#### NORTON CLIPPER DUO ASPHALT

Dry cutting laser welded blade for asphalt and green concrete. Laser welded drop segment wear-retardant extends blade life. Scoop gullets for faster swarf removal increases cut speed. Stroboscopic indicators to control cut depth and show rotation direction.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6300	DUOASP12125	70184684543 4
14 x .125 x 1/20mm	.393"	5460	DUOASP14125	70184684315 7
16 x .125 x 1/20mm	.393"	4500	DUOASP16125	70184684544 1



#### NORTON CLIPPER DUO ABRASIVE

Utilizes the basic characteristics of original DUO blade and adds a unique segment shape that optimizes the angle of attack while enhancing the evacuation of the particles. The result is an exceptional cutting speed allied with very good performance and life in abrasive materials and concrete block. The bond specification lends additional life when high-speed cutting.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
14 x .110 x 1/20mm	.393"	5460	DUOAB14110	70184684291 4
14 x .125 x 1/20mm	.393"	5460	DUOAB14125	70184684292 1



### For General-Purpose and Masonry Building Materials

DRY – Segmented Rim  

#### NORTON CLIPPER CLASSIC

The improved bond provides longer life at an economical price in medium hard materials such as concrete with light to medium reinforcement.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.275"	6300	COHSGP1220	70184681383 9
14 x .110 x 1/20mm	.275"	5460	COHSGP1420	70184681309 9
14 x .125 x 1/20mm	.275"	5460	COHSGP1420P	70184684268 6
16 x .125 x 1/20mm	.275"	4500	COHSGP1620	70184640356 6



#### NORTON CLIPPER VALUPLUS

For value and performance on small- to medium-size jobs. The sintered blade cuts unreinforced soft-to-medium concrete fast on saws up to 13 HP.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6300	VPHSGP1220	70184684180 1
14 x .110 x 1/20mm	.393"	5460	VPHSGP1420	70184684181 8
14 x .110 x 1/20mm	.393"	5460	VPHSGP1420 20PK	70184684428 4



**Multi-Purpose, For All Materials**

Dry – Segmented Rim  



**NORTON CLIPPER 4x4 MAX CUT**



Taking high-speed cutting versatility to an all new level. The same standard features as the 4X4 with its anti-crack gullets and patented depth indicators that not only cool the blade but also allow the operator to know how deep they are cutting. An all new bond and diamond specification improves blade life in a wide range of materials while excelling in steel. New segment wear indicators give the operator an idea of remaining blade life.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .118 x 1/20mm	.472"	6300	4X4MC12118	70184645927 3
14 x .125 x 1/20mm	.472"	5460	4X4MC14125	70184645926 6



**NORTON CLIPPER 4x4**



Multi-purpose laser welded blade for dry cutting a range of construction materials without sacrificing performance or price. Depth of cut is easily controlled with the patented depth-of-cut indicators cut into the steel core. Anti-crack gullets for enhanced safety cutting steel and metal (up to 5mm thick).

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6300	4X412110	70184684548 9
14 x .125 x 1/20mm	.393"	5460	4X414125	70184684547 2
16 x .125 x 1/20mm	.393"	4500	4X416125	70184645306 6



**NORTON CLIPPER 3x3**



It's everything expected for high-speed cutting when both performance and price are a factor. The laser welded 3X3 cuts concrete, reinforced concrete, asphalt and abrasive building materials and more. High quality diamond increases the speed of cut on a variety of materials without changing blades. Premium blade characteristics and price point where it would take normally multiple sintered blades to achieve.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .118 x 1/20mm	.314"	6300	3X312118	70184647500 6
14 x .118 x 1/20mm	.314"	5460	3X314118	70184647499 3



**TECH TIP**

**High-Speed Hand Saw Blades –  
Maximum Blade Cutting Depths and  
Recommended Operating Speeds**

Note: Diamond blade cutting depths listed are approximate. Actual cutting depth will vary with the exact blade diameter or saw type, or the exact diameter of the blade flanges. Cutting depth will also be reduced if saw components extend below the blade flanges.

BLADE DIAMETER	CUTTING DEPTH	MAXIMUM SPEED (RPM)
12	4	6,300
14	5	5,460
16	6	4,500



It is the user's responsibility to refer to and comply with ANSI B7.1

### For Reinforced Concrete and Harder Building Materials

DRY – Crack Chasing



#### NORTON CLIPPER CHARGER



A heavy V-shaped segment designed with a special bond and diamond content for maximum removal of grout, mortar jointing, crack chasing and crack widening. Fast cutting and long life in abrasive materials using portable tools. Highly competitive to others of its kind in the market.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .375 x 7/8-5/8-20mm	.550"	15000	CGCC0400	70184683856 6
7 x .375 x 7/8-5/8-20mm	.550"	8730	CGCC0700	70184683859 7



### For Asphalt and Abrasive Materials

Dry – Tuck Pointing



#### NORTON CLIPPER CLASSIC



An economical solution for small to medium tuck pointing jobs. High quality performance for heavy grout removal or mortar jointing. The heavy-duty wide segment reduces wear in abrasive materials.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .250 x 7/8-5/8-20mm	.275"	15000	CHTUCK0400	70184681776 9
4-1/2 x .250 x 7/8-5/8-20mm	.275"	13300	CHTUCK0450	70184681777 6
5 x .250 x 7/8-5/8-20mm	.275"	12,225	CHTUCK0500	70184681778 3
7 x .250 x 7/8-5/8-20mm	.275"	8730	CHTUCK0700	70184681779 0
8 x .250 x 7/8-5/8-20mm	.275"	7640	CHTUCK0800	70184681780 6



### For General-Purpose and Masonry Building Materials

Dry – Segmented Rim



#### NORTON CLIPPER CHARGER



High-performance dry cutting of a variety of materials. The segment specification allows extended life and fast cut for medium to large jobs.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.393"	15000	CGDSEG0400	70184681505 5
4-1/2 x .080 x 7/8-5/8-20mm	.393"	13300	CGDSEG0450	076607 04021 3
5 x .080 x 7/8-5/8-20mm	.393"	12,225	CGDSEG0500	70184682851 2
6 x .080 x 7/8-5/8-20mm	.393"	10185	CGDSEG0600	70184683820 7
7 x .090 x DM-7/8-5/8	.393"	8730	CGDSEG0700	07660704020 6
8 x .090 x DM-7/8-5/8	.393"	7640	CGDSEG0800	70184681513 0
9 x .090 x 7/8-5/8"	.393"	6600	CGDSEG0900	70184669483 4



#### NORTON CLIPPER VALUPLUS



For value and performance on small- to medium-size jobs cutting soft abrasive materials like brick and tile. The sintered rim delivers a quality cut and good life.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.275"	15000	VPSEG0400	70184684098 9
4-1/2 x .080 x 7/8-5/8-20mm	.275"	13300	VPSEG0450	70184684099 6
7 x .090 x DM-7/8-5/8	.275"	8730	VPSEG0700	70184684100 9



Dry – Turbo Rim



#### NORTON CLIPPER CHARGER



Combines the characteristics of standard Charger blade with a turbo rim configuration for cutting hard, dense materials with minimal effort. A better bond and diamond concentration for maximum cutting speed, life and quality of cut.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.394"	15000	CGTURB0400	07660705475 3
4-1/2 x .080 x 7/8-5/8-20mm	.394"	13300	CGTURB0450	07660704023 7
5 x .080 x 7/8-5/8-20mm	.394"	12,225	CGTURB0500	70184682853 6
6 x .080 x 7/8-5/8-20mm	.394"	10185	CGTURB0600	70184683821 4
7 x .090 x DM-7/8-5/8	.394"	8730	CGTURB0700	07660704022 0
8 x .090 x DM-7/8-5/8	.394"	7640	CGTURB0800	70184681512 3



### For Natural Stone and Tiles

Dry – Continuous Rim



#### NORTON CLIPPER CLASSIC



An economical solution for small- to medium-size jobs cutting softer ceramic tile and stone materials with efficient cutting ability.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.275"	15000	CON4DT	07660702793 1
4-1/2 x .080 x 7/8-5/8-20mm	.275"	13300	CON45DT	07660701194 7
7 x .090 x DM-7/8-5/8	.275"	8730	CON7DT	07660702788 7



# DIAMOND BLADES – WALK-BEHIND SAWS

## For Reinforced Concrete and Harder Building Materials

WET – Medium Aggregates

### NORTON CLIPPER CHARGER

The steel core is designed to keep the cut straight while the .410" segment height prolongs cutting wear. Suitable for cutting medium aggregates with up to 35 HP flat saws.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.410"	4365	35hp	CGWCMD1412	70184681366 2
18 x .125 x 1	.410"	3395	35hp	CGWCMD1812	70184681368 6

### NORTON CLIPPER CLASSIC

Laser welded blade at an economical price for general purpose cutting of cured concrete, medium hard aggregate and no steel reinforcement. The bond and diamond combination allow fast cutting action on limited horse powered flat saws.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.326"	4365	35hp	CHWCGP1412	70184681359 4
18 x .125 x 1	.326"	3395	35hp	CHWCGP1812	70184681361 7



## For Asphalt and Abrasive Materials

DRY – Green/Cured Concrete

### NORTON CLIPPER GMAX – MULTI-PURPOSE

Designed specifically for our GC55/GC25E down-cut green concrete push saw, the GMAX Multi-Purpose blade is excellent in both green and cured concrete. The unique segment specification and anchor slot gullet allows this blade to be used in a variety of applications with outstanding results.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
8 x .095 x 7/8-5/8	.295"	8730	6hp	NXDGRN0895	70184683758 3
9 x .110 x 7/8-5/8	.295"	6600	6hp	EE9110	70184675125 4
10 x .110 x 1-7/8-5/8	.295"	6115	6hp	EE10110	70184684508 3



WET – Asphalt

### NORTON CLIPPER CHARGER

For large road and construction jobs with saws up to 35 HP. Higher diamond content increases productivity and offers faster cutting and longer life in asphalt and green concrete applications.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.326"	4365	35hp	CGWASP1412	70184681478 2
18 x .125 x 1	.326"	3395	35hp	CGWASP1812	70184681479 9



### NORTON CLIPPER CLASSIC

An economical choice for fast cutting and good life when performing jobs in a variety of abrasive materials such as green concrete and asphalt on saws up to 35 HP.

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.326"	4365	35hp	CHWASP1412	70184681375 4
18 x .125 x 1	.326"	3395	35hp	CHWASP1812	70184681376 1



## TECH TIP

### Walk-Behind Saw Blades – Maximum Blade Cutting Depths and Recommended Operating Speeds

Note: Diamond blade cutting depths listed are approximate. Actual cutting depth will vary with the exact blade diameter or saw type, or the exact diameter of the blade flanges. Cutting depth will also be reduced if saw components extend below the blade flanges.

BLADE DIAMETER	CUTTING DEPTH	IDEAL SPEED (RPM)	MAXIMUM SPEED (RPM)
8"	2"	4,536	7,640
9"	2-1/2"	2,640	6,600
10"	3"	2,446	6,115
14"	4-5/8"	2,592	4,365
18"	6-5/8"	2,016	3,395




It is the user's responsibility to refer to and comply with ANSI B7.1





Norton cup grinders are available in a range of specifications and diameters providing a solution for a number of applications in the building and construction industry. There are many benefits to diamond grinding. It's very fast, low-cost and creates little noise compared to other concrete cutting options. It has become a very popular choice in the commercial construction and DIY home improvement industries.

Applications: Used on right angle grinders to grind concrete, stone and masonry materials.  
 Size Range: 4" – 7"  
 Segment Height Range: .177", .210"  
 Abrasive Grain: Diamond  
 Mounting Options: 5/8"-11 attachment optimized for all popular angle grinders, 7/8-5/8"-20mm  
 Options: Standard – single row or double row available  
 iHD (Infiltrated High-Density) has thicker body, larger ventilation holes for better cooling  
 Machines Used: 

### General-Purpose and Masonry Building Materials

Dry – Cup Grinder  

#### NORTON CLIPPER 3X3 WITH IHD TECHNOLOGY

The Norton 3X3 cup grinder ensures very high material removal rate, extreme comfort while working without vibrations and a self-sharpening feature. These new iHD cups offer the best finishing and longest life even on softer, more abrasive materials.

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4" x 5/8"-11	.177	15,000	3X3CG0400	70184601763
5" x 5/8"-11	.177	12,225	3X3CG0500	70184601766
7" x 5/8"-11	.177	8,730	3X3CG0700	70184601769

#### NORTON CLIPPER CHARGER WITH IHD TECHNOLOGY

The Norton Charger cup grinder ensures a high material removal rate and more comfortable work. These new iHD cups provide a better finish and long life on a wide range of materials.

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4" x 5/8"-11	.177	15,000	CGCG0400	70184601762
5" x 5/8"-11	.177	12,225	CGCG0500	70184601765
7" x 5/8"-11	.177	8,730	CGCG0700	70184601768

#### NORTON CLIPPER CLASSIC WITH IHD TECHNOLOGY

The Norton Classic cup grinder provides efficient material removal rate thanks to the small contact surfaces of the segments. The cups also have flat sides to avoid damaging walls or ceilings during flush grinding.

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4" x 5/8"-11	.177	15,000	CCCG0400	70184601761
5" x 5/8"-11	.177	12,225	CCCG0500	70184601764
7" x 5/8"-11	.177	8,730	CCCG0700	70184601767

#### NORTON CLIPPER CLASSIC

Available in a range of sizes and segment designs for optimum performance by life or by speed. Ideal for levelling all types of masonry materials, brick, block, concrete and stone. Strategically placed hole designs help ventilate dust from the surface to extend the life of the cups.

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
<b>Single Row for Fast Stock Removal</b>				
4 x 7/8-5/8-20mm	.210"	15,000	CHSCPH0400	70184682585 6
5 x 7/8-5/8-20mm	.210"	12,225	CHSCPH0500	70184684035 4
7 x 7/8-5/8-20mm	.210"	8,730	CHSCPH0700	70184682594 8
4 x 5/8"-11	.210"	15,000	CHSCPT0400	70184682555 9
5 x 5/8"-11	.210"	12,225	CHSCPT0500	70184684036 1
7 x 5/8"-11	.210"	8,730	CHSCPT0700	70184682593 1
<b>Double Row for Long Life, Smooth Finish</b>				
4 x 7/8-5/8-20mm	.210"	15,000	CHDCPH0400	70184682588 7
5 x 7/8-5/8-20mm	.210"	12,225	CHDCPH0500	70184684037 8
7 x 7/8-5/8-20mm	.210"	8,730	CHDCPH0700	70184682596 2
4 x 5/8"-11	.210"	15,000	CHDCPT0400	70184682586 3
5 x 5/8"-11	.210"	12,225	CHDCPT0500	70184684038 5
7 x 5/8"-11	.210"	8,730	CHDCPT0700	70184682595 5



### Accessories

#### VACUUM SHROUD KIT

The Vacuum Shroud's design creates a cyclonic affect extracting dust and debris from the work surface into the support vacuum. This prolongs the life of the grinding cup and grinder and provides a smoother surface while decreasing the chance of dust particle inhalation.

#### DESCRIPTION

Kit includes: one shroud, five different adapter rings to fit most popular right angle grinders, and one 7" Norton Classic single row cup wheel

UPC #  
70184641039 7



Core bits are cutting tools used to remove a cylindrically shaped piece of material. A core drill is designed to cut a hole and remove a core sample or to drill a hole without leaving material behind. Diamond core bits have diamond cutting tips and are frequently used for drilling in materials such as concrete, stone, and asphalt.

Applications: Used on core drills in materials such as concrete, stone and other hard materials  
Size Range: 2" – 10"  
Segment Height Range: .254", .393"  
Abrasive Grain: Diamond  
Mounting Options: 1-1/4"-7 threads  
Machines Used:



## Reinforced Concrete and Harder Building Materials

WET – Hard Aggregates 

### NORTON CLIPPER PARADIGM

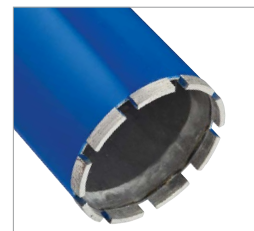
Premium diamond of the turbo segment permits the core to penetrate quickly and efficiently into the toughest cured concrete, for significantly increased performance. The 14" tube length with 1-1/4"-7 threads fits a wide range of core drill mounting arbors.

SIZE IN INCHES	SIZE IN MM	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
2"	51mm	.393" (10mm)	2000	PDBIT0200	70184601410
2-1/2"	64mm	.393" (10mm)	1300	PDBIT0250	70184601411
3"	76mm	.393" (10mm)	1300	PDBIT0300	70184601412
3-1/2"	89mm	.393" (10mm)	1300	PDBIT0350	70184601413
4"	102mm	.393" (10mm)	1000	PDBIT0400	70184601414
4-1/2"	114mm	.393" (10mm)	800	PDBIT0450	70184601415
5"	127mm	.393" (10mm)	800	PDBIT0500	70184601416
6"	152mm	.393" (10mm)	665	PDBIT0600	70184601417
7"	178mm	.393" (10mm)	600	PDBIT0700	70184601418
8"	203mm	.393" (10mm)	500	PDBIT0800	70184601419
10"	254mm	.393" (10mm)	400	PDBIT1000	70184601706

### NORTON CLIPPER CLASSIC

Economical choice for use in harder concrete with heavy reinforcement and masonry materials with good performance.

SIZE IN INCHES	SIZE IN MM	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
2"	51mm	.254"	2,000	CHBIT0200	70184682762 1
3"	76mm	.254"	1,300	CHBIT0300	70184682765 2
4"	102mm	.254"	1,000	CHBIT0400	70184682767 6
6"	152mm	.254"	665	CHBIT0600	70184682771 3
8"	203mm	.254"	500	CHBIT0800	70184682773 7
10"	254mm	.254"	400	CHBIT1000	70184682774 4



## TECH TIP

Core Bits – Minimum and Maximum Recommended Operating Speeds

BIT DIAMETER	MINIMUM RPM	IDEAL SPEED (RPM)	MAXIMUM RPM
1"	2,400	3,200	4,000
2"	1,200	1,600	2,000
3"	800	1,050	1,300
4"	600	800	1,000
5"	475	640	800
6"	400	530	665
7"	340	450	600
8"	300	400	500
10"	240	320	400

Note: For half inch increments, go to the next larger bit diameter.



It is the user's responsibility to refer to and comply with ANSI B7.1



### High-Speed Gas Saws

No more pre-mixing oil and fuel – the patented iLube option automatically controls mixing for maximum efficiency, and the saw drops to idle speed when the oil is low – eliminating possible machine damage

### Walk-Behind Saws

Proven, robust and functional for ideal user comfort. The professionals' choice for outstanding walk behind cutting performance, wet or dry.

### Masonry Saws

Norton introduced the first masonry saw over 70 years ago and they have become the industry standard for masons worldwide.

For the full line of quality Norton equipment, please contact your local Norton sales representative

## High-Speed Gas Saws

### NORTON CLIPPER CP500 SERIES HIGH-SPEED SAWS

The Norton Clipper CP500 high-speed cut-off saw might be new to the market, but it's destined to be an asset on any crew. It's fully designed with the user in mind to not only cut a smooth, fast track, but it's also fully equipped to handle the everyday performance of any jobsite with unrelenting durability and reliability. Select a standard model or upgrade to the world's first patented automatic lubrication system, Norton iLube.

The patented iLube option automatically controls mixing of oil and fuel for maximum efficiency. An electronic sensor will indicate a low oil level and adjust the engine to idle to prevent engine damage.

DESCRIPTION	SHAFT RPM	PART #	UPC #
12" Standard High-Speed Cut-Off Saw	4500	CP512-300	70184647559 4
12" iLube High-Speed Cut-Off Saw	4500	CP512-300i iLube	70184647561 7
14" Standard High-Speed Cut-Off Saw	4500	CP514-350	70184647563 1
14" iLube High-Speed Cut-Off Saw	4500	CP514-350i iLube	70184647565 5

### ACCESSORIES

High-Speed Saw Wheel Kit	00510109845 1
High-Speed Saw Tool Kit	00510109846 8



## Walk-Behind Push Saws



### NORTON CLIPPER GC55 EARLY ENTRY/GREEN SAW

With a compact, light-weight design backed by the reliable Honda 5HP gasoline engine, the GC55 early entry saw is intended for a variety of applications. From green, cured or decorative concrete cutting to expansion joints, the features of this small push saw are hard to beat in a single saw. The low, wide profile of the frame, along with the front mount blade, contribute to producing a more disciplined cut.

UPC #	MOTOR	WEIGHT	GUARD
70184630005 6	Honda GX160	115 lbs	10"



### NORTON CLIPPER C1318P GASOLINE SAW

The next generation of 13HP saws. The C1318P features shock-absorbing handle bars. The new sleek design of the water tank, with increased capacity and improved securing, adds an additional 1.5 gallons of water over the cut. And, a newly-designed belt tensioning system helps keep the saw cutting true and true. All these features, coupled with the Honda 13HP engine, make the C1318P the premiere choice for rental and service work.

UPC #	MOTOR	WEIGHT	GUARD
70184642453 0	Honda GX390	220 lbs	18"



### NORTON CLIPPER C13PE GASOLINE SAW

Rental equipment has to withstand any and all conditions by user and application. For that reason, the Norton Clipper C13PE or CP14PE suits any rental fleet that both the novice and expert will appreciate to hold-up through tough situations. The 18" blade guard, ride-on water system and quick-release blade guard lock all keep safety in mind while the rugged frame, powerful engine and easy-to-use console makes cutting a breeze.

UPC #	MOTOR	WEIGHT	GUARD
70184647524 2	Honda GX390	220 lbs	18"



## Large Masonry Saws

### NORTON CLIPPER BBL BLOCKBUSTER LARGE MASONRY SAWS

Having introduced the first masonry saw over 70 years ago, the Norton Clipper BBL heavy-duty block saws have become the industry standard for masons worldwide. These models are equipped with single-phase electric motor and come with a blade capacity of 14" or 20". Extended water pan and open back frame allow cutting of larger materials. The balanced cutting head makes for effortless cutting depth positioning. Having a rugged all-steel frame design with forklift brackets allows these saws to resist twisting and damage during transport around a job site.

For other sizes and horsepower machines, or for gasoline-powered versions, contact your Norton sales representative.

DESCRIPTION	HP	PART #	UPC #
BBL547 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	5	BBL547	70184683211
BBL527 Blockbuster Saw with Baldor electric motor; 20" blade guard capacity	5	BBL527	70184683150
ACCESSORIES			
Electric Water Pump – PE-1			70184668392
Conveyor Cart Replacement for BBL			00310007390



Electric Water Pump



Conveyor Cart Replacement



## Compact Masonry Saws

### NORTON CLIPPER BBC BLOCKBUSTER COMPACT MASONRY SAWS

Combines the performance of a full size masonry saw with the convenience of portability. Also available in gas or electric versions, the BBC saws have a rugged jig-welded frame, durable enough for even the heaviest work load. Standard rear wheel dolly design and removable legs make transport and set-up easy.

For other sizes and horsepower machines, or for gasoline-powered versions, contact your Norton sales representative..

DESCRIPTION	HP	PART #	UPC #
BBC157 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	1.5	BBC157	70184682488
BBC207 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	2	BBC207	70184682501
BBC207 Blockbuster Saw with Baldor electric motor; 20" blade guard capacity	3	BBC307	70184630011
BBC547 Blockbuster Saw with Honda gasoline motor; 14" blade guard capacity	5.5	BBC547	70184682175
BBC507 Blockbuster Saw with Honda gasoline motor; 20" blade guard capacity	5.5	BBC507	70184630012
ACCESSORIES			
Electric Water Pump – PE-1			70184668392
Conveyor Cart Replacement for BBC			00310007367



## Mini Masonry Saws

### NORTON CLIPPER BBM BLOCKBUSTER MINI MASONRY SAWS

The innovative design of these small masonry saws has been copied many times due to its compact, all-steel unibody construction, giving the best weight-to-strength distribution. A 14" blade capacity and ergonomically-designed, three-position locking, cutting head provides a safe, clear view of the work area. Whether your choice is the 3HP brush motor or the 1.5HP induction motor for heavier commercial use, both come with features such as overload protection, garden hose connection and a channeled-flow water pan to direct dust and slurry away from the operator.

DESCRIPTION	HP	PART #	UPC #
Blockbuster Mini Masonry Saw with AC universal motor; gear drive	3	BBM307	70184600684
Blockbuster Mini Masonry Saw with Induction motor; belt drive	2	BBM158	70184626327
ACCESSORIES			
Vacuum Adaptor Kit (includes: back splash, adaptor and hardware)			70184600753
Wet Kit			70184600704
Stand			70184600691



Wet Kit



Stand



All saws on this page come equipped with genuine Norton diamond blades.



# we've got you covered **FROM DIY TO TOOLCRIB TO PRODUCTION FLOOR**

Our bench wheels keep your tools sharp and productive. Reach tight spots with our mounted points, and produce sharp edges with our sharpening stones.



## **Never a Dull Moment**

Our bench and pedestal wheel line answers all your metal removal, deburring, shaping and sharpening needs, for high-speed tool steels to non-ferrous metals.



## **An All-Points Bulletin**

Rely on A-shaped mounted points for medium-to heavy-duty blending; B shapes for light deburring and blending; W shapes for offhand and precision medium- to heavy-duty grinding.



## **Sharpen Your Reputation**

Whether you are filing, honing, sharpening or edge finishing... Norton benchstones, files, slips, and specialty stones will get the job done, fast.



The Norton bench and pedestal wheel line consists of numerous wheel diameters and arbor sizes, abrasive types and grit sizes. Our offering answers all metal removal, deburring, shaping and sharpening needs: white aluminum oxide for high-speed tool steels, brown aluminum oxide for carbon steel, and silicon carbide for non-ferrous metals and carbide tooling.

Applications: Offhand deburring and sharpening of parts and tools  
 Size Range: 5" – 18"  
 Grit Range: 24 – 150  
 Abrasive Types: Aluminum Oxide (Alundum), Silicon Carbide (Crystolon)  
 Bushings: Telescopic arbor bushings to fit all popular grinders are packaged with the wheel  
 Machine Used:



## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)				FINER (FINISHING)		
24	36	46	60	80	100	150
Heavy Stock Removal		Medium Stock Removal	Light Stock Removal	Deburring/Shaping	Sharpening	Final Finishing

## PREMIUM WHITE ALUMINUM OXIDE



**BETTER CHOICE FOR LIGHT METAL REMOVAL AND SHARPENING OF HIGH-SPEED TOOL STEELS (55 RC AND HIGHER)**

### FEATURES

- White aluminum oxide in a premium vitrified bond

### BENEFITS

- Maximum cut rate and cool grinding action on hardened or high-speed tool steels

## NORTON 57A ALUMINUM OXIDE & 39C SILICON CARBIDE



**BETTER CHOICE FOR END USER THAT NEEDS SPECIFIC GRIT SIZE AND HARDNESS FOR ENGINEERED APPLICATIONS**

### FEATURES

- High quality aluminum oxide or silicon carbide abrasive in a premium vitrified bond system

### BENEFITS

- Precision engineered grit size and hardness to maximize cut rate, finish and wheel life
- 57A for ferrous metals: 39C for nonferrous materials

## NORTON GEMINI ALUMINUM OXIDE



**GOOD CHOICE FOR ALL GENERAL-PURPOSE BENCH AND PEDESTAL APPLICATIONS**

### FEATURES

- Quality, brown aluminum oxide

### BENEFITS

- Economical prices; ideal for small job shops and numerous general-purpose applications

## NORTON GEMINI SILICON CARBIDE



**GOOD CHOICE FOR ALL GENERAL-PURPOSE BENCH AND PEDESTAL APPLICATIONS ON NONFERROUS MATERIALS AND CARBIDE TOOLING**

### FEATURES

- Sharp, green silicon carbide

### BENEFITS

- Economical prices; ideal for small job shops and numerous general-purpose applications



TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **PREMIUM ALUNDUM**  
 ABRASIVE: White Aluminum Oxide



TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **57A**  
 ABRASIVE: Brown Aluminum Oxide



TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **GEMINI ALUNDUM**  
 ABRASIVE: Brown Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./ STD. PKG.	SPEC	PART #	MIN./ STD. PKG.	SPEC	PART #	MIN./ STD. PKG.	SPEC	PART #
5 x 1/2 x 1	4,965							1/5	Medium 60/80	07660788202
	4,965							1/5	Fine 100/120	07660788201
5 x 3/4 x 1	4,965							1/5	Coarse 36/46	07660788215
	4,965							1/5	Medium 60/80	07660788210
5 x 1 x 1	4,965							1/5	Fine 100/120	07660788205
	4,965							1/5	Coarse 36/46	07660788230
6 x 1/2 x 1	4,965							1/5	Medium 60/80	07660788225
	4,140							1/5	Coarse 36/46	66252836132
6 x 3/4 x 1	4,140							1/5	Medium 60/80	66252836131
	4,140							1/5	Fine 100/120	66252836133
6 x 1 x 1	4,140	1/5	Medium 60	07660788246				1/5	Coarse 36/46	07660788245
	4,140	1/5	Fine 100	07660788247				1/5	Medium 60/80	07660788240
6 x 1 x 1	4,140	1/5	Very Fine 150	07660788248				1/5	Fine 100/120	07660788235
	4,140	1/5	Medium 60	07660788261				1/5	Coarse 36/46	07660788260
7 x 1 x 1	4,140	1/5	Fine 100	07660788262				1/5	Medium 60/80	07660788255
	4,140	1/5	Very Fine 150	07660788263				1/5	Fine 100/120	07660788250
8 x 3/4 x 1	3,600							1/5	Coarse 36/46	07660788275
	3,600							1/5	Medium 60/80	07660788270
8 x 1 x 1	3,600							1/5	Fine 100/120	07660788265
	3,600							1/5	Coarse 36/46	07660788278
8 x 1 x 1	3,600							1/5	Medium 60/80	07660788277
	3,600							1/5	Fine 100/120	66253042317
8 x 1 x 1	3,600	1/5	Medium 60	07660788281				1/5	Very Coarse 24	66253044454
	3,600	1/5	Fine 100	07660788282				1/5	Coarse 36/46	07660788286
10 x 1 x 1-1/4	3,600	1/5	Very Fine 150	07660788283				1/5	Medium 60/80	07660788285
	3,600							1/5	Fine 100/120	07660788280
10 x 1 x 1-1/4	2,485				1/5	57A46-MVBE	66253116274	1/2	Very Coarse 24	66253160788
	2,485				1/5	57A60-MVBE	66253116273	1/2	Coarse 36/46	07660788295
10 x 1-1/4 x 1-1/4	2,485							1/2	Medium 60/80	07660788290
	2,485							1/2	Fine 100/120	66253160350
10 x 1-1/2 x 1-1/4	2,485							1/2	Coarse 36/46	66253161250
	2,485							1/2	Medium 60/80	66253161251
12 x 1 x 1-1/4	2,070				1/5	57A46-MVBE	66253116280	1/2	Coarse 36/46	66253161393
	2,070							1/2	Medium 60/80	66253161395
12 x 1-1/2 x 1-1/2	2,070							1/2	Coarse 36/46	66253263052
	2,070							1/2	Medium 60/80	66253263053
12 x 2 x 1-1/2	2,070				1/4	57A30-MVBE	66253220951	1/2	Very Coarse 24	66253263054
	2,070				1/4	57A36-QVBE	66253220952	1/2	Coarse 36/46	66253263055
14 x 2 x 1-1/2	2,070				1/4	57A46-MVBE	66253220953	1/2	Medium 60/80	66253263056
	2,070				1/4	57A60-MVBE	66253220955			
14 x 2 x 1-1/2	1,800				1/3	57A24-QVBE	66253319972			
	1,800				1/3	57A36-QVBE	66253319973			
14 x 2-1/2 x 1-1/2	1,800				1/3	57A46-MVBE	66253319974			
	1,800				1/2	57A24-QVBE	66253319976			
14 x 3 x 1-1/2	1,800				1/2	57A46-MVBE	66253319975			
	1,800				1/2	57A36-QVBE	66253319977			
18 x 3 x 1-1/2	1,275				1/2	57A24-QVBE	66253462610			



TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **39C (GREEN) / 37C (GRAY)**  
ABRASIVE: Silicon Carbide



TIER: **GOOD**  
BRAND: Norton  
TRADENAME: **GEMINI CRYSTOLON**  
ABRASIVE: Green Silicon Carbide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC	PART #	MIN./STD. PKG.	SPEC	PART #
6 x 1/2 x 1	4,140				1/5	Medium 60	66252836571
	4,140				1/5	Fine 80	66252836572
	4,140				1/5	Extra Fine 120	66252836573
6 x 3/4 x 1	4,140				1/5	Medium 60	66252837190
	4,140				1/5	Fine 80	66252837191
	4,140				1/5	Extra Fine 120	66252837192
6 x 1 x 1	4,140				1/5	Medium 60	66252837187
	4,140				1/5	Fine 80	66252837193
	4,140				1/5	Extra Fine 120	66252837194
7 x 1 x 1	3,600				1/5	Medium 60	66252942300
	3,600				1/5	Fine 80	66252942301
	3,600				1/5	Extra Fine 120	66252942302
8 x 1 x 1	3,600				1/5	Medium 60	66253044087
	3,600				1/5	Fine 80	66253044534
	3,600				1/5	Extra Fine 120	66253044535
10 x 1 x 1-1/4	2,485	1/5	39C60-IVK	66253116262	1/2	Medium 60	66253144536
	2,485				1/2	Fine 80	66253160366
10 x 1-1/2 x 1-1/4	2,485	1/5	39C60-IVK	66253116265			
12 x 2 x 1-1/4	2,070				1/2	Medium 60	66253263359
	2,070				1/2	Fine 80	66253263360
12 x 2 x 1-1/2	2,070	1/4	39C60-KVK	66253220942			
14 x 2 x 1-1/2	1,800	1/3	37C24-RVK	66253319967			
	1,800	1/3	39C60-JVK	66253319968			

## Bench and Pedestal Wheel Arbor Bushings

WHEEL DIAMETER	WHEEL CENTER HOLE	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"
5", 6", 7"	1"	•	•	•	•		
8"	1"		•	•	•		
10"	1-1/4"			•	•	•	
12" x 2"	1-1/4"					•	
12" and 14"	1-1/2"					•	•

*These size bushings shipped free of charge with your wheel order.*

## TECH TIP

- Unsecured machines can move, causing grinding breakage and injury. Fixed-based bench and pedestal grinders **MUST** be secured.
- Do not grind wood, plastic, or any other non-metallic material on a bench or pedestal grinder.
- All bench and pedestal wheels must be dressed to prevent loading. Loading can cause excessive heat, damage to the workpiece, and wheel breakage. Dressing exposes new cutting edges and provides chip clearance.
- Recommended starting dressing stick: 1 x 1 x 6 37C24-SVK Part # 61463610462.



It is the user's responsibility to refer to and comply with ANSI B7.1

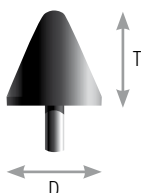
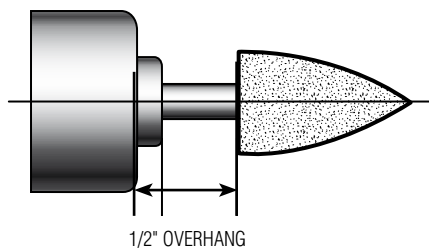




Resin bond, vitrified bond, center lap, and cotton fiber mounted points are available in a wide range of shapes.

Industries:	Aerospace Tool and Die Construction Metal Fabrication Automotive Cutlery Mold Shops Stainless Steel Equipment Foundries
Abrasive Grain:	Ceramic Alumina, Zirconia Alumina, Zirconia Alumina/Aluminum Oxide Blend, Aluminum Oxide
Shape Availability:	A, B, and W
Machine Used:	 

## MEASUREMENT GUIDE



### Description of Overhang

Overhang is the distance between the grinder chuck and the abrasive on the spindle. The larger the overhang, the lower the maximum safe operating speed.

### Size

Measured by diameter (D) x thickness (T)

## FEATURED PRODUCTS



## COTTON FIBER ALUMINUM OXIDE - RESIN BOND

### GOOD FOR BLENDING AND POLISHING

#### FEATURES

- 80 grit
- 120 grit

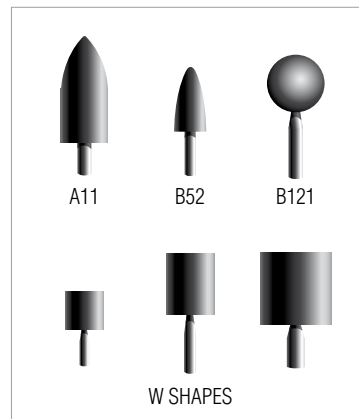
#### BENEFITS

- For most materials
- For polishing and stainless steel applications

TIER: <b>GOOD</b>						
BRAND: Norton						
TRADENAME: <b>COTTON FIBER</b>						
ABRASIVE: Aluminum Oxide						
SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #
<b>Cotton Fiber Mounted Points</b>						
A11	7/8 x 2	1/4	19,860	5/25	A80-HBF3	61463622664
B52	3/8 x 3/4	1/8	45,370	5/25	A120-HBF3	61463620242
B121	1/2" Ball	1/8	45,370	5/25	A80-HBF3	61463622657
W163	1/4 x 1/2	1/8	60,000	5/25	A80-HBF3	61463622655
			60,000	5/25	A120-HBF3	61463622656
W176	3/8 x 1/2	1/8	45,370	5/25	A80-HBF3	61463622654
W185	1/2 x 1/2	1/8	34,500	5/25	A80-HBF3	61463622649
W187	1/2 x 1	1/8	20,620	5/25	A80-HBF3	61463622651
W220	1 x 1	1/4	25,500	5/25	A80-HBF3	61463622646

† Spindle length is 1-1/2"

\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.



## CENTER LAP ALUMINUM OXIDE - VITRIFIED BOND

FOR EXCELL-O CENTER LAP AND SIMILAR MACHINES

### FEATURES & BENEFITS

- Specially formulated wheel treatment (#5 wood resin) adds lubricity to the wheel, minimizing risk of metallurgical damage
- Larger diameter spindle for minimum deflection, rigid support
- Precise dimensional tolerances ensure accurate location of part centers

TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **CENTER LAP**  
 ABRASIVE: Aluminum Oxide

SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #
<b>Center Lap Mounted Points</b>						
—	1/2 x 2**	1/2	65,000	5/25	A80-VVM	61463621421
—	1 x 2**	1/2	15,900	5/25	A80-VVM	61463622926

† Spindle length is 1-1/4"

\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.

\*\* Pointed 60°

### TECH TIP

Dress the center lap mounted points frequently to ensure accurate and smooth center holes.



It is the user's responsibility to refer to and comply with ANSI B7.1

## NORTON NORZON ZIRCONIA ALUMINA – RESIN BOND

BEST CHOICE FOR FAST STOCK REMOVAL

### FEATURES & BENEFITS

- NZ (NorZon) zirconia alumina self-sharpening abrasive and durable organic bond provide 2X faster stock removal than competitive aluminum oxide products, while lasting 4X longer

## NORTON CHARGER Z/A & A/O BLEND – RESIN BOND

BETTER CHOICE FOR FAST STOCK REMOVAL AND LONG LIFE

### FEATURES & BENEFITS

- Zirconia alumina/aluminum oxide abrasive blend provides 35% faster cut rate than standard aluminum oxide mounted points
- An aggressive, free cut cleans more parts in less time to substantially increase productivity
- Specially formulated organic bond for 2X greater life than ordinary aluminum oxide mounted points, with reduced vibration and wheel chatter
- Charger mounted point pre-packed in small packages are ideal for vending machines, pegboards, small jobs, and carrying to job site

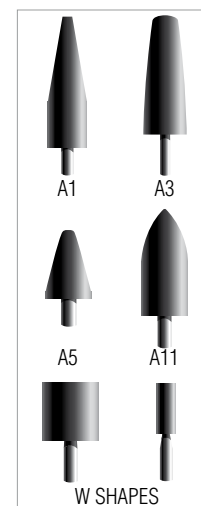
TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **NORZON**  
 ABRASIVE: Zirconia Alumina

SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
<b>Resin Bond Mounted Points</b>								
A1	3/4 x 2-1/2	1/4	19,800	5/25	NZ24-UBXR1	61463616457	Charger	61463616458
A3	1 x 2-3/4	1/4	16,100	5/25	NZ24-UBXR1	61463616459	Charger	61463616460
			16,100	2 V			Charger	66253325924
A5	3/4 x 1-1/8	1/4	45,000	5/25			Charger	61463616462
			45,000	5 V			Charger	66253325926
A11	7/8 x 2	1/4	19,860	5/25	NZ24-UBXR1	61463616463	Charger	61463616464
W189	1/2 x 2	1/4	24,000	5/25	NZ24-UBXR1	61463616465	Charger	61463616466
			24,000	5 V			Charger	66253325928
W197	5/8 x 2	1/4	21,000	5/25	NZ24-UBXR1	61463616467		
W207	3/4 x 1-1/2	1/4	24,000	5/25			Charger	61463616470
W208	3/4 x 2	1/4	18,750	5/25	NZ24-UBXR1	61463616471	Charger	61463616472
W220	1 x 1	1/4	25,500	5/25	NZ24-UBXR1	61463617520	Charger	61463617521
			25,500	5 V			Charger	66253325930
W221	1 x 1-1/2	1/4	19,120	5/25	NZ24-UBXR1	61463616473	Charger	61463616474
W222	1 x 2	1/4	15,900	5/25	NZ24-UBXR1	61463616475	Charger	61463616476

† Spindle length is 1-1/2"

\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.

V = Vendible package. Ideal for vending machines and small jobs. Min. Pkg. Qty = number of mounted points per vendible pack. Order in multiples of min qty.



## NORTON QUANTUM CERAMIC ALUMINA – VITRIFIED BOND

### BEST CHOICE FOR HIGH VOLUME OPERATIONS

#### FEATURES

- Unique, engineered ceramic grain shape and chemistry with proven bond technology

#### BENEFITS

- Ideal for high-volume foundry operations – grinding Inconel and similar alloy turbine blade components
- Minimal loading and heat build-up
- 33% + longer life versus competitive ceramic products
- 30% + higher metal removal rates
- Versatile, optimized for all low-, medium- and high-force applications
- Exceptional productivity and life
- Specifically engineered to efficiently grind the carbide matrix material of oil field drill heads



## NORTON GEMINI ALUMINUM OXIDE– VITRIFIED BOND

### GOOD VALUE FOR GENERAL PURPOSE, SMALL JOB SHOP APPLICATIONS

#### FEATURES

- 38A abrasive
- Diverse shapes and sizes

#### BENEFITS

- Cool cutting, less burn
- Ideal when initial price is the main purchasing consideration

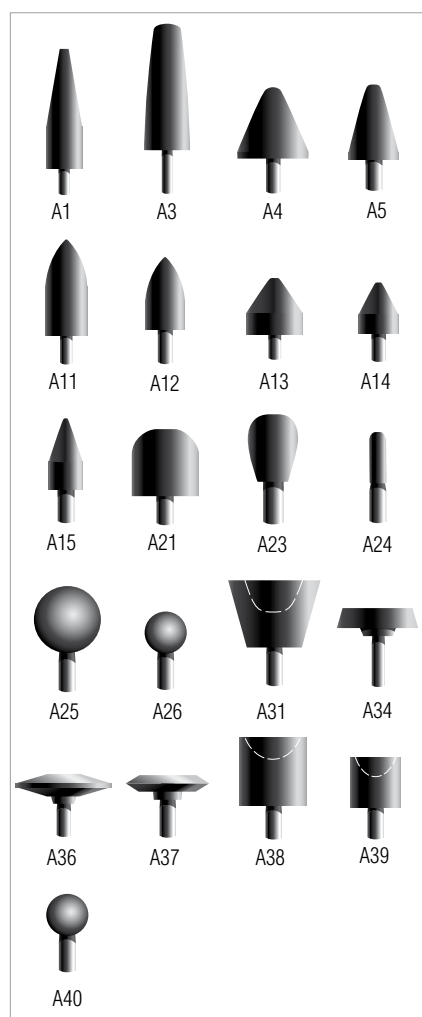


TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>QUANTUM</b>	<b>GEMINI</b>
ABRASIVE:	Ceramic Alumina	38A Aluminum Oxide

SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
<b>Vitrified Bond Mounted Points – A Shapes</b>								
A1	3/4 x 2-1/2	1/4	19,800	25/250	Oil & Gas 36	61463686139		
A1	3/4 x 2-1/2	1/4	19,800	5/25	3NQ80	69083149139	38A36-T	61463624374
A1	3/4 x 2-1/2	1/4	19,800	5/25			38A60-P	61463624375
A3	1 x 2-3/4	1/4	16,100	25/250	Oil & Gas 36	61463686138		
A3	1 x 2-3/4	1/4	16,100	5/25			38A36-T	61463624377
A3	1 x 2-3/4	1/4	16,100	5/25			38A60-P	61463624378
A4	1-1/4 x 1-1/4	1/4	30,560	5/25			38A60-P	61463624380
A5	3/4 x 1-1/8	1/4	45,000	5/25	3NQ80	69083149140	38A36-T	61463624381
A5	3/4 x 1-1/8	1/4	45,000	5/25			38A60-P	61463624382
A11	7/8 x 2	1/4	19,860	5/25	3NQ80	69083149141	38A36-T	61463624384
A11	7/8 x 2	1/4	19,860	5/25			38A60-P	61463624385
A12	11/16 x 1-1/4	1/4	48,000	5/25	3NQ60	61463677679	38A60-P	61463624388
A13	1-1/8 x 1-1/8	1/4	33,950	5/25			38A60-P	61463624389
A14	11/16 x 7/8	1/4	55,560	5/25			38A60-P	61463624390
A15	1/4 x 1-1/16	1/4	72,750	5/25			38A60-P	61463624391
A21	1 x 1	1/4	34,500	5/25	3NQ80	69083149144	38A60-P	61463624392
A23	3/4 x 1	1/4	39,370	5/25	3NQ80	69083149143	38A60-P	61463624394
A24	1/4 x 3/4	1/4	76,500	5/25			38A60-P	61463624395
A25	1" Ball	1/4	35,620	5/25	3NQ80	61463677680	38A60-P	61463624396
A26	5/8" Ball	1/4	61,120	5/25	3NQ80	69083149145	38A60-P	61463624397
A31	1-3/8 x 1	1/4	27,780	5/25			38A60-P	61463624399
A34	1-1/2 x 3/8	1/4	25,470	5/25			38A60-P	61463624402
A36	1-5/8 x 3/8	1/4	23,520	25/250	Oil & Gas 36	66253145562		
A36	1-5/8 x 3/8	1/4	23,520	5/25	3NQ80	69083149146	38A60-P	61463624404
A37	1-1/4 x 1/4	1/4	30,560	5/25			38A60-P	61463624405
A38	1 x 1	1/4	34,500	5/25	3NQ80	61463677682	38A60-P	61463624406
A39	3/4 x 3/4	1/4	47,250	5/25	3NQ80	69083149147	38A60-P	61463624407
A40	3/4" Ball	1/4	47,250	5/25			38A60-P	61463624408

† Standard spindle size is 1/4" x 1-1/2"

\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.



TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>QUANTUM</b>	<b>GEMINI</b>
ABRASIVE:	Ceramic Alumina	38A Aluminum Oxide

SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
<b>Vitrified Bond Mounted Points – B Shapes</b>								
B41	5/8 x 5/8	1/8	33,570	5/25			38A60-P	61463624410
B42	1/2 x 3/4	1/8	33,570	5/25	3NQ80	69083149045	38A60-P	61463624412
B43	1/4 x 5/16	1/8	81,370	5/25			38A60-P	61463624413
B44	7/32 x 3/8	1/8	68,400	5/25			38A60-P	61463624414
B45	3/16 x 5/16	1/8	104,250	5/25			38A60-P	61463624415
B46	1/8 x 5/16	1/8	105,000	5/25			38A60-P	61463624416
B51	7/16 x 3/4	1/8	45,370	5/25			38A60-P	61463624418
B52	3/8 x 3/4	1/8	45,370	5/25	3NQ80	69083149046	38A60-P	61463624420
B52	3/8 x 3/4	1/4	81,000	5/25			38A60-P	61463624419
B52	3/8 x 3/4	1/8	45,370	5/25			38A90-Q	61463624422
B53	5/16 x 5/8	1/8	60,000	5/25			38A60-P	61463624423
B54	1/4 x 1/2	1/8	60,000	5/25			38A60-P	61463624424
B55	1/8 x 1/4	1/8	105,000	5/25			38A60-P	61463624425
B81	3/4 x 3/16	1/8	50,930	5/25			38A60-P	61463624437
B91	1/2 x 5/8	1/8	34,500	5/25			38A60-P	61463624443
B96	1/8 x 1/4	1/8	105,000	5/25			38A60-P	61463624448
B96	1/8 x 1/4	1/8	105,000	5/25			38A90-Q	61463624449
B97	1/8 x 3/8	1/8	105,000	5/25	3NQ80	69083149048	38A60-P	61463624451
B98	3/32 x 1/4	1/8	105,000	5/25			38A60-P	61463624452
B121	1/2" Ball	1/8	45,370	5/25			38A60-P	61463624466
B122	3/8" Ball	1/8	61,650	5/25	3NQ80	69083149050	38A60-P	61463624470
B122	3/8" Ball	1/8	61,650	5/25			38A90-Q	61463624471
B123	3/16" Ball	1/8	104,250	5/25			38A60-P	61463624472
B124	1/8" Ball	1/8	105,000	5/25			38A90-Q	61463624474
B131	1/2 x 1/2	1/8	34,500	5/25	3NQ80	69083149049	38A60-P	61463624475
B132	3/8 x 1/2	1/8	45,370	5/25			38A60-P	61463624479
B133	3/8 x 3/8	1/8	54,000	5/25			38A60-P	61463624481
B134	5/16 x 3/8	1/8	61,650	5/25			38A60-P	61463624482
B135	1/4 x 1/2	1/8	60,000	5/25			38A60-P	61463624484
B136	1/4 x 5/16	1/8	77,250	5/25			38A60-P	61463624485

† Spindle size is 1/8" or 1/4" x 1-1/2"

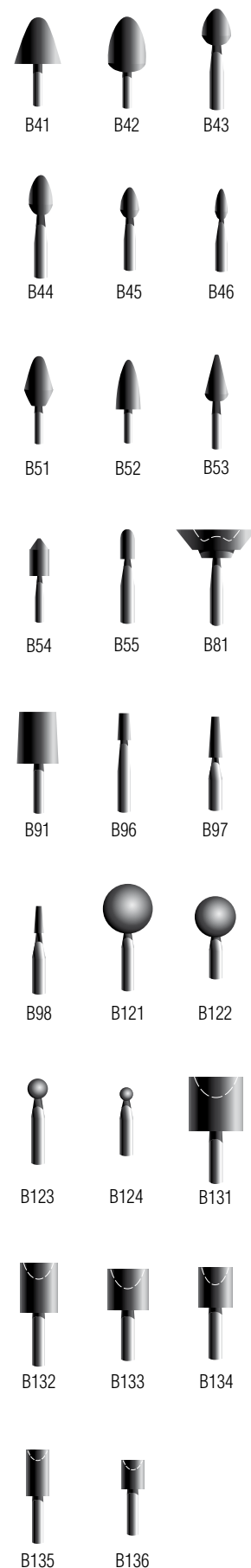
\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.

## TECH TIP

- For best mounted point performance, always run the mounted point at the maximum allowable speed according to ANSI B7.1. Refer to the speed chart included in each shipment for proper operating speeds.
- Use "A" shapes for medium- to heavy-duty blending.
- Use "B" shapes for light deburring and finishing/polishing.
- Use "W" shapes for offhand and precision grinding of medium to heavy stock.
- Use 36 grit and coarser for rough grinding.
- Use 60 and 90 grits for imparting fine finishes or when grinding on narrow surfaces.



It is the user's responsibility to refer to and comply with ANSI B7.1



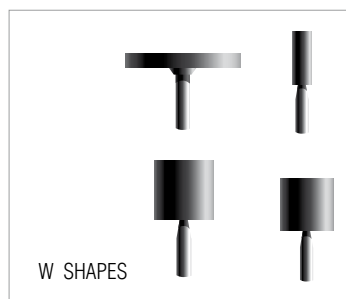


TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>QUANTUM</b>	<b>GEMINI</b>
ABRASIVE:	Ceramic Alumina	38A Aluminum Oxide

SHAPE	SIZE (D x T)	SPINDLE DIA. †	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
<b>Vitrified Bond Mounted Points – W Shapes</b>								
W144	1/8 x 1/4	1/8	105,000	5/25			38A60-P	61463624488
W145	1/8 x 3/8	1/8	105,000	5/25			38A60-P	61463624489
W146	1/8 x 1/2	1/8	105,000	5/25			38A60-P	61463624491
W152	3/16 x 1/4	1/8	105,000	5/25			38A60-P	61463624495
W153	3/16 x 3/8	1/8	80,850	5/25			38A60-P	61463624496
W154	3/16 x 1/2	1/8	70,500	5/25	3NQ80	69083149133	38A60-P	61463624497
W160	1/4 x 1/4	1/8	81,370	5/25			38A60-P	61463624501
W162	1/4 x 3/8	1/8	64,800	5/25			38A60-P	61463624503
W163	1/4 x 1/2	1/8	60,000	5/25			38A60-P	61463624504
W164	1/4 x 3/4	1/8	45,900	5/25	3NQ80	69083149135	38A60-P	61463624505
W170	5/16 x 1/2	1/8	52,500	5/25			38A60-P	61463624511
W175	3/8 x 3/8	1/8	54,000	5/25			38A60-P	61463624516
W176	3/8 x 1/2	1/8	45,370	5/25			38A60-P	61463624517
W177	3/8 x 3/4	1/8	33,750	5/25			38A60-P	61463624518
W179	3/8 x 1-1/4	1/4	20,415	25/250	Oil & Gas 36	69083154055		
W185	1/2 x 1/2	1/8	34,500	5/25	3NQ80	69083149137	38A60-P	61463624525
W185	1/2 x 1/2	1/4	61,500	5/25			38A60-P	61463624526
W186	1/2 x 3/4	1/4	51,000	5/25			38A60-P	61463624528
W188	1/2 x 1-1/2	1/4	30,370	5/25			38A60-P	61463624530
W189	1/2 x 2	1/4	24,000	25/250	Oil & Gas 36	61463686137		
W189	1/2 x 2	1/4	24,000	5/25	3NQ80	61463677683	38A60-P	61463624531
W196	5/8 x 1	1/4	35,250	5/25			38A60-P	61463624539
W200	3/4 x 1/8	1/8	50,930	5/25			38A60-P	61463624543
W200	3/4 x 1/8	1/8	50,930	5/25			38A90-Q	61463624544
W204	3/4 x 3/4	1/4	42,750	5/25			38A60-P	61463624549
W205	3/4 x 1	1/4	34,500	5/25			38A60-P	61463624550
W208	3/4 x 2	1/4	18,750	5/25	3NQ80	61463677684	38A60-P	61463624553
W215	1 x 1/8	1/8	38,200	5/25	3NQ80	69083149138	38A60-P	61463624560
W216	1 x 1/4	1/4	38,200	5/25			38A60-P	61463624562
W218	1 x 1/2	1/4	38,200	25/250	Oil & Gas 36	69083154061		
W218	1 x 1/2	1/4	38,200	5/25			38A60-P	61463624564
W220	1 x 1	1/4	25,500	5/25	3NQ80	61463677685	38A60-P	61463624566
W221	1 x 1-1/2	1/4	19,120	5/25			38A60-P	61463624567
W222	1 x 2	1/4	15,900	5/25			38A60-P	61463624569
W230	1-1/4 x 1-1/4	1/4	20,400	5/25			38A60-P	61463624578
W235	1-1/2 x 1/4	1/4	25,470	5/25			38A60-P	61463624583
W236	1-1/2 x 1/2	1/4	25,470	5/25	3NQ80	61463677686	38A60-P	61463624585
W237	1-1/2 x 1	1/4	22,500	5/25			38A60-P	61463624587
W238	1-1/2 x 1-1/2	1/4	15,600	5/25			38A60-P	61463624588
W242	2 x 1	1/4	19,100	5/25	3NQ80	69083149148	38A60-P	61463624592

† Spindle size is 1/8" or 1/4" x 1-1/2"

\* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.



## 50-Piece Mounted Point Kits

- Each kit contains 5 each of 10 of our best selling mounted point shapes and specifications
- The 1/4" spindle kits contain "A"-shaped points that are ideal for general maintenance and metalworking applications
- The 1/8" spindle kits contain "B"-shaped points for light deburring machine parts or finishing/polishing dies
- The "W"-shaped points in all of these kits work well for precision grinding of medium to heavy stock

TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADE NAME:	<b>QUANTUM</b>	<b>GEMINI</b>

SHAPE	SPINDLE DIA. †	MIN./STD. PKG.	PART #	PART #
<b>Mounted Point Kits</b>				
Assorted	1/4	1	50 piece Premium Norton Quantum 1/4" Spindle Mounted Point Kit contains 5 each of Norton Quantum A1, A5, A11, A21, A23, A26, A36, A39, W242, and A80-HBF3 W220	69083147810
Assorted	1/8	1	50 piece Premium Norton Quantum 1/8" Spindle Mounted Point Kit contains 5 each of Norton Quantum B42, B52, B97, B122, B131, W154, W164, W185, W215, and A80-HBF3 W163	69083147806
Assorted	1/4	1	50 piece Norton Gemini 1/4" Spindle Mounted Point Kit contains 5 each of 38A60-P A1, A5, A11, A21, A23, A26, A36, A39, W242, and A80-HBF3 W220	69083147789
Assorted	1/8	1	50 piece Norton Gemini 1/8" Spindle Mounted Point Kit contains 5 each of 38A60-P B42, B52, B97, B122, B131, W154, W164, W185, W215, and A80-HBF3 W163	69083147669

† Spindle size is 1/8" or 1/4" x 1-1/2"



Since 1823, Norton stones have lead the marketplace with conventional and diamond benchstones, waterstones, sharpening systems, files, slips and specialty stones for industrial, commercial and DIY sharpening applications. Our comprehensive line of sharpening and finishing products is the industry's broadest line with premier performance and quality.

Applications:  
Grit Range:  
Abrasive Types:

Deburring, dimensioning, sharpening, honing  
Coarse, Medium, Fine, Extra Fine, Ultra Fine  
Aluminum Oxide (India), Silicon Carbide (Crystolon), Arkansas (Soft and Hard Translucent), and Diamond

Machine Used:



## APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

### Benchstones

	Coarse/Medium Sharpening	Fine Stoning	Finish Honing
Chip Breakers	–	Fine Crystolon Benchstone	–
Draw Knives	Coarse Crystolon Benchstone	Fine India Benchstone	Hard Arkansas Benchstone
Scrapers	Coarse Crystolon Benchstone	Fine India Benchstone	Hard Arkansas Benchstone
Chisels (Wood)	Coarse Crystolon Benchstone 1000 Waterstone	Fine India Benchstone 4000 Waterstone	Hard Arkansas Benchstone 8000 Waterstone
Plane Blades	Coarse Crystolon Benchstone 1000 Waterstone	Fine India Benchstone 4000 Waterstone	Hard Arkansas Benchstone 8000 Waterstone

### Slips

	Coarse/Medium Sharpening	Fine Stoning
<b>Milling Cutter</b>	Medium India Round Edge Slip	Fine India Round Edge Slip
<b>Carbide Tools</b>		Fine Crystolon Slip for Carbide Tools

### Abrasive Files

	Coarse/Medium Sharpening	Fine Stoning	Finish Honing
Form Cutter	Coarse or Medium India Knife Blade	Fine India Knife Blade	–
Keyways	Coarse or Medium India Square File	Fine India Square File	–
Lathe Bits	Medium India Square File	Fine India Square File	–
Radius Tools	Medium India Round File	Fine India Round File	–
Reamers	Medium India Reamer Stone	Fine India Reamer Stone	–
Router Bits	–	Fine India Square File	–
Saws	Coarse India Triangular File	Fine India Tapered Triangular File	–
Center Punches	Medium India Triangular File	Fine India Triangular File	–
Magnetic Chucks	Medium Crystolon Round File	Fine India Round File	–
Molding Cutters*	Coarse or Medium India File	Fine India File	–
Countersinks	Coarse India Triangular File	Fine India Triangular File	Hard Arkansas Triangular File
Tap Threads	–	Fine India Triangular File	–

\* Select shape to fit configuration

## Relative Sharpening Comparisons for Norton Products

Crystolon (Silicon Carbide); India (Aluminum Oxide)	Arkansas (Soft, Hard Translucent)	Diamond Stones	Waterstones	Coated Abrasives (Waterproof Sandpaper)		Diamond Compound
			JIS (Japan)	CAMI (USA)	FEPA (Europe)	MICRON Size
					P100	141
Coarse Crystolon				120	P120	127
Coarse India					P150	97
				150		93
Medium Crystolon				180	P180	78
		Extra Coarse Diamond (220)	Norton 220		P220	65
				220		60
					P240	58
Medium India				240		53.5
					P280	52.5
					P320	46
Fine Crystolon						45
		Coarse Diamond (325)		280		43
					P360	40.5
			360	320		36
Fine India					P400	35
				360		29
					P600	25.8
				400		23
	Soft Arkansas	Fine Diamond (600)	600		P800	22
						20
			800	600	P1200	16
			Norton 1000	700		14
				800	P1500	12.6
			1200			11
					P2000	10.3
			1500	1000		9.2
						9
				1500	P2500	8.4
						7.5
	Hard Translucent Arkansas		Norton 4000	2000		6
						5
			Norton 8000			3
						1.2
						1
			15000			0.5

## Benchstones



## PRECISION BENCHSTONES

BETTER CHOICE FOR SHARPENING TOOLS AND KNIVES

### FEATURES AND APPLICATIONS

- **Jewelers' Benchstones** – These stones are excellent for sharpening the fine, precision cutting tools used by jewelers, engravers and artisans.
- **Penknife Precision Benchstones** – Ideal for sharpening cutting tools, laboratory blades, surgical instruments, engravers' and die makers' tools, and pocket knives to the keenest edge.

TIER: <b>BETTER</b>				
SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Precision Benchstones – Jewelers'</b>				
4 x 2 x 3/8	5	Ultra Fine – Hard Translucent Arkansas	HB24	61463687525
6 x 2 x 3/8	5	Ultra Fine – Hard Translucent Arkansas	HB26	61463687530
<i>Jewelers' stones are packed in individual boxes within a case. Order in multiples of stones/case.</i>				
<b>Precision Benchstones – Penknife</b>				
3 x 1 x 3/8	5	Extra Fine – Soft Arkansas	SB13	61463687560
		Ultra Fine – Hard Translucent Arkansas	HB13	61463687550
4 x 1 x 3/8	5	Extra Fine – Soft Arkansas	SB14	61463687565
		Ultra Fine – Hard Translucent Arkansas	HB14	61463687555

## SINGLE GRIT ABRASIVE BENCHSTONES

### BETTER CHOICE FOR EDGE SHAPING AND HONING



#### FEATURES

- Crystolon – Premium silicon carbide abrasive
- India – Smooth cutting aluminum oxide abrasive; our best product for a fine finish
- Arkansas – Natural premium Novaculite quarried in Arkansas and available in Soft or Hard Translucent

#### BENEFITS

- Fast cutting stone; ideal for general sharpening of cutting tools
- Fast stock removal for quick edge shaping with minimal loading
- Long lasting cutting edge
- The choice of artisans, craftsmen and mechanics
- Ideal for clean deburring, generating keen edges and quality finishes
- Sharpest possible razor edges
- Near mirror finishes
- Use for finer honing after India stone

TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Single Grit Benchstones – Crystolon (Silicon Carbide)</b>				
4 x 1 x 1/4	5	Coarse	CJB14	61463685470
	5	Medium	MJB14	61463685465
	5	Fine	FJB14	61463685460
	5 V	Fine	FJB14-V	66253325915+
4 x 1 x 1/2	5	Coarse	CJB24	61463685485
	5	Medium	MJB24	61463685480
	5	Fine	FJB24	61463685475
5 x 2 x 5/8	5	Medium	MJB35	61463685495
	5	Fine	FJB35	61463685490
6 x 2 x 1	5	Coarse	CJB6	61463685510
	5	Medium	MJB6	61463685505
	5	Fine	FJB6	61463685500
8 x 2 x 1	5	Coarse	CJB8	61463685525
	5	Medium	MJB8	61463685520
	5	Fine	FJB8	61463685515
8 x 3 x 1/2	5	Coarse	CJB83	61463654459*
	5	Medium	MJB83	61463654458*
	5	Fine	FJB83	61463654457*
11-1/2 x 2-1/2 x 1/2	1	Coarse	JM3	61463685980#
	1	Medium	JM6	61463685975#
<b>Single Grit Benchstones – Soft Arkansas</b>				
4 x 2 x 3/4-1	5	Extra Fine	SB4	61463685670
6 x 2 x 3/4-1	5	Extra Fine	SB6	61463685675
8 x 2 x 3/4-1	5	Extra Fine	SB8	61463685680

V = Vendible Package. Ideal for vending machines, small jobs, and carrying to job site. Pre-packed in sturdy boxes of 5 per pack. Order by total number of stones needed in multiples of 5.

\* May be used as replacement stone for IM-83 Sharpening System.

# May be used as replacement stone for IM-313 Sharpening Stone System.

These benchstones (except for 8 x 3 x 1/2 and vendibles) are packed in individual boxes within a case. Order in multiples of stones/case.

TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Single Grit Benchstones – India (Aluminum Oxide)</b>				
4 x 1 x 1/4	5	Coarse	CB14	61463685580
	5	Medium	MB14	61463685575
	5	Fine	FB14	61463685570
	5 V	Fine	FB14-V	66253325919
4 x 1 x 1/2	5	Coarse	CB24	61463685595
	5	Medium	MB24	61463685590
	5	Fine	FB24	61463685585
5 x 2 x 5/8	5	Medium	MB35	61463685605
	5	Fine	FB35	61463685600
6 x 2 x 1	5	Coarse	CB6	61463685620
	5	Medium	MB6	61463685615
	5	Fine	FB6	61463685610
8 x 2 x 1	5	Coarse	CB8	61463685635
	5	Medium	MB8	61463685630
	5	Fine	FB8	61463685625
8 x 3 x 1/2	5	Coarse	CB83	61463654462*
	5	Medium	MB83	61463654461*
	5	Fine	FB83	61463654460*
11-1/2 x 2-1/2 x 1/2	1	Medium	IM6	61463654214#
	1	Fine	IM9	61463685970#
<b>Single Grit Benchstones – Hard Translucent Arkansas</b>				
4 x 2 x 3/4-1	5	Ultra Fine	HB4	61463685655
6 x 2 x 3/4-1	5	Ultra Fine	HB6	61463685660
8 x 2 x 3/4-1	5	Ultra Fine	HB8	61463685665
8 x 3 x 1/2	5	Ultra Fine	HTB83	61463654464*
11-1/2 x 2-1/2 x 1/2	1	Ultra Fine	HM11	61463685965#



## Benchstones *continued*

## COMBINATION GRIT ABRASIVE BENCHSTONES

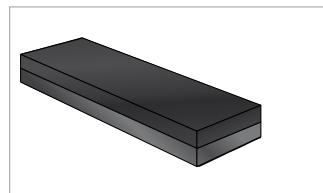
BETTER CHOICE FOR ECONOMICAL SOLUTION FOR GENERAL SHARPENING AND FINISHING WITH ONE STONE

### FEATURES AND APPLICATIONS

- **Crystolon Combination**  
Coarse and fine grit sharp-cutting silicon carbide abrasive surfaces for general sharpening (to moderate tolerances) when the speed of sharpening is more important than the fineness of the cutting edges. Gray in color.
- **India Combination**  
Coarse and fine grit aluminum oxide abrasive surfaces produce strong, keen, long-lasting edges on quality tools. Orange/brown in color.
- **Crystolon/India Combination**  
Fast-sharpening, medium grit silicon carbide (Crystolon) and fine aluminum oxide (India) abrasive surfaces for keen, long-lasting edges on quality tools. Crystolon side is dark gray in color, India side is orange.
- **Giant Combination Stones**  
11-1/2" and 12" bench oil stones are used to sharpen large edge tools with long sweeping strokes.



TIER: BETTER				
SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Combination Grit Benchstones – Crystolon (Silicon Carbide)</b>				
4 x 1 Round	5	Coarse/Fine	JB64	61463685435
4 x 1-3/4 x 5/8	5	Coarse/Fine	JB134	61463685440
5 x 2 x 3/4	5	Coarse/Fine	JB45	61463685445
6 x 2 x 1	5	Coarse/Fine with Anniversary Box	JB6	61463685450
8 x 2 x 1	5	Coarse/Fine with Anniversary Box	JB8	61463685455
11-1/2 x 2-1/2 x 1	2	Coarse/Fine	JUM3	61463685840
12 x 2-1/2 x 1-1/2	2	Coarse/Fine	JUM4	61463685855
<b>Combination Grit Benchstones – India (Aluminum Oxide)</b>				
4 x 1 Round	5	Coarse/Fine	IB64	61463685545
4 x 1-3/4 x 5/8	5	Coarse/Fine	IB134	61463685550
5 x 2 x 3/4	5	Coarse/Fine	IB45	61463685555
6 x 2 x 1	5	Coarse/Fine with Anniversary Box	IB6	61463685560
8 x 2 x 1	5	Coarse/Fine with Anniversary Box	IB8	61463685565
11-1/2 x 2-1/2 x 1	2	Coarse/Fine	IM2	61463685851
<b>Combination Grit Benchstones – Crystolon/India</b>				
6 x 2 x 1	5	Medium/Fine	IC6	61463685643
11-1/2 x 2 x 1	2	Medium/Fine	IC11	61463687239
<b>Oil Stone Instructional DVD</b>				
N/A	1	Oil Stone DVD		07660787945



These benchstones are packed in individual boxes within a case. Order in multiples of stones/case.

### APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

	FAST CUT STOCK REMOVAL	INITIAL SHARPENING	FINAL SHARPENING	HONING	SHARPEST EDGE
Grit Size	Coarse	Medium	Fine	Extra Fine	Ultra Fine
Abrasive	Crystolon	Crystolon	India	Soft Arkansas	Hard Arkansas
Product/Color	Grey	Grey	Orange	Milky White	Translucent



### Instructional DVD Offering

Waterstone:	07660787944
Oil Stone:	07660787945

Ideal for sales training and end-user self-study. Learn to efficiently use these sharpening products to maintain tools at peak performance and prolong their life – to make all your sharpening, honing, etc. applications easier.

## Waterstones

Waterstones are synthetic stones designed to be softer than oil stones. These softer grade stones are used with water as the lubricant (versus oil) to develop a fast cutting slurry. The Norton Waterstone system was designed in a carefully planned sequence to create sharpening efficiency. You get the level of abrasiveness you need at each stage, without wasting time trying to sharpen your tools on a grit that is too fine, too soon.

## WATERSTONES

### BETTER CHOICE FOR PRODUCING SUPERIOR EDGES ON PLANES AND STRAIGHT CHISELS

#### FEATURES

- System of four synthetic "Japanese-type" stones designed to work together, with water
- Softer than traditional oilstones – providing lapping action
- Color-coded by grit

#### BENEFITS

- Fast sharpening, fine finish
- Superb results with low pressure
- Easy to differentiate grit size

## PREP STONE

### BETTER CHOICE FOR RAISING SLURRY

#### FEATURES

- This synthetic stone raises the slurry

#### BENEFITS

- Speeds up the slurry-making process needed to cut and polish with waterstones

## FLATTENING STONE

### BETTER CHOICE FOR PRODUCING FLAT SURFACES ON WATERSTONES

#### FEATURES

- Coarse grit silicon carbide stone
- Diagonal grooves
- Superbly flat with hard bond

#### BENEFITS

- Promotes maximum cutting for all grit sizes of waterstones
- Provide swarf removal
- Produces extremely flat results on all waterstones

TIER: <b>BETTER</b>			
SIZE (L x W x H)	QTY./CASE	SPEC.	PART #
<b>Waterstones – Single Grit</b>			
8 x 3 x 1	5	220	61463689505
	5	1000	61463689506
	5	4000	61463689507
	5	8000	61463689508
Set	1	4 Stones: 220, 1000, 4000, 8000 Grit	61463624334
<b>Waterstones – Combination Grit</b>			
8 x 3 x 1	5	220 / 1000	61463624335
	5	1000 / 4000	61463624450
	5	1000 / 8000	69936655039
	5	4000 / 8000	61463624336
<b>Prep Stone</b>			
20mm x 20mm x 3"	5	Aluminum Oxide	66243439361
<b>Flattening Stone</b>			
9 x 3 x 3/4	5	Silicon Carbide	69936687444
<b>Waterstone Kit</b>			
N/A	1	Kit includes: 1-220/1000 and 1-4000/8000 waterstone, 1 flattening stone and 1 instructional DVD	07660787943
<b>Waterstone Instructional DVD</b>			
N/A	1	Waterstone DVD	07660787944

Waterstones are packed in individual boxes within a case. Order in multiples of stones/case.

## TECH TIP

### Maximizing Waterstone Performance

- Wet waterstone
- Rub evenly with the prep stone to create slurry
- Evening off the high spots will make for less-frequent flattening of the waterstones
- Waterstones wear concave with use; periodically flatten with flattening stone

## Diamond Benchstones

Made in the USA, these benchstones have unique stackable non-skid rubber feet designed to keep the diamond plate steady while you sharpen, and efficiently stacked for space-saving storage when not in use. Our simple grit-size color-coding makes them easy to differentiate.

## STACKABLE DIAMOND BENCHSTONES

BETTER CHOICE FOR PRODUCING SUPERIOR EDGES ON PLANES AND STRAIGHT CHISELS

### FEATURES

- Made in the USA
- Flat, diamond surface plated onto a nickel-coated steel bar precision ground to a tolerance of .001"
- Even diamond distribution; continuous diamond sharpening surface
- Available in 3 grit sizes: 220 (red), 325 (blue), 600 (green), and 2 sizes: 6" and 8"
- Color-coded tabs on stones and packaging
- Stackable; the stones firmly stack on top of each other
- Non-skid rubber base

### BENEFITS

- Quality industrial diamonds and workmanship
- Fast, even blade and tool edge sharpening
- Easily lubricated with water, but oil may be used
- Excellent sharpening performance across entire surface of stone
- Quicker sharpening than conventional interrupted-surface diamond stones
- Pointed tools will not snag, as on interrupted-surface diamond stones
- Ideal for all your large and small tool sharpening and finishing needs
- Easy identification of grit sizes for use and displaying
- Easy, small-profile storage
- Stays in place while sharpening for smoother, efficient sharpening



TIER: BETTER

SIZE WITH RUBBER FEET (L x W x H)	QTY./ CASE	SPEC.	PART #
<b>Stackable Diamond Benchstones</b>			
6 x 2 x 1/4*	5	D220	66253268082
6 x 2 x 1/4*	5	D325	66253268081
6 x 2 x 1/4*	5	D600	66253268080
8 x 2 x 1/4	5	D220	66253268087
8 x 2 x 1/4	5	D325	66253268086
8 x 2 x 1/4	5	D600	66253268083

*Diamond benchstones are packed in individual boxes within a case. Order in multiples of stones/case.*



6" stones come retail packaged

## Sharpening Stone Oil



## SHARPENING STONE OIL

BETTER CHOICE FOR IMPROVING SHARPENING STONE PERFORMANCE

### FEATURES

- Norton oil is a highly refined lubricating oil
- Meets U.S. Pharmacopoeia standards for mineral oil purity

### BENEFITS

- Specifically formulated for sharpening stone use
- Equally ideal for all lubricating jobs
- It will not load or "gum-up" sharpening stones
- May be used around food preparation operations

TIER: BETTER

SIZE	QTY./ CASE	SPEC.	PRODUCT #	PART #
<b>Sharpening Stone Oil</b>				
4-1/2 oz.	20	Oil	XB1	61463687760
1 Pint	20	Oil	XB5	61463687770
1 Quart	5	Oil	XB2	61463687775

## TECH TIP

- All oil stones are porous in nature; oil is required to keep the pores open and working efficiently
- Use Norton oil to optimize the performance of Crystolon, India and Arkansas stones
- While sharpening knives, blades and tools, be careful to keep fingers away from sharp edges

## Sharpening Systems

### Tri-Stone Systems

The base of the tri-stone system acts as an oil reservoir permitting continuous submersion of the unused stones, keeping them clean and saturated, ready for immediate use and years of utility. Rotating the handle brings the desired stone into position for sharpening. All offer a range of replacement stones to replace worn or damaged stones, or substitute different specifications to customize the system.



## IM313 MULTI-OILSTONE SHARPENING SYSTEM

**BETTER CHOICE FOR LARGE, STRAIGHT-EDGED TOOL SHARPENING**

### FEATURES AND BENEFITS

- Considered by many to be the ultimate sharpening system, the IM313 contains three oil stones. The 11-1/2" stone length permits long, sweeping strokes for faster and more precise sharpening and honing of all large, wider straight-edged tools. The heavy base has a non-skid bottom.
- A pint of Norton oil, plastic angle guide, and reservoir unit are included with each IM313 system. For general sharpening – coarse Crystolon stone quickly restores worn edges; medium Crystolon stone produces the average edge needed for most tools; and fine India stone hones for a sharper edge.



## IM200 PROFESSIONAL SHARPENING SYSTEM

**BETTER CHOICE FOR A VERSATILE, MULTI-SIZE TOOL AND KNIFE SHARPENER**

### FEATURES AND BENEFITS

- The smaller 8" stone IM200 system provides the same quality sharpening features as the IM313 – making it the perfect choice for small restaurants and home DIYers.
- The system contains 4-1/2 oz. of lubricating oil, plastic angle guide, and the reservoir unit. For general sharpening – coarse Crystolon stone quickly restores worn edges; medium Crystolon stone produces the average edge needed for most tools; and fine India stone hones for a sharper edge.



## IM100 3-IN-1 TOOL AND KNIFE SHARPENING SYSTEM

**BETTER CHOICE FOR SMALL STRAIGHT-EDGED TOOL SHARPENING**

### FEATURES AND BENEFITS

- The smallest system, designed for general sharpening, the IM100 is an affordable choice for small knives, cutlery, and woodworking tools.
- 4-1/2 oz. of lubricating oil and a reservoir unit complete the system. For general sharpening – coarse Crystolon stone quickly restores worn edges; medium Crystolon stone produces the average edge needed for most tools; and fine India stone hones for a sharper edge.

### Portable Sharpening Systems



## IM83 PORTABLE SHARPENING STONE SYSTEM

**BETTER CHOICE FOR ALL SHARPENING ENTHUSIASTS WHO CARRY THEIR SYSTEM WITH THEM**

### FEATURES AND BENEFITS

- Sturdy metal latches secure the cover and storage case – where small tools can be housed. The IM83 system is designed like all our other sharpening systems; the stones can be replaced to customize the unit to individual requirements.
- Ideal for industrial toolrooms, restaurants, knife manufacturers, DIYers, and sportsmen.
- Both IM83 systems include 3 sharpening stones, an instructional DVD in the base, and a reservoir carrying case. The oil stone system also includes 4-1/2 oz. oil.
- IM83-W Portable Waterstone System – Tool Repair to Fine Finishes  
This portable sharpening system is equipped with a carefully engineered sequence of waterstones for clean, efficient sharpening. The waterstones can easily be maintained with the flattening stone provided.
- IM83-O Portable Oil Stone System – Straight-Edged Tool Sharpening  
The coarse silicon carbide (Crystolon) stone in this system repairs damaged edges quickly; the medium aluminum oxide (India) stone imparts a durable, smooth cutting edge; and the fine aluminum oxide (India) stone provides the final sharpening and polishing stage.



## Sharpening Systems *continued*

TIER: <b>BETTER</b>				
SIZE	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>IM313 Multi-Oilstone Sharpening System</b>				
11-1/2 x 2-1/2 x 1/2	1	1 Coarse Crystolon, 1 Medium Crystolon, and 1 Fine India Stone, 1 Pint Oil, Angle Guide, Reservoir Unit	IM313	61463685960
<b>IM200 Professional Sharpening System</b>				
8 x 2 x 3/8	1	1 Coarse Crystolon, 1 Medium Crystolon, and 1 Fine India Stone, 4-1/2 oz. Oil, Angle Guide, Reservoir Unit	IM200	61463691260
<b>IM100 3-in-1 Tool and Knife Sharpening System</b>				
6 x 2 x 1/2	1	1 Coarse Crystolon, 1 Medium Crystolon, and 1 Fine India Stone, 4-1/2 oz. Oil, Reservoir Unit	IM100	61463685356
<b>IM83 Portable Systems</b>				
8 x 3 x 1/2	1	Oilstones: 1 Coarse Crystolon, 1 Medium India, 1 Fine India, 4-1/2 oz. Oil, Instructional DVD in Base, Reservoir Carrying Case	IM83-O	66243582823
8 x 3 x 1	1	Waterstones: 1 ea. of 1000, 4000, 8000 Grit, 1 Flattening Stone, Instructional DVD in Base, Reservoir Carrying Case	IM83-W	66243582825

For sharpening system replacement stones: see Single Grit Benchstone charts, or your Norton representative for replacement stones and parts which may be used as replacements or to customize your system.

## Abrasive Files

Norton abrasive files hold their shape while imparting the finest, most uniform finish on precision machine parts and in tool and die making. They are ideal for any deburring, chamfering or radiusing job, or for filing delicate parts. Select the file shape that matches the contour of the surface being stoned.

## ABRASIVE FILES

**BETTER CHOICE FOR ANY DEBURRING, CHAMFERING OR RADIUSING JOB, OR FOR FILING DELICATE PARTS**

### FEATURES AND APPLICATIONS

- **Crystolon Files** – Fast-acting silicon carbide products, Crystolon files are designed for use where moderate tolerances are acceptable, and speed of sharpening is more important than fineness.
- **India Files** – India files are ideal when close tolerance, and strong, keen, long-lasting edges are needed.
- **Hard Translucent Arkansas Files** – Hard Arkansas has an ultra fine grit that produces the finest edge possible while maintaining tolerances unequalled by any other abrasive file. It will also produce a highly polished finish.

### Square Abrasive Files

Square File applications range from dimensioning keyways to maintain fit, stoning faces on router bits, touching-up edges of reamer teeth, and lapping/honing to close tolerances to produce the finest edge on precision instruments, die work and delicate tools.



TIER: <b>BETTER</b>				
SIZE (L x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Square Abrasive Files – Crystolon (Silicon Carbide)</b>				
4 x 3/8	5	Fine	FJF34	61463686030
4 x 1/2	5	Medium	MJF44	61463686045
	5	Fine	FJF44	61463686040
<b>Square Abrasive Files – Hard Translucent Arkansas</b>				
3 x 1/4	5	Ultra Fine	HF13	61463686590
3 x 3/8	5	Ultra Fine	HF33	61463686595
3 x 1/2	5	Ultra Fine	HF43	61463686600

All square files are bulk packed

TIER: **BETTER**

SIZE (L x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Square Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/4	5	Coarse	CF14	61463686075
	5	Medium	MF14	61463686070
	5	Fine	FF14	61463686065
4 x 3/8	5	Coarse	CF34	61463686090
	5	Medium	MF34	61463686085
	5	Fine	FF34	61463686080
4 x 1/2	5	Coarse	CF44	61463686105
	5	Medium	MF44	61463686100
	5 V	Medium	MF44-V	66253325913
	5	Fine	FF44	61463686095
6 x 1/2	5	Coarse	CF46	61463686120
	5	Medium	MF46	61463686115
	5	Fine	FF46	61463686110
6 x 5/8	5	Medium	MF56	61463686130
	5	Fine	FF56	61463686125
6 x 3/4	5	Coarse	CF66	61463686150
	5	Medium	MF66	61463686145
	5	Fine	FF66	61463686140
6 x 1	5	Coarse	CF76	61463686165
	5	Medium	MF76	61463686160
	5	Fine	FF76	61463686155

V = Vendible Package. Ideal for vending machines, small jobs, and carrying to job site. Pre-packed in sturdy boxes of 5 per pack. Order by total number of stones needed in multiples of 5.

## Abrasive Files *continued*

### Triangular Abrasive Files

Triangular Files are used for a variety of deburring, chamfering and radiusing applications including cleaning tap threads, stoning cutting surfaces of milling cutters, lapping honing tools, dies and molds, and putting precision points on center punches.

The India line also offers Tapered Triangles, used by mechanics and tool and die makers to impart the correct edge in the least time.



TIER: BETTER

SIZE (L x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Triangular Abrasive Files – Crystolon (Silicon Carbide)</b>				
4 x 1/4	5	Fine	FJF114	61463686185
4 x 1/2	5	Fine	FJF144	61463686205
<b>Triangular Abrasive Files – Hard Translucent Arkansas</b>				
3 x 1/4	5	Ultra Fine	HF113	61463686620
3 x 3/8	5	Ultra Fine	HF133	61463686625
3 x 1/2	5	Ultra Fine	HF143	61463686630

All Triangular files are bulk packed

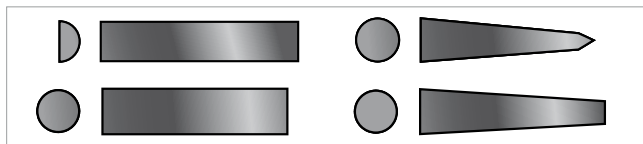
### Round Abrasive Files

Half Round Files offer both a round and a flat surface for imparting a fine finish on precision machine parts, tools and dies.

Round Files are ideal for deburring, chamfering, radiusing, lapping, honing, cleaning radius tools to a burr-free edge, and dimensioning compound curves on templates.

Round Pointed Files are ideally suited for engravers and die sinkers for stoning difficult recesses on instruments and die tools.

Round Tapered Files are used by craftsmen, woodworkers, and die makers as their unique shape imparts the correct edge quickly.



TIER: BETTER

SIZE (L x D)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Half Round Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/4	5	Medium	MF314	61463686355
	5	Fine	FF314	61463686350
4 x 3/8	5	Medium	MF334	61463686385
	5	Fine	FF334	61463686380
4 x 1/2	5	Coarse	CF344	61463686405
	5	Medium	MF344	61463686400
	5	Fine	FF344	61463686395

All Half-Round and Round files are bulk packed

TIER: BETTER

SIZE (L x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Triangular Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/4	5	Coarse	CF114	61463686240
	5	Medium	MF114	61463686235
	5	Fine	FF114	61463686230
4 x 3/8	5	Coarse	CF134	61463686255
	5	Medium	MF134	61463686250
	5	Fine	FF134	61463686245
4 x 1/2	5	Coarse	CF144	61463686270
	5	Medium	MF144	61463686265
	5	Fine	FF144	61463686260
6 x 1/2	5	Coarse	CF146	61463686285
	5	Medium	MF146	61463686280
	5	Fine	FF146	61463686275
6 x 5/8	5	Medium	MF156	61463686295
	5	Fine	FF156	61463686290
6 x 3/4	5	Medium	MF166	61463686310
	5	Fine	FF166	61463686305
6 x 1	5	Medium	MF176	61463686325
	5	Fine	FF176	61463686320
<b>Triangular Tapered Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/2 x 1/4	5	Medium	MF544	61463686685
	5	Fine	FF544	61463686680

TIER: BETTER

SIZE (L x D)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Round Abrasive Files – Crystolon (Silicon Carbide)</b>				
4 x 1/4	5	Medium	MJF214	61463686430
	5	Fine	FJF214	61463686425
4 x 3/8	5	Medium	MJF234	61463686440
<b>Round Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/4	5	Coarse	CF214	61463686480
	5	Medium	MF214	61463686475
	5	Fine	FF214	61463686470
4 x 3/8	5	Coarse	CF234	61463686495
	5	Medium	MF234	61463686490
	5	Fine	FF234	61463686485
4 x 1/2	5	Coarse	CF244	61463686510
	5	Medium	MF244	61463686505
	5	Fine	FF244	61463686500
6 x 1/2	5	Coarse	CF246	61463686525
	5	Medium	MF246	61463686520
	5	Fine	FF246	61463686515
6 x 5/8	5	Medium	MF256	61463686535
6 x 3/4	5	Medium	MF266	61463686550
6 x 1	5	Medium	MF276	61463686565
<b>Round Abrasive Files – Hard Translucent Arkansas</b>				
3 x 1/4	5	Ultra Fine	HF813	61463686800
<b>Round Pointed Abrasive Files – India (Aluminum Oxide)</b>				
3 x 5/16 Base	5	Coarse	CF723	61463686750
	5	Medium	MF723	61463686745
	5	Fine	FF723	61463686740
<b>Round Pointed Abrasive Files – Hard Translucent Arkansas</b>				
3 x 1/4 Base	5	Ultra Fine	HF863	61463686825
<b>Round Tapered Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1/2 x 1/4	5	Coarse	CF644	61463686660
	5	Medium	MF644	61463686655
	5	Fine	FF644	61463686650

## Abrasive Files *continued*

### Diamond-shaped Abrasive Files

Diamond-shaped Files are precision sharpening favorites for cleaning acute angles in dies and molds, and for stoning geometric chasers and sewing machine feeds.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Diamond-Shaped Abrasive Files – India (Aluminum Oxide)</b>				
4 x 9/16 x 3/16	5	Coarse	CT134	61463686720
	5	Medium	MT134	61463686715
	5	Fine	FT134	61463686710
<b>Diamond-Shaped Abrasive File – Hard Translucent Arkansas</b>				
3 x 1/2 x 3/16	5	Ultra Fine	HF843	61463686815

All Diamond-shaped files are bulk packed

### Beveled Abrasive Files

Beveled Files are preferred by exacting artisans, jewelers, mechanics, and watchmakers for honing the finest of finishes. These extremely hard files provide years of service.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Beveled Abrasive File – Hard Translucent Arkansas</b>				
3 x 3/8 x 1/8	5	Ultra Fine	HF833	61463686810

All Beveled files are bulk packed

### Flat Abrasive Files

The Flat File is the choice of mechanics, artisans and jewelers. This long lasting file produces the finest finishes.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Flat Abrasive File – Hard Translucent Arkansas</b>				
3 x 3/8 x 1/8	5	Ultra Fine	HF823	61463686805

All Flat files are bulk packed

### Oval Abrasive Files

The Oval File's shape makes it ideal for finishing and honing recesses or curved edges of precision instruments.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Oval Abrasive File – Hard Translucent Arkansas</b>				
3 x 1/2 x 3/16	5	Ultra Fine	HF853	61463686820

All Oval files are bulk packed

### Knife Blade Abrasive Files

Knife Blade Files are used by clock and watch makers to quickly sharpen, hone, and maintain the edges and points of cutting tools.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Knife Blade Abrasive Files – India (Aluminum Oxide)</b>				
4 x 1 x 1/8 Back	5	Coarse	CF724	61463686780
	5	Medium	MF724	61463686775
	5	Fine	FF724	61463686770
<b>Knife Blade Abrasive File – Hard Translucent Arkansas</b>				
3 x 3/4 x 1/8	5	Ultra Fine	HF873	61463686830

All Knife Blade files are bulk packed

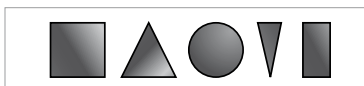
### Abrasive File Sets

#### Hard Translucent Arkansas File Set

This set provides a selection of our most popular square, triangular, round and knife blade files in ultra fine Hard Translucent Arkansas for honing and polishing a wide range of configurations.

#### Hard Translucent Arkansas-India File Set

This set contains an assortment of files for finishing, honing and polishing applications. It contains a selection of the most popular square, triangular, round and knife blade files in both fine grit India and ultra fine grit Hard Translucent Arkansas.



TIER: **BETTER**

SIZE (L x W x H)	QTY./CASE	PRODUCT #	PART #
<b>File Set – Hard Translucent Arkansas</b>			
	1		61463686839
1 Each of Ultra Fine Hard Arkansas HF13, HF113, HF813, and HF873			
<b>File Set – Hard Translucent Arkansas and India (Aluminum Oxide)</b>			
	1		61463686840
1 Each of Ultra Fine Hard Arkansas HF13, HF43, HF113, HF813, HF873, and Fine India FF14, FF44, FF114, FF214, FF724			

See the “Norton Professional Sharpening Products and Dressing Sticks Catalog #200” on [www.nortonabrasives.com](http://www.nortonabrasives.com) to view the complete list and descriptions of our many sharpening products.

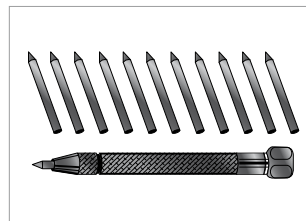
## Abrasive Files *continued*

### Engravers' Chuck & Points

Engravers' Points are the choice of professional die-makers for cleaning tight corners and recesses where close tolerances and accuracy are a must. The Engravers' Chuck is a knurled nickel-plated tool designed to hold the Engravers' Point.

TIER: BETTER				
SIZE (L x POINT)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Engravers' Chuck</b>				
Engravers' Chuck	5		XT1	61463687485
<b>Engravers' Point – India (Aluminum Oxide)</b>				
1 x 1/8 Point	5	Fine	FT11	61463687495
<b>Engravers' Point – Soft Arkansas</b>				
1 x 1/8 Point	5	Extra Fine	AT11	61463687490

All Engravers' Chucks and Points are bulk packed.

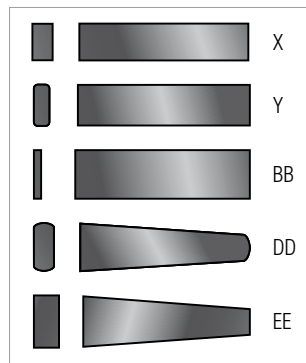


### Silversmith Precision Files

These aluminum oxide precision-shaped stones are designed for use by silversmiths and mechanics for close tolerance lapping, touching-up instruments, and for cleaning tools and dies.

TIER: BETTER				
SIZE	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Silversmith Precision Files – India (Aluminum Oxide)</b>				
4 x 5/16 x 3/16 x 5/16 x 1/16 - X	5	Medium	MF414	61463686855
	5	Fine	FF414	61463686850
4 x 3/8 x 3/16 x 1/8 x 1/16 - Y	5	Fine	FF424	61463686910
4 x 7/16 x 3/16 x 1/8 - BB	5	Fine	FF434	61463686940
4 x 1/2 x 1/16 - BB	5	Coarse	CF444	61463686965
	5	Medium	MF444	61463686960
	5	Fine	FF444	61463686955
4 x 1/2 x 1/4 x 5/16 x 1/8 - DD	5	Fine	FF464	61463686985
4 x 1/2 x 1/4 x 5/16 x 1/8 - EE	5	Medium	MF474	61463687005
	5	Fine	FF474	61463687000

All Silversmith Precision Files are bulk packed.



## Pocket Stones



## POCKET STONES

### BETTER CHOICE FOR OUTDOOR ENTHUSIASTS

#### FEATURES AND BENEFITS

- Convenient and easily transported
- Ideal for outdoor enthusiasts to sharpen scissors, knives, axes, etc.
- Available in a protective case

TIER: BETTER				
SIZE (L x W x H)	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Sportsman Pocket Stone – India (Aluminum Oxide)</b>				
3 x 1-1/2 x 1/2	50	Coarse/Fine	IBP4	61463690705
<b>Pocket Stone – India (Aluminum Oxide)</b>				
4 x 3/4 x 1/4	25	Fine	IBP4	61463624153
<b>Pocket Stone with Case – India (Aluminum Oxide)</b>				
3 x 7/8 x 3/8 with case	50	Fine	FBP3	61463691122
<b>Pocket Stone with Case – Crystolon (Silicon Carbide)</b>				
3 x 7/8 x 3/8 with case	50	Fine	JP14	61463690703
<b>Pocket Stone with Case – Soft Arkansas</b>				
4 x 1 x 3/4 with case; in retail package	5	Extra Fine		66253142544
<b>Fish Hook Stone With Pouch – Crystolon Half-Round (Silicon Carbide)</b>				
3 x 1/2 with pouch	50	Fine		61463624072

All Pocket Stones except 66253142544 are bulk packed.



## Abrasive Slips

### ABRASIVE SLIPS

BETTER CHOICE FOR IMPARTING FINE, UNIFORM FINISHES

#### FEATURES AND BENEFITS

- Norton abrasive slips impart the finest, most uniform finishes on curved knives and tools, molders' knives, wood gouges, bead planers, and carbide-tipped tools. These fast-acting slips hold their shape and are long lasting.
- The Crystolon and India stones are designed for preliminary sharpening and the Norton Hard Translucent Arkansas stones are the choice for achieving the finest finish possible.

#### Carbide Tool Slips

Crystolon (silicon carbide) Slips are used to maintain the edge of carbide tools – keeping regrinding costs and time to an absolute minimum. Not oil-filled.

#### Round Edge Slips

Round Edge Slips are ideal for precision sharpening and honing of bead planers, curved knives and tools, molders' knives and wood gouges.



TIER: BETTER				
SIZE	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Carbide Tool Slips – Crystolon (Silicon Carbide)</b>				
3-1/2 x 3/4 x 1/2	5	Coarse	CJT63	61463687295
	5	Medium	MJT63	61463687290
	5	Fine	FJT63	61463687285
Set of Three Above	5	Coarse, Medium & Fine	J63	61463687300
<b>Carbide Tool Slips – India (Aluminum Oxide)</b>				
2-1/4 x 7/8 x 3/16	5	Medium	MS12	61463687215
<b>Round Edge Slips – Crystolon (Silicon Carbide)</b>				
4-1/2 x 1-3/4 x 1/4 x 1/16	5	Medium	MJS24	61463687080
	5	Fine	FJS24	61463687075
4-1/2 x 1-3/4 x 1/2 x 3/16	5	Coarse	CJS44	61463687100
	5	Medium	MJS44	61463687095
	5	Fine	FJS44	61463687090
6 x 2-1/4 x 3/4 x 3/8	5	Medium	MJS66	61463687110
	5	Fine	FJS66	61463687105
<b>Round Edge Slips – India (Aluminum Oxide)</b>				
4 x 1 x 7/16 x 3/16	5	Medium	MS14	61463687140
	5	Fine	FS14	61463687135
4-1/2 x 1-3/4 x 1/4 x 3/32	5	Coarse	CS24	61463687155
	5	Medium	MS24	61463687150
	5	Fine	FS24	61463687145
4-1/2 x 1-3/4 x 3/8 x 1/8	5	Coarse	CS34	61463687170
	5	Medium	MS34	61463687165
	5	Fine	FS34	61463687160
4-1/2 x 1-3/4 x 1/2 x 3/16	5	Coarse	CS44	61463687185
	5	Medium	MS44	61463687180
	5	Fine	FS44	61463687175
5 x 1 x 5/16 x 3/32	5	Medium	MS15	61463687195
	5	Fine	FS15	61463687190
<b>Round Edge Slips – Soft Arkansas</b>				
4 x 1-3/4 x 3/8 x 1/8	5	Extra Fine	SS4	61463687055
<b>Round Edge Slips – Hard Translucent Arkansas</b>				
3 x 1-3/4 x 1/4 x 1/16	5	Ultra Fine	HS3	61463687040
4 x 1-1/4 x 1/4 x 1/8	5	Ultra Fine	HS14	61463687050
4 x 1-3/4 x 3/8 x 1/8	5	Ultra Fine	HS4	61463687045

All Slips are bulk packed.

## Specialty Stones

## SPECIALTY STONES

BETTER CHOICE FOR SPECIFIC SHARPENING OR DEBURRING APPLICATIONS

### FEATURES AND BENEFITS

- Norton continues to offer specialty stones with optimum specifications and unique shapes that conform to, and quickly sharpen, specific tools

### Specialty Stones for Machine Tools

#### Gouge Sharpening Stone

This stone has a unique shape for sharpening and lapping inside and outside curved surfaces on gouges and other cutting tools.

#### Jointer Stones

These stones provide a fast method of restoring and maintaining the cutting edges of mechanical jointing devices on automatic planers.

#### Machine Knife Stone

Crystolon (silicon carbide) machine knife stones offer both coarse and fine sides for sharpening and honing paper and cloth-cutting knives and planer knives on the machine. The groove around the middle of the stone protects fingers and provides a secure hold.

#### Reamer Stones

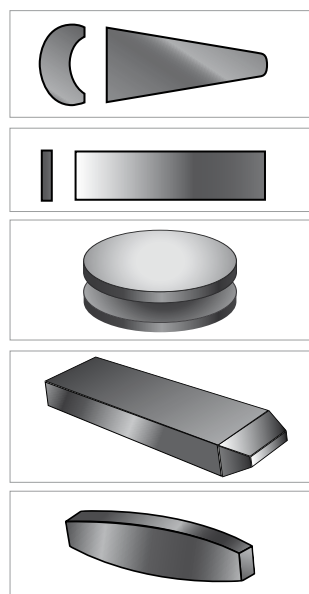
Durable, fast-cutting stones designed for imparting a professional edge on reamers, taps, and rough rounders on shoe machine tools.

#### Boat Stones

Boat Stones are medium grit, medium grade stones that are easy to hold and use. Excellent for deburring and breaking sharp edges on dies, fixtures and machined parts, and for deburring grinder magnetic chucks.

TIER: BETTER				
SIZE	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Gouge Sharpening Stone – India (Aluminum Oxide)</b>				
6 x 2 x 1 x 1/2 x 3/8	5	Fine	FS76	61463687305
<b>Jointer Stones</b>				
4 x 3/4 x 3/8 – Crystolon (Silicon Carbide)	5	Medium	JE74	61463687335
4 x 3/4 x 3/8 – India (Aluminum Oxide)	5	Coarse	IE74	61463687375
4 x 3/4 x 1/2 – Crystolon (Silicon Carbide)	5	Medium	JE84	61463687340
<b>Machine Knife Stone – Crystolon (Silicon Carbide)</b>				
4" Diam. x 1-1/2" Thick	5	Coarse/Fine	JB74	61463687570
<b>Reamer Stones – India (Aluminum Oxide)</b>				
4-1/2 x 1 x 5/16	10	Medium	MT124	61463687420
	10	Fine	FT124	61463687415
5 x 1 x 3/16	10	Medium	MT125	61463687430
	10	Fine	FT125	61463687425
6 x 1 x 1/4	10	Medium	MT126	61463687440
	10	Fine	FT126	61463687435
<b>Boat Stone – Crystolon (Silicon Carbide)</b>				
9 x 2-1/2 x 1-1/2	10	37C80-HV		61463610369
<b>Boat Stone – India (Aluminum Oxide)</b>				
9 x 2-1/2 x 1-1/2	10	38A60-IVBE		61463610503

Boat and Reamer Stones are bulk packed. All these other Specialty Stones are packed in individual boxes within a case.



### Large Specialty Stones

#### Tradesmen's Utility Stones

Used for sharpening trimming knives and as an abrasive file in many different industries. The JT910 does not have a handle, while the JT920 and JT930 have wooden handles.

#### Sickle and Scythe Stones

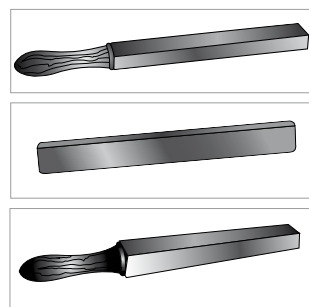
These silicon carbide stones quickly produce a fast-cutting edge on sickles, scythes, and brush hooks. These stones are most frequently chosen where the speed of sharpening is the primary consideration.

#### Utility File

A long wedge-shaped stone with four flat sides designed for sharpening coarse cutting edges on cutting implements and edged garden tools. Wooden handles make them easy to use. They will outlast and out-sharpen metal files.

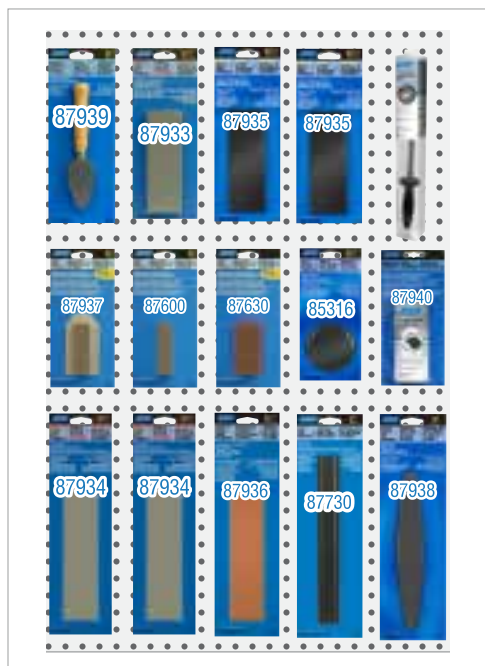
TIER: BETTER				
SIZE	QTY./CASE	SPEC.	PRODUCT #	PART #
<b>Tradesmen's Utility Stones – Crystolon (Silicon Carbide)</b>				
10 x 1-1/4 x 3/4	10	Medium	JT910	61463687665
14-3/4 Overall (with Handle)	10	Coarse/Fine	JT930	61463687675
	10	Medium	JT920	61463687670
<b>Sickle and Scythe Stones</b>				
10 x 1-1/4 x 3/4 Crystolon (Silicon Carbide)	10	Coarse	TJ3	61463687731
10 x 1-5/16 x 3/4 India (Aluminum Oxide)	10	Coarse	TD1	61463687715
<b>Utility File – Crystolon (Silicon Carbide)</b>				
14 Overall (w/ Handle)	10	Coarse	JD2	61463687750

All Large Specialty Stones are bulk packed.



## Retail Packaged Sharpening Products

Our retail-packaged line brings Norton quality to your distributor showroom, vending machine, tool crib, and your tool box. Each stone is specifically designed for a popular sharpening application and packaged to sell or carry to the job site.



		TIER: BETTER	
SIZE (L x W x H)	SPEC.	QTY./CASE	PART #
Axe and Hatchet Sharpener			
3 x 5/8 round	Coarse/Fine Crystolon (Silicon Carbide)	10	07660785316
Pocket Knife Sharpener			
3 x 7/8 x 3/8	Fine Crystolon (Silicon Carbide)	5	07660787600
3 x 7/8 x 3/8 with case	Medium India (Aluminum Oxide)	5	07660787937
3 x 1-1/2 x 1/2 with case	Coarse/Fine India (Aluminum Oxide )	5	07660787630
Economy Tool & Knife Benchstone			
6 x 2 x 3/4	Coarse/Fine Crystolon (Silicon Carbide)	5	07660787933
8 x 2 x 3/4	Coarse/Fine India (Aluminum Oxide)	10	07660787934
8 x 2 x 1	Coarse/Fine India (Aluminum Oxide)	10	61463685755
High Quality Tool & Knife Benchstone			
6 x 2 x 3/4	Coarse/Fine Crystolon (Silicon Carbide)	5	07660787935
Chisel & Planer Blade Sharpener			
8 x 2 x 3/4	Coarse/Fine India (Aluminum Oxide)	10	07660787936
Household Knife & Tool Sharpener			
7-1/2	Fine Crystolon (Silicon Carbide)	5	07660787939
Farm Tool Sharpener			
10 x 1-1/4 x 3/4	Coarse Crystolon (Silicon Carbide)	10	07660787730
Lawn & Garden Tool Sharpener			
9-1/2 x 1-3/8 x 1/2	Medium Crystolon (Silicon Carbide)	10	07660787938
Sharpening Stone Oil			
4-1/2 oz.	Oil	5	07660787940
Sharpening Steel			
1/2 x 10	Round file with rubber handle	8	66253240433
Vitrified Dressing Stick			
1 x 1 x 6	Medium Silicon Carbide	5	07660710466

## Knife and Scissor Sharpener

The knife and scissor mechanical sharpener is a quick and portable tool for hundreds of sharpening applications.



SPECIFICATION	QTY./CASE	PART #
<b>Knife and Scissor Sharpener</b>		
Carbide	6	07660787520

## Norton Professional Sharpening Products and Dressing Sticks

See the "Norton Professional Sharpening Products and Dressing Sticks Catalog #200" on [www.nortonabrasives.com](http://www.nortonabrasives.com) to view the complete list and descriptions of our many sharpening products.



Hard silicon carbide rubbing bricks are used for heavy-duty applications such as rubbing floors, cleaning and scouring castings, rubbing down concrete, and removing mold marks.

#### Applications:

**Floor Rubbing Bricks** – are used to rub down concrete and remove mold marks. These are designed to fit the chucks of common concrete floor grinding equipment. Reusable wooden wedges anchor the bricks to the equipment chucks.

**Plain Hand Rubbing Bricks** – are the choice of mechanics and foundry workers for dressing grinding wheels and cleaning or scouring castings.

**Fluted Hand Rubbing Bricks** – are used by masons and stone workers for rubbing down concrete and removing mold marks. The diagonal flutes provide sharp edges, a clean shearing action, and carry away debris.

**Fluted Hand Rubbing Bricks with Handle** – make quick work of removing mold marks and rubbing down concrete. The firmly attached handle reduces fatigue and facilitates overhead, wall, and floor work.

**Griddle Bricks** – quickly clean away carbon build-up and other residue on your grill without leaving fibers, which grill brushes often do.

Grit Range:  
Abrasive Type:  
Machine Used:

6 – 120  
Silicon Carbide



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PART #
<b>Plain Floor Rubbing Bricks with Wooden Wedges</b>				
4 x 2 x 2	6	C6-R	Silicon Carbide	61463653292
	6	C10-R	Silicon Carbide	61463653293
	6	C24-R	Silicon Carbide	61463653294
	6	C80-R	Silicon Carbide	61463653295



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PART #
<b>Floor Rubbing Brick with Center Score</b>				
8 x 2 x 2	6	C120-R*	Silicon Carbide	61463685296*

\*8" brick has a center score to facilitate dividing the brick in half – an economical alternative to buying two 4" bricks.



SIZE (L x W x H)	QTY./ CASE	PART #
<b>Wooden Wedges</b>		
	6	61463685297



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PRODUCT #	PART #
<b>Plain Hand Rubbing Bricks</b>					
8 x 2 x 2	5	C24	Silicon Carbide	BP28	61463687830



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PRODUCT #	PART #
<b>Fluted Hand Rubbing Bricks</b>					
6 x 2 x 2	5	C20	Silicon Carbide	BF26	61463687840
8 x 2 x 2	5	C20	Silicon Carbide	BF28	61463687845



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PRODUCT #	PART #
<b>Fluted Hand Rubbing Bricks with Handle</b>					
6 x 3 x 1	5	C20	Silicon Carbide	BFH6	61463687800
8 x 3-1/2 x 1-1/2	5	C20	Silicon Carbide	235	61463687795

All Bricks and Wedges are bulk packed.



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PART #
<b>Griddle Brick</b>				
4-1/2 x 3 x 2	5	Medium	Alundum	61463687870



# the brightest product solutions from **A TOTAL SPECTRUM OF INNOVATION**

For everything from heavy-to-medium stock removal, to fine finishing, to light blending and polishing, coated abrasive products are available in many shapes, abrasive grains, specialty coatings and backing configurations to meet many application needs.



## **Blaze Your Way to Greater Productivity**

The latest-generation, cooler cutting ceramic abrasive grain of Norton Blaze delivers highest productivity on stainless steel, titanium, and super alloys.



## **Unleash the Controlled Heat**

Achieve the highest productivity on mild carbon steel, stainless, and ferrous metals under the toughest conditions from stock removal to quality finish



## **True Blue - Reinvented**

Delivering success on a wide range of materials; the better choice for stainless, alloys, steel to cast iron and high-pressure applications.



The strongest of coated abrasive discs with resin over resin construction on heavy-duty fiber backing. Designed for applications ranging from heavy stock removal to surface blending. Used with back-up pads on portable angle grinders.

**Applications:** Stock removal, edge chamfering, weld blending, deburring/deflashing, rust removal, cleaning and finishing

**Size Range:** 4" x 5/8" hole, 4-1/2" – 9-1/8" x 7/8" and 5/8"-11 hole

**Grit Range:** 16 – 120

**Abrasive Grain:** Ceramic Alumina, Zirconia Alumina Blend, and Aluminum Oxide

**Product Options:** Conventional, Speed-Change hubs (5/8-11"), and AVOS technology

**Accessories:** Air-cooled, smooth-faced, and AVOS back-up pads

**Machines Used:**



## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
Stainless Steel / Titanium / Super Alloys*	Norton Blaze F980	Norton BlueFire F826P	Norton Metal F240
Mild Carbon Steel / Welds	Norton Red Heat F981	Norton BlueFire F826P	Norton Metal F240
Ferrous Metals / Cast Iron	Norton Red Heat F981	Norton BlueFire F826P	Norton Metal F240
Brass / Bronze / Aluminum	–	–	Norton Metal F240

\*Nickel/Cobalt Based – Hastelloy, Inconel, Waspalloy

## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)					FINER (FINISHING)				
16	24	30	36	40	50	60	80	100	120
Stock Removal									
		Edge Chamfering							
			Weld Blending						
				Deburring/Deflashing					
						Rust Removal			
							Cleaning and Finishing		

## CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE			INITIAL PRICE
	BEST		BETTER	GOOD
<b>NORTON</b>	Blaze F980	Red Heat F981	BlueFire F826P	Metal F240
3M	985C, 982C	988C, 983C	501C	281C GreenCorp
Camel	–	–	Zirconia	A/O
Flexovit	–	–	Flexon	High Perf
GemTex	–	–	ZEE	A
Hermes	CB844X	CB444X/J	RB414X/J	–
Klingspor	CS661	–	CS570, CS565	CS561
Metabo	–	–	Z/A	A
Mirka	–	–	Blue A/Z, Gold A/Z	Red A/O
Pearl	–	–	Zirconia	A/O Silver
Pferd	CO Cool	CO	Z Cool, Z	A
Sait	9S	8S	3Z, Z	A, 2At
SIA	–	4515	4815, 4819	4919
Standard	–	–	Zirconia	A/O
VSM	XF870	XF750	ZF745, ZF713, ZF714	KF708
Walter	–	–	Topcut, Inox	–
Weiler	–	–	Zirconium	A/O

## The Perfect Product for Every Performance/Price Level



### Norton Blaze

Latest generation ceramic alumina abrasive provides the industry's fastest cutting discs and 50-200% longer life on stainless, titanium, and super alloys.



### Norton BlueFire

Durable zirconia abrasive blend for an increased cut rate and longer life over conventional zirconia products on high pressure applications.



### Norton Metal

Versatile aluminum oxide abrasive provides a good starting specification, and good performance, when initial price is the primary purchasing consideration.



## NORTON BLAZE F980 CERAMIC ALUMINA

**BEST CHOICE FOR STAINLESS STEEL, TITANIUM, AND SUPER ALLOYS**



FEATURES	BENEFITS
• Micro-fracturing ceramic alumina grain	• Constantly exposing sharper grain edges and improved grain life
• 100% ceramic alumina grain	• Significant cut rate and life over competitive blended/low-ratio ceramic alumina discs
• Self-lubricating, advanced supersize treatment	• Minimizes heat, loading and glazing on stainless, titanium and super alloys
• Strong resin bond system	• Improved grain retention for longer life
• Extra heavy-duty backing on 50 grit and coarse disc	• Increased life and durability

## NORTON RED HEAT F981 AND F981S CERAMIC ALUMINA

**BEST CHOICE/HIGHEST PRODUCTIVITY FOR MILD CARBON STEEL (F981), STAINLESS (F981S), AND FERROUS METALS**



FEATURES	BENEFITS
• Premium, self-sharpening full-ratio ceramic abrasive grain	• Faster initial cut rate, longer life and improved finishes versus competitive ceramic discs
	• Great performance-to-price ratio
	• Excellent starting specifications when the performance of ceramic is needed
• F981: durable, long lasting	• Excellent performance on carbon steel
• F981S: supersized grinding aid	• Minimizes heat and loading on stainless and aluminum

## NORTON BLUEFIRE F826P ZIRCONIA ALUMINA

**BETTER CHOICE FOR STAINLESS, SUPER ALLOYS, STEEL, CAST IRON AND HIGH-PRESSURE APPLICATIONS**



FEATURES	BENEFITS
• High-performance zirconia alumina abrasive blend	• 15% faster cut and longer life with less power draw than conventional zirconia discs
	• Broad utility on a wide range of materials
• Vendible 10-disc package	• Ideal for vending machines, small jobs, or carrying to a job site

## NORTON METAL F240 ALUMINUM OXIDE

**GOOD CHOICE FOR SMALL JOBS, APPLICATIONS WHERE PERFORMANCE IS NOT MEASURED, AND PRICE-SENSITIVE OPERATIONS**



FEATURES	BENEFITS
• Multi-purpose aluminum oxide abrasive	• Consistent performance
	• Versatile; works on numerous materials
	• Lowest initial price



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE F980</b>	<b>RED HEAT F981</b>	<b>RED HEAT F981S</b>	<b>BLUEFIRE F826P</b>	<b>METAL F240</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Blend	Aluminum Oxide
OTHER:	Supersize		Supersize		

SIZE (D x H)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
4 x 5/8	24	25					05539510595
	36	25					05539510594
	50	25					05539510593
	60	25					05539510592
	80	25					05539510591
4-1/2 x 7/8	24	25	69957398000	77696008400	77696008462	66261138457	66623353309
	36	25	69957398001	77696008401	77696008465	66261138456	66623353306
	36	50 V				66623377276	
	50	25	69957398002	77696008402	77696008466	66261138454	66623353310
	60	25	69957398003	77696008403	77696008467	66261138453	66623353311
	60	50 V				66623377278	
	80	25	69957398004	77696008404	77696008470	66261138452	66623353312
	80	50 V				66623377279	
	100	25		77696008405			66623353313
	120	25	66254425332	77696008406			66623353314
5 x 7/8	16	25					05539510684
	24	25	69957398005	77696008407	77696008480	66261138563	66623357276
	36	25	69957398006	77696008412	77696008481	66261138562	66623357277
	36	50 V				66623377283	
	50	25	69957398007	77696008413	77696008482	66261138561	66623357278
	60	25	69957398008	77696008414	77696008483	66261138601	66623357279
	60	50 V				66623377285	
	80	25	69957398009	77696008422	77696008484	66261138600	66623357280
	100	25		77696008423			66623357281
	120	25	66254409084	77696008425			66623357282
6 x 7/8	24	25	66261160033				
	36	25	66261160034				
	50	25	66261160035				
	60	25	66261160036				
	80	25	66261160037				
7 x 7/8	16	25					05539510693
	24	25	69957398010	77696010018	77696010006	66261138594	66623357283
	36	25	69957398011	77696008429	77696010007	66261138593	66623357284
	36	50 V				66623377287	
	50	25	69957398012	77696008430	77696010008	66261138592	66623357285
	50	50 V				66623377289	
	60	25	69957398013	77696008431	77696010009	66261138591	66623357286
	80	25	69957398014	77696008432	77696010011	66261138590	66623357287
	100	25		77696008433			66623357288
	120	25	66254411528	77696008436			66623357289
9-1/8 x 7/8	24	25	69957398015	77696008437	77696010012	66261138584	05539510702
	36	25	69957398016	77696008440	77696010013	66261138583	05539510701
	50	25	69957398017	77696008444	77696010017	66261138582	
	60	25		77696008449			05539510699
	80	25		77696008452			
	100	25		77696008453			

Note: Fiber discs must be used with back-up pads shown on the last page of this section.

V = Vendible Package. Ideal for vending machines and small jobs. 10 discs/package, 5 packages per standard carton. Order in multiples of 50.



## Speed-Change Fiber Discs

These fiber discs feature Norton quick, tool-free, twist-on and -off Speed-Change fasteners. Discs lock to standard back-up pads with a unique nut design and are easily removed, increasing your productivity with more time to grind.



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>
BRAND:	Norton	Norton	Norton
TRADENAME:	<b>BLAZE F980</b>	<b>RED HEAT F981</b>	<b>BLUEFIRE F826P</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Blend
OTHER:	Supersize		

SIZE (D x H)	GRIT	STD. PKG.	PART #	PART #	PART #
4-1/2 x 5/8-11	24	25	66261023269	77696009735	
	36	25	66261185294	77696009737	
	50	25		77696009739	
	60	25	66261042247	77696009740	
	80	25	66623328529	77696009741	
	100	25		77696009746	
5 x 5/8-11	120	25		77696009747	
	24	25	66254425336	77696009748	66261138797
	36	25	66261185801	77696009749	66261138796
	50	25		77696009750	
	60	25	66261185803	77696009752	
	80	25	66623316697	77696009753	
7 x 5/8-11	100	25		77696009754	
	120	25		77696009755	
	24	25	69957349782	77696009759	66261138819
	36	25	66261029863	77696009760	66261138818
	50	25		77696009761	66261138817
	60	25	66261042249	77696009762	66261138816
	80	25	66254474373	77696009767	
	100	25		77696009771	
	120	25		77696009772	

Note: Speed Change fiber discs must always be used with smooth face back-up pads, see next page for details.

## AVOS Fiber Discs

- Patented, see-through design allows interrupted cut which reduces heat up to 30% over standard discs
- The scooped holes create air flow to pull swarf away from grinding zone; cool cutting and extended product life
- 15° back-up pad for full utilization of discs – no gouging
- Quick, tool-free, twist-on and -off Speed-Lok fasteners



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>
BRAND:	Norton	Norton	Norton
TRADENAME:	<b>BLAZE F980</b>	<b>RED HEAT F981S</b>	<b>BLUEFIRE F826P</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Blend

SIZE	GRIT	STD. PKG.	PART #	PART #	PART #
4-1/2 Speed-Lok (3 hole)	24	10	66254468389	77696008454	66261129718
	36	10	66254468390	77696008456	66261129719
	50	10	66254468391	77696008457	66261129720
	60	10	66254468392	77696008459	66261129721
	80	10	66254468393	77696008460	66261129722
5 Speed-Lok (3 hole)	24	10	66254468385	77696008471	66261126556
	36	10	66254468386	77696008474	66261126557
	50	10	66254468387	77696008475	66261126558
	60	10	66254468388	77696008477	66261126559
	80	10		77696008478	66261126560
7 Speed-Lok (6 hole)	24	10	66254468381	77696008485	66261137454
	36	10	66254468382	77696010001	66261137455
	50	10	66254468383	77696010002	66261137456
	60	10	66254468384	77696010003	66261137457
	80	10		77696010005	66261137458

Note: AVOS fiber discs must be used with AVOS Speed-Lok back-up pads, see next page for details.



## Fiber Disc Accessories



**Air-Cooled Standard Back-up Pad**  
Slotted hub design and curved ribs draw heat away from the grinding zone, reducing disc loading and increasing life. All pads have a 5/8"-11 threaded female hub for mounting. We also offer a no-nose pad for shorter-shafted right angle grinders.



**Smooth Face Speed-Change Back-up Pad**  
Molded rubber back-up pads with a smooth face.

- Hard density pads are for aggressive cutting action
- Medium density pads are for all-purpose applications



**AVOS Fiber Disc Back-up Pad**

- Patented, see-through design allows interrupted cut which reduces heat up to 30% over standard discs
- The scooped holes create air flow to pull swarf away from grinding zone; cool cutting and extended product life
- 15° back-up pad for full utilization of discs – no gouging
- Quick, tool-free, twist-on and -off Speed-Lok fasteners

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Rubber Back-up Pads</b>			
<b>Air-Cooled Standard</b>			
4" Medium	12,000	5	63642504918
4-1/2" Medium	11,000	5	63642502122
5" Medium	10,000	5	63642543421
6"	8,500	1	66261160043
7" Hard	8,600	5	63642543425
7" Medium	8,600	5	63642543422
9" Hard	6,600	5	63642543426
9" Medium	6,600	5	63642543423
<i>Note: Retainer nuts are not included with back-up pads. These must be ordered separately.</i>			
<b>Air-Cooled No-Nose</b>			
4-1/2" Medium	11,000	5	63642504872
5" Medium	10,000	5	63642503000
7" Medium	8,600	5	66254487375+
<b>Smooth Face / Speed-Change</b>			
4-1/2" Medium	20,000	5	66254492277
5" Medium	12,000	5	63642543235
7" Hard	8,600	5	63642543240
7" Medium	8,600	5	63642543245
9" Medium	7,000	5	63642543270
<b>AVOS Speed-Lok Back-up Pads</b>			
<b>AVOS Triangular Speed-Lok Back-up Pads</b>			
4-1/2" x 5/8-11	13,000	5	63642502985
5" x 3/8-24 Pistol Grip*	20,000	5	63642503029
5" x 5/8-11	13,000	5	63642502517
5" x 7/16-20 Pistol Grip*	20,000	5	63642503030
<b>AVOS Speed-Lok Back-up Pads – Round</b>			
7 x 5/8-11 Hard	8,600	5	63642504873
*Use on air pneumatic and high-speed pistol grip sanders			
<b>Tools</b>			
#103 Retainer Nut	—	10	63642543463
Spanner Wrench	—	5	63642543005
66NS Short Retainer Nut	—	10	63642543461

+ Non-stock. Ask your Norton representative for current order quantities, lead-times, and quotation.

All fiber disc back-up pads are packed in individual boxes within the shipping carton. Each box can be used in a vending machine.



## Corner Store Convenience – Right on the Floor

Metal Fabrication Vending Solutions


– Industry's best selection of vendible abrasive solutions

See the many popular products conveniently pre-packed in small quantity packages

- Perfect for vending machines, pegboards, new test orders, small orders and jobs, and carrying cleanly to job site
- Pre-selected product assortment for optimal coverage of popular applications
- Available in fiber, flap, paper, and quick-change discs, belts, hand pads, depressed center, cut-off and bench wheels, mounted points, cones and plugs, and sharpening stones



Flap discs are versatile grinding and finishing tools having four main components: abrasive flaps, flap density (how the flaps are stacked), backing plate shape (flat or conical), backing plate material (fiberglass or plastic). All flap discs have flaps that are overlapped and glued to the backing plate. The flaps wear during use, exposing new abrasive grain. The different variations of the components above provide a variety of application choices ranging from heavy stock removal to blending to finishing. Flap discs are designed for portable grinder applications and can be the preferred choice over depressed center wheels or fiber discs.

Applications:	Grinding, stock removal, edge chamfering/beveling, weld blending, deburring/deflashing, rust removal, blending, cleaning and finishing
Size Range:	4": 5/8" hole 4-1/2" - 7": 5/8"-11 discard mount, 7/8" hole, and 2" - 3" quick-change
Grit Range:	24 - 120
Abrasive Grain:	Ceramic Alumina, Zirconia Alumina, and Aluminum Oxide
Abrasive Flaps:	Polyester, Cotton/Poly Blend
Flap Disc Shape:	Type 27 Flat and Type 29 Conical
Abrasive Flap Density:	Standard or high
Backing Plate Material:	Fiberglass and plastic
Machine Used:	

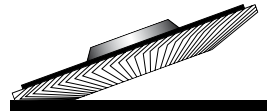
## FLAP DISC SHAPES



GRIND AT FLATTER ANGLES:  
**0° - 15°**

### Type 27 Flat – The Best Choice for Finishing

- Used primarily on flat surfaces
- The best choice for blending and smooth finishing



GRIND AT STEEPER ANGLES:  
**15° - 25°**

### Type 29 Conical – The Best Choice for Aggressive Stock Removal

- Conical flap discs have angled flaps and may be used on both contoured and edge work
- The angle provides greater surface contact for stock removal on flat surfaces
- The best choice when speed and stock removal are primary considerations

## ABRASIVE FLAP DENSITIES



### Standard Density

- Excellent for heavy-duty applications and rapid stock removal

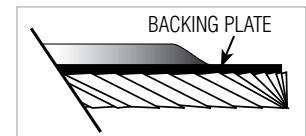


### High Density

- Ideal when working on uneven or curved surfaces, as well as finer grit blending

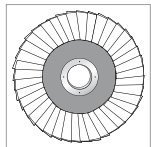
## BACKING PLATE MATERIALS

All flap discs are a combination of abrasive flaps adhered to a rigid backing plate. It is the backing plate that provides stability during operation. There are two main materials used: fiberglass and plastic. The fiberglass backing plate, along with the flap shape, helps to absorb vibration and is consumed during use with no smearing. Fiberglass is the most popular material because of its high strength and light weight. The plastic backing plate offers some additional conformability and is trimmable.



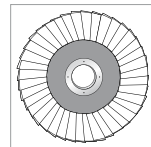
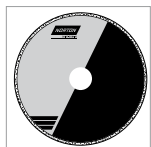
## WHY CHOOSE FLAP DISCS?

Flap discs replace both grinding wheels and fiber discs. The same flap disc can be used for applications ranging from stock removal to blending.



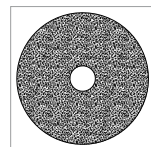
### Flap Discs vs. Grinding Wheels

- Faster stock removal
- Smoother finish, no gouging
- Cooler cutting, less glazing
- Lightweight, easier to control
- Less vibration, less operator fatigue
- Reduced noise



### Flap Discs vs. Fiber Discs

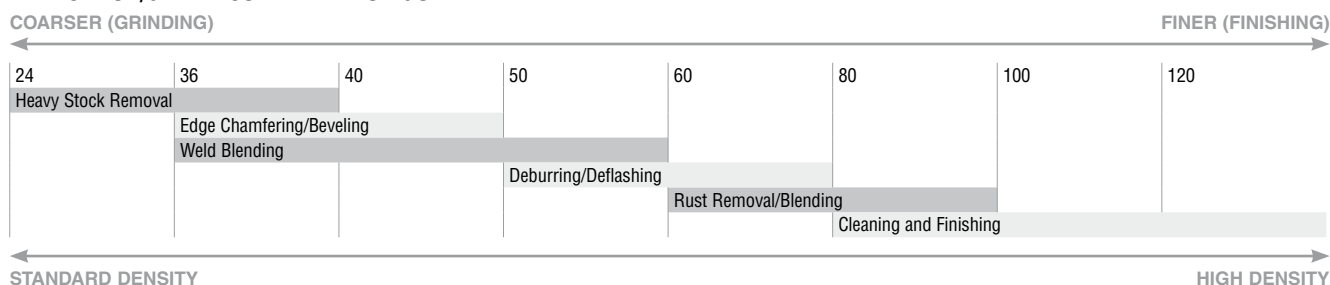
- 20X longer life, reduced abrasive cost
- Fewer disc changes, reduced labor cost
- More consistent finish
- No back-up pad required
- Easier storage, no curling
- Reduced loading
- Use flap discs one grit size coarser than fiber discs, except in 36 grit.



## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
<b>TYPE 29 FOR STOCK REMOVAL</b>			
Stainless Steel / Titanium / Super Alloys	Norton Blaze R980P	Norton BlueFire R884P	Norton Metal R828
Mild Carbon Steel / Welds	Norton Red Heat R983	Norton BlueFire R884P	Norton Metal R828
Ferrous Metals / Cast Iron	Norton Red Heat R983	Norton BlueFire R884P	Norton Metal R828
Brass / Bronze / Aluminum	—	Norton BlueFire R884P	
<b>TYPE 27 FOR BLENDING AND FINISHING</b>			
Stainless Steel / Titanium / Super Alloys	Norton Blaze R980P	Norton BlueFire R884P	Norton Metal R828
Mild Carbon Steel / Welds	Norton Red Heat R983	Norton BlueFire R884P	Norton Metal R828
Ferrous Metals / Cast Iron	Norton Red Heat R983	Norton BlueFire R884P	Norton Metal R828
Brass / Bronze / Aluminum	—	Norton BlueFire R884P	Norton Metal R828

## APPLICATION/GRIT RECOMMENDATION GUIDE



## CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE		INITIAL PRICE	
	BEST		BETTER	GOOD
<b>NORTON</b>	Blaze R980P	Red Heat R983	BlueFire R884P	Norton Metal R828
3M	Cubitron II 967A, 947D	747D	563D, 546D	—
DeWalt	—	—	—	Z/A
Camel	—	C3	Z-Stainless	Z3
Flexovit	—	—	—	Zircotex Premium, Zircotex HP
Garryson	—	—	Zirc+, Zirconium	—
GemTex	—	Ceramic	—	Zirconia
Hermes	—	—	—	—
Klingspor	SMT 996	—	SMT 630	SMT 618, 619, 624, 626, 627, 628, 640
Metabo	—	—	—	Z/A
Pearl	Red Line CB	Stainless Max	Zirconia Premium, TuffMax	Z/A Silver Line
Pferd	CO-Cool	Ceramic	Cool Zirconia, CO-COOL	Zirconia
Sait	—	—	Z	—
SIA	—	—	—	Z/A
Standard	—	Ceramic Oxide	Zirconia Pro	Zirconia
Tyrolit	—	—	Z/A	—
Walter	Enduro-Flex Stainless	—	Enduro Flex	—
Weiler	—	Saber Tooth Ceramic	—	Tiger Zirconium, Vortec

## When You Want Fast and Tough, You Want Norton

Whether you want maximum productivity or simply the lowest initial cost solution, Norton products are the solution for all your right angle grinding and blending applications.



**BEST Norton Blaze**  
Highest Productivity – Lowest Total Cost



**BETTER Norton BlueFire**  
Exceptional Blend of Performance and Price



**GOOD Norton Metal**  
Good Performance – Low Initial Price



## NORTON BLAZE R980P CERAMIC ALUMINA

**BEST/HIGHEST PRODUCTIVITY FOR STAINLESS STEEL, TITANIUM, AND SUPER ALLOYS**

### FEATURES & BENEFITS

- Latest-generation ceramic alumina abrasive grain lasts 50% – 200% longer than any flap discs on stainless steel, cobalt, chrome, Inconel, titanium and other hard-to-grind materials
- Y-weight polyester flaps with a supersize grinding aid significantly improve life, grain retention, and fray resistance while providing a cool, noticeably fast cut rate
- High-strength fiberglass back on Type 29 and Type 27 High Density is durable, lightweight, and absorbs vibration
- Black, flexible plastic backing plate on Type 27 Quick Trim is the industry standard for trimmability
- 2" and 3" quick-change mini flap discs are ideal for tight spaces



## NORTON RED HEAT R983 CERAMIC ALUMINA

**BEST/HIGH PRODUCTIVITY FOR MILD CARBON STEEL, CAST IRON AND FERROUS METALS**

### FEATURES & BENEFITS

- Our exclusive premium ceramic alumina abrasive blend cuts faster and outlasts aluminum oxide and zirconia abrasives in most applications.
- New, thicker, Y+-weight engineered backing provides extended durability and reduced edge wear
- Advanced self-lubricating grain treatment reduces heat on hard-to-grind materials
- Trimmable Type 27 plastic backing discs are engineered for finishing
- Type 29 conical fiberglass backing flap discs excel at aggressive stock removal
- Type 29 fiberglass high-density flap discs last 40% longer than standard density flap discs on contoured surfaces



## NORTON BLUEFIRE R884P ZIRCONIA ALUMINA

**BETTER CHOICE FOR MILD CARBON STEEL, AND WELDS**

### FEATURES & BENEFITS

- High performance zirconia alumina plus abrasive for aggressive cut and long life, with up to 30% longer life than competitive zirconia alumina products
- Polyester flaps with semi-open coat provide improved durability and retards loading on aluminum
- High-strength fiberglass back on Type 29 and Type 27 High Density is durable, lightweight, and absorbs vibration
- Blue, flexible plastic backing plate on Type 27 Quick Trim is the industry standard for trimmability
- Vendible 2-disc package is ideal for vending machines, small jobs, or carrying to a job site
- 2" and 3" quick-change mini flap discs are ideal for tight spaces



## NORTON METAL R828 ZIRCONIA ALUMINA

**GOOD CONSISTENT PERFORMANCE WITH LOW INITIAL PRICE**

### FEATURES & BENEFITS

- Durable zirconia alumina abrasive provides good cut rate and life with consistent finish





TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>RED HEAT R983</b>	<b>RED HEAT R983</b>	<b>BLUEFIRE R884P</b>	<b>METAL R828</b>	<b>METAL R828</b>
SHAPE:	Type 29 Conical	Type 29 Conical	Type 29 Conical	Type 29 Conical	Type 29 Conical	Type 29 Conical
FLAP DENSITY:	Standard	Standard	High	Standard	Standard	High
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Plus	Zirconia Alumina	Zirconia Alumina
BACKING PLATE:	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass
OTHER:	Supersize	Supersize	Supersize			

SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
<b>Type 29 Conical</b>									
4 x 5/8	36	15,300	10				66623399049		
	40	15,300	10				66623399050		
	60	15,300	10				66623399051		
	80	15,300	10				66623399052		
4-1/2 x 5/8-11	36	13,300	10	66261183490	66261132771		66254461165	66254419991	
	36	13,300	10 V				66623341104 2-Pack		
	40	13,300	10	66261183491	66261132772	66261132844	66254461167	66254419994	66261132535
	60	13,300	10	66261183492	66261132773	66261132845	66254461170	66254419996	66261132536
	60	13,300	10 V				66623341105 2-Pack		
	80	13,300	10	66261183493	66261132774	66261132846	66254461173	66254419997	66261132537
	80	13,300	10 V				66623341106 2-Pack		
	120	13,300	10		66261132775				
4-1/2 x 7/8	24	13,300	10				66623399204		
	36	13,300	10	66261183486	66261132776		66254461155	66254419963	
	36	13,300	10 V				66623341107 2-Pack		
	40	13,300	10	66261183487	66261132777	66261132847	66254461161	66254419978	66261132538
	60	13,300	10	66261183488	66261132778	66261132848	66254461163	66254419984	66261132539
	60	13,300	10 V				66623341108 2-Pack		
	80	13,300	10	66261183489	66261132779	66261132849	66254461164	66254419987	66261132540
	80	13,300	10 V				66623341109 2-Pack		
5 x 5/8-11	120	13,300	10		66261132780				
	36	12,000	10		66261132781		66623399189		
	36	12,000	10 V				66623341110 2-Pack		
	40	12,000	10		66261132782		66623399190		
	60	12,000	10		66261132783		66623399191		
	80	12,000	10		66261132784		66623399192		
5 x 7/8	120	12,000	10		66261132785				
	24	12,000	10				66623399206		
	36	12,000	10	66261190001	66261132786		66254461174	66254419998	
	40	12,000	10	66261190002	66261132787		66254461176	66254420001	
	60	12,000	10	66261190003	66261132788		66254461177	66254420002	
	80	12,000	10	66261190004	66261132789		66254461178	66254420003	
6 x 5/8-11	120	12,000	10		66261132790				
	40	10,200	10					66254491779	
	60	10,200	10					66254491780	
6 x 7/8	80	10,200	10					66254491781	
	24	10,200	10				66623399066		
	36	10,200	10				66623399298		
	40	10,200	10		66261132791		66623399193	66254491776	
	60	10,200	10		66261132792		66623399194	66254491777	
7 x 5/8-11	80	10,200	10		66261132793		66623399195	66254491778	
	36	8,600	10	66261183498	66261132794		66254461188	66254420009	
	40	8,600	10	66261183499	66261132795	66261132850	66254461190	66254420010	66261132541
	60	8,600	10	66261183500	66261132796	66261132851	66254461192	66254420012	66261132542
	80	8,600	10	66261183501	66261132797	66261132852	66254461193	66254420013	66261132543
	120	8,600	10		66261132798				
7 x 7/8	24	8,600	10				66623399196		
	36	8,600	10	66261183494	66261132799		66254461180	66254420004	
	40	8,600	10	66261183495	66261132800	66261132853	66254461183	66254420006	66261132544
	60	8,600	10	66261183496	66261132801	66261132854	66254461185	66254420007	66261132545
	80	8,600	10	66261183497	66261132802	66261132855	66254461186		66261132546
	120	8,600	10		66261132803				

V = Vendible package. 2 discs/package; 5 packs/carton. Order in multiples of 10.



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>BLAZE R980P</b>	<b>RED HEAT R983</b>	<b>BLUEFIRE R884P</b>	<b>BLUEFIRE R884P</b>	<b>METAL R828</b>
SHAPE:	Type 27 Flat	Type 27 Flat	Type 27 Flat	Type 27 Flat	Type 27 Flat	Type 27 Flat
FLAP DENSITY:	Standard	High	Standard	Standard	High	Standard
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Plus	Zirconia Alumina Plus	Zirconia Alumina
BACKING PLATE:	Quick Trim Plastic	Fiberglass	Quick Trim Plastic	Quick Trim Plastic	Fiberglass	Fiberglass
OTHER:	Supersize	Supersize	Supersize			

SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
<b>Type 27 Flat</b>									
4 x 5/8	40	15,300	10			66261132804			
	60	15,300	10			66261132805			
	80	15,300	10			66261132806			
4-1/2 x 5/8-11	36	13,300	10		66254499894		66623399136		66254472655
	36	13,300	10 V			66261132807	66623341086 2-Pack		
	40	13,300	10	66254400257	66261098290	66261132808	66623399137	77696090086	66254437013
	60	13,300	10	66254400258	66261096435	66261132809	66623399138	77696090087	66254472656
	60	13,300	10 V				66623341087 2-Pack		
	80	13,300	10	66254400259	66261096436	66261132810	66623399139	77696090088	66254472657
	120	13,300	10	66254400261		66261132811			
4-1/2 x 7/8	36	13,300	10	63642501865	66261097678	66261132812	66623399140	77696090081	66254472653
	40	13,300	10	66254400253	66261020628	66261132813	66623399141	77696090082	66254437004
	60	13,300	10	66254400254	66261020633	66261132814	66623399142	77696090083	66254448989
	60	13,300	10 V				66623341090 2-Pack		
	80	13,300	10	66254400255	66261020634	66261132815	66623399143	77696090084	66254448990
	120	13,300	10	66254400256		66261132816		77696090085	
						66261132817	66623399144		
5 x 5/8-11	40	12,000	10	77696090141	66261132141	66261132818	66623399145		
	60	12,000	10	77696090142	66261132142	66261132819	66623399146		
	80	12,000	10	77696090143	66261132144	66261132820	66623399147		
	120	12,000	10	77696090144		66261132821			
						66261132822	66623399148		66254472659
5 x 7/8	40	12,000	10	66254400262	66261132131	66261132823	66623399149		66254472660
	60	12,000	10	66254400264	66261132133	66261132824	66623399150		66254472661
	80	12,000	10	66254400265	66261132134	66261132825	66623399151		66254472662
	80	12,000	10 V				66623341097 2-Pack		
	120	12,000	10	66254400519		66261132826			
6 x 5/8-11	40	10,200	10	66261132128	66261132145	66261132827			66254491773
	60	10,200	10	66261132129	66261132146	66261132828			66254491774
	80	10,200	10	66261132130	66261132147	66261132829			66254491775
6 x 7/8	40	10,200	10	66261132123	66261132135	66261132830	66623399152		66254491770
	60	10,200	10	66261132124	66261132136	66261132831	66623399153		66254491771
	80	10,200	10	66261132125	66261132137	66261132832	66623399154		66254491772
7 x 5/8-11	120	10,200	10			66261132833			
	36	8,600	10			66261132834	66623399155		66254472669
	40	8,600	10	66254461066	66261132148	66261132835	66623399156	77696090092	66254472670
	60	8,600	10	66254461067	66261132168	66261132836	66623399157	77696090093	66254472671
	80	8,600	10	66254461068	66261132171	66261132837	66623399158	77696090094	66254472672
7 x 7/8	120	8,600	10	66254461069		66261132838			
	36	8,600	10	63642501866		66261132839	66623399159		66254472664
	40	8,600	10	66254461059	66261132138	66261132840	66623399160	77696090089	66254472665
	60	8,600	10	66254461060	66261132139	66261132841	66623399161	77696090090	66254472666
	80	8,600	10	66254461061	66261132140	66261132842	66623399162	77696090091	66254472667
	120	8,600	10	66254461063		66261132843			

V = Vendible package. Ideal for vending machines & small jobs. 2 Flap Discs/pack, 5 packs/carton. Order in multiples of 10.

## NORTON BLUEFIRE R884P ZIRCONIA ALUMINA

PACKAGED FOR RETAIL / WALK-IN SELLING / SMALL JOBS



### FEATURES & BENEFITS

- Zirconia alumina plus abrasive for aggressive cut and long life
- Individual hang card provides product selling points
- Product ships in merchandisable display case of small quantities
- Available wire rack (with header card) allows merchandising of 4" and 4-1/2" product three ways: hung on pegboard, mounted on an upright, or placed on a shelf/counter

TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **BLUEFIRE R884P**  
SHAPE: Type 29  
FLAP DENSITY: Standard  
ABRASIVE: Zirconia Alumina Plus  
BACKING PLATE: Fiberglass

SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #
4 x M-10	40	15,300	5	07660703214
	60	15,300	5	07660703215
	80	15,300	5	07660703216
4-1/2 x 5/8-11	40	13,300	5	07660703211
	60	13,300	5	07660703212
	80	13,300	5	07660703213
7 x 5/8-11	40	8,600	5	07660703205
	60	8,600	5	07660703206
	80	8,600	5	07660703207
Wire Rack			2	07660704157



WIRE RACK (WITH HEADER CARD)  
ALLOWS MERCHANDISING OF 4"  
AND 4-1/2" PRODUCT THREE WAYS:  
HUNG ON PEGBOARD, MOUNTED ON  
AN UPRIGHT, OR PLACED ON A  
SHELF/COUNTER

## NORTON MINI FLAP DISCS

PACKAGED FOR RETAIL / WALK-IN SELLING / SMALL JOBS

### FEATURES & BENEFITS

- High performance ceramic and zirconia alumina abrasive blend provides maximum cut rate and life
- Layered flaps wear away evenly, producing a high quality and consistent finish



TR (TYPE III)

TS (TYPE II)

TIER: **BEST**  
BRAND: Norton  
TRADENAME: **BLAZE R980P**  
ABRASIVE: Ceramic Alumina  
FLAP: Polyester  
BACKING MATERIAL: Extra Heavy-Duty Plastic  
ATTACHMENT: TR (Type III)

SIZE (D)	GRIT	STD. PKG.	PART #
2	36	10	77696090145
	40	10	77696090146
	60	10	77696090147
	80	10	77696090148
	120	10	77696090149
3	36	10	77696090150
	40	10	77696090151
	60	10	77696090152
	80	10	77696090153
	120	10	77696090154

TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **BLUEFIRE R884P**  
ABRASIVE: Zirconia Alumina Plus  
FLAP: Polyester  
BACKING MATERIAL: Extra Heavy-Duty Plastic  
ATTACHMENT: TR (Type III)

SIZE (D)	GRIT	STD. PKG.	PART #
2	36	10	77696090165
	40	10	77696090166
	60	10	77696090167
	80	10	77696090168
	120	10	77696090169
3	36	10	77696090170
	40	10	77696090171
	60	10	77696090172
	80	10	77696090173
	120	10	77696090174

TIER: **BEST**  
BRAND: Norton  
TRADENAME: **BLAZE R980P**  
ABRASIVE: Ceramic Alumina  
FLAP: Polyester  
BACKING MATERIAL: Extra Heavy-Duty Plastic  
ATTACHMENT: TS (Type II)

SIZE (D)	GRIT	STD. PKG.	PART #
2	36	10	77696090155
	40	10	77696090156
	60	10	77696090157
	80	10	77696090158
	120	10	77696090159
3	36	10	77696090160
	40	10	77696090161
	60	10	77696090162
	80	10	77696090163
	120	10	77696090164

TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **BLUEFIRE R884P**  
ABRASIVE: Zirconia Alumina Plus  
FLAP: Polyester  
BACKING MATERIAL: Extra Heavy-Duty Plastic  
ATTACHMENT: TS (Type II)

SIZE (D)	GRIT	STD. PKG.	PART #
2	36	10	77696090175
	40	10	77696090176
	60	10	77696090177
	80	10	77696090178
	120	10	77696090179
3	36	10	77696090180
	40	10	77696090181
	60	10	77696090182
	80	10	77696090183
	120	10	77696090184

DESCRIPTION	MAX. RPM	STD. PKG.	TR (TYPE III)	TS (TYPE II)
<b>Mini Flap Disc Back-up Pads</b>				
2" Medium Density Back-up Pad	30,000	1	08834164922	08834164198
3" Medium Density Back-up Pad	20,000	1	08834164949	08834164113





For use on dual action and random orbital sanders. The industry's highest performing and broadest selection of paper discs in PSA (pressure sensitive adhesive) disc rolls and individual discs, and hook and loop discs.

Applications:	Stripping and preparing primed and painted surfaces for finishing, sanding of plastics, fiberglass and composites, bare wood sanding, light weld blending, preparing and finishing metal, and sanding of all gel coat and body filler compounds
Size Range:	3" – 8"
Grit Range:	36 – 1500
Abrasive Grain:	Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide
Attachment Systems:	PSA (pressure-sensitive adhesive), hook and loop
Paper Weights:	Heavyweight – E and F; Lightweight – B and C
Vacuum Holes:	See product availability charts
Machine Used:	



## MATERIAL/APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

	<b>BEST</b> Highest Productivity Lowest Total Cost		<b>BETTER</b> Excellent Blend of Performance & Price		<b>GOOD</b> Consistent Performance: Low Initial Price
	Heavy-Medium Stock Removal	Light Stock Removal-Finishing	Heavy-Medium Stock Removal	Light Stock Removal-Finishing	Light Stock Removal-Finishing
Primed, Painted Surfaces		Dry Ice A975	BlueFire H875P	OP A275	Gold Reserve A296
Fiberglass / Composites / Gel Coats		Dry Ice A975	BlueFire H875P	OP A275	Gold Reserve A296
Wood		Dry Ice A975	BlueFire H875P	OP A275	Gold Reserve A296
Metal	Norton SG H920	Dry Ice A975	BlueFire H822	OP A275	Gold Reserve A296
Body Fillers / Compounds / Plastics		Dry Ice A975	BlueFire H875P	OP A275	Gold Reserve A296

## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)										FINER (FINISHING)									
36	40	60	80	100	120	150	180	220	240	280	320	360	400	500	600	800	1000	1200	1500
Roughing to Intermediate				Intermediate to Finishing										Fine Finishing					
																			Ultra Fine Finishing

## CROSS REFERENCE GUIDE

	TOTAL PERFORMANCE							INITIAL PRICE	
	<b>BEST</b>		<b>BETTER</b>					<b>GOOD</b>	
	F-Wt.	B- & C-Wt.	F-Wt.	E-Wt.	B-Wt.	B-Wt.-Wt.	B-Wt.	C-Wt.	B-Wt.
<b>NORTON</b>	Norton SG H920	Dry Ice A975	BlueFire H822	BlueFire H875P	OP A275	A270	Durite A475	A290	Gold Reserve A296
3M	763U, 751I	734U, 735U, 765L	–	750U, 751U, 740I, 745I	216U, 255L, 260L, 334U	210U, 268L, 360L	414N, 415N, 405N, 415U, 435U	236U	214U, 316U Red. NX
Hermes	CB115	–	BW 115	–	VC154-LL	VC152	PSF-LL, SF168	HCAB-LL, HC135, VC151-LL	–
Indasa	–	–	–	–	RedLine	–	–	–	WhiteLine
Klingspor	–	PS36	PS20, PS21, PS22	–	PS33	–	PL35	PS33	PL36
Mirka	–	–	–	Royal Coarse Cut	Q-Silver, Royal, Royal Micro	Silver	CaratFlex, PolarStar	Bulldog Gold, Basecut	Carat (B), Basecut
SIA	–	1950	1820, 1919	1820, 1919	1940, 1950	–	1748	1947	–
VSM	–	–	–	KP510E, KP709	MPG	–	CP131A	KP911	MP10

## Heavyweight Paper Discs



### NORTON SG H920 CERAMIC ALUMINA

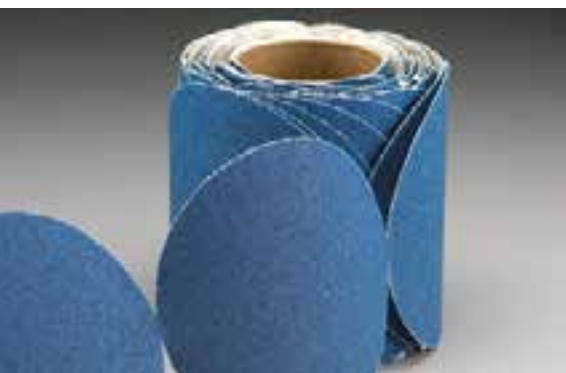
**BEST CHOICE FOR MOST DEMANDING STOCK REMOVAL APPLICATIONS**

#### FEATURES

- Durable and friable Norton SG ceramic alumina abrasive
- Strong, heavy F-weight paper, synthetically-coated

#### BENEFITS

- Fast aggressive cutting action, yet cool cutting
- Maximum durability and resistance to edge chipping and shedding
- Premier product for metal fabricating and blending; ideal for soldered and welded areas



### NORTON BLUEFIRE H822 ZIRCONIA ALUMINA

**BETTER CHOICE FOR AGGRESSIVE METALWORKING APPLICATIONS**

#### FEATURES & BENEFITS

- Patented zirconia alumina abrasive provides 2X-3X life over aluminum oxide products
- Strong F-weight paper, synthetically-coated for excellent durability and chip resistance
- Designed for "metal in the white" and a variety of wood sanding operations where aggressive cutting action and extra durable backing are needed
- Non-stearated (no anti-loading agents) for non-contaminating; often required for prime auto and aerospace paint applications
- Pressure sensitive adhesive and linked disc roll format allow easy application, removal, and dispensing



### NORTON BLUEFIRE H875P ZIRCONIA ALUMINA

**BETTER CHOICE FOR SOFT MATERIAL AND WOOD APPLICATIONS**

#### FEATURES

- Next-generation zirconia alumina abrasive
- Strong, heavy, E-weight paper
- Open coat design

#### BENEFITS

- Extended life over original zirconia alumina products
- Improved cut rate
- Increased durability and chip resistance, flexible
- Reduced loading; ideal for body-filler, fiberglass, wood and composites

Stick & Sand (PSA)  
Heavyweight Disc Rolls  
Non-Vacuum



TIER: <b>BEST</b>					BETTER		BETTER	
BRAND: Norton					Norton		Norton	
TRADENAME: <b>SG H920</b>					<b>BLUEFIRE H822</b>		<b>BLUEFIRE H875P</b>	
ABRASIVE: Ceramic Alumina					Zirconia Alumina		Zirconia Alumina	
PAPER BACKING WEIGHT: F-Weight					F-Weight		E-Weight	
FASTENING: PSA					PSA		PSA	
SIZE	GRIT	ROLLS/STD. PKG.	DISCS/ ROLL	PART #	PART #		PART #	
5	60	4	100	66261149873	66261137310			
	80	4	100	66261149872	66261137309		66261124977	
	100	4	100	66261149871	66261137308			
	120	4	100	66261149870	66261137307			
6	60	4	100		66261137323			
	80	4	100	66261149876	66261137322		66261125573	
	120	4	100	66261149874				
8	100	4	50	66261149879				
	120	4	50		66261137333			

Refer to the end of this section for back-up pads and accessories.

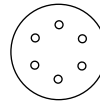
## Heavyweight Paper Discs

Stick & Sand (PSA)  
Individual Discs  
Non-Vacuum and Vacuum



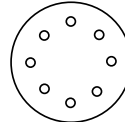
TIER:	<b>BETTER</b>	<b>BETTER</b>
BRAND:	Norton	Norton
TRADENAME:	<b>BLUEFIRE H875P</b>	<b>BLUEFIRE H875P</b>
ABRASIVE:	Zirconia Alumina	Zirconia Alumina
PAPER BACKING WEIGHT:	E-Weight	E-Weight
FASTENING:	PSA	PSA Vacuum

SIZE	GRIT	MIN./STD PKG.	PART #	PART #
5"	36	50/200	66261125436	
	40	50/200	66261125307	
	80	50/200	66261125244	



6" X 6 Hole  
Die #3371

6"	36	50/200	66261123575	
	40	50/200	66261123574	66261123580
	80	50/200	66261123573	



8" X 8 Hole  
Die #3370

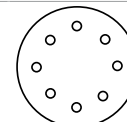
8"	36	25/100	66261123578	66261123584
	40	25/100	66261123577	
	80	25/100	66261123576	66261123582

Hook & Loop  
Individual Discs  
Non-Vacuum and Vacuum



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>
BRAND:	Norton	Norton	Norton
TRADENAME:	<b>SG H920</b>	<b>BLUEFIRE H875P</b>	<b>BLUEFIRE H875P</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Zirconia Alumina
PAPER BACKING WEIGHT:	F-Weight	E-Weight	E-Weight
FASTENING:	Hook & Loop	Hook & Loop	Hook & Loop
OTHER:			Vacuum

SIZE	GRIT	MIN./STD PKG.	PART #	PART #	PART #
5"	40	25/100		66261125684	
	60	50/250	66261149864		
	80	50/250	66261149865	66261125444●	
	100	50/250	66261149866		
	120	50/250	66261149867		
6"	36	25/100		66261123590	
	40	25/100		66261123589	
	80	25/100		66261123588	



8 in. x 8 Hole  
Die #3370

8"	36	25/100		66261123593	66261123598
	40	25/100		66261123592	
	80	25/100		66261123591	66261123596

Packaging Standards: Min. / Std. Pkg. ● H875P = 25/100



## NORTON DRYICE A975 NO-FIL CERAMIC ALUMINA

**BEST CHOICE FOR THE MOST DEMANDING SANDING APPLICATIONS**

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>P-graded Norton SG ceramic alumina abrasive</li> <li>Unique fiber-reinforced, flexible B- and C-weight latex-saturated backing</li> <li>Water-based No-Fil stearate, non-pigmented</li> <li>EXPANDED OFFERING! Multi-Air Cyclonic A975 hook and loop laser-cut vacuum discs</li> </ul>	<ul style="list-style-type: none"> <li>Fastest cut rate; longest life of any paper disc</li> <li>50-60% improvement in tear strength, longer life in all applications</li> <li>Flexible</li> <li>Provides maximum load resistance and extended life</li> <li>No color transfer to work</li> <li>Revolutionary design for maximum vacuum assist (see product page for more details and availability)</li> </ul>



## NORTON OP A275 NO-FIL ALUMINUM OXIDE

**BETTER CHOICE FOR HIGH-PERFORMANCE DRY FINISHING ON ALL MATERIALS**

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Premium P-graded, heat-treated aluminum oxide abrasive</li> <li>Unique fiber-reinforced, flexible B-weight latex-saturated backing</li> <li>Water-based stearate, non-pigmented, No-Fil coating</li> <li>5" and 6" individual PSA discs in fine grits have a tabbed, white translucent liner</li> </ul>	<ul style="list-style-type: none"> <li>Superior life, fast cut rate, consistent finish</li> <li>50-60% improvement in tear strength</li> <li>Flexible</li> <li>Provides maximum load resistance and extended life</li> <li>No color transfer to work</li> <li>The PSA adhesive is protected from airborne contaminants</li> <li>The tab allows easier removal of the paper liner</li> </ul>



## NORTON DURITE A475 NO-FIL SILICON CARBIDE

**BETTER CHOICE FOR HARD-TO-SAND SURFACES AND WOOD APPLICATIONS**

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>P-graded, hard, silicon carbide abrasive</li> <li>Water-based stearate, non-pigmented, No-Fil coating</li> <li>Durable, fiber-reinforced, B-weight latex paper</li> </ul>	<ul style="list-style-type: none"> <li>Easy penetration of the hardest surfaces</li> <li>Resists loading for the longest usable product life</li> <li>No color transfer to work</li> <li>Provides flexibility and resistance to tearing</li> </ul>



## NORTON GOLD RESERVE A296 NO-FIL ALUMINUM OXIDE

**GOOD CHOICE FOR SANDING A BROAD RANGE OF SUBSTRATES INCLUDING PRIMED OR PAINTED SURFACES, WOOD, COMPOSITES, ALUMINUM, AND FERROUS METALS**

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>P-graded premium aluminum oxide abrasive produces a quick, cool cut and a more consistent surface finish</li> <li>Strong B-weight latex/paper backing resists tearing while staying conformable and flexible</li> <li>Water-based, non-loading (No-Fil) stearate resists clogging and increases disc life</li> <li>Pressure sensitive adhesive disc roll, and hook and loop disc options allow easy application, removal, and dispensing</li> </ul>	



## Lightweight Paper Discs

Stick & Sand (PSA)  
Lightweight Disc Rolls  
Non-Vacuum



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>DRYCE A975 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>DURITE A475 NO-FIL</b>	<b>GOLD RESERVE A296 NO-FIL</b>	<b>A290 NO-FIL</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Silicon Carbide	Aluminum Oxide	Aluminum Oxide
PAPER BACKING WEIGHT:	B- & C-Weight	B-Weight	B-Weight	B-Weight	C-Weight
FASTENING:	PSA	PSA	PSA	PSA	PSA
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded

SIZE	GRIT	ROLLS/ STD. PKG.	DISCS/ ROLL	PART #	PART #	PART #	PART #	PART #
3-1/2	80	4	100		66261136376			
	120	4	100		66261136375			
	180	4	100		66261136373			
	220	4	100		66261136372			
	280	4	100		66261136370			
	320	4	100		66261136369			
5	400	4	100		66261136368			
	60	4	100					66261149831
	80	4	100	66261140502	66261131464*	66254487415	66261183806	66261149830
	100	4	100	66261140501	66261131463*	66254487417	66261183807	66261149829
	120	4	100	66261140500	66261131462*	66254487418	66261183808	66261149828
	150	4	100	66261140499	66261131461*	66254487440	66261183809	66261149827
	180	4	100	66261140498	66261131460*	66254487441	66261183810	66261149826
	220	4	100	66261142474	66261131459*	66254487442	66261183811	66261149825
	240	4	100	66261155380	66261131458*	66254487443	66261183812	66261149824
	280	4	100	66261155379	66261131457*			66261149823
	320	4	100	66261155378	66261131456*	66254487444	66261183813	66261149822
	400	4	100	66261155377	66261131454*	66261065293	66261183814	66261149821
	500	4	100		66261131453*			
	600	4	100	66623305608	66261131452*	66254421217		
	800	4	100	66254480230	66261131451*	66254401221		
6	60	4	100					66261149847
	80	4	100	66261140512	66261131481*	66254487446	66261183815	66261149842
	100	4	100	66261140511	66261131480*		66261183816	66261149841
	120	4	100	66261140510	66261131479*	66254487447	66261183817	66261149840
	150	4	100	66261140509	66261131478*		66261183818	66261149839
	180	4	100	66261140508	66261131477*	66254487448	66261183819	66261149838
	220	4	100	66261148340	66261131476*	66254487449	66261183820	66261149837
	240	4	100	66261155376	66261131475*		66261183821	66261149836
	280	4	100		66261131474*			66261149835
	320	4	100	66261155374	66261131473*	66254487450	66261183822	66261149834
	400	4	100	66261155373	66261131471*		66261183823	66261149833
	500	4	100	63642506198	66261131470*			
	600	4	100	63642506199	66261131469*		66261040261	
	800	4	100	63642506200	66261131468*		63642506164	
8	80	4	100		66261131617			
	120	4	100		66261131615			
	150	4	100		66261131614			
	180	4	100		66261131613			
	220	4	100		66261131612			
	320	4	100		66261131609			

\* Packaging Standards A275 = 6/100

Refer to the end of this section for back-up pads and accessories.

## Lightweight Paper Discs

Stick & Sand (PSA)  
Lightweight Disc Rolls  
Vacuum



TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **OP A275 NO-FIL**  
ABRASIVE: Aluminum Oxide  
PAPER BACKING WEIGHT: B-Weight  
FASTENING: PSA  
OTHER: P-Graded




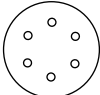
TIER: **GOOD**  
BRAND: Norton  
TRADENAME: **A290 NO-FIL**  
ABRASIVE: Aluminum Oxide  
C-Weight  
PSA  
P-Graded

Stick & Sand (PSA)  
Individual Discs  
Non-Vacuum



TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **OP A275 NO-FIL**  
ABRASIVE: Aluminum Oxide  
PAPER BACKING WEIGHT: B-Weight  
FASTENING: PSA Tabbed  
OTHER: P-Graded

SIZE	GRIT	ROLLS/ STD. PKG.	DISCS/ ROLL	PART #	ROLLS/ STD. PKG.	DISCS/ ROLL	PART #
							
				5 in. X 5 Hole Die #3329			
5"	60				4	100	66261130266
	80	6	100	66261131498	4	100	66261130265
	100	6	100	66261131497	4	100	66261130264
	120	6	100	66261131496	4	100	66261130263
	150	6	100	66261131495	4	100	66261130262
	180	6	100	66261131494	4	100	66261130261
	220	6	100	66261131493	4	100	66261130260
	240	6	100	66261131492	4	100	66261130259
	320	6	100	66261131490	4	100	66261130258
	400	6	100	66261131488			
	500	6	100	66261131487			

							
				6 in. X 6 Hole Die #3333			
6"	80	6	100	66261131515	4	100	66261130276
	100	6	100	66261131514	4	100	66261130275
	120	6	100	66261131513	4	100	66261130274
	150	6	100	66261131512	4	100	66261130273
	180	6	100	66261131511	4	100	66261130272
	220	6	100	66261131510	4	100	66261130271
	240	6	100	66261131509			
	280	6	100	66261131508			
	320	6	100	66261131507	4	100	66261130268
	400	6	100	66261131505			
	600	6	100	66261131503			

Refer to the end of this section for back-up pads and accessories.



## PSA Disc Roll Dispenser

- Norton disc roll dispensers feature heavy-duty construction and a rubberized finish to protect your product, as well as the finish on your workpiece
- These versatile dispensers are designed to accommodate any 5" or 6" disc roll or sheet roll
- They can be attached to a wall or stacked for multi-grit or multi-diameter operations
- Discs are individually dispensed and removed from the roll by a cutter bar

DESCRIPTION	STD. PKG.	PART #
<b>PSA Disc Roll Dispenser</b>		
Single Disc Roll Dispenser	1	63642542772
Double Disc Roll Dispenser (shown)	1	63642502981

## Lightweight Paper Discs

# MULTI-AIR CYCLONIC HOOK & LOOP VACUUM

## LESS DUST; MORE PRODUCTIVITY



EXPANDED  
OFFERING

### FEATURES

- Precision laser-cut, spiral-hole design based on the Golden Ratio
- Norton SG ceramic alumina grain
- Unique fiber-reinforced latex/paper backing
- Water-based stearate coating (No-Fil)

### BENEFITS

- Maximum dust extraction for cleaner work environment and less potential for contamination
- Consistent cut throughout the life of the disc
- Superior cut on difficult to sand surfaces
- Substantially longer life and faster cut than conventional abrasives
- Quick, cool cut
- Flexible, strong and tear resistant
- Load resistant for extended product life



TIER: **BEST**

BRAND: Norton

TRADENAME: **DRY ICE A975 NO-FIL**

ABRASIVE: Ceramic Alumina

PAPER BACKING WEIGHT: B- & C-Weight

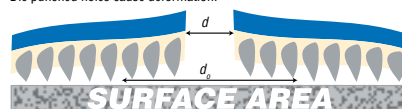
FASTENING: Hook & Loop

OTHER: P-Graded

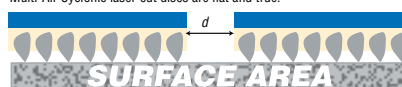
SIZE	GRIT	MIN./ STD PKG.	PART #
3"	80	50/200	77696095005
	120	50/200	77696095006
	150	50/200	77696095007
	180	50/200	77696095008
	220	50/200	77696095009
	240	50/200	77696095010
	320	50/200	77696095011
	400	50/200	77696095012
	500	50/200	77696095013
	600	50/200	77696095014
5" x 11/16" (125mm x 18mm)	800	50/200	77696095015
	1000	50/200	77696095016
	80	50/200	77696007745
	120	50/200	77696007753
	150	50/200	77696007755
	180	50/200	77696007756
	220	50/200	77696007757
	240	50/200	77696007760
	280	50/200	77696007762
	320	50/200	77696007763
6" x 11/16" (150mm x 18mm)	400	50/200	77696007765
	500	50/200	77696007768
	600	50/200	77696007791
	800	50/200	77696007793
	1000	50/200	77696007795
	80	50/200	77696007770
	120	50/200	77696007773
	150	50/200	77696007774
	180	50/200	77696007775
	220	50/200	77696007776
	240	50/200	77696007777
	280	50/200	77696007778
	320	50/200	77696007781
	400	50/200	77696007784
	500	50/200	77696007785
	600	50/200	77696007786
	800	50/200	77696007787
	1000	50/200	77696007788



Die punched holes cause deformation.



Multi-Air Cyclonic laser-cut discs are flat and true.



### Improved Dust Extraction / Increased Productivity

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

The end result is more holes for dust extraction, more abrasive coverage for a better cut and no deformation – for full surface contact utilizing all the cutting power of the premium ceramic grain.

Refer to the end of this section for back-up pads and accessories for Norton Multi-Air Cyclonic Discs.

## Lightweight Paper Discs

Hook & Loop  
Individual Discs  
Non-Vacuum



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
CAP CODE:	<b>DRY ICE A975 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>DURITE A475 NO-FIL</b>	<b>GOLD RESERVE A296 NO-FIL</b>	<b>A290 NO-FIL</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Silicon Carbide	Aluminum Oxide	Aluminum Oxide
PAPER BACKING WEIGHT:	B- & C-Weight	B-Weight	B-Weight	B-Weight	C-Weight
FASTENING:	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded

SIZE	GRIT	MIN./ STD PKG.	PART #	PART #	PART #	PART #	PART #
3"	80	50/200		66261131532			
	100	50/200		66261144926			
	120	50/200		66261128688			
	150	50/200		66261140385			
	180	50/200		66261131528			
	220	50/200		66261131527			
	240	50/200		66261131526			
	320	50/200		66261131524			
	400	50/200		66261136995			
	500	50/200		66261131521			
	600	50/200		66261136996			
	800	50/200		66261131519			
	1000	50/200		66261135900			
	1500	50/200		66261147434			
5"	60	100/400					66261130224
	80	100/400	66261140522‡	66261131549		66623377539	66261149907
	100	100/400	66261140521‡	66261131548			66261149906
	120	100/400	66261140520‡	66261131547		66623377541	66261149905
	150	100/400	66261140519‡	66261131546		66623377542	66261149904
	180	100/400	66261140518‡	66261131545		66623377543	66261149903
	220	100/400	66261149541‡	66261131544		66623305637	66261149902
	240	100/400	66261149540‡	66261131543		66254457751	
	280	100/400		66261131542			
	320	100/400	66261149538‡	66261131541		66623305638	66261149900
	400	100/400	66261149537‡	66261131539	66261052270	66623305639	66261149899
	500	100/400	66254480233‡	66261131538			
	600	100/400		66261131537	66254421221	66261105390	
	800	100/400	66254480232‡	66261131536	66261052267	66623377544	
	1000	100/400		66261131535	66261052254		
	1200	100/400		66261131534			
	1500	100/400		66261131533			
6"	80	100/400	66261140532‡	66261131566		63642506236*	66261149916
	100	100/400	66261140531‡	66261131565		63642506235*	66261149915
	120	100/400	66261140530‡	66261131564		63642506234*	66261149914
	150	100/400	66261140529‡	66261131563		63642506233*	66261149913
	180	100/400	66261140528‡	66261131562		63642506232*	66261149912
	220	100/400	66261149546‡	66261131561		63642506231*	66261149911
	240	100/400		66261131560		63642506225*	
	280	100/400		66261131559			66261149910
	320	100/400	66261149543‡	66261131558		63642506230*	66261149909
	400	100/400	66261149542‡	66261131556		63642506229*	66261149908
	500	100/400	63642506202‡	66261131555		63642506228*	
	600	100/400	63642506203‡	66261131554		63642506227*	
	800	100/400	63642506204‡	66261131553		63642506226*	
	1000	100/400	63642506375‡	66261131552	66261052255		
	1200	100/400	63642506376‡	66261131551			
	1500	100/400	63642506377‡	66261131550			
8"	120	100/400		66261131662			
	180	100/400		66261131661			

Packaging Standards: Min. / Std. Pkg. ‡ A975 = 50/200 \* A296 = 50/250

Refer to the end of this section for back-up pads and accessories.



## Lightweight Paper Discs

Hook & Loop  
Individual Discs  
Vacuum



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
CAP CODE:	<b>DRY ICE A975 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>GOLD RESERVE A296 NO-FIL</b>	<b>A290 NO-FIL</b>	<b>A290 NO-FIL</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
PAPER BACKING WEIGHT:	B- & C-Weight	B-Weight	B-weight	C-Weight	C-Weight
FASTENING:	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded

SIZE	GRIT	MIN./ STD PKG.	PART #	PART #	PART #	PART #	PART #
			5 in. x 5 Hole Die #3328	5 in. x 5 Hole Die #3328		5 in. x 5 Hole Die #3328	5 in. x 8 Hole Die #3392
5	60	100/400				66261130236‡	66261130245‡
	80	100/400	66261140517‡	66261131583		66261130235‡	66261130244‡
	100	100/400		66261131582		66261130234‡	66261130243‡
	120	100/400	66261140515‡	66261131581		66261130233‡	66261130242‡
	150	100/400		66261131580		66261130232‡	66261130241‡
	180	100/400		66261131579		66261130231‡	66261130240‡
	220	100/400		66261131578		66261130230‡	66261130239‡
	240	100/400		66261131577			
	320	100/400		66261131575		66261130227‡	66261130238‡
	400	100/400		66261131573		66261130226‡	
				66261131571			
			6 in. x 6 Hole Die #3371	6 in. x 6 Hole Die #3371	6 in. x 6 Hole Die #3371	6 in. x 6 Hole Die #3371	
6	80	100/400	66261140527‡	66261131600	66623334786‡	66261130255‡	
	100	100/400		66261131599	66623334787‡		
	120	100/400		66261131598	66623334788‡	66261130253‡	
	150	100/400		66261131597	66623334789‡		
	180	100/400		66261131596	66623334790‡	66261130251‡	
	220	100/400		66261131595	66623334791‡	66261130250‡	
	280	100/400		66261131593			
	320	100/400	66261149553‡	66261131592	66623334793‡		
	400	100/400		66261131590	66623334794‡		
	600	100/400		66261131588	66623334796‡		
	800	100/400		66261131587	66623334797‡		
	1000	100/400		66261131586			
	1500	100/400		66261131584			

Packaging Standards: ‡ A975 Vacuum, A296 Vacuum, A290 Vacuum = 50/200

Refer to the end of this section for back-up pads and accessories.

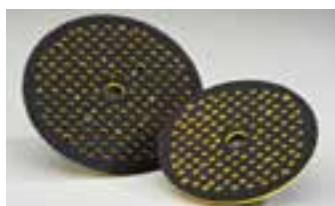
# PAPER DISC ACCESSORIES



## Multi-Air Foam Interface Pads

- Designed for use with fine grit Multi-Air Cyclonic hook and loop sanding discs to improve both surface finish and cut rate
- Use with Multi-Air hook and loop disc back-up pads
- Align the interface pad with the Multi-Air back up pad then simply attach the disc to the interface pad because the holes do not have to be lined up

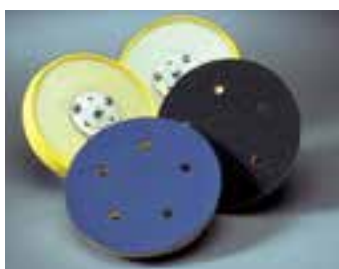
DESCRIPTION	STD. PKG.	PART #
<b>Multi-Air Foam Interface Pads with Vacuum Holes</b>		
5" Diameter x 1/2" Thick Pad	8	63642585864
6" Diameter x 1/2" Thick Pad	12	07660719359



## Multi-Air Hook & Loop Back-up Pads with Vacuum Holes

- Innovative design optimized for maximum air flow and powerful dust extraction
- Pads are engineered with a durable urethane foam, heat-resistant plastic, a molded-in 5/16"-24 spindle, and hooked face
- Holes in the disc do not have to be matched up with the holes in the pad, so changeover is fast and easy

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Multi-Air Hook &amp; Loop Back-Up Pads with Vacuum Holes</b>			
5" (125mm) with 5/16"-24 Shank, Medium-Density Urethane Pad	15,000	5	66623376000
6" (150mm) with 5/16"-24 Shank, Medium-Density Urethane Pad	15,000	5	63642506160



## Low-Profile Pads for Dual Action / Random Orbital Sanders

- Soft density low-profile pads utilize 1/2" thick foam for fine finish sanding and offer moderate conformability
- Medium low-profile pads have 1/2" thick urethane foam for intermediate and finish sanding
- Available with PSA (pressure sensitive adhesive) or hook and loop faces; both designs are shock resistant and have a fiberglass backing plate with a riveted 5/16"-24 threaded shank for added strength and increased heat resistance
- Available with standard hole patterns for vacuum-assist sanding

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Low Profile Pads for DA/Random Orbital Sanders</b>			
3" Hook & Loop Soft Low-Profile	12,000	10	63642506128
3-1/4" Hook & Loop Buffing Pad		5	66261085302
5" PSA Soft Low-Profile	12,000	5	63642506126
5" PSA Medium Low-Profile	15,000	5	63642506131
5" PSA Medium Low-Profile with 5 vacuum holes	15,000	5	63642506132
5" Hook & Loop Soft Low-Profile	12,000	5	63642506129
5" Hook & Loop Medium Low-Profile	15,000	5	63642506135
5" Hook & Loop Medium Low-Profile with 5 vacuum holes	15,000	5*	63642506136
6" PSA Soft Low-Profile	12,000	5	63642506127
6" PSA Medium Low-Profile	15,000	5	63642506133
6" Hook & Loop Soft Low-Profile	12,000	5	63642506130
6" Hook & Loop Medium Low-Profile	15,000	5	63642506137
6" Hook & Loop Medium Low-Profile with 6 vacuum holes	15,000	5	63642506138
8" Hook & Loop Medium Low-Profile with 8 vacuum holes, 5 screw	1,500	5	63642543712
8" Hook & Loop Medium Low-Profile with 8 vacuum holes, 6 screw	1,500	5	63642543714

Packed in individual clamshell



## Tapered Pads for Dual Action / Random Orbital Sanders

- Designed with medium density polyurethane foam and a tapered edge for conformability, these pads are firm enough for flat surfaces, yet soft enough for severe curves and contours
- Available with either PSA (vinyl, pressure sensitive adhesive) or hook and loop faces in vacuum or non-vacuum
- The 5" and 6" pads are shock resistant and have a fiberglass backing plate with a riveted 5/16"-24 threaded shank for use on random orbital or dual action sanders
- The 8" pads have a 5/8"-11 threaded female hub

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Tapered Pads for DA/Random Orbital Sanders</b>			
5" PSA Medium Tapered	15,000	5	63642506139
5" PSA Medium Tapered with 5 vacuum holes	15,000	5	63642506140
5" Hook & Loop Medium Tapered	15,000	5	63642506143
5" Hook & Loop Medium Tapered with 5 vacuum holes	15,000	5	63642506144
6" PSA Medium Tapered	15,000	5	63642506141
6" PSA Medium Tapered with 6 vacuum holes	15,000	5	63642506142
6" Hook & Loop Medium Tapered	15,000	5	63642506145
6" Hook & Loop Medium Tapered with 6 vacuum holes	15,000	5	63642506146
8" PSA Medium Tapered	6,000	5	63642543112
8" Hook & Loop Medium Tapered	3,200	5	63642543704

Packed in individual clamshell

# PAPER DISC ACCESSORIES



## Hook & Loop Foam Interface Pads

- Designed for use with our fine grit hook and loop sanding discs
- Improve both surface finish and cut rate
- Use with hook and loop back-up pads

DESCRIPTION	STD. PKG.	PART #
<b>Foam Hook &amp; Loop Interface Pads</b>		
3" Diameter, 1/2" Thick Interface	10	63642505457
6" Diameter, 1/2" Thick Interface	5	63642542089
5" Diameter, 3/4" Thick Interface	2	63642502161
6" Diameter, 3/4" Thick Interface	2	63642502162



## Half Moon Hand Pad

- The unique half moon pad takes a standard 5" hook and loop disc folded in half, which adheres to the hooks on the pad face
- The straight edge of the pad allows the operator to sand corners, contours, narrow crevices and minute imperfections without over-sanding

DESCRIPTION	STD. PKG.	PART #
<b>Half Moon Hand Pad</b>		
5" Hook & Loop	10	63642502768



## Polishing Adapter Pad

- Converts your standard hook and loop pad into a soft polishing pad
- The foam adapter is 3/8" thick and is excellent for fine grits where minimal removal is required
- It is ideal for either flat or contour surfaces

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Polishing Adapter Pad</b>			
5" Hook & Loop Adapter Pad	3,786	10	63642503121



## Ergonomic Hand Sanders



- The ergonomic palm sander is uniquely designed to be user-friendly, with finger indentations for the operator
- It quickly converts standard 5" and 6" hook and loop discs into hand sanders for finishing flat surfaces

DESCRIPTION	STD. PKG.	PART #
<b>Ergonomic Hand Sander</b>		
5" Hook & Loop	5	63642503147
6" Hook & Loop	5	63642503726



## Disc Hand Pads



- Hand pads eliminate finger sanding
- The ultra-thin 3/16" thick pad is composed of a single layer of neoprene foam and is designed for maximum flexibility – producing excellent finishes
- The 1" thick pad is composed of two layers, neoprene and polyester foam, for excellent conformability and softness, resulting in fine finishes
- Each pad has an elastic hand strap to hold it firmly in place.
- Available with either PSA (vinyl, pressure sensitive adhesive) faces or hook and loop face

DESCRIPTION	STD. PKG.	PART #
<b>Disc Hand Pads</b>		
5" x 3/16" Thick Soft Foam PSA	10	63642503111
5" x 1" Thick Soft Foam PSA	10	63642502842
5" x 1" Thick Soft Foam Hook & Loop	10	63642503117



## Panel and Adhesive Cleaner

- Removes adhesives, tar, grease, wax, body sealers, undercoating sprays, and silicone from most surfaces
- Aggressive cleaner is safe to use on most paint applications
- Packaged with squirt dispenser
- Use as directed

DESCRIPTION	STD. PKG.	PART #
<b>Panel and Adhesive Cleaner</b>		
Quart Can	12	07660782780

# FILM & FOAM FINISHING DISCS



For use on random orbital and rotary sanders. The industry's highest performing film and foam finishing discs are engineered for composite, automotive, and other fine finishing applications. Norton microfinishing film discs produce superior finishes dry without sacrificing cut rate while Norton foam finishing discs are used moist to produce a semi-polished surface to reduce buffing time.

- Applications:** Film discs: final dry finishing of primed and painted surfaces, varnishes, composites, and gel coats before buffing  
Foam finishing discs: final moist finishing of clear coat, varnishes, composites, and gel coats before buffing  
Compounds and buffing pads: removes swirl marks and sand scratches
- Size Range:** 3", 5" and 6"
- Grit Range:** Film Discs: P80-P1500  
Foam Discs: P1500, P2000, P3000
- Machine Used:**



## NORTON PURE ICE Q175 A/O FINISHING FILM

**BEST CHOICE FOR FINAL DRY FINISHING OF PRIMED AND PAINTED SURFACES, VARNISHES, COMPOSITES, AND GEL COATS**



FEATURES	BENEFITS
• White aluminum oxide grain and patented resin system	• Better life, cut rate, and finish
• 3 mil polyester backing	• Better flexibility and flatness of discs
• Hook and loop attachment system	• Quick, easy mounting and removal
• Color-coded backprint by grit size	• Easy grit identification

## NORTON Q275 NO-FIL A/O FINISHING FILM

**GOOD CHOICE FOR DRY SANDING APPLICATIONS, ESPECIALLY UNEVEN, HARD-TO-SAND SURFACES**



FEATURES & BENEFITS	
• Sharp, P-graded, heat-treated premium aluminum oxide grain ensures faster yet cooler cut for a longer life	
• 3-mil polyester film backing delivers unmatched durability and tear strength with exceptional flatness for a flawless surface finish and reduced leveling and rework	
• Water-based stearate (No-Fil) coating provides maximum load resistance when sanding dry for extended life without clogging	
• Hook and loop attachment system allows quick and easy mounting and clean removal	

## NORTON ICE Q255 A/O FINISHING FOAM

**BEST CHOICE FOR MOIST FINISHING OF CLEAR COATS, VARNISHES, COMPOSITES, AND GEL COATS**



FEATURES	BENEFITS
• Integrated foam backing	• Eliminate pigtails and costly re-work • Conformable to contours
• Open mesh design	• Equal pressure distribution for quicker sanding • Uniform scratch pattern
• Produces a semi-polished finish	• Quick and easy to buff out
• Hook and loop attachment system	• Quick, easy mounting and removal
• Color coded abrasive face by grit size	• Easy grit identification





TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>PURE ICE Q175</b>	<b>Q275 NO-FIL</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide
BACKING WEIGHT:	3 mil Polyester Film	3 mil Polyester Film
OTHER:	P-Graded	P-Graded

TIER:	<b>BEST</b>
BRAND:	Norton
TRADENAME:	<b>ICE Q255</b>
ABRASIVE:	Aluminum Oxide
BACKING WEIGHT:	Foam
OTHER:	P-Graded

SIZE	GRIT	MIN./STD. PKG.	COLOR	PART #	PART #	MIN./STD. PKG.	PART #	PART #
3	P800	50/200	Black	77696088701				
	P1000	50/200	Red	77696088702				
	P1200	50/200	Green	77696088703				
	P1500	50/200	Blue	77696088704		6/24	Blue	63642506022
	P3000	50/200				6/24	Green	63642506020
5	P80	50/200			66261101614			
	P120	50/200			66261101613			
	P150	50/200			66261101612			
	P180	50/200			66261101610			
	P220	50/200			66261101609			
	P240	50/200			66261101608			
	P320	50/200			66261101607			
	P400	50/200			66261101606			
	P600	50/200			66261101604			
	P800	50/200			66261101603			
	P1000	50/200			66261101602			
	P1200	50/200			66261101601			
	P1500	50/200			66261101600			
	P80	50/200			66261101628			
	P120	50/200			66261101627			
6	P150	50/200			66261101626			
	P180	50/200			66261101625			
	P220	50/200			66261101624			
	P320	50/200			66261101622			
	P800	50/200	Black	77696088713	66261101618			
	P1000	50/200	Red	77696088714	66261101617			
	P1200	50/200	Green	77696088715	66261101616			
	P1500	50/200	Blue	77696088716	66261101615	15/60	Blue	63642506015
	P2000	50/200				15/60	Magenta	63642506014
	P3000	50/200				15/60	Green	63642506013

Refer to the following page for back-up pads and accessories.





**Norton Liquid Ice  
Extra-Cut  
Compound**

- Water soluble; easy to use and easy to clean up
- Engineered to be used with a selection of 3 pads, depending on the finish required.

DESCRIPTION	STD. PKG.	STD. CASE	PART #
Quart – Norton Liquid Ice Extra-Cut Compound	1	4	63642597116



**Norton Liquid Ice  
Clean-up/  
Detailer Spray**

- The spray detailer easily cleans up excess buffing residue and produces paint protection
- Spray it on and wipe off with a Norton Microfiber cloth ("Non-Abrasive Products" section)

DESCRIPTION	STD. PKG.	STD. CASE	PART #
32 oz. Spray Bottle Clean-up Detailer	1	4	63642542082



**Norton Liquid Ice  
Ultra-Fine Machine  
Glaze**

- Use on its own for fine scratch removal or as Step 3 in place of Norton Liquid Ice Extra-Cut Compound to eliminate swirl marks and produce a high gloss finish
- Ideal for dark-colored vehicles

DESCRIPTION	STD. PKG.	STD. CASE	PART #
Quart – Norton Liquid Ice Ultra-Fine Machine Glaze	1	4	63642506092



**8" Hook & Loop  
Buffing/Polishing  
Waffle Pads**

- These pads can be used with Norton Liquid Ice Extra-Cut Compound.

DESCRIPTION	STD. PKG.	STD. CASE	PART #
8" Orange Waffle Foam pad - Step 1	1	6	63642506379
8" Blue Waffle Foam Pad - Step 2	1	6	63642506380
8" White Waffle Foam Pad - Step 3	1	6	63642506381



**8" and 9"  
Hook & Loop  
Buffing/Polishing  
Pads**

- These pads can be used with Norton Liquid Ice Extra-Cut Compound following the step numbers

DESCRIPTION	STD. PKG.	STD. CASE	PART #
8" Super Cut Wool Pad - Step 1	1	6	63642542077
9" Blue Cutting Foam Pad - Step 2	1	6	63642542078
9" White Finishing Foam Pad - Step 3	1	6	63642542079



**3" Hook & Loop  
Buffing/Polishing  
Pads**

- For small spot repair.

DESCRIPTION	STD. PKG.	STD. CASE	PART #
3" Super Cut Wool Pad - Step 1	10	40	63642543832
3" Blue Cutting Foam Pad - Step 2	10	40	63642505459
3" White Finishing Foam Pad - Step 3	10	40	63642505460



**Low-Profile Back-up  
Pads for Dual  
Action / Random  
Orbital Sanders**

- Soft density low-profile pads utilize 1/2" thick foam for fine finish
- Shock-resistant and have a fiberglass backing plate with a riveted 5/16"-24 threaded shank for added strength/increased heat resistance.

DESCRIPTION	MAX. RPM	STD. CASE	PART #
3" Hook & Loop Soft Low-Profile	12,000	10	63642506128
6" Hook & Loop Soft Low-Profile	12,000	5	63642506130



**Black Lambswool  
Hook & Loop  
Polishing Pads**

- Distributing and applying material evenly and consistently, these dense, durable, lambswool pads are designed to repair clearcoat finishes.

DESCRIPTION	STD. CASE	PART #
3" Pad with Loop – 3/4" nap	40	63642503670
4" Pad with Loop – 3/4" nap	250	63642503671



**Hook & Loop  
Back-up Pads for  
8" and 9" Buffing  
Pads**

- Black plastic back-up plate with hook and loop face. Moulded in 5/8"-11 threaded female hub.

DESCRIPTION	STD. PKG.	STD. CASE	PART #
8" and 9" Hook & Loop Back-up Pad	1	3	63642542080

# CLOTH PSA DISCS AND ACCESSORIES



Norton PSA (pressure sensitive adhesive) individual cloth discs and disc rolls are used on four different types of machines and the application changes depending on which machine they are used on.

## Applications:

Pneumatic and Electric Dual-Action (DA) and Electric Random Orbital Sanders – for use on contours or flat surfaces for light- to medium-pressure grinding, blending, leveling, and finishing applications

Stationary Disc Sanders – used in woodworking and metalworking for stock removal, sanding/grinding flat surfaces, dimensioning and finishing

## Size Range:

5" – 24" diameter

## Grit Range:

24 – 180

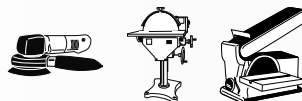
## Abrasive Grain:

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide

## Back-up Pads:

Rubber, with hardness variations for different applications, for portable machines. Steel for stationary disc sanders

## Machine Used:



## NORTON BLAZE R980P CERAMIC ALUMINA

### BEST CHOICE FOR ALL HARD-TO-GROUND HIGH ALLOY STEELS

#### FEATURES

- Norton SG ceramic alumina abrasive
- Durable resin bond
- Self-lubricating supersize treatment
- Strong Y-weight polyester backing

#### BENEFITS

- Coolest cut; significantly faster cut rate
- Better grain adhesion, edge-fray resistance
- Cool cut on harder-to-grind materials
- Long life and consistent cut



## NORTON BLUEFIRE R821P ZIRCONIA ALUMINA

### BETTER CHOICE FOR GRINDING AND DEBURRING STAINLESS STEEL

#### FEATURES

- Self-sharpening, zirconia alumina abrasive
- Heavy Y-weight backing

#### BENEFITS

- Cooler cut, extended life over aluminum oxide discs
- Durable; reduced edge wear



## NORTON METALITE R228 ALUMINUM OXIDE

### GOOD CHOICE FOR GENERAL PURPOSE METALWORKING

#### FEATURES

- Premium aluminum oxide abrasive
- Heavy X-weight backing

#### BENEFITS

- Long life
- Durable
- Ideal for aggressive stock removal applications
- Resistant to heat

# CLOTH PSA DISCS AND ACCESSORIES

## Cloth PSA Discs for Dual-Action and Random Orbital Sanders


TIER: **BEST**

BRAND: Norton

TRADENAME: **BLAZE R980P**

ABRASIVE: Ceramic Alumina

ATTACHMENT: PSA Discs

OTHER: Supersize


TIER: **GOOD**

BRAND: Norton

TRADENAME: **METALITE R228**

ABRASIVE: Aluminum Oxide

ATTACHMENT: PSA Discs


TIER: **GOOD**

BRAND: Norton

TRADENAME: **METALITE R228**

ABRASIVE: Aluminum Oxide

ATTACHMENT: PSA Discs Roll

SIZE (D)	GRIT	MIN./STD. PKG.	PART #	PART #	ROLLS/PKG / DISCS/ROLL	PART #
5	36	50/250	66254461506*	66261136589		
	40	50/250	66254461507	66261136588		
	50	50/250	66254461508	66261136587	4/100	66261133252
	60	50/250	66254461509	66261136586	4/100	66261133253
	80	50/250	66254461510	66261136585	4/100	66261133254
	100	50/250		66261136584		
	120	50/250	66254461512	66261136583		
	150	50/250		66261136582		
6	180	50/250		66261136581		
	60	50/250		66261136596		
	80	50/250		66261136595		
	100	50/250		66261136594		
8	120	50/250		66261136593		
	180	50/250		66261136592		
	36	50/250		66261136350		
	40	50/250		66261136351		
	50	50/250		66261136352		
	60	50/250		66261136576		
	80	50/250		66261136354		
	120	50/250		66261136355		

\*Min./Std. Pkg.: Blaze R980 5" 36 grit discs = 50/200

## Back-up Pads for Cloth PSA Discs

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Back-up Pads for Cloth PSA Discs</b>			
5" Diameter – Low Profile – Soft	12,000	5	63642506126
5" Diameter – Low Profile – Medium	12,000	5	63642506131
5" Diameter – Tapered – Medium	12,000	5	63642506139
6" Diameter – Low Profile – Soft	10,000	5	63642506127
6" Diameter – Low Profile – Med	10,000	5	63642506133
6" Diameter – Tapered – Medium	10,000	5	63642506141
8" Diameter – Tapered – Medium	6,000	5	63642543112





# CLOTH PSA DISCS AND ACCESSORIES

## Large Diameter Cloth PSA Discs

Used on stationary disc machines for dimensioning and finishing metal workpieces and woodworking. Pressure sensitive adhesive offers fast, convenient mounting. Made without center holes for full-face usage.



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>BLUEFIRE R821P</b>	<b>METALITE R228</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide
ATTACHMENT:	PSA	PSA	PSA
OTHER:	Supersize		

SIZE (D)	GRIT	MIN./STD. PKG.	PART #	PART #	PART #
10	36	25/50			66261136606
	40	25/50		66261138314	66261136604
	50	25/50			66261136607
	60	25/50		66261138316	66261136602
	80	25/50		66261138317	66261136601
	100	25/50			66261136600
12	24	25/50		66261138318	
	36	25/50	66254416171	66261138319	66261136635
	40	25/50	66254416172	66261138320	66261136630
	50	25/50	66254416173	66261138321	66261136625
	60	25/50	66254416174	66261138322	66261136620
	80	25/50	66254416175	66261138323	66261136615
	100	25/50			66261136614
	120	25/50	66254416176		66261136613
15	36	25/50			66261136666
	40	25/50			66261136665
	60	25/50			66261136663
	80	25/50			66261136662
16	36	25/50			66261136700
	40	25/50			66261136685
	50	25/50			66261136684
	60	25/50		66261138334	66261136683
	80	25/50			66261136701
18	36	25/50			66261136720
	60	25/50			66261136696
	80	25/50			66261136723
20	36	25/50	66254416165	66261138343	66261136710
	40	25/50		66261138344	66261136709
	50	25/50	66254416167		66261136711
	60	25/50	66254416168	66261138346	66261136712
	80	25/50	66254416169		66261136706
	120	25/50	66254416170		
24	36	10/10			66261136718
	40	10/10			66261136717
	50	10/10			66261136725
	60	10/10			66261136726
	80	10/10			66261136727

# FLEXIBLE DIAMOND-COATED DISCS



Norton flexible diamond coated discs combine the durability and aggressiveness of diamond, on a flexible backing.

- Applications: Grinding ceramic, glass, composites, carbide and ceramic coatings, fiberglass, and reinforced plastics; removing rust and scale on other materials; producing metallurgical stamps and coupons
- Size Range: PSA (Pressure Sensitive Adhesive) Discs: 2" – 6"  
Quick-Change TR (Type III) Discs: 2" and 3"
- Grit Range: 60 – 1500
- Abrasive Types: Diamond
- Backing Color: Color-coded backings for easily distinguished grit size selection
- Machine Used:



## NORTON D71S PSA DISCS

BETTER CHOICE FOR GRINDING GLASS, CERAMICS AND COMPOSITES, REMOVING RUST AND SCALE, AND PRODUCING METALLURGICAL STAMPS AND COUPONS



### FEATURES

- Diamond
- PSA backing

### BENEFITS

- Facilitates fast stock removal
- Quick and easy mounting and removal

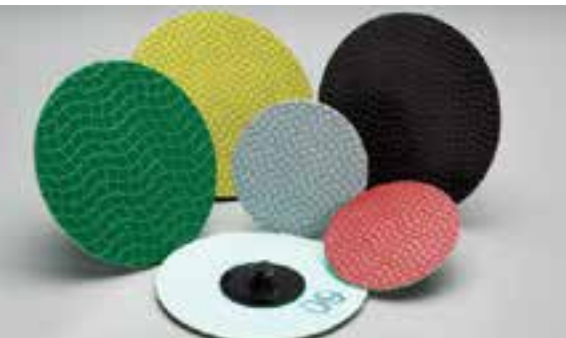
TIER:				BETTER
SIZE (D)	COLOR	GRIT	STD. PKG.	PART #
Flexible Diamond Coated PSA Discs				
2"	Green	60	1	66260308159
	Black	120	1	66260307722
	Red	200	1	66260307723
	Yellow	400	1	66260308160
	White	800	1	66260307012
5"	Green	60	1	66260307839
	Black	120	1	66260307838
	Red	200	1	66260307019
	Yellow	400	1	66260307960

TIER:				BETTER
SIZE (D)	COLOR	GRIT	STD. PKG.	PART #
Flexible Diamond Coated PSA Discs				
6"	Green	60	1	66260306381
	Black	120	1	66260306382
	Red	200	1	66260306383

See Coated Abrasive Cloth PSA Disc section for back-up pads.

## NORTON D7210 QUICK-CHANGE TR (TYPE III) DISCS

BETTER CHOICE FOR IMPROVED CUT RATE AND FINISH ON CERAMICS, GLASS, FIBERGLASS, COMPOSITES, CARBIDE, AND OTHER TOUGH METALS AND COATINGS



### FEATURES

- Unique abrasive pattern
- TR (Type III) fastener

### BENEFITS

- Increased aggressiveness, durability and lower costs versus standard diamond discs
- Rapid, tool-free disc changes mean maximum grind time
- Discs stay firmly locked to back-up pad when in use


TIER:				BETTER
SIZE (D)	COLOR	GRIT	STD. PKG.	PART #
Flexible Diamond Coated Quick-Change TR (Type III) Discs				
2"	Green	60	12	66260311778
	Black	120	12	66260311779
	Red	200	12	66260311780
	Yellow	400	12	66260311781
	White	800	12	66260311782

TIER:				BETTER
SIZE (D)	COLOR	GRIT	STD. PKG.	PART #
Flexible Diamond Coated Quick-Change TR (Type III) Discs				
3"	Green	60	12	66260311783
	Black	120	12	66260311784
	Red	200	12	66260311785
	Yellow	400	12	66260311786

See Coated Abrasive Quick-Change Disc section for back-up pads.



Tool-free, twist-on and -off fastening systems make fast work of disc changes to maximize productivity by minimizing downtime.

Applications:	Fiber and NorKut trimmable hard plastic discs: welding, grinding and blending; heavy metal removal; light deburring and finishing Cloth discs: light- to medium-pressure grinding; blending, leveling and finishing applications; for use on contours or flat surfaces
Size Range:	9/16" – 4" diameter
Grit Range:	24 – 320
Abrasive Grain:	Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide
Backing:	Fiber or cloth
Cloth Flex:	3-ply (more aggressive), 2-ply (standard), or 1-ply (more flexible) lamination
Attachment:	Type TS (II), Type TR (III), and Type TP (I)
Back-up Pads:	Rubber with hardness variations for different applications
Machine Used:	

### COATED ABRASIVE QUICK-CHANGE DISC AVAILABILITY



#### Fiber

- The most heavy-duty discs with resin over resin construction on heavy-duty vulcanized fiber backing
- Premium grain for applications from heavy stock removal to surface blending



#### NorKut

- Unique polymer backing resists cracking and breakage and can be cut down up to the 1" core
- Use the cores to grind "pinch" welds and other hard-to-reach areas



#### Cloth 3-Ply

- These heavy-duty, 3-ply polyester laminate construction discs are the most aggressive and durable cloth discs on the market



#### Cloth 2-Ply

- Our standard 2-ply laminate construction creates an aggressive and durable cloth disc for flat surfaces



#### Cloth 1-Ply

- The flexible, 1-ply cotton laminate construction offers added conformability on contoured surfaces or any application where added flexibility is needed

### QUICK-CHANGE ATTACHMENT SYSTEMS AND CROSS REFERENCE GUIDE

Each system enables quick, safe disc changes, reducing downtime and operating expenses.

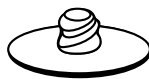
#### Type TS (Type II)

- Features a turn-on/turn-off style fastener
- Fastener is made of metal
- Equivalent to Standard Abrasives SocAtt® locking system



#### Type TR (Type III)

- Features a roll-on/roll-off style fastener
- Fastener is made of plastic
- Equivalent to 3M™ Roloc™ fastening system



#### Type TP (Type I)

- Features a snap-on/snap-off style fastener
- Fastener is made of nylon



NORTON	TS	TR	TP
MERIT	Type II	Type III	Type I
3M	Roloc TS/TSM	Roloc TR	Roloc TP
Standard	TS (SocAtt)	TR (Lockit)	TP (ClickOn)
Superior	Type S	Type R	—
Arc	Type S	Type R	Type P
Pferd	Type CD	Type CDR	—
Sait	SAIT-LOK	SAIT-LOK-R	—
Camel	Turn On	Roll On	—
Klingspor	QMC	QRC	—
Garryson	Type S	Type R	—

## MATERIAL/APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
Stainless Steel / Titanium / Super Alloys	Norton Blaze R980P	Norton BlueFire R884P	Norton R766
Mild Carbon Steel / Welds	Norton Red Heat R983	Norton BlueFire R884P	Norton R766
Ferrous Metals / Cast Iron	Norton Red Heat R983	Norton BlueFire R884P	Norton R766
Brass / Bronze / Aluminum	—	Norton BlueFire R884P	Norton R766
Paint / Glue / Adhesive	—	—	Norton R766
Concrete / Stone / Fiberglass	—	—	Merit Silicon Carbide

## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)						FINER (FINISHING)					
24	36	40	50	60	80	100	120	150	180	240	320
Heavy Stock Removal											
		Medium Stock Removal									
		Edge Chamfering/Beveling									
		Weld Removal									
		Heavy Deburring									
					Blending						
					Light Deburring						
								Cleaning			
										Finishing	

## CROSS REFERENCE GUIDE

TOTAL PERFORMANCE				INITIAL PRICE		
	BEST		BETTER		GOOD	
Abrasive	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
	Full Ratio	Full Ratio				
Backing	Fiber	Cloth	Cloth	Cloth	Cloth	Cloth
<b>NORTON</b>	Blaze F980	Blaze R980P	BlueFire R884P	R766	—	—
<b>MERIT</b>	—	—	—	—	Aluminum Oxide	Silicon Carbide
3M	983C, 988C	963G, 977F, 785C, 777F	—	—	361F	461F
Standard	—	Ceramic Pro, Ceramic	Zirconia	A/O Extra, A/O Pro	A/O	Silicon Carbide
Superior	—	Ceramic G.A.	Premium Zirc	A/O with Grinding Aid	Premium A/O, Rigid Kut A/O	—
Arc	—	—	Zirconia/ Y Standard	A/O/X Plus Coolant	A/O/Y Premium	—
Pferd	Ceramic Oxide CO	Ceramic	ZA Z	Aluminum Oxide A-Plus, Aluminum Oxide A-INOX-FORTE	Aluminum Oxide A, A/O A-FORTE	Silicon Carbide SiC
Sait	—	—	Z	3A	2A-H, 2A	—
Camel	—	—	Zirconia AO	—	Aluminum Oxide	—
Klingspor	—	Ceramic	Alumina Zirconia	—	Aluminum Oxide	—
Garryson	—	Ceramic	—	—	Aluminum Oxide	—

## Power at Your Finger Tips – The World in the Palm of Your Hand

Put the world right in the palm of your hand with our 2" Norton Mini Angle Sander. Small, compact enough to get into those hard-to-reach areas, and powerful enough to finish the job fast and efficiently.



### Features and Benefits

- A double-bearing spindle generates superb concentricity, reducing vibrations allowing for longer use and finer finishes
- Finesse your projects by having the ultimate control in both precision and power with the speed regulator
- Get better tool handling along with reducing additional fatigue with the ergonomic and streamlined non-slip grip

DESCRIPTION	STD. PKG.	PART #
<b>Norton Mini Angle Sander</b>		
Norton 2" Mini Angle Sander	1	66261150076
Norton 2" Mini Angle Sander Kit – kit includes:	1	66261150077
<ul style="list-style-type: none"> <li>• 1 Norton mini angle sander</li> <li>• 25 Norton Blaze 2" 36 grit 3-ply heavy-duty TR (Type III) cloth quick-change discs</li> <li>• 50 Norton Vortex Rapid Prep 2" Medium grit TR (Type III) non-woven quick-change discs</li> <li>• 1 Norton medium density back-up pad</li> </ul>		



Ceramic Alumina Quick-Change Fiber Discs

**NORTON BLAZE F980 CERAMIC ALUMINA FIBER**

**BEST CHOICE FOR TOUGH APPLICATIONS AND STAINLESS STEEL**

FEATURES & BENEFITS

- Norton SG ceramic grain with self-lubricating, supersize treatment provides coolest cut with significantly faster cut rates
- Heaviest fiber backing, greater durability, longest life, and edge-fray resistance



TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **BLAZE F980**  
 ABRASIVE: Ceramic Alumina  
 BACKING: Fiber – Heavy Duty  
 OTHER: Supersize  
 ATTACHMENT: TR (Type III)



SIZE (D)	GRIT	STD. PKG.	PART #
2	24	25	77696090139
	36	25	66261058704
	50	25	66261058705
	60	25	66261058706
	80	25	66261058707
3	24	25	77696090140
	36	25	66261058708
	50	25	66261058709
	60	25	66261058711
	80	25	66261058712

Quick-Change back-up pads shown at the end of this section.



## Ceramic Alumina Quick-Change Cloth Discs

### NORTON BLAZE R980P CERAMIC ALUMINA CLOTH

**BEST CHOICE FOR TOUGH APPLICATIONS, TITANIUM, SUPER ALLOYS, AND STAINLESS STEEL (3-PLY) OR CONTOUR SURFACES (2-PLY)**

#### FEATURES AND BENEFITS

- Next-generation, Norton SG ceramic alumina grain with self-lubricating, supersize treatment provides coolest cut and significantly faster cut rates
- 3-ply heavy-duty laminate discs (Y-weight polyester yellow backing) are more aggressive; for greatest durability, longest life, and edge-fray resistance on tough applications and stainless steel
- 2-ply laminate disc (Y-weight polyester red backing) construction is the standard for an aggressive and durable cloth disc for flat surfaces



### NORTON RED HEAT R983 CERAMIC ALUMINA CLOTH

**BEST/HIGH PRODUCTIVITY FOR MILD CARBON STEEL, CAST IRON AND FERROUS METALS**

#### FEATURES & BENEFITS

- Our exclusive premium ceramic alumina abrasive blend cuts faster and outlasts aluminum oxide and zirconia abrasives in most applications.
- Safer, more environmentally-stable black abrasive does not contain performance-inhibiting dies or formaldehydes, eliminating color-transfer issues
- This 1-ply laminate disc (Y-weight polyester red backing) sets the standard for flexibility and conformability
- Advanced self-lubricating grain treatment reduces heat on hard-to-grind materials
- Enhanced grain/bond adhesion requires less pressure for a cooler cut; less operator fatigue



### MERIT CERAMIC ALUMINA PLUS CLOTH

**BEST/HIGH PRODUCTIVITY FOR HARD-TO-GRIND ALLOYS**

#### FEATURES & BENEFITS

- Quality ceramic alumina abrasive provides long life and value
- The grinding aid produces longer life and cooler cut
- Heavy, Y-weight polyester backing provides excellent durability and grain adhesion



## Ceramic Alumina Quick-Change Cloth Discs (continued)

													
TIER:		BEST		BEST		BEST		BEST		BEST		BEST	
BRAND:		Norton		Norton		Norton		Norton		Norton		Norton	
TRADENAME:		BLAZE R980P		BLAZE R980P		BLAZE R980P		BLAZE R980P		RED HEAT R983		RED HEAT R983	
ABRASIVE:		Ceramic Alumina		Ceramic Alumina		Ceramic Alumina		Ceramic Alumina		Ceramic Alumina		Ceramic Alumina	
BACKING:		Polyester 3-Ply Heavy-Duty		Polyester 3-Ply Heavy-Duty		Polyester 2-Ply Standard		Polyester 2-Ply Standard		Polyester 1-Ply Flexible		Polyester 1-Ply Flexible	
OTHER:		Supersize		Supersize		Supersize		Supersize		Supersized		Supersized	
ATTACHMENT:		TS (Type II)		TR (Type III)		TS (Type II)		TR (Type III)		TS (Type II)		TR (Type III)	
													
SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #
1-1/2	36	100	66261162307	66261162308	63642595401	63642595465	66261132706*	66261132724					
	50	100	66261162309	66261162310	63642595446	63642595467	66261132707	66261132725					
	60	100	66261162311	66261162312	63642595447	63642595468	66261132708	66261132726					
	80	100	66261162313	66261162314	63642595450	63642595469	66261132709	66261132727					
	120	100	66261043379	66261043380	66261043416	66261043417	66261132710	66261132728					
2	36	25	66261162317	66261162318	63642595452	63642595470	66261132712	66261132730					
	50	25	66261162319	66261162320	63642595456	63642595472	66261132713	66261132731					
	60	25	66261162321	66261162322	63642595458	63642595476	66261132714	66261132732					
	80	25	66261162323	66261162324	63642595459	63642595478	66261132715	66261132733					
	100	25	66261043382	66261043383	66261043418	66261043419							
	120	25	66261043384	66261043386	66261043420	66261043421	66261132716	66261132734					
3	36	25	66261162327	66261162328	63642595460	63642595479	66261132718	66261132736					
	50	25	66261162329	66261162330	63642595462	63642595480	66261132719	66261132737					
	60	25	66261162331	66261162332	63642595463	63642595481	66261132720	66261132738					
	80	25	66261162333	66261162334	63642595464	63642595493	66261132721	66261132739					
	100	25	66261043389	66261043390	66261043422	66261043423							
	120	52	66261043391	66261043392	66261043424	66261043425	66261132722	66261132740					




Quick-Change back-up pads shown at the end of this section.





## Ceramic Alumina Quick-Change Cloth Discs (continued)



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>
BRAND:	Merit	Merit	Merit
TRADENAME:	<b>CERAMIC ALUMINA PLUS</b>	<b>CERAMIC ALUMINA PLUS</b>	<b>CERAMIC ALUMINA PLUS</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina
BACKING:	Polyester	Polyester	Polyester
	2-Ply Standard	2-Ply Standard	2-Ply Standard
OTHER:	Supersized	Supersize	Supersized
	TS (Type II)	TR (Type III)	TP (Type I)
ATTACHMENT:			

SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #
9/16	36	100	08834163315		08834163000
	40	100	08834163316		08834163003
	50	100	08834163317		
	60	100	08834163318		08834163005
	80	100	08834163319		08834163014
	120	100	08834163320		08834163017
3/4	36	100	08834163321		08834163020
	40	100		08834163393	08834163021
	50	100	08834163324	08834163394	08834163022
	60	100	08834162239	08834163395	08834163023
	80	100	08834163339		08834163024
	120	100	08834163362	08834163397	08834163027
1	36	100	08834163374	08834163398	08834163028
	40	100	08834163375	08834163400	08834163030
	50	100	08834163376	08834163401	
	60	100	08834162240	08834163402	08834163042
	80	100	08834163378	08834163403	08834163043
	120	100	08834163379	08834163404	08834163112
1-1/2	24	100	08834163421	08834163405	08834163113
	36	100			08834163114
	50	100	08834163252		08834163115
	60	100	08834160463	08834163407	08834163116
	80	100	08834163273	08834163408	08834163117
	120	100	08834168653		08834168650
2	24	100	08834163118	08834160449	08834163119
	36	100			08834163120
	50	100	08834163259	08834163411	08834163121
	60	100	08834163551	08834163412	08834163231
	80	100	08834163381	08834165615	08834163219
	100	100			
3	120	100	08834163382	08834168657	08834168651
	24	50	08834163383	08834160458	08834163238
	36	50			08834163245
	50	50	08834163385	08834163414	08834168275
	60	50	08834163386	08834163415	08834163266
	80	50	08834163387	08834168178	08834169701
4	100	50			08834163448
	120	50	08834168655	08834168658	08834168652
	36	50	08834162742	08834163416	08834163280
	40	50	08834163388	08834163417	
	50	50	08834162743	08834163418	
	60	50	08834163389	08834162992	08834163301
	80	50	08834163390	08834163419	
	120	50	08834163391	08834163420	08834163314

Merit Ceramic Plus Stock/Non-Stock Status:

TS: 2" and 3" are stock part numbers; all other sizes are non-stock.

TR: 1-1/2", 2", and 3" part numbers are stock; all other sizes are non-stock.

TP: All sizes are non-stock.

Please call for lead-times.

Quick-Change back-up pads shown at the end of this section.



## Zirconia Alumina Specialty Quick-Change Discs

### NORTON NORKUT ZIRCONIA ALUMINA POLYMER

BETTER CHOICE FOR HARD-TO-GRIND AREAS WHERE FLEXIBILITY IS NOT REQUIRED

#### FEATURES AND BENEFITS

- Zirconia alumina grain is resin bonded to a unique polymer backing which resists cracking and breaking and can be trimmed to the 1" core
- Use the cores to grind "pinch" welds and other hard-to-reach areas
- Used with a quick change mandrel: 7/16"-20 threaded for hand-held pneumatic grinders or 1/4" mandrel for automotive drills

TIER:	<b>BETTER</b>
BRAND:	Norton
TRADE NAME:	<b>NORKUT</b>
ABRASIVE:	Zirconia Alumina
BACKING:	Extra HD Polymer
ATTACHMENT:	Threaded Hole

SIZE (D)	GRIT	STD. PKG.	PART #
3	24	20	63642503656
	36	20	63642503657
	50	20	63642503658
7/16"-20 Mandrel	-	5	63642503659
1/4" Mandrel	-	5	63642503660

## Zirconia Alumina Quick-Change Cloth Discs

### NORTON BLUEFIRE R884P ZIRCONIA ALUMINA CLOTH

BETTER CHOICE FOR SOFT METALS, WOOD, STAINLESS STEEL, AND CARBON

#### FEATURES AND BENEFITS

- Premium, versatile, self-sharpening zirconia alumina plus grain provides aggressive cut and up to 30% longer life than competitive zirconia alumina product
- Strong resin bond improves base adhesion and reduces grain shedding
- Advanced grain coating results in longer life and faster cut rate
- Semi-open coat retards loading on soft metals (aluminum, brass, and bronze) and wood, as well as stainless steel and carbon steel
- Durable, Y-weight, 2-ply polyester backing stands up to demanding applications: high-pressure and hard-to-grind exotic alloys











### MERIT ZIRC PLUS CLOTH

BETTER CHOICE FOR STAINLESS STEEL, TITANIUM AND OTHER EXOTIC ALLOYS

#### FEATURES AND BENEFITS

- Self-sharpening zirconia alumina plus grain makes this a better choice for demanding grinding applications
- Strong resin bond improves base adhesion and reduces grain shedding
- The grinding aid produces longer life and cooler cut
- Heavy, Y-weight polyest backing provides excellent durability and grain adhesion

## Zirconia Alumina Quick-Change Cloth Discs (continued)

											
TIER:		BETTER		BETTER		BETTER		BETTER		BETTER	
BRAND:		Norton		Norton		Merit		Merit		Merit	
TRADENAME:		BLUEFIRE R884P		BLUEFIRE R884P		ZIRC PLUS		ZIRC PLUS		ZIRC PLUS	
ABRASIVE:		Zirconia Alumina		Zirconia Alumina		Zirconia Alumina		Zirconia Alumina		Zirconia Alumina	
BACKING:		Polyester 2-Ply Standard		Polyester 2-Ply Standard		Polyester 2-Ply Standard		Polyester 2-Ply Standard		Polyester 2-Ply Standard	
OTHER:						Supersize		Supersize		Supersize	
ATTACHMENT:		TS (Type II)		TR (Type III)		TS (Type II)		TR (Type III)		TP (Type I)	
											
SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #*	PART #*	PART #*	PART #*	PART #*	PART #*	PART #*
1	36	100					08834167093		08834167009		
	40	100				08834167052	08834167094		08834167010		
	50	100	66261138609			08834167053	08834167095		08834167011		
	60	100	66261138608				08834167096		08834167012		
	80	100	66261138607				08834167097		08834167013		
	120	100			08834167057	08834167099		08834167015			
1-1/2	36	100	66261138624	66261121041	08834167058				08834167016		
	40	100					08834167101				
	50	100	66261138622				08834167102		08834167018		
	60	100	66261138621	66261121043	08834167061		08834167103		08834167019		
	80	100	66261138620	66261121044	08834167062		08834167104				
	120	100			08834167064		08834167106				
2	24	100	66261138638*	66261138672*							
	36	100	66261138637*	66261138671	08834167065		08834167107		08834167023		
	40	100			08834167066		08834167108				
	50	100	66261138635*	66261138670*	08834165583		08834167109		08834167025		
	60	100	66261138634*	66261121048*	08834167068		08834167110		08834167026		
	80	100	66261138633*	66261121049*	08834167069		08834167111		08834167027		
3	120	100			08834167071		08834167113		08834167029		
	24	50	66261138665*	66261138675*							
	36	50	66261138664*	66261138674*	08834167072		08834167114		08834167030		
	40	50			08834167073						
	50	50	66261138662*	66261138673*	08834167074		08834167116		08834167032		
	60	50	66261138661*	66261121053*	08834167075		08834167117		08834167033		
4	80	50	66261138660*	66261121054*	08834167076		08834167118		08834167034		
	120	50			08834167078		08834167120		08834167036		
	36	50	66261138683*		08834167079						
	40	50			08834167080						
	50	50	66261138681*		08834167081						
	60	50	66261137343*		08834167082				08834167040		
	80	50	66261138679*		08834167083						
	120	50			08834167085				08834167043		

\* Standard Package = 25 discs

\* Merit Zirc Plus Stock/Non-Stock Status:

TS: 1" 80 grit, 1-1/2", 2" and 3" are stock part nos.; 4" part nos. are non-stock.

TR: 1" 60, 80 and 120 grit, 1-1/2", 2", and 3" part nos. are stock; 1" 36, 40, and 50 grit part nos. are non-stock.

TP: 2" and 3" part nos. are stock; all other sizes are non-stock.

Please call for lead-times.

Quick-Change back-up pads shown at the end of this section.

## Quick-Change Disc Test Kit



### Merit Quick-Change Test Kit "D"

- Part # 08834165001
- Includes 150 discs, assorted grits, in 1", 2", and 3" diameters and 3" back-up pads
- Primarily aluminum oxide cloth quick-change discs
- Several zirconia alumina and FlexEdge discs are included

Aluminum Oxide Quick-Change Cloth Discs

**NORTON R766 ALUMINUM OXIDE CLOTH**

**GOOD CHOICE FOR DIFFICULT-TO-GRIND MATERIALS THAT REQUIRE AN ECONOMICAL OPTION**

FEATURES AND BENEFITS

- Premium aluminum oxide blend for aggressive cut and longer life than competitive aluminum oxide discs
- Durable Y-weight, 2-ply polyester backing and coating for longer life and faster cut rate on moderately-demanding applications
- Vendible packs, ideal for vending machines, small jobs, or carrying to a job site



VENDIBLE

**MERIT ALUMINUM OXIDE CLOTH**

**GOOD CHOICE WHEN INITIAL PRICE IS THE PRIMARY CONSIDERATION**

FEATURES AND BENEFITS

- Versatile aluminum oxide blend for aggressive cut and longer life than competitive aluminum oxide discs
- Durable X-weight (finer grits) or Y-weight (coarser grits) 2-ply polyester backing and coating for longer life and faster cut rate on moderately-demanding applications
- Good choice for difficult-to-grind materials (aluminum, brass, bronze, stainless, carbon steel, and titanium) and applications requiring an economical option



TIER: **GOOD**  
BRAND: Norton  
TRADENAME: **R766**  
ABRASIVE: Aluminum Oxide Blend  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TS (Type II)



TIER: **GOOD**  
BRAND: Norton  
TRADENAME: **R766**  
ABRASIVE: Aluminum Oxide Blend  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TR (Type III)



TIER: **GOOD**  
BRAND: Norton  
TRADENAME: **R766**  
ABRASIVE: Aluminum Oxide Blend  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TP (Type I)



TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **ALUMINUM OXIDE**  
ABRASIVE: Aluminum Oxide  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TS (Type II)



TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **ALUMINUM OXIDE**  
ABRASIVE: Aluminum Oxide  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TR (Type III)



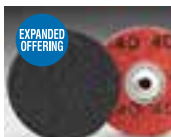


TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **ALUMINUM OXIDE**  
ABRASIVE: Aluminum Oxide  
BACKING: Polyester  
2-Ply Standard  
ATTACHMENT: TP (Type I)



SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
3/4	24	100				69957399601	69957399669	69957399737
	36	100			66623318933	69957399602	69957399670	69957399738
	40	100				69957399603	69957399671	69957399739
	50	100			66623318935	69957399604	69957399672	69957399740
	60	100				69957399605	69957399673	69957399741
	80	100			66623318937	69957399606	69957399674	69957399742
	100	100				69957399607	69957399675	69957399743
	120	100				69957399608	69957399676	69957399744
	150	100				69957399609	69957399677	69957399745
	180	100				69957399610	69957399678	69957399746
	240	100				69957399611	69957399679	69957399747
1	320	100				69957399612	69957399680	69957399748
	24	100				69957399613	69957399681	69957399749
	36	100	66623318957		66623318950	69957399614	69957399682	69957399750
	40	100			66623318951	69957399615	69957399683	69957399751
	50	100	66623318959		66623318952	69957399616	69957399684	69957399752
	60	100	66623318960		66623318953	69957399617	69957399685	69957399753
	80	100	66623318961		66623318956	69957399618	69957399686	69957399754
	100	100	66261132500	66261132517		69957399619	69957399687	69957399755
	120	100	66261132501	66261132518		69957399620	69957399688	69957399756
	150	100				69957399621	69957399689	69957399757
	180	100				69957399622	69957399690	69957399758
	240	100				69957399623	69957399691	69957399759
	320	100				69957399624	69957399692	69957399760

\* Merit Aluminum Oxide Stock/Non-Stock status: All Merit Aluminum Oxide part nos. are stock products.  
Continued

## Aluminum Oxide Quick-Change Cloth Discs (continued)

<p>TIER: BRAND: TRADENAME ABRASIVE: BACKING: ATTACHMENT:</p>						
	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
	Norton	Norton	Norton	Merit	Merit	Merit
	<b>R766</b>	<b>R766</b>	<b>R766</b>	<b>ALUMINUM OXIDE</b>	<b>ALUMINUM OXIDE</b>	<b>ALUMINUM OXIDE</b>
	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
	Polyester 2-Ply Standard TS (Type II)	Polyester 2-Ply Standard TR (Type III)	Polyester 2-Ply Standard TP (Type I)	Polyester 2-Ply Standard TS (Type II)	Polyester 2-Ply Standard TR (Type III)	Polyester 2-Ply Standard TP (Type I)

SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
1-1/2	24	100				69957399625	69957399693	69957399761
	36	100	66623318972	66623318977	66623318967	69957399626	69957399694	69957399762
	40	100	66623318973	66623318978	66623318968	69957399627	69957399695	69957399763
	50	100	66623318974	66623318979	66623318969	69957399628	69957399696	69957399764
	60	100	66623318975	66623318980	66623318970	69957399629	69957399697	69957399765
	80	100	66623318976	66623318981	66623318971	69957399630	69957399698	69957399766
	100	100	66261132502			69957399631	69957399699	69957399767
	120	100	66261132503			69957399632	69957399700	69957399768
	150	100				69957399633	69957399701	69957399769
	180	100	66261132504			69957399634	69957399702	69957399770
	240	100				69957399635	69957399703	69957399771
	320	100	66261132505			69957399636	69957399704	69957399772
	24	100	66623319011	66623319013	66623319010	69957399637	69957399705	69957399773
	36	100	66623318999	66623319005	66623318993	69957399638	69957399706	69957399774
2	40	100	66623319000	66623319006	66623318994	69957399639	69957399707	69957399775
	50	100	66623319001	66623319007	66623318995	69957399640	69957399708	69957399776
	60	100	66623319003	66623319008	66623318996	69957399641	69957399709	69957399777
	80	100	66623319004	66623319009	66623318997	69957399642	69957399710	69957399778
	100	100	66261132506	66261132519		69957399643	69957399711	69957399779
	120	100	66261132507	66261132520		69957399644	69957399712	69957399780
	150	100	66261132508	66261132521		69957399645	69957399713	69957399781
	180	100	66261132509	66261132522		69957399646	69957399714	69957399782
	240	100	66261132510	66261132523		69957399647	69957399715	69957399783
	320	100	66261132511			69957399648	69957399716	69957399784
	36	40 V	66623341058	66623341059				
	40	40 V	66623341060	66623341061				
	50	40 V	66623341062	66623341063				
	60	40 V	66623341064	66623341065				
	80	40 V	66623341066	66623341067				
3	24	50	66623319020	66623319026	66623319014	69957399649	69957399717	69957399785
	36	50	66623319021	66623319027	66623319015	69957399650	69957399718	69957399786
	40	50	66623319022	66623319028	66623319016	69957399651	69957399719	69957399787
	50	50	66623319023	66623319029	66623319017	69957399652	69957399720	69957399788
	60	50	66623319024	66623319030	66623319018	69957399653	69957399721	69957399789
	80	50	66623319025	66623319031	66623319019	69957399654	69957399722	69957399790
	100	50	66261132512	66261132524		69957399655	69957399723	69957399791
	120	50	66261132513	66261132525		69957399656	69957399724	69957399792
	150	50	66261132514	66261132526		69957399657	69957399725	69957399793
	180	50	66261132515	66261132527		69957399658	69957399726	69957399794
	240	50	66261132516	66261132528		69957399659	69957399727	69957399795
	320	50				69957399660	69957399728	69957399796
	36	20 V	66623341072	66623341073				
	40	20 V	66623341074	66623341075				
	50	20 V	66623341076	66623341077				
4	60	20 V		66623341079				
	80	20 V	66623341080	66623341081				
	24	50		66623329430				
	36	50		66623319036		69957399661	69957399729	69957399797
	40	50				69957399662	69957399730	69957399798
	50	50				69957399663	69957399731	69957399799
	60	50			66623319033	69957399664	69957399732	69957399800
	80	50				69957399665	69957399733	69957399801
	100	50				69957399666	69957399734	69957399802
	120	50				69957399667	69957399735	69957399803
	180	50				69957399668	69957399736	69957399804

V = Vendible Package. 2" discs: 10 discs per pack / 4 Packs per carton. Order in multiples of 40. For 3" discs: 5 discs per pack / 4 Packs per carton. Order in multiples of 20.

\*Merit Aluminum Oxide Stock/Non-Stock status: All Merit Aluminum Oxide part numbers are stock products.

Quick-Change back-up pads shown at the end of this section.



# QUICK-CHANGE DISCS & ACCESSORIES

## Silicon Carbide Quick-Change Cloth Discs

### MERIT SILICON CARBIDE CLOTH

#### GOOD CHOICE FOR NON-FERROUS MATERIALS

##### FEATURES AND BENEFITS

- Sharp, silicon carbide abrasive
- X-weight 2-ply backing
- High initial cut and penetration for nonferrous materials



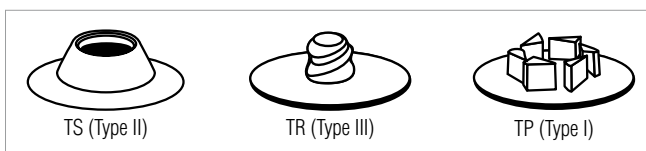
TIER:	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Merit	Merit	Merit
ABRASIVE:	Silicon Carbide	Silicon Carbide	Silicon Carbide
BACKING:	Cotton Standard	Cotton Standard	Cotton Standard
ATTACHMENT:	TS (Type II)	TR (Type III)	TP (Type I)

SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #
2	40	100	08834165252	08834164275	08834162166
	60	100	08834165254+	08834164163	08834162168
	80	100	08834165255+	08834166155	08834162169
	120	100		08834164837	08834162171
	180	100	08834165259	08834167313	08834162173
3	40	50	08834165267	08834164277	
	60	50		08834164850	
	80	50	08834165270	08834166159	08834162188
	120	50	08834165272	08834166160	08834162190
	180	50	08834165274	08834168177	08834164971

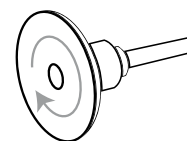
+ Merit Stock/Non-Stock Status: These 2 TS discs are stock items. All other silicon carbide discs are non-stock. Please call for lead-times.

**MERIT**

## Quick-Change Back-up Pads



- Hard density pads are for aggressive cutting action
- Medium density pads are for all-purpose applications
- Soft density pads are used for contours and fine finishing work



DIAMETER/RPM	DENSITY	STD. PKG.	NORTON TS (TYPE II)	NORTON TR (TYPE III)	STD. PKG.	MERIT TS (TYPE II)	MERIT TR (TYPE III)	MERIT TP (TYPE I)
<b>Quick-Change Back-up Pads</b>								
9/16"					1	66261054014*		66261054013*
40,000 Max. RPM								
3/4"	Medium				1	08834164206	08834164038	08834164001
40,000 Max. RPM								
1"	Medium	10	63642543185		1	08834164651	08834164037	08834164002
40,000 Max. RPM								
1-1/2"	Hard				1	08834164622		08834163996
30,000 Max. RPM	Medium	10	63642543200	66261047580	1	08834164146	08834161174	08834164003
2"	Hard	10	63642543205		1	08834164624	08834164643	08834163997
30,000 Max. RPM	Medium	10	63642543210	66261055103	1	08834164198	08834164922	08834164004
	Soft				1	08834161625	08834164641	08834163949
3"	Hard	10	63642543220	63642504900	1	08834161626	08834164036	08834163998
20,000 Max. RPM	Medium	10	63642543225	66261055105	1	08834164113	08834164949	08834164005
	Soft				1	08834164626	08834164644	08834163948
4"	Medium	10	63642543232	66261047581	1	08834164135	08834164655	08834164006
15,000 Max. RPM								
<b>Vendible Quick-Change Back-up Pads</b>								
2" Vendible	Medium				5	66623341082	66623341083	
30,000 Max. RPM								
3" Vendible	Medium				5		66623341085	
20,000 Max. RPM								

All Quick-Change back-up pads have a 1/4" solid steel shank. \* 9/16" Merit back-up pads are non-stock. Please call for lead-times.  
Vendible back-up pad Std. Pkg. Qty: 1 pad per pack; 5 packs per carton. Order in multiples of 5.

# QUICK-CHANGE DISC ACCESSORIES

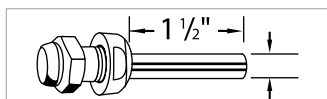
## Replacement Medium Density Rubber Pads for Quick-Change TP (Type I) Back-up Pads

DIAMETER	MODEL #	STD. PKG.	PART #
<b>Quick-Change Replacement Rubber Back-up Pads</b>			
3/4"	RR75	1	08834164008*
1"	RR10	1	08834164009*
2"	RR20	1	08834164011
3"	RR30	1	08834164012
4"	RR40	1	08834164013*

When the rubber pad has worn away, but the steel components of your quick-change back-up are still serviceable, order these replacement rubber pads.

\* Non-stock. Please call for lead-times.

## Replacement Assemblies and Shanks for Quick-Change Back-up Pad

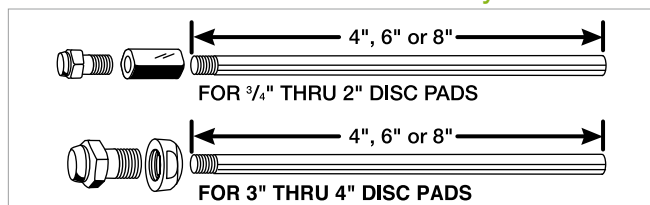


DESCRIPTION	STD. PKG.	PART #
<b>Replacement Mandrels and Nut Assembly</b>		
TP (Type I) Assembly RMN1 for 3/4 - 2	1	08834164015
TP (Type I) Assembly RMN3 for 3 - 4	1	08834164016*
TS (Type II) & TR (Type III) Replacement 1/4" Shank	1	08834164303

Assemblies replace all the steel components of a quick-change back-up pad. This shank replaces the screw-in 1/4" solid steel shank only.

\* Non-stock. Please call for lead-times.

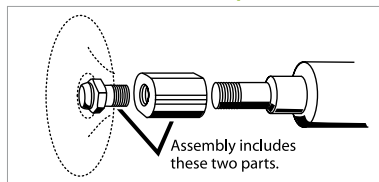
## Extension Mandrels and Assembly



DIAMETER	MODEL #	LENGTH	STD. PKG.	PART #
<b>Extension Mandrels and Assembly - TP (Type I)</b>				
3/4 - 2"	EMN-14	4"	1	08834164017
3/4 - 2"	EMN-16	6"	1	08834164018
3/4 - 2"	EMN-18	8"	1	08834164019
3 - 4"	EMN-34	4"	1	08834164020
3 - 4"	EMN-36	6"	1	08834164026
3 - 4"	EMN-38	8"	1	08834164021

All these extension mandrels and assembly are non-stock. Please call for lead-times.

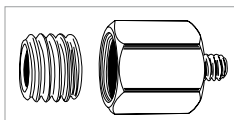
## MNA-1 Pad Adapters



DISC DIAMETER	MODEL NO.	STD. PKG.	PART #
<b>MNA-1 Pad Adapters - TP (Type I)</b>			
3/4 - 2"	MNA 1/4-20 THD.	1	08834161176
3/4 - 2"	MNA 3/8-24	1	08834164055
3/4 - 2"	MNA 5/8-11	1	08834163001
3 - 4"	MNA 1/4-20	1	08834163002
3 - 4"	MNA 3/8-24	1	08834164041
3 - 4"	MNA 5/8-11	1	08834164028

Convert a TP (Type I) back-up pad 1/4" diameter solid shank to a threaded shank  
All pad adapters are non-stock. Please call for lead-times.

## MNA-23 Pad Adapters

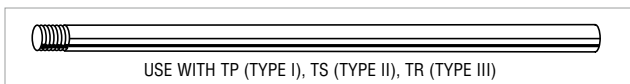


DISC DIAMETER	MODEL #	STD. PKG.	PART #
<b>MNA-23 Pad Adapters - TS (Type II) and TR (type III)</b>			
3/4 - 4"	MNA-23 3/8-24 and 5/8"-11 THD.	1	08834162764

For use on a right angle grinder: convert TS (Type II) and TR (Type III) back-up pad 1/4" diameter solid shanks to threaded shanks. The larger 5/8-11 adapter (for 4-1/2" discs) is used alone to convert to a 5/8-11 thread. The 3/8-24 insert (for 4" discs) is screwed into the 5/8-11 adapter to create a 3/8-24 thread adapter.

All pad adapters are non-stock. Please call for lead-times.

## 1/4" Diameter Extension Mandrel




USE WITH TP (TYPE I), TS (TYPE II), TR (TYPE III)

MODEL NO.	LENGTH	STD. PKG.	PART #
<b>1/4" Diameter Extension Mandrel 1/4-20 Thread</b>			
EM-144	4"	1	08834154185
EM-146	6"	1	08834154186
EM-148	8"	1	08834154187



Paper sheets and rolls are engineered for optimum performance when sanding metal, wood, composites and painted surfaces. The sheets are packed in protective packaging to eliminate waste and permit easy, neat storage.

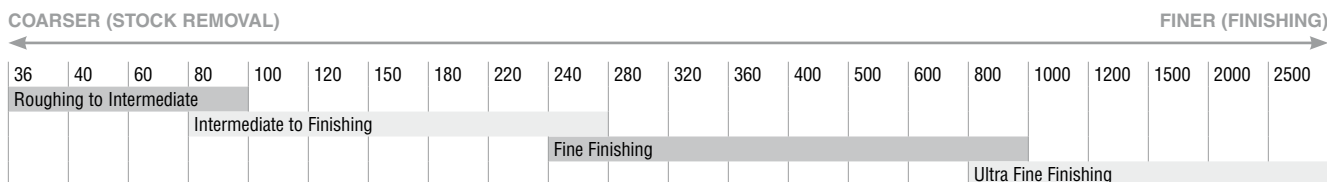
Categories:	All purpose, wood sanding, steartated (non-loading), waterproof, and heavyweight
Applications:	Light-duty metal sanding, primer sanding, defect removal from painted surfaces, filler sanding, sanding and finishing of composites and fiberglass, bare wood sanding, sanding between sealer coats
Size Range:	Full Sheets, Cut Sheets, File Strips and Rolls
Grit Range:	36 – 2500
Abrasive Grain:	Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide, and Garnet
Paper Weights:	Heavyweight – E; Lightweight – A and D
Machine Used:	



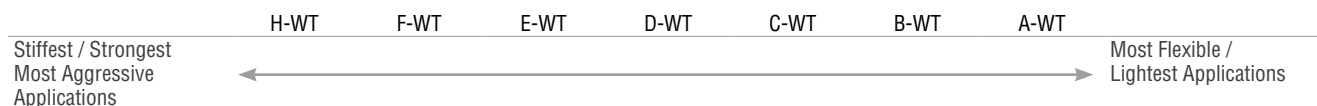
## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity – Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance – Low Initial Price
Unfinished Metal	Original Performance A275	–	Gold Reserve A296, PB273
Primed / Painted Surfaces / Between Coats	Original Performance A275	Durite A475	Gold Reserve A296, PB273
Fiberglass / Composites	Original Performance A275	Durite A475	Gold Reserve A296, PB273
Bare Wood	Original Performance A275	–	Garnet A511, Garnet A513, Garnet A514
Clear Coat Sanding	Black Ice T214, Black Ice T401	–	TufBak T461
Sealer Sanding	Original Performance A275	Durite A475	Gold Reserve A296, PB273
Lacquer Sanding	Black Ice T214, Black Ice T401	Blue-Bak T414	TufBak T461
Wet Sanding	Black Ice T214, Black Ice T401	Blue-Bak T414	TufBak T461
Paint Stripping	Original Performance A275, ProSand A259PS	Durite A475	A290
All Purpose Dry Sanding	Original Performance A275, ProSand A259PS	–	A212, A213, A211

## APPLICATION/GRIT RECOMMENDATION GUIDE



## RECOMMENDED BACKING WEIGHT










## CROSS REFERENCE GUIDE

NORTON	3M	Hermes	Klingspor	Mirka	SIA	VSM
<b>STEARATED (NON-LOADING)</b>						
Dry Ice A975	734U, 735U, 334U	—	—	—	5550 siaprime	—
OP A275 / A259PS (ProSand)	216U, 334U	HC133	PS33	Royal, Royal Micro	1950 siaspeed	—
Durite A475	405N, 414N, 415N/U	PSF-LL, SA168	PL35	Carat Flex, FineFlex	1701 sialac 1748 siarexx fine	CP131A
Gold Reserve A296 / PB273	236U, Red, NX	HCAB-LL	PS33, PL36	Bulldog Gold, GoldFlex	1960 siarexx cut	KP911
<b>WATERPROOF</b>						
Blue Ice T214	213Q	WAFlex28B	PS12	—	1913 siawat	—
Blue Ice T401	401Q	WSFlex16	PS11, PS14	Waterproof (A)	—	CP918A
Blue-Bak T414	413Q	WSFlex16	PS11, PS14	Waterproof (A)	—	CP918A
TufBak T461	438Q, 431Q	WSFlex18C	PS11, PS14	—	1727 siawat	CP918C
<b>ALL PURPOSE/WOOD</b>						
A211	230U, 240N, 346U	—	—	—	—	KP31C
A212	210N	HFB	PL31	—	—	—
A213	230N	HFB	PL31	—	—	KP31B
Garnet A511	110N	—	—	—	1400 sianor	—
Garnet A513	130N	GCAB	—	—	—	—
Garnet A514	140N	GCAB	—	—	—	—
<b>HEAVYWEIGHT PAPER</b>						
BlueFire H875P	750U, 751U, 740I, 745I	—	—	Royal Coarse Cut	—	KP510E, KP709

## Aluminum Oxide All-Purpose Sanding and Garnet Wood Sanding 9" x 11" Paper Sheets

9 x 11  
Paper Sheets

															
		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>	
		BRAND: Norton		BRAND: Norton		BRAND: Norton		BRAND: Norton		BRAND: Norton		BRAND: Norton		BRAND: Norton	
		TRADENAME: <b>A211</b>		TRADENAME: <b>A213</b>		TRADENAME: <b>A212</b>		TRADENAME: <b>MULTISAND A213/A212</b>		TRADENAME: <b>A513</b>		TRADENAME: <b>A511</b>		TRADENAME: <b>WOODSAND A513/A511</b>	
		ABRASIVE: Aluminum Oxide		ABRASIVE: Aluminum Oxide		ABRASIVE: Aluminum Oxide		ABRASIVE: Aluminum Oxide		ABRASIVE: Garnet		ABRASIVE: Garnet		ABRASIVE: Garnet	
		BACKING WEIGHT: D-Weight		BACKING WEIGHT: C-Weight		BACKING WEIGHT: A-Weight		BACKING WEIGHT: D-, C- & A-Weight		BACKING WEIGHT: D- & C-Weight		BACKING WEIGHT: A-Weight		BACKING WEIGHT: D-, C- & A-Weight	
		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded	
SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #
9 x 11	36	25/125	66261100335												
	40	25/125	66261100330												
	50	50/250	66261100325												
	60	50/250		66261100320						66261101560					
	80	50/250		66261100315						66261101555		66261101505		07660701584*	
	100	100/500		66261100295			07660700358*		66261101535		66261101500		07660701583*		
	120	100/500		66261100290			07660700357*		66261101530		66261101495		07660701582*		
	150	100/500		66261100285			07660700356*		66261101525		66261101490		07660701581*		
	180	100/500			66261100245		07660700355*				66261101489		07660701580*		
	220	100/500			07660700156		07660700354*				66261101488		07660701579*		
	240	100/500													
	280	100/500													
	Asst•	100/500					07660700365*								

\* Packaging Standards: Job Packs: 25 sheets per pack / 10 packs per standard package for a total of 250 sheets

• Assorted contains 6 each of 60, 100, 150 grit and 7 each of 220 grit



## Stearated (Non-Loading) Aluminum Oxide and Silicon Carbide 9" x 11" Sheets

### NORTON OP A275 NO-FIL ALUMINUM OXIDE

THE BEST CHOICE FOR SANDING PAINTED SURFACES, COMPOSITES, PLASTICS OR ANY MATERIAL THAT TENDS TO LOAD

#### FEATURES

- Premium P-graded, heat-treated aluminum oxide abrasive
- Unique fiber-reinforced, B-weight latex-saturated backing
- Water-based stearate, non-pigmented, No-Fil coating
- Full resin adhesive bond

#### BENEFITS

- Superior life, fast cut rate, consistent finish
- 50-60% improvement in tear strength
- Exceptional flexibility, can be folded without cracking
- Provides maximum load resistance and extended life: no color transfer to work
- Provides exceptional resistance to abrasive grain shedding especially when folding to sand into corners; long life

### NORTON DURITE A475 NO-FIL SILICON CARBIDE

THE BETTER CHOICE FOR GEL COATS, HARD COMPOSITE SUBSTRATES, ABRASION-RESISTANT COATINGS, AND WOODWORKING APPLICATIONS

#### FEATURES

- P-graded, silicon carbide abrasive
- Water-based stearate, non-pigmented, No-Fil coating
- Fiber-reinforced, latex paper backing

#### BENEFITS

- Easy penetration of the hardest surfaces
- Resists loading for longest usable product life, no color transfer to work
- Provides flexibility and resistance to tearing

9 x 11  
Paper Sheets



TIER:	BEST	BEST	BETTER	GOOD
BRAND:	Norton	Norton	Norton	Merit
TRADENAME:	<b>ORIGINAL PERFORMANCE A275 NO-FIL</b>	<b>PROSAND A259PS NO-FIL</b>	<b>DURITE A475 NO-FIL</b>	<b>PB273 NO-LOAD</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Aluminum Oxide
BACKING WEIGHT:	B-Weight	C- & B-Weight	B-Weight	B-Weight
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded
SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #
9 x 11	60	50/250	07660768175*	
	80	50/250	07660768174*	66254487393
	100	100/500	07660768173*	66254487394
	120	100/500	07660768172*	66254487395
	150	100/500	07660768171*	66254487396
	180	100/500	07660768168*	66254487397
	220	100/500	07660768167*	66254487398
	240	100/500		66254487399
	280	100/500		
	320	100/500	07660768166*	66254487400
	400	100/500	07660768165*	
	500	100/500		
	600	100/500		
	800	100/500		
	1000	100/500		
	1200	100/500		
	1500	100/500		
SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #
9 x 11	60	50/250		66623311878
	80	50/250		66623311877
	100	100/500		66623311876
	120	100/500		66623311875
	150	100/500		66623311874
	180	100/500		66623311873
	220	100/500		66623311879
	240	100/500		
	280	100/500		
	320	100/500		66623311871
	400	100/500		66623311870
	500	100/500		
	600	100/500		
	800	100/500		
	1000	100/500		
	1200	100/500		
	1500	100/500		

\* Packaging Standards: ProSand A259PS Job Packs: 20 sheets per pack / 10 packs per standard package for a total of 200 sheets

## Waterproof Aluminum Oxide and Silicon Carbide 9" x 11" Sheets

### NORTON BLACK ICE T214 AND T401 A/O WATERPROOF

BEST CHOICE FOR ALL WET APPLICATIONS

#### FEATURES

- Black Ice T214: Premium, P-graded, heat-treated aluminum oxide abrasive
- Black Ice T401: Premium, ultra fine (1000 – 2500 JIS graded) silicon carbide abrasive
- Improved resin bond system
- High-strength B-weight high-latex, waterproof paper backing

#### BENEFITS

- Ultimate cut and life in wet application
- Ultimate finish in wet applications
- Long life in wet applications
- Ultimate flexibility, with wet-curl resistance
- Environmentally stable, resists humidity-caused curling

9 x 11  
Paper Sheets



TIER:	BEST	BEST	BETTER	GOOD
BRAND:	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLACK ICE T214</b>	<b>BLACK ICE T401</b>	<b>BLUE-BAK T414</b>	<b>TUFBAK T461</b>
ABRASIVE:	Aluminum Oxide	Silicon Carbide	Silicon Carbide	Silicon Carbide
BACKING WEIGHT:	B-Weight	B-Weight	B-Weight	C-Weight
OTHER:	P-Graded	JIS Graded	ANSI Graded	ANSI Graded

SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #	PART #	PART #
9 x 11	60	50/250				66261101175
	80	50/250				66261101170
	100	50/250				66261101165
	120	50/250				66261101160
	150	50/250				66261101155
	180	50/250				66261101150
	220	50/250	66261139389		66261139367	
	240	50/250	66261139388		66261139366	66261130331
	280	50/250			66261139365	
	320	50/250	66261139386		66261139364	66261130332
	360	50/250			66261139363	
	400	50/250	66261139385		66261139362	66261130333
	500	50/250	66261139384		66261139361	
	600	50/250	66261139383		66261139360	66261130334
	800	50/250	66261139382			
	1000	50/250		66261139381		
	1200	50/250		66261139380		
	1500	50/250		66261139379		
	2000	50/250		66261139378		
	2500	50/250		66261139377		



## Waterproof Sanding Blocks – with “grabbing” power

### Dual Density Wet Sanding Block

- No adhesive required: simply wrap a 5-1/2" x 9" (9" x 11" cut in half) sheet around the block
- The dense side is for more aggressive blocking, while the soft side is for color sanding
- Equalizes sanding pressure for fine grit applications



### Holey Block

- No adhesive required: simply wrap a 5-1/2" x 9" (9" x 11" cut in half) sheet around the block
- A rugged, semi-rigid, multi-purpose sanding block engineered for flat to medium curved surfaces
- A tactical hole pattern side provides numerous cutting edges to create a 30% faster cut rate
- The plain side provides firmness and a comfortable, easy-to-hold surface

DESCRIPTION	STD. PKG.	PART #
Wet Sanding Block	12	63642503728
Holey Block	8	63642503729

## File Strips

# NORTON BLUEFIRE H875P ZIRCONIA ALUMINA

EXCELLENT FOR SOFT MATERIAL APPLICATIONS

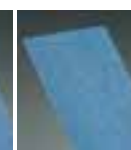
### FEATURES

- Patented zirconia abrasive
- Strong E-weight paper, latex impregnated
- Open coat design

### BENEFITS

- Extended life over original NorZon products
- Increased durability and chip resistance, flexible
- Reduced loading; ideal for body filler, fiberglass, composite sanding

Paper File Strips  
PSA (Pressure  
Sensitive Adhesive)  
and Non-PSA



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>
BRAND:	Norton	Norton	Norton	Norton
TRADENAME:	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>
ABRASIVE:	A/O	A/O	A/O	A/O
BACKING WEIGHT:	B-Weight	B-Weight	B-Weight	B-Weight
BACKING ATTACHMENT:	Non-PSA	PSA	Hook/Loop	Hook/Loop Vac
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded

<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>
Norton	Norton	Norton
<b>BLUEFIRE H875P</b>	<b>BLUEFIRE H875P</b>	<b>BLUEFIRE H875P</b>
Z/A	Z/A	Z/A
E-Weight	E-Weight	E-Weight
Non-PSA	PSA	Hook/Loop

SIZE (W x L)	GRIT	MIN/STD. PKG.	PART #	PART #	PART #	PART #	MIN/STD PKG	PART #	PART #	MIN/STD PKG	PART #
2-3/4 x 16	100	50/500					66261131657				
	120	50/500					66261131656				
	180	50/500					66261131654				
2-3/4 x 16-1/2	36						50/250		66261123610	25/125	66261123616
	40						50/250		66261123609	25/125	66261123615
	80	50/500		66261131640	66261131646		50/250		66261123608	25/125	66261123614
	100	50/500		66261131639	66261131645						
	120	50/500			66261131644						
	150	50/500		66261131637	66261131643						
	180	50/500		66261131636	66261131642						
	220	50/500			66261131641						
2-3/4 x 17-1/2	36						50/250	66261123622			
	40						50/250	66261123621			
	80	50/500	66261131652				50/250	66261123620			
	100	50/500	66261131651				50/250	66261126512			
	120	50/500	66261131650								
	150	50/500	66261131649								
	180	50/500	66261131648				50/250	66261126511			
	220	50/500	66261131647								



VACUUM HOLE PATTERN FOR  
2-3/4 X 16 FILE STRIPS

## Sanding Boards



### PSA/Non-PSA Sanding Board

- This sanding board has a cushioned surface
- Spring clips mounted at each end securely hold 2-3/4" x 16-1/2" PSA file strips and 2-3/4" x 17-1/2" non-PSA file strips



### Hook and Loop and Non-PSA Sanding Board

- Lightweight, rugged design for easy sanding of plastic fillers
- Spring clips mounted at each end securely hold 2-3/4" x 16-1/2" hook and loop file strips and 2-3/4" x 17-1/2" non-PSA file strips
- Air file shoe eliminates the need for clips. The quick-change backing positively locks and unlocks for fast use.



DESCRIPTION	STD. PKG.	PART #
PSA/Non-PSA File Strip Sanding Board	6	63642542724
Hook and Loop/Non-PSA File Strip Sanding Board	5	63642552836
Hook and Loop Air File Shoe	5	63642552835

## Hand Sanding Cut Sheets

Paper Cut Sheets



TIER:	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>A290 NO-FIL</b>	<b>A213</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide
BACKING WEIGHT:	C-Weight	C-Weight
OTHER:	P-Graded	P-Graded

SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #
3-2/3 x 9	60	100/1000		66261102925
	80	100/1000	66261101119	66261102920
	100	100/1000		66261102900
	120	100/1000		66261102895
	180	100/1000	66261101124	
	220	100/1000	66261101123	

## Rubber Hand Sanding Blocks

- Resilient rubber blocks that conform well to mild contours and flat surfaces



DESCRIPTION	STD. PKG.	PART #
2-3/4 x 5	5	07660701889

## PSA Rolls

PSA (Pressure Sensitive Adhesive) Paper Rolls



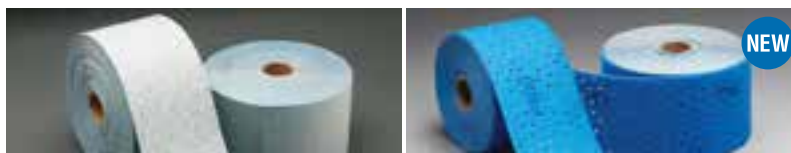
TIER:	<b>BEST</b>	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>DRY ICE A975 NO-FIL</b>	<b>DRY ICE A975 NO-FIL</b>	<b>DRY ICE A975 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>OP A275 NO-FIL</b>	<b>GOLD RESERVE A296 NO-FIL</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
BACKING WEIGHT:	C-Weight.	C-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight
BACKING ATTACHMENT:	PSA	PSA	PSA	PSA	PSA	PSA	PSA	PSA
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded
SIZE:	2-3/4" x 25 yd	2-3/4" x 30 yd	2-3/4" x 45 yd	2-3/4" x 25 yd	2-3/4" x 30 yd	2-3/4" x 45 yd	4-1/2 x 10 yd	2-3/4" x 25 yd

GRIT	MIN./STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #
80	1/5	66261149566			66261131691			66261131697
100	1/5					66261131690		66261131696
120	1/5		66261149564			66261131689		66261131695
150	1/5			66261149563			66261131688	66261131694
180	1/5			66261149562			66261131687	66261131693
220	1/5			66261149561			66261131686	66261131692
240	1/5						66261131685	
320	1/5			66261149558			66261131683	
400	1/5			66261149557			66261131681	
500								
600	1/5						66261131679	



## Hook & Loop Rolls

Hook and Loop  
Paper Rolls



TIER: <b>BEST</b>			TIER: <b>BEST</b>		
BRAND: Norton			BRAND: Norton		
TRADENAME: <b>DRY ICE A975 NO-FIL</b>			TRADENAME: <b>DRY ICE A975 MULTI-AIR CYCLONIC</b>		
ABRASIVE: Ceramic Alumina			ABRASIVE: Ceramic Alumina		
BACKING WEIGHT: B-Weight.			BACKING WEIGHT: C- & B-Weight		
BACKING ATTACHMENT: Hook & Loop			BACKING ATTACHMENT: Hook & Loop		
OTHER: P-Graded			OTHER: P-Graded		
SIZE: 2-3/4" x 13 yd			SIZE: 2-3/4" x 13 yd		
GRIT	MIN./ STD. PKG.	PART #	PART #		
80	1/4	63642506261	63642506113		
120	1/4	63642506259	63642506114		
150	1/4	63642506258	63642506117		
180	1/4	63642506257	63642506118		
220	1/4	63642506256	63642506119		
240	1/4		63642506120		
320	1/4	63642506255	63642506121		
400	1/4	66623329518	63642506122		
500	1/4	66623329547	63642506123		
600	1/4	66623329548	63642506124		

2-3/4" wide hook and loop paper rolls are perforated at 2-3/4" which allows use on all standard lengths of hand blocks and file boards.

## Roll Accessories



### PSA Roll Dispenser

- Heavy-duty wire dispenser has a vinyl coating to protect the work surface
- Accommodates two 2-3/4" PSA rolls; stackable for multi-grit operations. Attach to wall or mount on cabinet

DESCRIPTION	STD. PKG.	PART #
PSA Roll Dispenser	1	63642542773



### PSA/Hook & Loop Sanding Blocks

- Ergonomically-shaped flexible foam blocks used with 2-3/4" rolls, fit comfortably in your hand
- Firm block produces a truly flat surface
- The soft block is designed for flat surfaces and contours

		BACKING ATTACHMENT: PSA		Hook & Loop
SIZE	DESCRIPTION	STD. PKG.	PART #	PART #
2-3/4 x 5	Soft	5	63642542090	63642542092
2-3/4 x 5	Firm	5	63642542091	63642542093
2-3/4 x 7-3/4	Soft	5		63642542095
2-3/4 x 7-3/4	Firm	5	63642542094	

## Rotolo Foam Sanding Pads

### APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER						FINER					
120	150	180	220	240	280	320	400	500	600	800	1000
Cleaning/Repairing			Final Sanding			Feather Edging			Basecoat Sanding		
										Clearcoat Sanding	

## NO-FIL NORTON OP A275 ROTOLO FOAM ROLLS

THE BETTER CHOICE FOR FINE SANDING FLAT AND CURVED SURFACES



#### FEATURES

- Original Performance A275 (premium P-graded, aluminum oxide grain with No-Fil coating) on Rotolo foam backing
- 4-1/2" wide x 82' long roll perforated every 5-1/2 inches
- Convenient dispensing box

#### BENEFITS

- Perfect for hand sanding without leaving finger marks
- Provides outstanding finish on wood, metal, composites, primers, sealers, and top coats
- Fast cut and long life without loading
- Compatible with all coatings
- 50% – 60% improvement in tear strength
- Standard 1/4 sheet size for hand or machine sanding
- 178 sheets per roll
- Protects A275 Rotolo foam from damage

TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **OP A275 ROTOLO**  
 ABRASIVE: Aluminum Oxide  
 OTHER: P-Graded

SIZE (W x L)	GRIT SIZE	ROLLS/STD. PKG.	PART #
4-1/2" x 82'	120	2	63642535316
	150	2	63642557584
	180	2	63642557599
	220	2	63642557600
	240	2	63642557602
	280	2	63642557604
	320	2	63642557606
	400	2	63642557608
	500	2	63642557611
	600	2	63642557612
	800	2	63642557613
	1000	2	63642557616

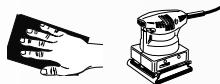


# CLOTH SHEETS AND ROLLS



Engineered for flexibility and fast cutting, cloth sheets and rolls have a longer life than paper. They tear cleanly and straight without shedding and are packed in a protective dispenser to eliminate waste and damage.

Categories: All purpose, fine finishing, and screen-back  
Applications: Scouring and light deburring, scale and rust removal, blending and fine sanding, polishing lathe turnings, rolls and cylinders, and blending machine tool marks  
Size Range: Sheets: 9" x 11"  
Rolls: 1" x 10 yds., 1-1/2" – 2" x 25 yds., 1" – 4" x 50 yds.  
Grit Range: 40 – 600, extra coarse, coarse, medium, fine  
Abrasive Grain: Aluminum Oxide, Silicon Carbide, Emery  
Machine Used:



## CROSS REFERENCE GUIDE

	GOOD			
<b>NORTON</b>	Metalite K225	Norton R243	Emery K622	Screen-Bak Q421
3M	311T Three-M-lte BG 211K Electrocut	211K Three-M-lte 311K Three-M-lte	011k Crystal Bay	481Q
Hermes	RB317LX	RB232J	–	–
Klingspor	CS310X	KL361	KL371	–
Sait	DA-F	EA-F	–	Saitscreen
SIA	–	2947J	C680J	–
VSM	KK504X	KK504J, KK504X	–	–

## APPLICATION/STARTING RECOMMENDATION GUIDE

Durability/Stock Removal	Conformability	Slower Cut	Waterproof
Fast Cut	Excellent Finish	Fine Finish	Load Resistant
Metalite K225	Norton R243	Emery K622	Screen-Bak Durite Q421

## NORTON METALITE K225 ALUMINUM OXIDE

### GOOD CHOICE FOR GENERAL-PURPOSE METAL AND WOODWORKING APPLICATIONS

#### FEATURES & BENEFITS

- Superior conformability to flat and complex surfaces, better finishes, and fast cutting action provided by our quality, P-graded aluminum oxide abrasives and smooth, J-wt. flexible cotton backing; 40-60 grits rolls and sheets are supplied in durable, but smooth, flexible X-Weight cotton backing
- The full grit range – P40 - P600 – allows one product family to be used on your scouring to finishing jobs



## NORTON R243 ALUMINUM OXIDE

### GOOD CHOICE FOR SMALL-VOLUME METAL AND WOODWORKING APPLICATIONS AT A LOW INITIAL PRICE

#### FEATURES & BENEFITS

- Superior conformability to flat and complex surfaces, better finishes, and fast cutting action provided by our quality, P-graded aluminum oxide abrasives and smooth, J-weight flexible cotton backing
- The full grit range – P40 - P600 – allows one product family to be used on your scouring to finishing jobs
- Our low initial price makes these the products of choice for numerous small volume jobs where you are unable to measure performance



# CLOTH SHEETS AND ROLLS

## NORTON K622 EMERY

**GOOD CHOICE FOR REMOVING RUST, PAINT AND SCALE FROM METAL SURFACES**

### FEATURES & BENEFITS

- Natural emery abrasive is coated onto a flexible cloth backing for increased durability
- Used for light deburring and cleaning
- Ideal for hand sanding, deburring, polishing and removing cutting tool marks on all metal parts

## NORTON SCREEN-BAK Q421 SILICON CARBIDE

**GOOD CHOICE FOR SANDING SOFTER MATERIALS WHERE LOADING IS A MAJOR PROBLEM SUCH AS PLASTIC, COPPER, BRASS, PLASTER, WOOD, AND DRYWALL**

### FEATURES & BENEFITS

- Coated on both sides with P-graded silicon carbide for excellent cutting and non-loading properties
- Open weave screen for extreme resistance to loading when removing scale, rust and corrosion
- Open mesh design is waterproof and washable, allowing you to rinse and reuse

### Cloth Sheets



TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **METALITE K225**  
 ABRASIVE: Aluminum Oxide  
 BACKING: J-Weight Cotton  
 OTHER: P-Graded



TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **EMERY K622**  
 ABRASIVE: Emery  
 BACKING: J-Weight Cotton








TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **SCREEN-BAK Q421**  
 ABRASIVE: Silicon Carbide  
 BACKING: Mesh  
 OTHER: P-Graded/Waterproof

SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #	MIN./STD. PKG.	PART #
9 x 11	40	25/125	66261058713+			
	50	25/125	66261101862+			
	60	25/125	66261101861+			
	80	25/125	66261126340		25/125	66261100960
	100	50/250	66261126339		25/125	66261100955
	120	50/250	66261126338		25/125	66261100950
	150	50/250	66261126337		25/125	66261100945
	180	50/250	66261126336		25/125	66261100940
	220	50/250	66261126335		25/125	66261100935
	240	50/250	66261126334			
	280	50/250	66261126333			
	320	50/250	66261126332		25/125	66261100920
	400	50/250	66261126331		25/125	66261100915
	500	50/250				
	600	50/250	66261126330			
	Extra Coarse	25/125		66261101255		
	Coarse	25/125		07660701307		
	Medium	50/250		07660701309		
	Fine	50/250		07660701308		

+ 40 - 60 grit are supplied in durable, but flexible X-weight cotton backing



## Cloth Rolls

						
TIER:	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>METALITE K225</b>	<b>METALITE K225</b>	<b>METALITE K225</b>	<b>METALITE K225</b>	<b>METALITE K225</b>	<b>METALITE K225</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
BACKING:	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton
SIZE:	1" x 10 yds	1" x 50 yds	1-1/2" x 50 yds	2" x 50 yds	4" x 50 yds	
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded
GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
40	1		66261058716+	66261058715+	66261058714+	
50	1		66261127728+	66261127730+	66261127732+	
60	1		66261127729+	66261127731+	66261127733+	
80	1	66261134298	66261126276	66261126288	66261126299	
100	1	66261134299	66261126275	66261126287	66261126298	
120	1	66261134300	66261126274	66261126286	66261126297	66261127285*
150	1	66261134301	66261126273	66261126285	66261126296	
180	1	66261134302	66261126272	66261126284	66261126295	
220	1		66261126271	66261126283	66261126294	
240	1	66261134303	66261126270	66261126282	66261126293	
280	1		66261126269	66261126281	66261126292	
320	1	66261134304	66261126268	66261126280	66261126291	
400	1		66261126267	66261126279	66261126290	
600	1		66261126266	66261126278	66261126289	

+ 40 - 60 grit, are supplied in durable, but flexible X-weight cotton backing

\* Packaging Standards: 4" Roll Std. Pkg.: 6 rolls

## Cloth Rolls

						
TIER:	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>R243</b>	<b>R243</b>	<b>R243</b>	<b>SCREEN-BAK Q421</b>	<b>SCREEN-BAK Q421</b>	<b>SCREEN-BAK Q421</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Silicon Carbide	Silicon Carbide
BACKING:	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	Mesh	Mesh	Mesh
SIZE:	1" x 50 yds	1-1/2" x 50 yds	2" x 50 yds	1-1/2" x 25 yds	2" x 25 yds	
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded Waterproof	P-Graded Waterproof	P-Graded Waterproof
GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
60	1	66261136178	66261136190	66261136203		
80	1	66261136179	66261136192	66261136204	66261107275*	
100	1	66261136180	66261136194	66261136205		
120	1	66261136181	66261136195	66261136206	66261107270*	66261149811*
150	1	66261136182	66261136196	66261136207		
180	1	66261136186	66261136199	66261136208	66261107265*	
240	1	66261136187	66261136200	66261136209		
320	1	66261136188	66261136201	66261136210		
400	1	66261136189	66261136202	66261136211		

\* Packaging Standards: Screen-Bak Q421 Std. Pkg.: 10 rolls





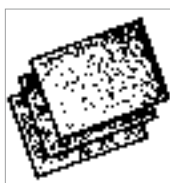
Flexible, abrasive sanding sponges for a wide variety of curved, contoured or flat surface applications on wood, metal, paint, plastic, ceramics and drywall.

- Applications:** Light stock removal, sanding sealer and wash-coats, touch-up or repair of primer, sanding contours and intricate shapes, and finishing
- Benefits:** Can be used wet or dry  
Clog resistant, washable, reusable  
Easy to use, can be folded without cracking  
Conformable  
Generate a consistent surface finish

**Machine Used:**



### WHY CHOOSE ABRASIVE SPONGES VERSUS CONVENTIONAL SHEETS?



#### Eliminate Clogging

- The combination of flexible foam backing material and abrasive grit adhesion continually releases sanded material
- Any clogging can be washed out

#### Pressure Control

- Foam backing allows optimum pressure distribution to prevent sanding through surfaces
- Pressure spots are eliminated providing even surface pattern

#### Adapt to Contours

- Flexible foam allows adaptability to contours, shapes or areas of limited access
- No folding or buckling results in an even pattern without scratching

### SURFACE FINISHING CHART – CONTOUR SPONGES VERSUS SHEETS

COARSER						FINER						
P150	P180	P220	P280	P320	P400	P500	P600	P800	P1000	P1200	P1500	P2000
Medium 60												
		Fine 100										
				Extra Fine 150								
						Super Fine 180						
								Ultra Fine 220				
										Micro Fine 280/320		

### SURFACE FINISHING CHART – SPONGE PADS VERSUS SHEETS

COARSER													FINER
P80	P100	P120	P150	P180	P220	P280	P320	P400	P500	P600	P800	P1000	P1200
Extra Coarse 36													
		Coarse 60											
				Medium 80 - 120									
						Fine 120 - 150							
								Very Fine 180 - 220					
												Micro Fine 280 - 320	

### CROSS REFERENCE GUIDE

	BETTER	GOOD	GOOD	GOOD	GOOD	GOOD
<b>NORTON</b>	SoftTouch	Contour	Small Area	Profile	Sealer Sanding	Flexible
3M	Softback	Contour	Full Size	High Flexibility	Woodworking	Pro Pads
Hermes	Single Side	—	Four Sided	—	Two Sided	—
Klingspor	—	—	—	—	Foam Sanding Pad	—
SIA	Flat Pad	—	Standard Block	—	Standard Pad	—



**BETTER** SoftTouch Contour Sponges – Coated 1 side

- Superior flexibility; for hand-sanding or finishing flat, curved, contoured and hard-to-reach areas on wood, metal, composites, paint and solid surfaces
- Premium foam substrate provides for an extremely smooth and uniform sanded surface

SIZE (W x L x T)	GRIT	STD. PKG.	PART #
4-1/2 x 5-1/2 x 3/16	60 Medium	80	07660703074
	100 Fine	80	07660703075
	180 Super Fine	80	07660703076
	220 Ultra Fine	80	07660703077
	280 Micro Fine	80	07660703078



**GOOD** Contour Sponges – Coated 1 side

- Thin, flexible; good for sanding small diameters and contours such as ceramics, spindles, turnings and railings

SIZE (W x L x T)	GRIT	STD. PKG.	PART #
4-1/2 x 5-1/2 x 3/16	100 Fine	100	07660702257
	150 Extra Fine	100	07660702256
	220 Ultra Fine	100	07660702255



**GOOD** Small Area General Purpose Sponges – Coated 4 sides

- Good for a wide variety of materials and sanding applications where moderate flexibility is needed
- Medium to firm density open cell polyurethane foam provides uniform support and moderately aggressive cutting action while generating a smooth surface

SIZE (W x L x T)	GRIT	STD. PKG.	PART #	BULK PKG.	PART #
4 x 2-3/4 x 1	36/80	24	07660749505	250	07660704735
	Ex. Coarse/Med				
	80/80	24	07660749507	250	07660701875
	Med/Med				
	80/120	24	07660749504	250	07660702600
	Med/Fine				
	120/120	24	07660749506		
	Fine/Fine				



**GOOD** Profile Sponges – Coated 3 sides

- Good for corners and flat surfaces on wood, metal, plastic and paint
- Ideal for cabinet sanding of raised profile doors

SIZE (W x L x T)	GRIT	STD. PKG.	PART #
4 x 2-3/4 x 1/2	100 Medium	500	63642536313



**GOOD** Sealer Sanding Sponges – Coated 2 sides

- Very flexible; silicon carbide abrasive for sanding primers, sealers and between coats on furniture and cabinets

SIZE (W x L x T)	GRIT	BULK PKG.	PART #
4-3/4 x 3-3/4 x 1/2	36 Extra Coarse	250	63642502538
	60 Coarse	250	63642552870
	100 Medium	250	63642552869
	150 Fine	250	63642552868

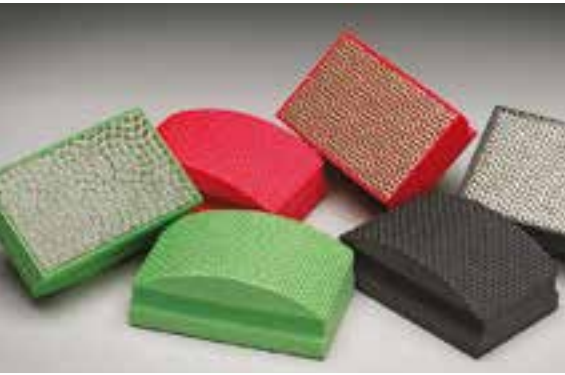


**GOOD** Flexible Abrasive Sponges – Coated 1 side

- Ideal for final sanding of surfaces, primer sanding, and between coats sanding
- Best initial price point for abrasive sponges

SIZE (W x L x T)	GRIT	STD. PKG.	PART #	BULK PKG.	PART #
3 x 4 x 1/2	60 Coarse	48	07660704068	108	07660701110
	80 Medium	48	07660704067	108	07660704070
	100 Medium	48	07660704066	108	07660700950
	150 Fine	48	07660704065	108	07660700949
	220 Very Fine			108	07660704069

# FLEXIBLE DIAMOND-COATED HAND PADS



Norton flexible diamond coated hand pads combine the durability and aggressiveness of diamond, with a flexible backing.

**Applications:**

Diamond coated hand pads: shaping, rapid stock removal, touch-up and repair on ceramics, stone, marble, glass, composites and hard materials; polishing of dies and molds  
Quadroflex diamond hand pads: surface conditioning, repairs, and removing flash and burrs on aircraft composites and windmill blades

**Size Range:**

3-1/2" x 2-1/8"

**Grit Range:**

60 – 1500

**Abrasive Types:**

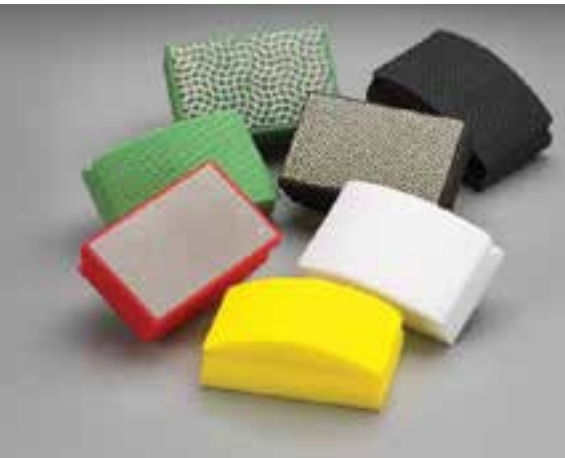
Diamond

**Machine Used:**



## FLEXIBLE DIAMOND-COATED HAND PADS – CONVENTIONAL AND QUADROFLEX CURVED

**BETTER CHOICE FOR SHAPING, RAPID STOCK REMOVAL, SURFACE  
CONDITIONING, TOUCH-UP, REPAIR, AND POLISHING**



**FEATURES**

- Lightweight conformable backing
- Color coded by grit size
- Conventional hand pads: precision dot pattern
- Quadroflex curved hand pad

**BENEFITS**

- Adaptable to a variety of shapes and conditions
- Durable, long life
- Uniform finishes; improved surface quality
- Can be used wet or dry
- No dressing required
- Eases identification
- Aggressive, consistent, fast cut rate, reduces dust and loading
- Ergonomic advantages, overall lower cost



**TIER BETTER**  
**DIAMOND COATED HAND PADS**  
TRADENAME:  
ABRASIVE: Diamond

**BETTER**  
**QUADROFLEX CURVED DIAMOND COATED HAND PADS**  
Diamond

SIZE (L x W)	COLOR	GRIT	STD. PKG.	PART #	PART #
3-1/2 x 2-1/8	Green	60	1	66260306360	69014121517
	Black	120	1	66260306361	69014121518
	Red	200	1	66260306362	69014123529
	Yellow	400	1	66260305852	69014123530
	White	800	1	66260306363	69014123531
	Blue	1500	1	66260306364	
	Kit (one each of above)		1	66260307720	






Portable file belt sanders have replaced tedious hand filing and sanding. First introduced in pneumatic, they are now also available in electric. Increasingly, tool manufacturers are introducing additional fixtures for additional applications. The belts listed are popular stock sizes, but additional sizes, specifications, backing materials, and edge scallops are available made-to-order.

Applications: Light weld removal and blending, shape and contour sanding, surface preparation prior to coating and plating, removing cutting tool marks from molds and dies, general clean-up and finishing

Size Range: 1/8" to 1" wide, 12" to 30" long

Grit Range: 40 – 120

Abrasive Grain: Ceramic Alumina, Zirconia Alumina, Aluminum Oxide

Machine Used: 

## CROSS REFERENCE GUIDE

	BEST	BEST	BETTER	GOOD	GOOD
<b>NORTON</b>	Blaze R980P	Norton SG R981	BlueFire R887P/R823P	Metalite R283	R766
3M	984F, 977F	963G, 967F	577F, 777F	241E	363F
Hermes	CR456	–	RB486 44 Z	RB317J, RB316EJ RB303 Flex	SB 378 YR
Klingspor	CS610YY	–	CS411YX, CS 409Y	CS310XF	CS412
SIA	–	–	–	933A, 936A	–
VSM	SK840X, SK750X	–	KK715X	KK711T, KK511J	KK711

## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	HEAVY-DUTY		GENERAL-DUTY
	BEST Highest Productivity; Lowest Total Cost.	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
Carbon Steel	Norton Blaze R980P	Norton BlueFire R887P/R823P	Norton R766
Stainless Steel / Alloys	Norton Blaze R980P	Norton BlueFire R887P/R823P	Norton R766
Cast Iron	Norton Blaze R980P	Norton BlueFire R887P/R823P	Norton R766
Brass/Bronze	–	Norton BlueFire R887P/R823P	Norton R766
Aluminum	–	Norton BlueFire R887P/R823P	Norton R766

## NORTON BLAZE R980P CERAMIC ALUMINA

**BEST FOR STAINLESS, COBALT, CHROME, INCONEL, TITANIUM, MILD AND CARBON STEEL**



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Next-generation cooler cutting Norton SG ceramic alumina grain</li> </ul>	<ul style="list-style-type: none"> <li>Lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, Inconel and titanium</li> <li>Better metal integrity</li> </ul>
<ul style="list-style-type: none"> <li>Y-weight polyester waterproof cloth backing</li> </ul>	<ul style="list-style-type: none"> <li>Edge-fray resistance</li> <li>Excellent body-retention for more consistent grinding throughout belt life</li> </ul>
<ul style="list-style-type: none"> <li>Improved resin bond system</li> </ul>	<ul style="list-style-type: none"> <li>Significantly improved belt life due to exceptional grain adhesion</li> </ul>
<ul style="list-style-type: none"> <li>Advanced "supersize" grinding lubricant</li> </ul>	<ul style="list-style-type: none"> <li>Cooler cutting throughout the life of the belt</li> <li>Improved part finish and integrity</li> </ul>

## NORTON BLUEFIRE R887/R823P ZIRCONIA ALUMINA

THE BETTER CHOICE FOR STAINLESS AND CARBON STEEL

### FEATURES & BENEFITS

- High-performance, self-sharpening zirconia alumina abrasive for industry-leading cut rate and life
- High-performance resin bond provides strong grain adhesion, longer life
- Strong Y-weight polyester backing - R887P for heavy-duty stock removal applications
- Flexible X-weight polyester backing - R823P for moderate- to light-pressure applications

## NORTON R766 ALUMINUM OXIDE

GOOD CHOICE FOR DIFFICULT-TO-GRIND MATERIALS (ALUMINUM, BRASS, BRONZE, STAINLESS, CARBON STEEL, TITANIUM, ETC.)

### FEATURES & BENEFITS

- Premium aluminum oxide abrasive blend is ideal when purchasing criteria is a good-performing, economically priced, general purpose belt
- Resin bond system provides good edge retention and life versus key competitors
- Y-weight waterproof polyester backing withstands light- to moderately-demanding applications and provides extended life on dry grinding applications

							
TIER:		<b>BEST</b>		<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:		Norton		Norton	Norton	Norton	Norton
TRADENAME:		<b>BLAZE R980P</b>		<b>NORTON SG R981</b>	<b>BLUEFIRE R887/R823P+</b>	<b>R766</b>	<b>METALITE R283</b>
ABRASIVE:		Ceramic Alumina		Ceramic Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
BACKING:		Y-Weight Polyester		Y-Weight Polyester	Y- or X-Weight Polyester	Y-Weight Polyester	X-Weight Rayon
OTHER:		Supersize		Supersize			
SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>12" Belts</b>							
1/8 x 12	40	50	66254491518		66254492520	66623390000	66254491536
	60	50	66254405345	66254491522	66261093029	66623390001	
	80	50	66261089479	66254491523	66261093030	66623390002	66254491537
	120	50	66254491519	66254491524	66254491533		66254491538
1/4 x 12	40	50	66254491520	66254491525		66623390003	66254491539
	60	50	66261196480		78072758896	66623390004	
	80	50	66261063617	66254491526	78072782621	66623390005	78072766143
	120	50	66261063632	66254491527	78072782622		78072763175
1/2 x 12	40	50	69957398018	66254491528	66254492522	66623390006	78072727557
	50	50	66261043759	78072718700	66254492523	66623390007	66254491540
	60	50	69957398019	78072718701	78072728745	66623390008	78072727555
	60	25 V			66623373753		
	80	50	69957398020	78072718702	78072728744	66623390009	78072727554
	80	25 V			66623373754		
	100	50	66261081180	66254491529	66254491534		78072727553
	120	50	66261042909	78072700518	78072728742		78072727552
1 x 12	120	25 V			66623373755		
	60	50	66261063641		78072753073	66623390010	78072773813
<b>13" Belts</b>							
3/8 x 13	60	50	69957345359	78072745459	78072740295	66623390011	78072732112
	80	50	69957392150	78072774916	78072736062	66623390012	78072771323
<b>18" Belts</b>							
1/8 x 18	40	50	66254475211		66254492524	66623390013	66254491541
	60	50	66261080010		66254491535	66623390014	
	80	50	66261089120	78072789083	78072760595	66623390015	
	120	50	66254475215	78072789084	63642595221		

Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Please contact your local Norton Distributor to check availability. +40 and 50 grit BlueFire belts are furnished in BlueFire R887 (Y-wt Polyester); 60-120 grits are supplied in BlueFire R823P (X-wt. Polyester).

Joints – All belts are PG jointed; a butt joint joined with flexible tape for contour grinding.

V = Vendible package. Ideal for vending machines and small jobs. 5 belts per pack / 5 packs per carton. Order in multiples of 25.

continued



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>NORTON SG R981</b>	<b>BLUEFIRE R887/R823P+</b>	<b>R766</b>	<b>METALITE R283</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina	Premium A/O Blend	Aluminum Oxide
BACKING:	Y-Weight Polyester	Y-Weight Polyester	Y- or X-Weight Polyester	Y-Weight Polyester	X-Weight Rayon
OTHER:	Supersize	Supersize			

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>18" Belts (continued)</b>							
1/4 x 18	40	50	66261027923	66261198953	66254492525	66623390016	66254491543
	60	50	69957347249	78072774684	78072743583	66623390017	78072771000
	60	25 V			66623373747		
	80	50	69957346155	78072703284	78072753075	66623390018	78072773921
	80	25 V			66623373748		
1/2 x 18	120	50	66261085071	78072785655	78072773764		
	40	50	69957398021	78072766018	66254444193	66623390019	78072727561
	60	50	69957398022	78072718704	78072728569	66623390020	78072727560
	60	25 V			66623373756		
	80	50	69957398023	78072718705	78072728568	66623390021	78072727559
3/4 x 18	80	25 V			66623373757		
	120	50	66261041384	78072718706	78072728567		78072727558
	120	25 V			66623373758		
	40	50	69957398027	78072762476	66254492526	66623390022	78072781797
	60	50	69957398028	78072745691	78072709590	66623390023	78072739966
20-1/2" Belts	60	25 V			66623373762		
	80	50	69957398029	78072756309	78072758953	66623390024	78072732289
	80	25 V			66623373763		
	120	25 V			66623373764		
3/4 x 20-1/2	40	50	69957398030	78072714398	66254457869	66623390025	78072727573
	50	50	69957344982	78072718714	66254492527	66623390026	66254491544
	60	50	69957398031	78072718715	78072728560	66623390027	78072727571
	60	25 V			66623373765		
	80	50	69957398032	78072718716	78072728559	66623390028	78072727570
24" Belts	80	25 V			66623373766		
	100	50	66261055516	78072771151	66261038911		78072727569
	120	50	66261044755	78072727380	78072728557		78072727575
1/4 x 24	40	50	66261198631	78072747823	66254473499	66623390029	66254401929
	60	50	69957345451	78072756534	78072728552	66623390030	78072727548
	60	25 V			66623373750		
	80	50	63642596940	78072718340	78072767713		
	120	50	66261080367	78072770718	78072728550		
1/2 x 24	40	50	69957398024	78072760092	66254492528	66623390032	78072727568
	50	50	66261043757	78072718707	66254452237	66623346910	78072727567
	60	50	69957398025	78072718708	78072728564	66623390033	78072727566
	60	25 V			66623373759		
	80	50	69957398026	78072718709	78072728566	66623390034	78072727565
1 x 24	80	25 V			66623373760		
	100	50	66261042203	78072745021	78072753076		66254491545
	120	50	66261042565	78072718710	78072728565		78072727564
	40	50	69957350019	66254491531	66254492529	66623390035	66254491546
	50	50	69957344889	78072710374	66254492530	66623390036	66254491547
30" Belts	60	50	69957353375	78072737318	78072798720	66623390037	66254491548
	80	50	69957345419	78072772209	78072776498	6662334206	66261085068
	120	50	66261085067	66254491532	78072730029		66261085069
1 x 30	40	50	66261053470		66254478257	66623390038	66261189958
	60	50	69957345985		78072728583	66623390039	66254491549
	80	50	69957346105	78072764439	78072728582	66623390040	78072727579
	120	50	66261193676	78072781197	78072766992		78072727577

Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Please contact your local Norton Distributor to check availability.

+40 and 50 grit BlueFire belts are furnished in BlueFire R887 (Y-wt Polyester); 60-120 grits are supplied in BlueFire R823P (X-wt. Polyester).

Joints – All belts are PG jointed; a butt joint joined with flexible tape for contour grinding.

V = Vendible package. Ideal for vending machines and small jobs. 5 belts per pack / 5 packs per carton. Order in multiples of 25.



Portable belts are ideal for all your metal and woodworking applications. Choose 36 – 50 grits for rough/heavy-duty applications, 60 – 100 for intermediate, and 100 – 220 for finishing/polishing applications.

The belts listed are popular stock sizes, but additional sizes, specifications, and backing materials, are available made-to-order

Applications: Grinding and finishing all metals, blending welds, sanding and finishing wood, glass seaming, and polishing  
 Size Range: 3" to 4" wide, 15-1/2" to 24" long  
 Grit Range: 36 – 220  
 Abrasive Grain: Ceramic Alumina, Zirconia Alumina, Aluminum Oxide  
 Machine used:



## CROSS REFERENCE GUIDE

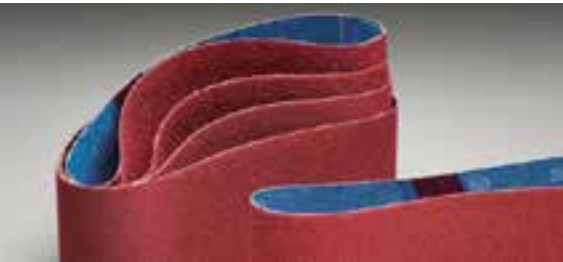
	BEST	BETTER	GOOD
<b>NORTON</b>	Norton SG R981	ProSand BlueFire	Metalite R215/R255
3M	977F, 967F, 963G	777F, 577F	241D, 340D
Hermes	RB346MX	RB484Z	RB316XOP
Klingspor	CS610YY	CS411Y	CS311YX, CS310X, LS309XH
Sait	–	ZH	AOX, IAX
SIA	–	–	2903XO, 2905X, 2920X
VSM	SK855X	ZK713X	KK511X, KK711X, KK504X

## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	HEAVY-DUTY		GENERAL-DUTY
	BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & Price	GOOD Consistent Performance; Low Initial Price
Wood	–	Norton ProSand BlueFire	Norton Metalite R215/R255
Stainless Steel / Carbon Steel	Norton SG R981	Norton ProSand BlueFire	
Brass / Bronze / Aluminum	–	Norton ProSand BlueFire	Norton Metalite R215/R255

## NORTON SG R981 CERAMIC ALUMINA

### EXCEPTIONAL PERFORMANCE, ESPECIALLY ON HARD-TO-GRIND ALLOYS



FEATURES	BENEFITS
• Norton SG ceramic abrasive	• Exceptional life and value, especially on hard-to-grind alloys
• Grinding-aid enhanced	• Longer life, cooler cut
• Strong Y-weight polyester, waterproof cloth backing	• Improved grain adhesion, reduced edge-fray, and better body retention result in longer life and product consistency

## NORTON PROSAND BLUEFIRE ZIRCONIA ALUMINA

### THE BETTER CHOICE FOR STAINLESS STEEL AND WOOD



FEATURES	BENEFITS
• Premium, self-sharpening zirconia alumina	• Aggressive abrasive, rapid cut rate, long life
• Reversible butt splice	• Use in either direction for longer life
• Open-coat design, strong Y-weight cotton backing	• Reduced loading, extended life
• Packaged in convenient job packs	• Ideal for small jobs, carrying cleanly to job sites, and mounting on showroom displays



## Portable Belts for Belt Sanders



TIER:	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>PROSAND BLUEFIRE</b>	<b>ALUMINUM OXIDE</b>
ABRASIVE:	Zirconia Alumina	Aluminum Oxide
BACKING:	Y-Weight Cotton	X-Weight Cotton
JOINT:	Plyweld	Plyweld
GRAIN COATING:	Open Coat	Open Coat
OTHER:		

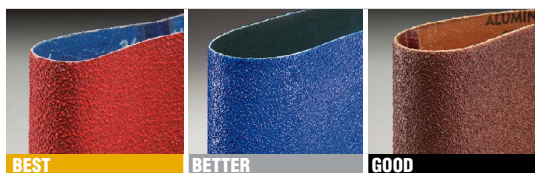


TIER:	<b>GOOD</b>
BRAND:	Norton
TRADENAME:	<b>METALITE R255</b>
ABRASIVE:	Aluminum Oxide
BACKING:	X-Weight Cotton
JOINT:	Plyweld
GRAIN COATING:	Open Coat
OTHER:	UPC Bar Coded

SIZE (W x L)	GRIT	MIN./STD. PKG.	PART #	PART #	STD. PKG.	PART #
3 x 18	36				5	78072780447
	50	5/25*	07660749259	07660700964	10	78072727994
	80	5/25*	07660749258	07660700968	10	78072727993
	120	5/25*	07660749256	07660700969	10	78072727992
3 x 21	36	5/25*	07660749266	07660701741		
	40				10	78072727927
	50	5/25*	07660749265	07660701740	10	78072727926
	60				10	78072727925
	80	5/25*	07660749264	07660702064	10	78072727924
	100	5/25*	07660749263		10	78072727923
	120	5/25*	07660749262	07660702062	10	78072727922
	220	5/25*		07660705287		
3 x 24	36	5/25*	07660749272	07660701743	5	78072781847
	40				10	78072727937
	50	5/25*	07660749271	07660701742	10	78072727936
	60				10	78072727935
	80	5/25*		07660702067	10	78072727934
	100	5/25*	07660749269	07660702066	10	78072727933
	120	5/25*	07660749268	07660702065	10	78072727932
4 x 24	36	5/25*	07660749278	07660701745	5	78072780438
	40				10	78072727947
	50	5/25*	07660749277	07660701744	10	78072727946
	60				10	78072727945
	80	5/25*	07660749276	07660702069	10	78072727944
	100	5/25*	07660749275		10	78072727943
	120	5/25*	07660749274	07660702068	10	78072727942
	180	5/25*		07660705285		

\*Job Pack packing standards: 5 belts/Job Pack; 5 Job Packs per carton. Order by number of packs, in multiples of 5 packs.

## Portable Belts for Pneumatic In-Line Drum Sanders



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton
TRADENAME:	<b>SG R981</b>	<b>BLUEFIRE R823P</b>	<b>METALITE R215</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide
BACKING:	Y-Weight Polyester	X-Weight Polyester	X-Weight Cotton
JOINT:	Plyweld	Plyweld	Plyweld
GRAIN COATING:	Closed Coat/Supersize	Closed Coat	Open Coat

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #
3-1/2 x 15-1/2	36	10	78072700783		78072721997
	60	10	78072718750		78072722000
	80	10	78072718751	78072753074	78072721995
	120	10	78072718753		



A broad selection of sizes and grits for most dimensioning, intermediate grinding and polishing applications.

The belts listed are popular stock sizes, but additional sizes, specifications, and backing materials, are available made-to-order.

**Applications:**

Benchstand and Backstand Belts: grinding and deburring of all metals, heavy stock removal, blending, dimensioning and shaping, polishing.

Centerless, Conveyor and Platen Belts: intermediate grinding stainless and carbon, moderate-pressure applications, dimensioning and finishing.

**Size Range:**

1" to 10" wide, 36" to 132" long

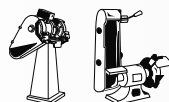
**Grit Range:**

24 – 320

**Abrasive Grain:**

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide

**Machine Used:**



## CROSS REFERENCE GUIDE

	BEST	BEST	BETTER	BETTER	BETTER	BETTER	GOOD
<b>NORTON</b>	Blaze R980P	Norton SG R981	BlueFire R887P	BlueFire R821P	BlueFire R823P	BlueFire R884P	Metalite R228
3M	987F1, 977F, 777F, 967F, 963G, 963H, 984F	987F1, 977F, 777F, 967F, 963G, 963H	577F, 567G, 777F 977F	561D	561F Y, 551E XE 741A, 741E, 761D	561D, 561F, 563F 741A, 741E, 761D 761F	240DZ OPK, 270DZ OPK, 241D, 248D, 251D, 341I Imperial, 351D
Hermes	CR456	CR456	RB486X, RB486Y – RB426-23MX		RB486 X, RB346-23MX RB426-23MX, RB484TY RB486XF	RB484TY, RB486Y, RB346-23MX, RB426-23MX RB480-21MX, CB440Y, RB486XY	RB3160P RB317LX RB346MX
Klingspor	CS612YY, CS610YY	CS612YY, CS610YY	CS409Y	CS411Y	CS411X	CS411Y	CS311X, CS310, CS410
SIA	–	–	–	–	–	2800, 2803, 2929	2903XO, 2905X, 2920X
VSM	SK840X, SK750X	SK840X, SK750X	KK815Y, ZK744X	–	KK715X	KK716Y, ZK713X	KK511X, KK711

## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

	BEST Highest Productivity. Lowest Total Cost.	BETTER Excellent Blend of Performance & Price.	GOOD Consistent Performance. Low Initial Price.
Aluminum	–	Norton BlueFire R884P/R823P	Norton R766
Cast Iron	Norton Blaze R980P	Norton BlueFire R823P	Norton R766
Brass / Bronze	–	Norton BlueFire R884P/R823P	Norton R766
Die Castings	Norton Blaze R980P	Norton BlueFire R823P	Norton R766
Carbon Steel	Norton Blaze R980P	Norton BlueFire R823P	Norton R766
Glass / Ceramics	Norton Blaze R980P	Norton BlueFire R821P	Norton R766
Stainless Steel and Alloys	Norton Blaze R980P	Norton BlueFire R823P/R887P	Norton R766
Wood	–	Norton BlueFire R831/R884P	Norton R766

## GRIT SELECTION RECOMMENDATION GUIDE

STOCK REMOVAL	INTERMEDIATE	FINISHING
24 – 50 grit	60 – 100 grit	120 – 320 grit



## NORTON BLAZE R980P CERAMIC ALUMINA

**BEST FOR MILD AND CARBON STEEL, STAINLESS, COBALT, CHROME, INCONEL, TITANIUM**

### FEATURES & BENEFITS

- Cooler cutting Norton SG ceramic abrasive grain lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, Inconel and titanium versus aluminum oxide belts
- Cuts 20% faster than the current generation of grinding belts
- Longer belt life, better metal integrity, greater productivity; lowest total grinding costs
- Y-weight polyester waterproof cloth backing provides edge-fray resistance, and offers excellent body retention during use for more consistent grinding throughout belt life
- Durable resin bond system
- Significantly improved belt life due to better grain adhesion
- Advanced "supersize" grinding lubricant
- Cooler cutting during the life of the belt
- Improved part finish and integrity



## NORTON SG R981 CERAMIC ALUMINA

**EXCEPTIONAL PERFORMANCE, ESPECIALLY ON HARD-TO-GRIND ALLOYS**

### FEATURES & BENEFITS

- Norton SG ceramic abrasive provides exceptional life and value, especially on hard-to-grind alloys
- Grinding-aid enhanced for longer life, cooler cut
- Strong Y-weight polyester, waterproof cloth backing for improved grain adhesion, reduced edge-fray and better body retention, resulting in longer life and product consistency



EXPANDED OFFERING

## NORTON BLUEFIRE R884P/R823P ZIRCONIA ALUMINA

**BETTER CHOICE FOR HEAVIEST-PRESSURE APPLICATIONS**

### FEATURES & BENEFITS

- Premium self-sharpening zirconia alumina abrasive provides aggressive, rapid cut rate
- R884P – Durable Y-weight polyester, waterproof cloth backing has excellent grain adhesion, reduced edge-fray and better body retention, resulting in longer life and product consistency
- R823P – Strong X-weight waterproof polyester backing is more flexible than R884P and available in finer grit sizes
- R821P Smooth-running Y-weight cotton backing provides extended durability and even wear on coarser grit stock removal applications



## NORTON R766 ALUMINUM OXIDE

**GOOD CHOICE FOR DIFFICULT-TO-GRIND MATERIALS (ALUMINUM, BRASS, BRONZE, STAINLESS, CARBON STEEL, TITANIUM, ETC.)**

### FEATURES & BENEFITS

- Premium aluminum oxide abrasive blend is ideal when purchasing criteria is a good-performing, economically-priced, general-purpose belt
- Durable resin bond system provides good edge retention and life versus key competitors
- Y-weight waterproof polyester backing withstands light- to moderately-demanding applications and provides extended life on dry grinding applications

## TECH TIP

### Troubleshooting Guide

Problem	Correction
Loading	Decrease infeed pressure or belt speed
Shedding	Reduce applied pressure
	Use a less aggressive contact wheel
	Dress contact wheel if worn or damaged
	Use entire surface of belt

Problem	Correction
Belt breakage	Reduce belt tension
	Use less aggressive contact wheel
	Check tracking mechanism for belts tracking erratically

1" to 6" wide, 36" to 72" long



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>BLUEFIRE R821P</b>	<b>BLUEFIRE R823P</b>	<b>R766</b>	<b>METALITE R228</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
BACKING:	Y-Weight Polyester	Y-Weight Cotton	X-Weight Polyester	Y-Weight Polyester	X-Weight Cotton
OTHER:	Supersize				

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
1 x 42	36	50	66254476825				78072791710
	40	50	69957345887	78072726905		66623390041	78072720910
	50	50	66254476826	78072726904		66623390042	78072720905
	60	50	69957345486	78072726903	78072728596	66623334502	78072720900
	80	50	66261041539	78072726902	78072728594	66623390043	78072720895
	100	50	66261043462		78072728592		78072720890
	120	50	66261038660		78072728590		78072720885
	150	50			78072728588		78072720880
	180	50			78072728586		78072720875
	220	50			78072700001		78072720871
	240	50					78072720870
	320	50					78072720865
1-1/2 x 60	36	10	69957345578				78072721060
	40	10	63642595003				
	50	10	69957345664			66623390044	78072787807
	60	10	69957345631			66623390045	
	80	10	69957345579			66623390046	
	100	10		78072765077			69957351736
	120	10	66261056493	78072726984			
	180	10		78072758464			
2 x 48	220	10		78072708871			
	24	10					78072726130
	36	10	63642592057	78072727103		66623390047	78072721255
	40	10	69957345193	78072727102		66623390048	78072721250
	50	10	69957346716	78072727101		66623390049	78072721245
	60	10	69957344423	78072727100	78072728621	66623390050	78072721240
	80	10	69957345100	78072727099	78072728619	66623390051	78072721235
	100	10	66261052522		78072728617		78072721230
	120	10	66261052520		78072728615		78072721225
	150	10			78072728613		78072723246
	180	10			78072728611		78072721223
	220	10			78072728609		78072763677
2 x 60	320	10					78072746387
	24	10					66261054787
	36	10	69957345196			66623390052	78072701170
	40	10	69957394425	78072727124		66623390053	78072721300
	50	10	69957346149			66623390054	78072762537
	60	10	69957344901	78072727122		66623390055	78072721290
	80	10	63642592574	78072727121		66623390056	78072721285
	100	10	66261052222		66261082976		78072721280
	120	10	66261042738		78072761958		
	150	10					78072744018
	180	10			78072702695		78072720441
	220	10			78072706282		78072744020
2 x 72	240	10					78072761862
	320	10					78072702825
	24	10	66254433969				
	36	10	69957345460	78072727147		66623390057	78072721335
	40	10	69957346729	78072727146		66623390058	78072721332
	50	10	69957344966	78072727145			78072784894
	60	10	69957345157	78072727144	78072728645	66623390060	78072721325
	80	10	69957344961	78072727142	78072728643	66623334237	78072721320
	100	10	66261041897		66261025537		78072723235
	120	10	66261044095		78072728639		78072721318
	150	10			78072761770		78072761973
	180	10			78072763853		78072718488
	220	10			78072728633		78072765601
	320	10					78072721308

Continued



1" to 6" wide, 36" to 72" long (continued)



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>BLUEFIRE R821P</b>	<b>BLUEFIRE R823P</b>	<b>BLUEFIRE R884P</b>	<b>R766</b>	<b>METALITE R228</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
BACKING:	Y-Weight Polyester	Y-Weight Cotton	X-Weight Polyester	Y-Weight Polyester	Y-Weight Polyester	X-Weight Cotton
OTHER:	Supersize					

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
2-1/2 x 48	36	10					66623390061	78072721540
	40	10					66623390062	
	50	10		78072727213			66623390063	78072721530
	60	10					66623390064	78072721525
	80	10					66623390065	78072721520
2-1/2 x 60	24	10				78072737759		78072708296
	36	10	69957344963	78072727235			66623390066	78072721610
	40	10	69957346523	78072727234			66623390067	78072721605
	50	10	69957345300	78072727233			66623390068	78072721600
	60	10	69957345002	78072727232	78072728692	78072721383	66623390069	78072721595
	80	10	69957346095	78072727231	78072728690		66623390070	78072721590
	100	10	66261041380		78072768991			78072721585
	120	10			78072728686			78072721580
	180	10			78072728682			78072721570
	220	10			78072778217			78072721565
4 x 36	36	10					66623390071	78072722110
	40	10						78072722105
	50	10		78072727475			66623390073	78072722100
	60	10			78072728827		66623390074	78072722095
	80	10		78072727473	78072728825		66623390075	78072722090
	100	10			78072728823			78072722085
	120	10			78072728821			78072722080
	150	10						78072722079
	180	10						78072722075
	240	10						78072722926
4 x 54	320	10						78072722071
	36	10					66623390076	78072722185
	40	10	63642594113				66623390077	78072722180
	50	10	66254469595				66623390078	78072722175
	60	10	66261063419	78072727518	78072725116		66623390079	78072722170
	80	10	69957345139		780727282996		66623390080	78072722165
	100	10						78072722160
	120	10	66261088705		78072728847			78072722155
	150	10						78072728381
	220	10						78072762536
4 x 60	24	10	66254461488					78072772342
	36	10	69957345298			78072737955		78072705189
	40	10	69957391732					78072744693
	50	10	69957346715					78072761630
	60	10	63642594485		78072774790			78072762861
	80	10	69957345099		78072765086			78072784685
	100	10						78072763161
	120	10	66254416188		78072766229			78072787840
	150	10						78072704878
	180	10			78072709820			78072728393
4 x 72	220	10			78072702594			78072790168
	36	10				78072725984		
6 x 48	36	10	69957345143	78072727698			66623390081	78072722590
	40	10		78072727697			66623390082	
	50	10		78072727696			66623390083	78072722580
	60	10	69957344422	78072727695*	78072728937*		66623390084	
	80	10		78072727694*	78072728935*		66623390085	78072722570
	100	10			78072728933*			78072722565
	120	10			78072728931*			78072722560
	150	10			78072770042			78072722555
	180	10						78072722550
	220	10						78072722546
	240	10						78072722545
	320	10						78072722543

\* Std. Pkg. = 20 Belts

CONTINUED

1" to 6" wide, 36" to 72" long (continued)



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>BLUEFIRE R821P</b>	<b>BLUEFIRE R823P</b>	<b>BLUEFIRE R884P</b>	<b>R766</b>	<b>METALITE R228</b>
ABRASIVE:	Ceramic Alumina	Zirconia Alumina	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
BACKING:	Y-Weight Polyester	Y-Weight Cotton	X-Weight Polyester	Y-Weight Polyester	Y-Weight Polyester	X-Weight Cotton
OTHER:	Supersize					

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
6 x 54	60	10				78072746982	
6 x 60	36	10					66623343751
	40	10		78072727762			78072722680
	60	10	69957345149	78072728957*			66623390086
	80	10			78072728955		66623390087
	100	10	66254477452				66623390088
	120	10					
							78072763882

\* Std. Pkg. = 20 Belts

## Belt Cleaning Stick



- This solid, rubber cleaning stick is designed to remove wood and other non-metallic materials that build up on belt surface during use.
- Apply it to the face of the belt, while running, to remove unwanted materials and prolong the overall life of the belt up to 10 times.

DESCRIPTION	STD. PKG.	PART #
1-3/8 x 1-3/8 x 6	10	07660701717

## TIP

A light-bodied grease applied to a benchstand belt surface will reduce loading and greatly enhance the belt life and performance when grinding soft, malleable nonferrous materials such as aluminum, brass, bronze and copper.



## FastTrack Belt Service



For non-stock belts, FastTrack Service offers all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry's leading producer of abrasive material and backings, our FastTrack service offers an extensive range of Norton made-to-order belts including Norton Blaze ceramic alumina, BlueFire zirconia alumina, and versatile aluminum oxide and silicon carbide belts.

Manufacturing Lead-times:

- Narrow belts: (1/2" – 12" wide) two days
- Wide belts (14" – 52" wide) three days

Size Availability:

- Maximum width: 52"
- 1/2" and greater widths; 25" and greater lengths

Please see the FastTrack Service Made-to-Order Belts section of this catalog for complete details.

2" to 10" wide, over 70" long



TIER:	<b>BEST</b>	<b>BEST</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>BLAZE R980P</b>	<b>SG R981</b>	<b>BLUEFIRE R884P</b>	<b>BLUEFIRE R823P</b>	<b>R766</b>	<b>METALITE R228</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
BACKING:	Y-Weight Polyester	Y-Weight Polyester	Y-Weight Polyester	X-Weight Polyester	Y-Weight Polyester	X-Weight Cotton
OTHER:	Supersize	Supersize				

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
2 x 132	36	10		78072753086	78072750016		66623347337	
	40	10			78072750015		66623390089	
	50	10		78072740771	78072750013		66623390090	
	60	10			78072750011		66623390091	78072721445
	80	10		78072701958	78072750008		66623390092	78072721440
	120	10				78072728662		
3 x 79	50	10	66261090276					
	60	10			78072748280			
3 x 90	36	10	69957346319					78072785831
3 x 132	24	10			78072750140			
	36	10	69957344710	78072753087	78072750138 RR		66623390093	78072721900
	36	10			78072750139 L			
	40	10	69957344964	78072701614				
	50	10	69957344763	78072703709	78072750135			78072721890
	60	10	69957344958			78072728794	66623390096	78072721885
	80	10	69957344764			78072728792	66623390097	78072721880
	100	10				78072728790		
	120	10				78072728789		78072721870
	150	10						78072721865
	180	10				78072728785		78072721860
4 x 79	36	10		66261022622				
	40	10			78072774955			
	80	10			78072731327			
4 x 100	36	10			78072768679			
4 x 132	24	10			78072750289			
	36	10	69957343852	78072739662	78072750287		66623326093	
	40	10					66623390098	
	60	10			78072750281		66623335394	
	80	10			78072750279		66623343488	78072722385
	120	10						78072722375
6 x 78-3/4	40	10			78072725150			
6 x 79	36	10			78072738105			
	40	10						
	80	10			78072779322			
8 x 107	36	10					66623390099	78072722795
	50	10					66623390100	78072749887
	60	10					66623347341	78072722780*
	80	10					66623329182	78072722775*
	100	10						
10 x 70-1/2	36	10					66623347342	78072722840
	40	10					66623347343	78072722835
	50	10					66623347344	78072722830
	60	10					66623347345	78072722825
	80	10					66623347346	78072722820



A small selection of stock products in popular sizes are available for wide belt woodworking and metalworking applications.

**Applications:** Metalworking wide belts are used for plate dimensioning, slag grinding, machining, deburring, and other general metalworking applications. They are usually cloth and are closed coat.  
Cloth woodworking wide belts are used for rough stock removal and dimensioning. Paper woodworking belts are used to upgrade the finish on furniture and other wood components.

**Size Range:** Stock: 25" – 52" wide, 48" to 103" long

**Grit Range:** Stock: 36 – 220

**Abrasive Grain:** Zirconia Alumina, Aluminum Oxide

**Availability:** Due to the wide varieties of machines and applications, the majority of wide belts are non-stock. Our FastTrack belt service is available on the majority of products with 3-day lead-time on orders up to two cases quantity.

## METALWORKING CLOTH BELT RECOMMENDATION GUIDE/CROSS REFERENCE

TOTAL PERFORMANCE						INITIAL PRICE		
BEST Highest Productivity Lowest Total Cost			BETTER Excellent Blend of Performance & Price			GOOD Consistent Performance; Low Initial Price		
H-wt. Polyester		Y-wt. Polyester	H-wt. Polyester	Y-wt. Polyester	X-wt. Polyester	Y-wt. Polyester	X-wt. Polyester	X-wt. Cotton
<b>NORTON</b>	Blaze	Blaze	BlueFire	BlueFire	BlueFire	Metalite	Metalite	Metalite
	R940P	R980P	R840P	R887P/R884P	R823P	R247	R249	R228
<b>MERIT</b>		SY965		SY695	SX695	SY395	SX395	KX375
3M	963G,H	977F, 967F		577F, 777F		361F	353F	241D, 341D
Ekamant				UZA0X	UZA0X	UA0X	UA0X	MKX, RKX
Hermes	CB441Z	CR456	SB488Y OP	RB484TY	RB486	RB376TY	RB376TY	RB346MX
Klingspor		CS610YY	CS414YY	CS411Y	CS411Y	CS412Y	CS412Y	CS310X
SIA			C888 DP	2800, 2803		2982		2920, 2912
VSM	SK770X, SK847Y,	SK840X	KK717Y	KK716Y	KK715X	KK711Y	KK711X	KK511X

## WOODWORKING CLOTH BELT RECOMMENDATION GUIDE/CROSS REFERENCE

TOTAL PERFORMANCE					INITIAL PRICE		
BEST Highest Productivity; Lowest Total Cost		BETTER Excellent Blend of Performance & Price			GOOD Consistent Performance; Low Initial Price		
Y-wt. Cotton		F-wt. Paper	Y-wt. Cotton	Y-wt. Cotton	X-wt. Cotton	F-wt. Paper	F-wt. Paper
Dust-Less		Dust-Less		Dust-Less		Dust-Less	Dust-Less
<b>NORTON</b>	Norton SG	Norton SG	Bluefire	Metalite	Metalite		
	R963	H975	R831	R216	R215	H295	H275
<b>MERIT</b>			KY685		KX395	P55F	P55FOP
3M	970DZ	961UZ	777F	240D, 248D, 370DZ	240DZ, 340D	260UZ	241
Ekamant					PKX, RKX		PKFO, APKFO
Hermes		CB115	RB484TY, RB346MX	RB316YOP, RB372YOP	RB316XOP	BW112	BW114
Klingspor			CS414Y, SMT624	CS412, CS311Y	CS311OC	PS26	PS20
SIA	2829	1919	2803, 2820, 2829	2918, 2920, 2928	2928, 2920	1919FO	1939
VSM			KK716X	KK711Y, KK524Y	KK504X	KK508E	KP709



## NORTON BLUEFIRE R884P/R831/R823P Z/A CLOTH

BETTER CHOICE FOR ALL METAL AND WOOD APPLICATIONS DUE TO THE CUT RATE AND LIFE OF THE PROPRIETARY NORTON BLUEFIRE GRAIN



### FEATURES

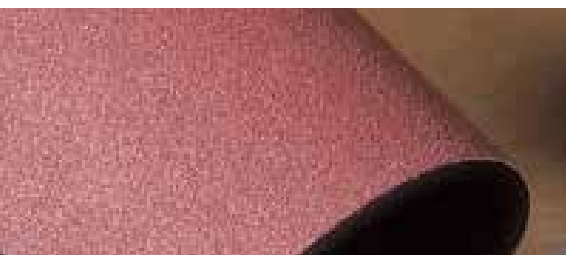
- Newest generation, patented self-sharpening zirconia alumina abrasive
- R884P – Durable Y-weight polyester, waterproof cloth backing
- R823P – Strong X-weight polyester, waterproof cloth backing
- R831 – Y-weight cotton cloth backing

### BENEFITS

- Aggressive cut and 30% longer life than competitive zirconia alumina
- Long life on high-pressure, dry or wet, heavy-duty metal applications
- Moderate flexibility, dry or wet, fine grit applications
- Durable open coat cotton belt designed for excellent stock removal on wood with minimal loading

## NORTON METALITE R215 ALUMINUM OXIDE CLOTH

GOOD CHOICE FOR ABRASIVE PLANING AND DIMENSIONING OF GLUED-UP STOCK AND BANDED PARTICLEBOARD



### FEATURES

- Strong X-weight cotton backing
- Open coat design

### BENEFITS

- Aggressive cutting, resistant to heat
- Resists loading
- Value product for wood and soft metals

## TECH TIP

36" wide belts can be used on machines that normally use 37" wide belts.



## FastTrack Belt Service



For non-stock belts, FastTrack Service offers all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry's leading producer of abrasive material and backings, our FastTrack service offers an extensive range of Norton made-to-order belts including Norton Blaze ceramic alumina, BlueFire zirconia alumina, and versatile aluminum oxide and silicon carbide belts.

### Manufacturing Lead-times:

- Narrow belts: (1/2" – 12" wide) two days
- Wide belts (14" – 52" wide) three days

### Size Availability:

- Maximum width: 52"
- 1/2" and greater widths; 25" and greater lengths

Please see the FastTrack Service Made-to-Order Belts section of this catalog for complete details.



<b>TIER:</b>	<b>BETTER</b>	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>
<b>BRAND:</b>	Norton	Norton	Norton	Norton
<b>TRADENAME:</b>	<b>BLUEFIRE R884P</b>	<b>BLUEFIRE R823P</b>	<b>BLUEFIRE R831</b>	<b>METALITE R215</b>
<b>ABRASIVE:</b>	Zirconia Alumina	Zirconia Alumina	Zirconia Alumina	Aluminum Oxide
<b>BACKING:</b>	Y-Weight Polyester Cloth	X-Weight Polyester Cloth	Y-Weight Cotton Cloth	X-Weight Cotton Cloth
<b>JOINT/FLEX:</b>	Plyweld, RR	Plyweld, RR	Plyweld, RR	Plyweld, RR

SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #
25 x 48	80	3		69957344781		
25 x 60	80	3		69957328117		
	120	5		69957328115		
25 x 75	120	5		69957344791		
36 x 75	36	2	69957350934			
	60	3	69957350931			
	120	5		69957329014		
	180	5		69957344869		
37 x 60	50	3	69957306219			
	80	3		69957329019		69957325709
	100	5		69957328103		69957325708
	120	5		69957329018		69957325707
	150	5		69957328102		69957302955
	180	5		69957328101		
	220	5		69957328100		
37 x 75	36	2	69957350959			
	50	3	69957305107			
	80	3	69957350955			69957325957
	100	5				69957323880
	120	5		69957307358		69957325760
	150	5				69957305737
	180	5		69957306734		
50 x 103	80	3			69957328383	
52 x 75	120	5		69957313510		



# FASTTRACK SERVICE MADE-TO-ORDER BELTS



For many non-stock belts, our FastTrack belt service offers all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry leader of abrasive belts, our FastTrack belt service has an extensive range of Norton made-to-order belts including Norton Blaze ceramic alumina, BlueFire zirconia alumina, versatile aluminum oxide, and silicon carbide belts.

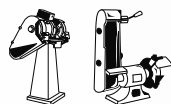
## Manufacturing Lead-times:

- Narrow belts (1/2" – 12" wide): two days
- Wide belts (14" – 52" wide): three days

## Size Availability:

- Maximum width: 52"
- 1/2" and greater widths; 25" and greater lengths

Please see the FastTrack belt service chart below and product listing on the next page for complete details.



## FASTTRACK AVAILABILITY AND LEAD-TIME INFORMATION

WIDTH	GRIT SIZE	MINIMUM ORDER QUANTITY	CASE QUANTITY	MAXIMUM ORDER QUANTITY (EQUALS 2 CASES)	CONVERSION LEAD-TIMES
<b>Narrow Belts</b>					
1/2" through 1"	All	50	200	400	2
Over 1" through 5"	All	10	50	100	2
Over 5" through 9"	All	10	20	40	2
Over 9" through 14"	All	10	10	20	2
<b>Wide Belts</b>					
Over 14" through 20"	All	5	10	20	3
Over 20" through 52"	36 & coarser	2	2	4	3
Over 20" through 52"	40-80	3	3	6	3
Over 20" through 52"	100 & finer	5	5	10	3

## HOW TO PLACE A FASTTRACK BELT ORDER

- Check the FastTrack belt availability
- Include a full description of belt: quantity, size, Norton CAP code, and grit size
- Send order electronically, fax, or phone to customer service
- When ordering a belt that does not have an existing part number, please call Customer Service to expedite part number creation



# FASTTRACK SERVICE MADE-TO-ORDER BELTS

## BELT SPECIFICATIONS AND AVAILABILITY

TIER	PRODUCT CAP CODE	SHAPE AVAILABILITY	GRIT SIZE	ABRASIVE GRAIN	BACKING	APPLICATIONS
<b>Metalworking</b>						
<b>Norton</b>						
Best	R980P	Narrow, Wide	24-120	Norton Blaze Ceramic Alumina	Y-wt. Polyester	Latest-generation Norton SG grain, supersized and designed for high-performance grinding on stainless and other alloys
Best	R984	Narrow, Wide	36-120	Norton SG Ceramic Alumina	Y-wt. Polyester	Norton SG grain for medium-pressure grinding and finishing heat-sensitive alloys
<b>NEW</b> Best	R983	Narrow	P36-P120	Norton Red Heat Ceramic Alumina	Y-wt. Plus	P-graded ceramic alumina abrasive with lubricating supersize coat; engineered for maximum productivity on mild carbon steel, ferrous metal, and cast iron applications
Better	R884P	Narrow, Wide	24, 36-80	Norton BlueFire Zirconia Alumina	Y-wt. Polyester	High-performance zirconia alumina grain designed for medium- to high-pressure grinding
Better	R887D	Narrow, Wide	24, 36-120	Norton BlueFire Zirconia Alumina	Y-wt. Polyester	High-performance zirconia alumina grain, supersized and designed for medium- to high-pressure grinding of heat-sensitive alloys
Better	R823P	Narrow, Wide	60-220	Norton BlueFire Zirconia Alumina	X-wt. Polyester	High-performance zirconia alumina grain on lighter backing designed for light to medium grinding
Good	R766	Narrow	P24-80	Aluminum Oxide Blend	Y-wt. Polyester	Premium aluminum oxide blend product designed for a variety of applications including soft metals to hard-to-grind stainless and carbon steel
Good	R766X	Narrow, Wide	P60-P400	Aluminum Oxide Blend	X-wt. Polyester	Quality, P-graded aluminum oxide and broad grit range for stock removal to finer finishing
Good	MX240	Narrow, Wide	P80-P150	Aluminum Oxide	X-wt. Poly/Cotton	P-graded, heat-treated aluminum oxide X-weight cloth with strong, but flexible, cotton/ polyester backing making it an ideal multi-purpose product
Good	R245	Narrow	P80-P240, P320, P400	Aluminum Oxide	J-wt. Polyester	Aluminum oxide on flexible, lightweight polyester backing for moderate- to light- pressure applications on mild steel
Good	KF376	Narrow	P80-P320, P400, P600	Aluminum Oxide	J-wt. Cotton	P-graded, heat-treated aluminum oxide with ceramic coating on a very flexible backing for use wherever flexibility and conformability are needed
Good	R445	Narrow	60-220	Silicon Carbide	X-wt. Polyester	Sharp, silicon carbide grain on medium polyester backing for grinding very hard materials – glass, stone, solid surface
Good	U243	Narrow, Wide to 24"	X80, X65, X45, X30, X22, X16	NORaX Aluminum Oxide	J-wt. Cotton	High-performance, multi-layered NORaX grain on very flexible backing for dry polishing applications

TIER	PRODUCT CAP CODE	SHAPE AVAILABILITY	GRIT SIZE	ABRASIVE GRAIN	BACKING	APPLICATIONS
<b>Woodworking</b>						
<b>Norton</b>						
Best	R963	Narrow, Wide	24-60, P80 100-150	Norton SG Ceramic Alumina	Y-wt. Polyester	Norton SG ceramic alumina grain with anti-static coating for forest product applications (MDF, particleboard, plywood)
Best	R955	Narrow	P36-P120	Norton Red Heat Ceramic Alumina	Y-wt. Cotton	100% ceramic alumina abrasive with Y-weight cloth backing for dimensioning, intermediate sanding of wood
Better	R831	Narrow, Wide	24, 36-120	Norton BlueFire Zirconia Alumina	Y-wt. Cotton	Norton BlueFire open-coat product recommended for dry low-pressure applications or where loading is a problem
Good	R215	Narrow, Wide	50-180	Aluminum Oxide	X-wt. Cotton	Initial starting specification for woodworking applications where loading is a problem, and initial cost a primary concern
Good	R490	Narrow, Wide	P36-P150	Silicon Carbide	Y-wt. Polyester	Anti-static product for forest product applications (MDF, particle board, plywood) where loading is an issue
Good	R422	Narrow	50-120	Silicon Carbide	X-wt. Cotton	Initial starting specification for woodworking applications where loading is not an issue
Best	H975	Narrow, Wide	60-220	Norton Red Heat Ceramic Alumina	F-wt. Paper	Ceramic alumina grain, antistatic coating, and open coat; the best choice for applications where loading is a problem (soft woods, etc.)
Better	H831	Wide	24,36-120	Norton BlueFire Zirconia Alumina	F-wt. Paper	Durable zirconia alumina grain, antistatic coating, and open coat; the better choice for applications where loading is a problem (soft woods, etc.)
Good	H275B	Narrow, Wide	P60-P220	Aluminum Oxide	F-wt. Paper	Quality aluminum oxide grain, antistatic coating, and open coat make these an economical choice for all heavy-weight paper belt jobs
Better	H475	Narrow, Wide	P120-P400	Norton Onyx Silicon Carbide	F-wt. Paper	Sharp silicon carbide and antistatic coating create finer finishes on hard materials and veneers where finish is critical





Flap wheels are an ideal choice for a wide variety of blending, deburring and finishing applications common in the metal fabrication, welding and polishing industries. Flap wheels are conformable to intricate shapes and contours. Designed to deliver a consistent finish with a uniform rate of cut, flap wheels wear away, continually exposing fresh abrasives.

**Applications:**

Used for a wide range of metal fabrication and welding applications including stock removal, blending, deburring, cleaning, finishing, and polishing

**Size Range:**

Flap wheels with mounted steel shanks: 3/8" - 3" diameter

Flap wheels with mounted 1/4"-20 thread: 1" - 3" diameter

Flap wheels with arbor holes: 3" - 16" diameter

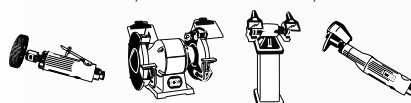
**Grit Range:**

40 - 320

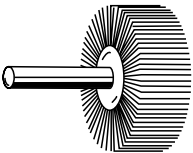


**Abrasive Grain:**

Ceramic Alumina, Aluminum Oxide Blend, Aluminum Oxide

**Machine Used:**



## SHAPE RECOMMENDATION GUIDE

Shape	Description/Application
	<b>Flap Wheels with Mounted Steel Shanks</b> Wheels are designed with a 1/8" or 1/4" steel shank as an integral part of each wheel. These shanks run through the wheel creating better balance, a reduction of chatter, and reduced operator fatigue. They also permit quick changes on air tools when using other abrasive products.
	<b>Flap Wheels with Mounted 1/4-20 Thread</b> Wheels are designed with a 1/4"-20 thread and flange as an integral part of the wheel. These threads facilitate the quickest changes on air tools using flap wheels exclusively, as there are no special tools needed to change the flap wheel. Also allow extended reach with accessory mandrels.
	<b>Flap Wheels with Arbor Holes</b> For use on larger portable and fixed-base tools where the wheel must fit on an existing arbor.

## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)				FINER (FINISHING)			
40	50	60	80	120	180	240	320
Blending Out Heavy Machine Marks							
Removing Heavy Burrs							
Applying Heavy Scratch Pattern							
Removing Flash/Parting Lines							
Removing Rust/Scale/Pit Marks							
	Preparing Metal for Painting						
	Blending Out Medium Machine Marks						
			Blending Metal Surfaces				
			Applying Light Scratch Pattern				
					Fine Blending and Cleaning		
						Metal Finishing and Polishing	
NORTON BLAZE, NORTON R369, MERIT HIGH PERFORMANCE				NORTON METAL, MERIT ALUMINUM OXIDE		INTERLEAF	

See Non-Woven Flap Wheel section for Interleaf Flap Wheels

## NORTON BLAZE R920 CERAMIC ALUMINA

**BEST CHOICE FOR HARD-TO-GRIND MATERIALS, INCLUDING SUPERALLOYS (COBALT, INCONEL, AND TITANIUM) AND STAINLESS STEEL**

### FEATURES & BENEFITS

- See significantly faster, coolest, burn-free grinding on the toughest jobs from our next-generation of sharp, ceramic abrasive grains and advanced grinding aid lubricant



**NEW**

## NORTON R369 ALUMINUM OXIDE

**BETTER CHOICE FOR STAINLESS AND CARBON STEEL, AND ALUMINUM, BRASS AND BRONZE**

### FEATURES & BENEFITS

- Cut cooler and smoother, with our versatile, P-graded premium aluminum oxide blend, durable resin bond system, and heavy cotton backing



**NEW**

## MERIT HIGH PERFORMANCE ALUMINUM OXIDE BLEND

**BETTER CHOICE FOR MORE DURABLE FLAP WHEEL APPLICATIONS WHERE AGGRESSIVE CUT AND SUPERIOR LIFE ARE REQUIRED**

### FEATURES

- Long-lasting aluminum oxide abrasive grain blend
- Heavy cotton backing

### BENEFITS

- Aggressive cut and 2 to 3 times longer life
- Extended durability for added life and reduced edge wear



## NORTON METAL R207 ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS A KEY PURCHASING CRITERIA**

### FEATURES & BENEFITS

- Our solid-performance aluminum oxide grain makes these flap wheels a good starting specification with consistent performance for small jobs or anywhere performance need not be measured



**NEW**

## MERIT ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS THE MAIN CONSIDERATION**

### FEATURES

- Quality aluminum oxide abrasive
- Engineered, low-cost cotton backing
- Low initial price point

### BENEFITS

- Good cut rate and life
- Longer life and wear resistance
- Best starting specification for end-user unable to measure total performance





## Micro-Mini Flap Wheels with 1/8" Mounted Steel Shanks

- The smallest flap wheels, ranging from 3/8" to 1-3/16" diameter, mounted on a 1/8" diameter steel shank
- Provide fast polishing and light deburring of internal workpieces with holes or grooves as small as 1/2"



TIER:	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Merit
TRADENAME:	<b>R369</b>	<b>ALUMINUM OXIDE</b>
ABRASIVE:	Premium Aluminum Oxide Blend	Aluminum Oxide
OTHER:	P-graded	

SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #
3/8 x 3/8 x 1/8	60	40,000	10	66623399223	08834137470
	80	40,000	10	66623399224	08834137471
	120	40,000	10	66623399225	08834137472
	180	40,000	10		08834137473
	240	40,000	10		08834137474
5/8 x 5/8 x 1/8	320	40,000	10	66623399228	08834137475
	60	37,000	10	66623399229	08834137480
	80	37,000	10	66623399230	08834137481
	120	37,000	10	66623399231	08834137482
	180	37,000	10		08834137483
5/8 x 3/4 x 1/8	240	37,000	10		08834137484
	320	37,000	10		08834137485
	80	37,000	10	66623399232	08834137541
	120	37,000	10		08834137542
	180	37,000	10		08834137543
3/4 x 3/16 x 1/8	240	37,000	10		08834137544
	320	37,000	10		08834137545
	60	35,000	10		08834137550
	80	35,000	10		08834137551
	120	35,000	10		08834137552
3/4 x 3/8 x 1/8	180	35,000	10		08834137553
	240	35,000	10		08834137554
	320	35,000	10		08834137555
	60	35,000	10	66623399234	08834137560
	80	35,000	10	66623399235	08834137561
3/4 x 1/2 x 1/8	120	35,000	10	66623399236	08834137562
	180	35,000	10		08834137563
	240	35,000	10		08834137564
	320	35,000	10		08834137565
	60	35,000	10		08834137570
	80	35,000	10		08834137571
	120	35,000	10		08834137572
	180	35,000	10		08834137573
	240	35,000	10		08834137574
	320	35,000	10		08834137575



TIER:	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Merit
TRADENAME:	<b>R369</b>	<b>ALUMINUM OXIDE</b>
ABRASIVE:	Premium Aluminum Oxide Blend	Aluminum Oxide
OTHER:	P-graded	

SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #
3/4 x 5/8 x 1/8	60	35,000	10	08834137580
	80	35,000	10	08834137581
	120	35,000	10	08834137582
	180	35,000	10	08834137583
	240	35,000	10	08834137584
3/4 x 3/4 x 1/8	320	35,000	10	08834137585
	60	35,000	10	66623399240
	80	35,000	10	66623399241
	120	35,000	10	66623399242
	240	35,000	10	08834137590
1-3/16 x 1/8 x 1/8	320	35,000	10	08834137591
	60	35,000	10	08834137592
	80	35,000	10	08834137594
	120	35,000	10	08834137595
	240	35,000	10	08834137595
1-3/16 x 1/8 x 1/8	320	35,000	10	08834137491
	80	30,000	10	08834137491
	120	35,000	10	08834137492
	180	35,000	10	08834137493
	320	35,000	10	08834137495
1-3/16 x 3/16 x 1/8	60	30,000	10	08834137508
	80	35,000	10	08834137501
	120	35,000	10	08834137502
	180	35,000	10	08834137503
	240	35,000	10	08834137504
1-3/16 x 3/8 x 1/8	320	35,000	10	08834137505
	80	30,000	10	08834137511
	120	35,000	10	08834137512
	180	35,000	10	08834137513
	240	35,000	10	08834137514
	320	35,000	10	08834137515

**MERIT STOCK/NON-STOCK STATUS:** Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

**MERIT**



## Micro-Mini Test Kit "MMC"

- Part # 08834131493
- Includes five wheels, 3/8" to 1-3/16" diameter in various grits, mounted on a 1/8" diameter hardened steel shank
- The "MMC" kit is ideal for fast polishing and light deburring of internal holes or grooves as small as 1/2"



## Mini Flap Wheels with 1/4" Mounted Steel Shanks

- Small flap wheels, ranging from 1" to 3" diameter, mounted on a 1/4" diameter steel shank
- Very durable, long-lasting mini flap wheels for demanding, heavy stock removal applications








TIER: <b>BEST</b>		TIER: <b>BETTER</b>		TIER: <b>BETTER</b>		TIER: <b>GOOD</b>		TIER: <b>GOOD</b>	
BRAND: Norton		BRAND: Norton		BRAND: Merit		BRAND: Norton		BRAND: Merit	
TRADENAME: <b>BLAZE R920</b>		TRADENAME: <b>R369</b>		TRADENAME: <b>HIGH PERFORMANCE</b>		TRADENAME: <b>METAL R207</b>		TRADENAME: <b>ALUMINUM OXIDE</b>	
ABRASIVE: Ceramic Alumina		ABRASIVE: Premium Aluminum Oxide Blend		ABRASIVE: Aluminum Oxide Blend		ABRASIVE: Aluminum Oxide		ABRASIVE: Aluminum Oxide	
OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded		OTHER: P-Graded	
SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
3/4 x 5/8 x 1/4	60	35,000	10		66623399237				
	80	35,000	10		66623399238				
	120	35,000	10		66623399239				
3/4 x 3/4 x 1/4	60	35,000	10		66623399243				
	80	35,000	10		66623399244				
	120	35,000	10		66623399245				
	180	35,000	10		66623399246				
1 x 1/2 x 1/4	80	30,000	10						08834149801
	120	30,000	10						08834149802
1 x 5/8 x 1/4	40	30,000	10			08834137105			
	60	30,000	10		66623399074	08834137100	63642502576		
	80	30,000	10		66623399075	08834137101	63642502577		
	120	30,000	10		66623399076	08834137102	63642502578		
	180	30,000	10			08834131536			
	240	30,000	10			08834137104			
1 x 1 x 1/4	40	30,000	10		66623399077	08834131259			08834149803
	50	30,000	10			08834137309			
	60	30,000	10	66261151170	69957394176	08834137310	63642502580		08834149804
	80	30,000	10	66261151171	69957394181	08834137311	63642502581		08834149805
	120	30,000	10	66261151172	69957394182	08834137312	63642502582		08834149806
	180	30,000	10		66623399078	08834137313			08834149807
	240	30,000	10		66623399079	08834137114			
	320	30,000	10		66623399080	08834137315			
	60	30,000	10		66623399247	08834137320	63642502584		
	80	30,000	10		66623399248	08834137321	63642502585		
1-3/8 x 5/8 x 1/4	120	30,000	10			08834137322			
	180	30,000	10			08834137323			
	240	30,000	10			08834137324			
	60	25,000	10						08834149810
	80	25,000	10						08834149811
1-1/2 x 1/2 x 1/4	40	25,000	10		66623399087	08834135140			
	60	25,000	10		66623399088	08834137340	63642502592		08834149816
	80	25,000	10		66623399089	08834137141	63642502593		08834149817
	120	25,000	10		66623399090	08834137142	63642502594		08834149818
1-1/2 x 1-1/2 x 1/4	180	25,000	10		66623399249	08834137343			
	240	25,000	10		66623399250	08834132101			
	40	25,000	10		66623399251	08834130642			
	60	25,000	10		66623399252	08834130643			
	80	25,000	10		66623399253	08834130644			
	120	25,000	10		66623399254	08834130641			
2 x 1/2 x 1/4	180	25,000	10			08834130695			
	60	25,000	10		66623399255		63642502596		08834149821
	80	25,000	10		66623399256				08834149822
	120	25,000	10		66623399257				08834149823
2 x 3/4 x 1/4	180	25,000	10		66623399258				
	40	25,000	10			08834137158			
	60	25,000	10			08834137160			
	80	25,000	10			08834137161			
	120	25,000	10			08834137162			
	180	25,000	10			08834137163			

MERIT STOCK/NON-STOCK STATUS: Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

Continued



## Mini Flap Wheels with 1/4" Mounted Steel Shanks (continued)

									
					<b>TIER:</b> BEST	BETTER	BETTER	GOOD	GOOD
					<b>BRAND:</b> Norton	Norton	Merit	Norton	Merit
					<b>TRADENAME:</b> BLAZE R920	R369	HIGH PERFORMANCE	METAL R207	ALUMINUM OXIDE
					<b>ABRASIVE:</b> Ceramic Alumina	Premium Aluminum Oxide Blend	Aluminum Oxide Blend	Aluminum Oxide	Aluminum Oxide
					<b>OTHER:</b> P-Graded	P-Graded		P-Graded	
SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	
2 x 1 x 1/4	40	25,000	10		66623399094	08834137377		08834149824	
	50	25,000	10			08834137169			
	60	25,000	10	66261151173	69957394183	08834137370	63642502600	08834149825	
	80	25,000	10	66261151174	69957394184	08834137371	63642502601	08834149826	
	120	25,000	10	66261151175	69957394185	08834137372	63642502602	08834149827	
	180	25,000	10		66623399095	08834137373		08834149828	
	240	25,000	10		66623399096	08834137374			
2 x 1-1/2 x 1/4	320	25,000	10		66623399097	08834137375			
	40	25,000	10			08834137183			
	60	25,000	10		66623399098	08834137380			
	80	25,000	10		66623399099	08834137381			
	120	25,000	10		66623399100	08834137382			
2-1/2 x 1/2 x 1/4	180	25,000	10			08834137383			
	60	20,000	10		66623399259				
2-1/2 x 1 x 1/4	80	20,000	10		66623399260				
	40	20,000	10			08834137408			
	60	20,000	10		66623399262	08834137410	63642502608		
	80	20,000	10		66623399263	08834137411	63642502609		
	120	20,000	10		66623399264	08834137412	63642502610		
	180	20,000	10			08834137413			
	240	20,000	10			08834137633			
2-1/2 x 1-1/2 x 1/4	320	20,000	10			08834137415			
	60	20,000	10			08834137420			
	80	20,000	10			08834137421			
	120	20,000	10			08834137422			
	60	20,000	10		66623399265		63642502612	08834149834	
3 x 1/2 x 1/4	80	20,000	10		66623399266		63642502613	08834149835	
	120	20,000	10		66623399268		63642502614		
	60	20,000	10			08834137440			
3 x 3/4 x 1/4	80	20,000	10			08834137441			
	40	20,000	10		66623399104	08834137456		08834149836	
3 x 1 x 1/4	60	20,000	10	66261151176	69957394186	08834137450	63642502620	08834149837	
	80	20,000	10	66261151177	69957394187	08834137451	63642502621	08834149838	
	120	20,000	10	66261151178	69957394188	08834137252	63642502622	08834149839	
	180	20,000	10		66623399105	08834137253		08834149840	
	240	20,000	10		66623399106	08834135339			
	320	20,000	10		66623399107	08834135341			
	40	12,000	10			08834137460			
3 x 2 x 1/4	60	12,000	10		66623399108	08834137260			
	80	12,000	10		66623399109	08834137261			
	120	12,000	10		66623399110	08834137262			
	180	12,000	10			08834137263			

MERIT STOCK/NON-STOCK STATUS: Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.



### Merit Mini 1/4" Steel Shank Test Kit "CMM"

- Part # 08834138004
- Includes ten wheels, 1" to 3" diameter in various grits mounted on a 1/4" diameter hardened steel shank



## Mini Flap Wheels with 1/4"-20 Thread

- Mini flap wheels ranging from 1" to 3" diameter, mounted on a 14-20 thread that allows you to quickly spin the wheels on and off with no tools
- Designed for polishing and finishing intricate surfaces; cost-effective replacement for brushes, rubber points, and felt bobs



TIER:	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Merit	Norton
TRADENAME:	<b>R369</b>	<b>HIGH PERFORMANCE</b>	<b>METAL R207</b>
ABRASIVE:	Premium Aluminum Oxide Blend	Aluminum Oxide Blend	Aluminum Oxide
OTHER:	P-Graded		P-Graded

SIZE (D x W x THD.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #
1 x 5/8 x 1/4-20	60	30,000	10	66623399111	08834131001	63642502624
	80	30,000	10	66623399112	08834131002	63642502625
	120	30,000	10	66623399113	08834131003	63642502626
1 x 1 x 1/4-20	40	30,000	10		08834131027	
	60	30,000	10	69957394189	08834131008	63642502628
	80	30,000	10	69957394190	08834131009	63642502629
	120	30,000	10	69957394191	08834131010	63642502630
	180	30,000	10	66623399269	08834131011	
	240	30,000	10		08834131012	
1-3/8 x 5/8 x 1/4-20	320	30,000	10		08834131013	
	60	30,000	10		08834132001	63642502632
	80	30,000	10	66623399271	08834132002	63642502633
	120	30,000	10		08834132003	63642502634
1-1/2 x 1 x 1/4-20	80	25,000	10	66623399274		
	120	25,000	10	66623399275		
1-5/8 x 1 x 1/4-20	40	25,000	10		08834132051	
	60	25,000	10		08834132015	63642502638
	80	25,000	10		08834132016	63642502639
	120	25,000	10		08834132017	63642502640
	180	25,000	10		08834132018	
	320	25,000	10		08834132020	
2 x 1/2 x 1/4-20	60	25,000	10	66623399276		63642502642
	80	25,000	10	66623399277		63642502643
	120	25,000	10			63642502644
2 x 3/4 x 1/4-20	60	25,000	10		08834133008	
	80	25,000	10		08834133009	
	120	25,000	10		08834133010	
	180	25,000	10		08834133011	
2 x 1 x 1/4-20	40	25,000	10		08834133044	
	60	25,000	10	69957394192	08834133015	63642502646
	80	25,000	10	69957394193	08834133016	63642502647
	120	25,000	10	69957394194	08834133017	63642502648
	180	25,000	10		08834133018	
	240	25,000	10		08834133019	
	320	25,000	10		08834133020	
2 x 1-1/2 x 1/4-20	60	25,000	10		08834135201	
	80	25,000	10		08834135202	
	120	25,000	10		08834135203	
	180	25,000	10		08834135204	

**MERIT STOCK/NON-STOCK STATUS:** Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

For adapters for flap wheels with 1/4"-20 thread, see the end of this section

Continued

## Mini Flap Wheels with 1/4"-20 Thread (continued)



TIER:	<b>BETTER</b>	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Merit	Norton
TRADENAME:	<b>R369</b>	<b>HIGH PERFORMANCE</b>	<b>METAL R207</b>
ABRASIVE:	Premium Aluminum Oxide Blend	Aluminum Oxide Blend	Aluminum Oxide
OTHER:	P-Graded		P-Graded

SIZE (D x W x THD.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #
2-1/2 x 1 x 1/4-20	40	20,000	10		08834134061	
	60	20,000	10		08834134022	63642502654
	80	20,000	10		08834134023	
	120	20,000	10		08834134024	63642502656
	180	20,000	10		08834134025	
3 x 1/2 x 1/4-20	80	20,000	10			63642502659
	120	20,000	10			63642502660
3 x 3/4 x 1/4-20	80	20,000	10		08834135009	
	120	20,000	10		08834135010	
3 x 1 x 1/4-20	40	20,000	10		08834135230	
	60	20,000	10	69957394195	08834135015	63642502664
	80	20,000	10	69957394196	08834135016	63642502665
	120	20,000	10	69957394197	08834135017	63642502666
	180	20,000	10	66623399281	08834135018	
	240	20,000	10		08834135019	

**MERIT STOCK/NON-STOCK STATUS:** Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.  
For adapters for flap wheels with 1/4"-20 thread, see the end of this section

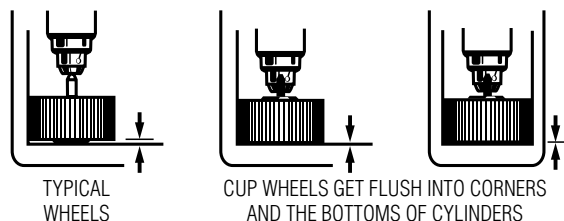


## Cup-Type Mini Flap Wheels with 1/4" Mounted Steel Shanks

- Primarily used for bottom or side-wall type sanding where conventional tools do not reach
- Cup-type mini flap wheels will not mar your workpiece while reaching flush into areas where other wheels cannot reach

TIER:	<b>GOOD</b>
BRAND:	Merit
ABRASIVE:	Aluminum Oxide

D x W x SK.	MAX. RPM	GRIT	STD. PKG.	PART #
2-1/2 x 1-1/2 x 1/4	20,000	60	10	08834144463





### 3" – 8" Flap Wheels with Arbor Holes

- Flap wheels ranging from 3" to 8" diameter with arbor holes
- Heavy cotton backing and premium abrasive grains combine to provide superior life with aggressive cut on a wide range of polishing and finishing applications



TIER:	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Merit	Norton
TRADENAME:	<b>HIGH PERFORMANCE</b>	<b>METAL R207</b>
ABRASIVE:	Aluminum Oxide Blend	Aluminum Oxide
OTHER:		P-Graded

SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #
3 x 2 x 3/8	60	12,000	10	08834135050	
	80	12,000	10	08834135051	
	120	12,000	10	08834135052	
3-1/2 x 1 x 5/8	40	12,000	10	08834122001	
	50	12,000	10	08834122002	
	60	12,000	10	08834122003	63642502668
	80	12,000	10	08834122004	63642502669
	120	12,000	10	08834122006	
	180	12,000	10	08834122007	
	240	12,000	10	08834122008	
	320	12,000	10	08834122009	
3-1/2 x 1-1/2 x 5/8	40	12,000	10	08834122011	
	50	12,000	10	08834122012	
	60	12,000	10	08834122013	
	80	12,000	10	08834122014	
	120	12,000	10	08834122016	
	150	12,000	10	08834122017	
	180	12,000	10	08834122018	
	320	12,000	10	08834122020	
3-1/2 x 2 x 5/8	40	12,000	10	08834122022	
	60	12,000	10	08834122024	
	80	12,000	10	08834122025	
	120	12,000	10	08834122027	
	180	12,000	10	08834122028	
4 x 1 x 5/8	40	12,000	10	08834122032	
	50	12,000	10	08834122033	
	60	12,000	10	08834122034	63642502673
	80	12,000	10	08834122035	63642502674
	120	12,000	10	08834122037	63642502675
	180	12,000	10	08834122038	
	240	12,000	10	08834122039	
	320	12,000	10	08834122040	
4 x 1-1/2 x 5/8	40	12,000	10	08834122042	
	50	12,000	10	08834122043	
	60	12,000	10	08834122044	
	80	12,000	10	08834122045	
	120	12,000	10	08834122047	
4 x 2 x 5/8	240	12,000	10	08834122050	
	40	12,000	10	08834122053	
	50	12,000	10	08834122054	
	60	12,000	10	08834122055	63642502677
	80	12,000	10	08834122056	
	120	12,000	10	08834122058	
	180	12,000	10	08834122059	
	240	12,000	10	08834122060	
	320	12,000	10	08834122061	

**MERIT STOCK/NON-STOCK STATUS:** Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.






For flap wheel with arbor hole adapters and bushings, see the end of this section. A set of reducing bushing will be included for 1" center hole wheels at no charge when purchased with flap wheels and specified on the order.

Continued

**MERIT**



## 3" – 8" Flap Wheels with Arbor Holes (continued)

													
				<b>TIER:</b> BEST		<b>BETTER</b>		<b>BETTER</b>		<b>GOOD</b>		<b>GOOD</b>	
				<b>BRAND:</b> Norton		Norton		Merit		Norton		Merit	
				<b>TRADENAME:</b> BLAZE R920		R369		<b>HIGH PERFORMANCE</b>		<b>METAL R207</b>		<b>ALUMINUM OXIDE</b>	
				<b>ABRASIVE:</b> Ceramic Alumina		Premium Aluminum Oxide Blend		Aluminum Oxide Blend		Aluminum Oxide		Aluminum Oxide	
				<b>OTHER:</b> P-Graded		P-Graded				P-Graded			
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #
5 x 1 x 5/8	40	6,200	10		66623399282								
	60	6,200	10		66623399283								
	80	6,200	10		66623399284					63642502678 5/PKG			
	120	6,200	10		66623399285								
5 x 1-1/2 x 5/8	40	12,000	10				08834122063						
	50	12,000	10				08834122064						
	60	12,000	10				08834122065						
	80	12,000	10				08834122066						
	120	12,000	10				08834122068						
	180	12,000	10				08834122070						
	240	12,000	10				08834122071						
	320	12,000	10				08834122072						
6 x 1/2 x 1	40	6,000	10				08834123001						
	60	6,000	10				08834123003						
	120	6,000	10				08834123005						
	150	6,000	10				08834122198						
	180	6,000	10				08834123006						
	240	6,000	10				08834123007						
6 x 1 x 1	320	6,000	10				08834122137						
	40	6,000	5				08834123009					08834120167	
	50	6,000	5				08834123010					08834120168	
	60	6,000	5	66261146104	69957394198		08834123011		63642502680			08834120169	
	80	6,000	5	66261146105	69957394199		08834123012		63642502681			08834120170	
	100	6,000	5									08834120171	
	120	6,000	5	66261146106	69957394200		08834123014		63642502682			08834120172	
	150	6,000	5				08834123015						
	180	6,000	5				08834123016					08834120174	
	240	6,000	5				08834123017					08834120176	
6 x 1-1/2 x 1	320	6,000	5				08834123018					08834120177	
	40	6,000	5		66623399286		08834123020						
	50	6,000	5				08834123021						
	60	6,000	5		66623399287		08834123022		63642502686				
	80	6,000	5		66623399288		08834123023		63642502687				
	120	6,000	5		66623399289		08834123025						
	150	6,000	5				08834123026						
	180	6,000	5				08834123027						
	240	6,000	5				08834123028						
	320	6,000	5				08834123029						
6 x 2 x 1	40	6,000	5		66623399290		08834123031					08834120189	
	50	6,000	5				08834123032						
	60	6,000	5		66623399291		08834123033		63642502691			08834120191	
	80	6,000	5		66623399292		08834123034		63642502692			08834120192	
	100	6,000	5									08834120198	
	120	6,000	5		66623399293		08834123036		63642502694			08834120194	
	180	6,000	5		66623399294		08834123038					08834120197	
	240	6,000	5				08834123039					08834120199	
	320	6,000	5				08834123040					08834120493	
	50	6,000	3				08834123054						
6 x 3 x 1	60	6,000	3				08834123055						
	80	6,000	3				08834123056		63642502696 5/PKG				
	120	6,000	3				08834123058						
	150	6,000	3				08834122544						
	180	6,000	3				08834123060						
	240	6,000	3				08834123061						
	320	6,000	3				08834122329						

MERIT STOCK/NON-STOCK STATUS: Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

For flap wheel with arbor hole adapters and bushings, see the end of this section.

A set of reducing bushing will be included for 1" center hole wheels at no charge when purchased with flap wheels and specified on the order.

Continued

### 3" – 8" Flap Wheels with Arbor Holes (continued)

													
				<b>BEST</b>		<b>BETTER</b>		<b>BETTER</b>		<b>GOOD</b>		<b>GOOD</b>	
TIER:				Norton		Norton		Merit		Norton		Merit	
BRAND:				Norton		Norton		Merit		Norton		Merit	
TRADENAME:				<b>BLAZE R920</b>		<b>R369</b>		<b>HIGH PERFORMANCE</b>		<b>METAL R207</b>		<b>ALUMINUM OXIDE</b>	
ABRASIVE:				Ceramic Alumina		Premium Aluminum Oxide Blend		Aluminum Oxide Blend		Aluminum Oxide		Aluminum Oxide	
OTHER:				P-Graded		P-Graded				P-Graded			
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #
8 x 1 x 1	40	4,500	3			08834123070							
	50	4,500	3			08834123071							
	60	4,500	3		66623399295	08834123072							
	80	4,500	3		66623399296	08834123073	63642502698						
	120	4,500	3		66623399297	08834123075							
	180	4,500	3			08834123077							
	240	4,500	3			08834123078							
8 x 2 x 1	40	4,500	3			08834123092							
	50	4,500	3			08834123093							
	60	4,500	3			08834123094	63642502700						
	80	4,500	3			08834123095	63642502701						
	120	4,500	3			08834123097							
	180	4,500	3			08834123099							
	240	4,500	3			08834123100							
	320	4,500	3			08834123101							

MERIT STOCK/NON-STOCK STATUS: Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

For flap wheel with arbor hole adapters and bushings, see the end of this section.

A set of reducing bushing will be included for 1" center hole wheels at no charge when purchased with flap wheels and specified on the order.



**MERIT**

### Flap Wheel Test Kits

#### Merit Mini 1/4"-20 Thread Test Kit "CQ"

- Part # 08834138001
- Includes ten, 1" to 3" diameter, 1/4"-20 thread mini flap wheels
- Each kit includes a 1/4"-20 QC-4 quick-change adapter

#### Merit Mini 1/4" Steel Shank Test Kit "CMM"

- Part # 08834138004
- Includes ten wheels, 1" to 3" diameter in various grits
- The flap wheels are mounted on a 1/4" diameter hardened steel shank

#### Merit Micro Mini 1/8" Steel Shank Test Kit "MMC"

- Part # 08834131493
- Includes 5 wheels, 3/8" to 1-3/16" in diameter
- The flap wheels are mounted on a 1/8" diameter hardened steel shank
- Ideal for fast polishing and light deburring of holes or grooves



## 10" – 16" Large Flap Wheels with Arbor Holes

Wide range of applications:

- For polishing/grinding jobs in production work as well as clean-up and maintenance jobs
- Work on metals, plastic, rubber and wood

Easy to operate:

- No adjustments, dressing, or preparation required before or during operation

Fewer rejected parts:

- More forgiving than other abrasive products
- Reduce the possibility of flattening, gouging and surface deformation

TIER: <b>BETTER</b>				
BRAND: <b>Merit</b>				
TRADENAME: <b>HIGH PERFORMANCE</b>				
ABRASIVE: Aluminum Oxide Blend				
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #
10 x 1 x 1-3/4	40	4,000	4	08834122223
	80	4,000	4	08834124003
	120	4,000	4	08834124005
	150	4,000	4	08834124006
	180	4,000	4	08834124007
	240	4,000	4	08834122889
10 x 1-1/2 x 1-3/4	320	4,000	4	08834124009
	60	4,000	4	08834124022
	80	4,000	4	08834124023
	120	4,000	4	08834124025
	180	4,000	4	08834124027
	240	4,000	2	08834124042
10 x 2 x 1-3/4	80	4,000	2	08834124043
	120	4,000	2	08834124045
	180	4,000	2	08834124047
	240	4,000	2	08834124077
10 x 3 x 1-3/4	60	4,000	2	08834122316
	80	4,000	2	08834122131
	120	4,000	2	08834122132
	180	4,000	2	08834124085
12 x 1 x 1-3/4	60	3,000	4	08834122349
	80	3,000	4	08834122311
	120	3,000	4	08834122315
	180	3,000	4	08834122248
12 x 2 x 1-3/4	40	3,000	2	08834122249
	50	3,000	2	08834122250
	60	3,000	2	08834122269
	120	3,000	2	08834122270
	150	3,000	2	08834122271
	180	3,000	2	08834122273
	240	3,000	2	08834122275
	320	3,000	2	08834120013
12 x 4 x 1-3/4	50	2,400	1	08834120015
	80	2,400	1	08834120016
	120	2,400	1	08834120017
	180	2,400	1	08834120019
14 x 1 x 1-3/4	240	2,400	1	08834120020
	320	2,400	1	08834120022
14 x 1-1/2 x 1-3/4	60	2,400	1	08834120024
	80	2,400	1	08834120025
	120	2,400	1	08834120026
	180	2,400	1	08834120027

TIER: <b>BETTER</b>				
BRAND: <b>Merit</b>				
TRADENAME: <b>HIGH PERFORMANCE</b>				
ABRASIVE: Aluminum Oxide Blend				
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #
14 x 2 x 1-3/4	60	2,400	1	08834120028
	80	2,400	1	08834123215
	120	2,400	1	08834122907
	240	2,400	1	08834120032
14 x 3 x 1-3/4	60	2,400	1	08834120033
	80	2,400	1	08834120034
	120	2,400	1	08834120035
	240	2,400	1	08834120036
14 x 4 x 1-3/4	60	2,000	1	08834120037
	80	2,000	1	08834122829
	120	2,000	1	08834122502
	240	2,000	1	08834120041
16 x 1 x 1-3/4	60	2,400	1	08834120042
	80	2,400	1	08834120043
	120	2,400	1	08834120044
	180	2,400	1	08834120045
16 x 2 x 1-3/4	240	2,400	1	08834120046
	60	2,400	1	08834120047
	80	2,400	1	08834120049
	120	2,400	1	08834120050
16 x 3 x 1-3/4	180	2,400	1	08834120051
	240	2,400	1	08834120052
	60	2,400	1	08834120053
	80	2,400	1	08834120054
16 x 4 x 1-3/4	120	2,400	1	08834120055
	180	2,400	1	08834120056
	240	2,400	1	08834120057
	60	2,000	1	08834120058
16 x 6 x 1-3/4	120	2,000	1	08834120060
	240	2,000	1	08834122435
	80	2,000	1	08834120068
	120	2,000	1	08834120069
	180	2,000	1	08834120070
	240	2,000	1	08834120071

**MERIT STOCK/NON-STOCK STATUS:** Some Merit part numbers are non-stock. Ask your Norton/Merit representative for stock/MTO status.

For flap wheel with arbor hole adapters and bushings, see the end of this section.

**MERIT**

## Adapter and Bushings for Flap Wheels with Arbor Holes

WHEEL DIAMETER	ADAPTERS	PART #
<b>Shank Adapters</b>		
3-1/2	1/4 Shank	08834125001
3-1/2	3/8 Shank	08834125007*
4-8	1/4 Shank	08834125003
<b>Threaded Mounting Adapters</b>		
4-8	5/8-11 Thread	08834125027
<b>Reducing Bushings</b>		
6-8	1 to 3/8	08834125016*
	1 to 1/2	08834125017
	1 to 5/8	08834125018*
	1 to 3/4	08834125019*
	1 to 7/8	08834125020*
10-16	1 to 5/8	08834122069*

Standard packages = 1 adapter, 1 pair of bushings

\* Non-stock. Please call for lead-times.

For additional aluminum reducing bushings see non-woven convolute wheel section



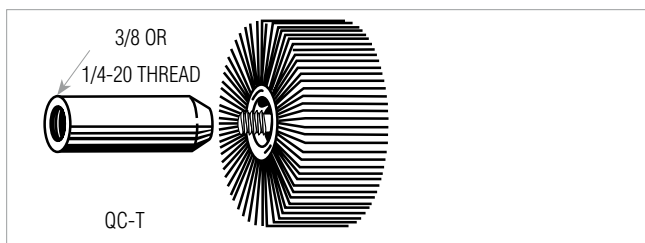
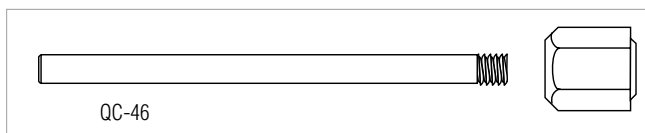
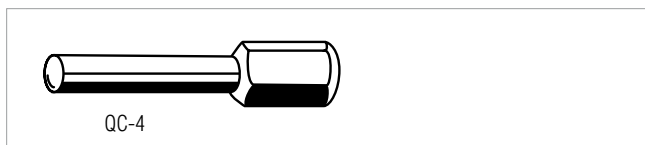
## Adapters for 1/4"-20 Thread Mini and Arbor Hole Flap Wheels

MODEL #	DESCRIPTION	PART #
<b>Adapters</b>		
ADAPT C	Fits 3 x 2 x 3/8 arbor flap wheel	08834137009*
MA-100	Fits A.H. Mini Wheel	08834137007*
QC-8	1/8 x 5/8	08834137002*
QC-4	1/4 SK. Dia. x 5/8 SK. L.	08834137001
QC-44	1/4 x 4	08834137003
QC-46	1/4 x 6	08834137004
QC-48	1/4 x 8	08834137005
QC-T	1/4-20 Thread	08834137012
QC-T	3/8-24 Thread	08834137010

Standard package = 1 adapter

Other thread sizes available for quotation

\* Non-stock. Please call for lead-times.







## Sand-O-Flex Wheels

With their firm cushioning brushes, Sand-O-Flex's abrasive strips are forced into, around and over corners, hollow and fluted surfaces, and small openings. Pressure is distributed evenly over the surface to prevent loss of detail and the flattening of rounded areas; for sanding metals, woods, plastics, rubber and ceramic.

Sand-O-Flex wheels eliminate the need to hand-sand and are designed to fit most standard equipment. They load quickly and easily by turning the index knob as needed, allowing you to change grit size in minutes. Sand-O-Flex refills are available both scored (for finer, less aggressive work) and unscored. And, with the use of Merit adapters, Sand-O-Flex wheels will fit most electric bench grinders.

### Sand-O-Flex Wheel – Model 350-RP

- Diameter: 6-1/2" overall, 4" diameter high-impact plastic body
- 1" wide abrasive strips backed by 8 cushioning brushes
- 1/4" diameter steel shank
- Weight: 9-1/2 oz.
- Maximum operating speed: 2,400 RPM
- Special adapter required for bench grinder use
- Some assembly required

TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **SAND-O-FLEX**  
ABRASIVE: Aluminum Oxide

MODEL #	GRIT	STD. PKG.	PART #
<b>Sand-O-Flex Wheel</b>			
350-RP	1		08834111051
<i>Comes assembled with 80 grit A/O resin bond scored refill and brushes</i>			
<b>Sand-O-Flex Accessories</b>			
Bench Grinder Adapter 350-RP 1/4 shank to 1/2 shank	1		08834111055
Replacement Brushes for 350-RP; 8 per set	1 set		08834113003
<b>Resin Bond Refills</b>			
350-RP SCORED	60	10	08834111052
	80	10	08834111053
	100	10	08834112114
	120	10	08834111054
	180	10	08834111057
<b>Glue Bond Refills</b>			
350-RP SCORED	80	10	08834112054
	100	10	08834112055
	120	10	08834112056
	180	10	08834112058
350-RP UNSCORED	80	10	08834112044
	180	10	08834112048





Best product for blending and polishing contours when smooth running is a primary concern. Used for finishing hard-to-reach areas, removing parting lines, imperfections, and burrs on all surfaces.

#### Benefits:

Spiral construction avoids shadow marks and provides smooth, chatter-free cutting action. Achieves close tolerances when finishing curved, contoured, and hard-to-reach areas. Fast cutting and removes toughest metal. Bands are easily removed and replaced

#### Grit Range:

24 - 320

#### Abrasive Grain:

Ceramic Alumina, Aluminum Oxide

#### Backing:

X-weight cotton

#### Other:

Use with rubber expanding drum

#### Machine Used:



## APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)

FINER (FINISHING)

24	36	40	50	60	80	120	180	240	320
Heavy Stock Removal									
	Blending Out Heavy Machine Marks								
	Removing Heavy Burrs								
	Applying Heavy Scratch Pattern								
	Removing Flash/Parting Lines								
	Removing Rust/Scale/Pit Marks								
			Preparing Metal for Painting						
			Blending Out Medium Machine Marks						
					Blending Metal Surfaces				
					Applying Light Scratch Pattern				
							Fine Blending and Cleaning		
								Metal Finishing and Polishing	

## NORTON BLAZE R920 CERAMIC ALUMINA

**BEST CHOICE FOR HARD-TO-GROUND MATERIALS INCLUDING SUPER ALLOYS (COBALT, INCONEL, AND TITANIUM) AND STAINLESS STEEL**

#### FEATURES & BENEFITS

- See significantly faster, cooler, burn-free grinding from our next-generation of sharp, ceramic abrasive grains
- Advanced, full resin bond system designed to promote exceptional grain retention for additional product life
- Flexible, yet strong X-weight heavy cotton backing provides durability and even wear while eliminating aggressiveness for smooth, chatter-free cutting action, and longer life for less change-overs
- Advanced grinding aid promotes cooler cutting, longer life



## NORTON METAL R265 ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS A KEY PURCHASING CRITERIA**

#### FEATURES & BENEFITS

- Solid-performance aluminum oxide grain for a good starting specification with consistent performance
- Advanced, full resin bond system designed to promote exceptional grain retention for additional product life
- Flexible, yet strong X-weight heavy cotton backing provides durability and even wear



## MERIT ALUMINUM OXIDE

**GOOD STARTING SPECIFICATION FOR ALL TYPES OF METAL**

#### FEATURES & BENEFITS

- Tough and durable quality aluminum oxide abrasive
- Flexible, yet strong X-weight cotton backing construction for extended durability and even wear
- Durable resin bond system provides longer life





TIER:	<b>BEST</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	
TRADENAME:	<b>BLAZE R920</b>	<b>METAL R265</b>	<b>EXPANDING RUBBER DRUM</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	-
OTHER:	Supersize		

SIZE (D x W)	GRIT	STD. PKG.	PART #	PART #	PART #
1/2 x 1	40	100	66261146012	66261146078	08834196906
	60	100	66261146013	66261146079	1/4" shank
	80	100	66261146014	66261146080	15,000 Max. RPM
	120	100	66261146015	66261146081	
3/4 x 1	40	100	66261146016	66261146082	08834196911
	60	100	66261146017	66261146083	1/4" shank
	80	100	66261146018	66261146084	17,000 MAX. RPM
	120	100	66261146019	66261146085	
1 x 1	40	100	66261146020	66261146086	08834196916
	60	100	66261146021	66261146087	1/4" shank
	80	100	66261146022	66261146088	18,000 MAX. RPM
	120	100	66261146023	66261146089	
1-1/2 x 1-1/2	40	100	66261146024	66261146090	08834196922
	60	100	66261146025	66261146093	1/4" shank
	80	100	66261146026	66261146094	10,000 MAX. RPM
	120	100	66261146027	66261146095	
2 x 2	40	100	66261146028	66261146096	08834196928
	60	100	66261146029	66261146097	1/4" shank
	80	100	66261146030	66261146098	6,000 MAX. RPM
	120	100	66261146031	66261146099	
3 x 3	40	50	66261146032	66261146100	08834196931
	60	50	66261146033	66261146101	3/8" shank
	80	50	66261146034	66261146102	3,000 MAX. RPM
	120	50	66261146035	66261146103	

TIER: **GOOD**  
BRAND: Merit  
ABRASIVE: Aluminum Oxide

GRIT	1/4 x 1/2	1/4 x 1	3/8 x 1/2	3/8 x 1	1/2 x 1/2	1/2 x 1	1/2 x 1-1/2	1/2 x 2
24	-	-	-	-	-	08834196712	-	-
36	-	-	-	08834197674	08834196619	08834196591	08834196237	08834196758
40	08834196614	-	-	-	08834196234	08834196174	-	08834196825
50	08834196292	08834196785	08834196386	-	08834196228	08834196214	08834197111	08834196548
60	08834196342	-	08834196829	08834196999	08834196068	08834196212	08834196053	08834196549
80	08834196269	08834196733	08834196512	08834196645	08834196179	08834196215	08834196646	08834196669
100	08834196511	08834196734	08834196513	-	08834196189	08834196534	08834196540	08834196735
120	08834196217	08834197004	08834196747	08834196218	08834196069	08834196210	08834196324	08834196736
150	-	-	-	-	-	08834196772	-	-
180	08834196490	-	08834196504	-	08834196209	08834196713	-	-
240	-	-	08834196481	-	08834196564	08834196814	-	-
320	08834196865	-	08834196830	-	08834196505	08834196487	-	-
PKG. QTY. STOCK	100/box	100/box	100/box	100/box	100/box	100/box	100/box	100/box
MOQ NON-STOCK	400	400	300	300	300	300	300	200
<b>Expanding Rubber Drums</b>								
	1/8 Shank	NA	1/8 Shank	1/8 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank
	30,000 RPM		30,000 RPM	18,000 RPM	30,000 RPM	15,000 RPM	12,000 RPM	10,000 RPM
	08834196030		08834196944	08834196011	08834196904	08834196906	08834196907	08834196908

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

TIER: **GOOD**  
 BRAND: Merit  
 ABRASIVE: Aluminum Oxide

GRIT	3/4 x 1/2	3/4 x 3/4	3/4 x 1	3/4 x 1-1/2	3/4 x 2	1 x 1/2	1 x 1	1 x 1-1/2
24	-	-	08834196776	08834196596	-	-	08834196563	08834196708
36	08834196769	08834196609	08834196261	08834196238	08834196953	08834196058	08834196072	08834196525
40	-	08834196236	08834196517	08834196227	08834196826	-	08834196073	08834196546
50	08834196608	08834196183	08834196515	08834196500	08834196757	-	08834196184	08834196078
60	08834196578	08834196168	08834196070	08834196554	08834196745	08834196580	08834196075	08834196060
80	08834196255	08834196161	08834196071	08834196249	08834196756	08834196647	08834196074	08834196162
100	-	08834196230	08834196502	08834196501	08834196766	-	08834196167	08834196257
120	08834196579	08834196226	08834196219	08834196057	08834196746	08834197592	08834196177	08834196677
150	-	08834196231	-	-	08834197283	-	-	08834197639
180	08834197116	-	08834196565	08834196851	-	-	08834196059	08834196790
240	08834196603	08834196859	08834196668	-	66254410751	-	08834196178	08834196526
320	08834196806	-	08834196624	-	-	-	08834196789	08834197700
PKG. QTY. STOCK	100/box	100/box	100/box	100/box	100/box	100/box	100/box	100/box
MOQ NON-STOCK	200	300	300	300	200	200	300	200

#### Expanding Rubber Drums



1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank	1/4 Shank
27,000 RPM	24,000 RPM	17,000 RPM	10,000 RPM	10,000 RPM	20,000 RPM	18,000 RPM	10,000 RPM	10,000 RPM
08834196909	08834196910	08834196911	08834196912	08834196913	08834196914	08834196916	08834196917	

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

TIER: **GOOD**  
 BRAND: Merit  
 ABRASIVE: Aluminum Oxide

GRIT	1 x 2	1 x 3	1-1/2 x 1	1-1/2 x 1-1/2	1-1/2 x 2	1-1/2 x 3	2 x 1	2 x 1-1/2
24	08834196709	-	-	08834196220	08834196539	-	-	08834196700
36	08834196267	08834196665	08834196222	08834196164	08834196657	08834197063	08834196233	08834196509
40	08834196689	-	-	08834196171	08834196598	-	08834196109	08834196514
50	08834196588	08834197688	08834196185	08834196176	08834196252	-	08834196186	08834196527
60	08834196506	08834196676	08834196503	08834196091	08834196067	08834196703	08834196232	08834196978
80	08834196268	08834196195	08834196254	08834196165	08834196533	08834196809	08834196166	08834196259
100	08834196750	-	-	08834196182	08834196543	08834196522	08834196508	08834196521
120	08834196507	08834196197	08834196707	08834196066	08834196079	08834196343	08834196595	08834196586
150	08834197664	-	-	08834197750	08834197376	-	-	-
180	08834196987	-	-	08834196535	-	08834197869	08834196661	08834196536
240	-	-	08834196491	08834196260	08834197709	-	08834197983	-
320	-	-	08834196063	08834197647	-	-	-	-
PKG. QTY. STOCK	100/box	100/box	100/box	100/box	100/box	100/box	100/box	100/box
MOQ NON-STOCK	200	100	300	200	200	100	200	200

#### Expanding Rubber Drums



1/4 Shank	NA	1/4 Shank	1/4 Shank	1/4 Shank	NA	1/4 Shank	1/4 Shank
8,000 RPM		12,000 RPM	10,000 RPM	8,000 RPM		11,000 RPM	8,000 RPM
08834196918		08834196921	08834196922	08834196923		08834196926	08834196927

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

TIER: **GOOD**  
 BRAND: Merit  
 ABRASIVE: Aluminum Oxide

GRIT	2 x 2	2 x 3	2-1/4 x 3	3 x 1	3 x 1-1/2	3 x 2	3 x 3
24	08834196516	-	-	08834196795	-	-	08834196256
36	08834196110	-	08834197140	08834196717	-	-	08834196262
40	08834196172	-	-	08834196755	-	08834196090	08834196555
50	08834196187	08834196152	08834196620	-	-	08834196264	08834196253
60	08834196173	08834196175	-	08834196150	-	08834196530	08834196188
80	08834196181	08834196198	08834196270	08834196524	08834196633	08834196265	08834196159
100	08834196193	-	-	-	-	-	08834196250
120	08834196585	-	08834196729	08834196089	-	08834196531	08834196572
150	08834196629	-	08834195857	-	-	-	08834196452
180	08834196306	-	-	-	-	-	08834196131
240	08834196375	-	-	-	-	-	-
320	-	-	-	-	-	-	08834197968
PKG. QTY. STOCK	100/box	100/box	100/box	100/box	100/box	100/box	100/box
MOQ NON-STOCK	200	100	100	200	200	100	100

#### Expanding Rubber Drums




1/4 Shank	NA	NA	3/8 Shank	NA	3/8 Shank	3/8 Shank
6,000 RPM			3,000 RPM		3,000 RPM	3,000 RPM
08834196928			08834196929		08834196930	08834196931

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.





Cartridge rolls are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive. Valuable abrasive tool for reaching into corners, where larger diameter tools cannot work

Applications:	Used on inside surfaces and inside corners where other abrasive shapes cannot reach. Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing or removing machine tool marks, and edge breaking.
Stock Shapes:	Cartridge rolls, half-glued
Grit Range:	36 - 320
Abrasive Grain:	Ceramic Alumina, Aluminum Oxide, Silicon Carbide
Backing:	X-weight cotton
Construction:	All cartridge roll part numbers shown are resin bond, half-glued. Quarter and full glue are also available for quotation as made-to-order products.
Maximum RPM:	1/8" to 1/2" – 23,000 5/8" to 1" – 18,000 1" to 1-1/2" – 15,000
Machine Used:	

### APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)					FINER (FINISHING)				
36	40	50	60	80	120	180	240	320	
Blending Out Heavy Machine Marks									
Removing Heavy Burrs									
Applying Heavy Scratch Pattern									
Removing Flash/Parting Lines									
Removing Rust/Scale/Pit Marks									
		Preparing Metal for Painting							
		Blending Out Medium Machine Marks							
				Blending Metal Surfaces					
				Applying Light Scratch Pattern					
						Fine Blending and Cleaning			
							Metal Finishing and Polishing		

## NORTON BLAZE R920 CERAMIC ALUMINA

**BEST CHOICE FOR HARD-TO-GRIND MATERIALS INCLUDING SUPER ALLOYS (COBALT, INCONEL, AND TITANIUM) AND STAINLESS STEEL**



**NEW**

#### FEATURES & BENEFITS

- Next-generation ceramic alumina abrasive grain provides greatest productivity with significantly faster cut rates
- Resists wear, resulting in 50% – 300% longer life
- Advanced grinding aid promotes cooler cutting, longer life
- Improved resin bond system for exceptional grain retention and longer life
- Strong X-weight cotton backing provides durability and even wear

## MERIT CERAMIC PLUS

**BETTER CHOICE FOR STAINLESS STEEL AND OTHER HARD-TO-GRIND MATERIALS**



#### FEATURES & BENEFITS

- Sharp ceramic alumina abrasive blend delivers cooler cut
- Durable X-weight cotton backing ensures even wear
- Grinding aid promotes cooler cut on stainless steel

## MERIT ALUMINUM OXIDE PLUS

**GOOD STARTING SPECIFICATION FOR FLASH REMOVAL, POLISHING, OR REMOVING MACHINE TOOL MARKS AND EDGE BREAKING ON ALL TYPES OF METAL**

### FEATURES & BENEFITS

- Premium aluminum oxide abrasive and grinding aid lubricant control aggressiveness while cool cutting
- Advanced, full resin bond system ensures edge adhesion and long life



## NORTON METAL R265 ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS A KEY PURCHASING CRITERIA**

### FEATURES & BENEFITS

- Our solid-performance aluminum oxide grain makes these cartridge rolls a good starting specification with consistent performance for small jobs or anywhere performance need not be measured



## MERIT ALUMINUM OXIDE

**GOOD STARTING SPECIFICATION FOR FLASH REMOVAL, POLISHING, OR REMOVING MACHINE TOOL MARKS AND EDGE BREAKING ON ALL TYPES OF METAL**

### FEATURES

- Quality aluminum oxide abrasive
- Strong X-weight cotton backing construction
- Durable resin bond system

### BENEFITS

- Tough and durable
- For extended durability and even wear
- Provides longer life



## MERIT SILICON CARBIDE

**GOOD CHOICE FOR TOUGH, DIFFICULT-TO-GRIND MATERIALS, AS WELL AS SOFT, LOADING MATERIALS**

### FEATURES

- Sharp silicon carbide abrasive
- Durable resin bond system

### BENEFITS

- Provides high initial cut on non-ferrous and soft-loading materials such as titanium, masonry, composites, plastic, and rubber
- Exceptional grain retention and longer life





TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Merit	Merit	Merit
TRADENAME:	<b>BLAZE R920</b>	<b>CERAMIC PLUS</b>	<b>A/O PLUS</b>	<b>SILICON CARIBDE</b>
ABRASIVE:	Ceramic Alumina	Ceramic Alumina Blend	Aluminum Oxide	Silicon Carbide
OTHER:	Supersize	Supersize	Supersize	

SIZE (D x L x H)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #
1/4 x 1 x 1/8 Use M-9 Mandrel	60	100				
1/4 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100	66261194384	66261040477		08834183274
	80	100	66261194394	69957300001		08834182359
	120	100	66261194397		77696089003	08834189131
3/8 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100	66261194392	66261041270		
	80	100	66261194395	08834187134	77696089005	08834180710
	120	100	66261194398			66261042229
1/2 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100	66261194393	08834184221	77696089007	08834189233
	80	100	66261194396	66261012798	77696089008	08834180712
	120	100	66261194399			66261086969



TIER:	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Merit
TRADENAME:	<b>METAL R265</b>	<b>A/O</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/16 x 3/4 x 3/32	80	100	08834180005
3/16 x 1 x 3/32	60	100	08834180023
Use M-2E Mandrel	80	100	08834180024
	100	100	08834180025
	120	100	08834180026
	150	100	08834180027
	180	100	08834180028
	240	100	08834180030
	320	100	08834180032
1/4 x 3/4 x 1/8	60	100	08834180042
Use M-3 or M-7 Mandrel	80	100	08834180043
1/4 x 1 x 1/8	50	100	08834180060
Use M-4 or M-8 Mandrel	60	100	66261132175
	80	100	66261132178
	100	100	08834180063
	120	100	66261132179
	150	100	08834180065
	180	100	08834180066
	240	100	08834180068
	320	100	08834180070
1/4 x 1-1/2 x 1/8	50	100	08834180079
Use M-9 Mandrel	60	100	66261132182
	80	100	66261132183
	100	100	08834180082
	120	100	66261132184
	150	100	08834180084
	180	100	08834180085
	320	100	08834180089
1/4 x 2 x 1/8	80	100	08834180100
Use M-10 Mandrel	100	100	08834180101
	120	100	08834180102
5/16 x 1 x 1/8	60	100	08834180137
Use M-4 or M-8 Mandrel	80	100	08834180138
	120	100	08834180140

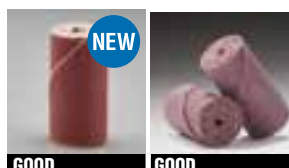


TIER:	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Merit
TRADENAME:	<b>METAL R265</b>	<b>A/O</b>
ABRASIVE:	Aluminum Oxide	Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
5/16 x 1-1/2 x 1/8	60	100	08834180156
Use M-9 Mandrel	80	100	08834180157
3/8 x 3/4 x 1/8	120	100	08834180197
Use M-7 Mandrel			
3/8 x 1 x 1/8	60	100	66261132185
Use M-8 Mandrel	80	100	66261132186
	100	100	
	120	100	66261132187
	150	100	
	180	100	
	240	100	
3/8 x 1-1/2 x 1/8	36	100	08834180213
Use M-9 Mandrel	40	100	08834180214
	50	100	08834180215
	60	100	66261132188
	80	100	66261132189
	100	100	08834180216
	120	100	08834180217
	180	100	08834180218
	240	100	08834180219
	320	100	08834180220
	36	100	08834180228
	40	100	08834180229
	50	100	08834180230
	60	100	66261132188
	80	100	66261132189
	100	100	08834180231
	120	100	08834180232
	180	100	08834180233
	240	100	08834180234
	320	100	08834180236
	36	100	08834180238
	40	100	08834180240
	50	100	08834180250
	60	100	08834180251
	80	100	08834180252
	100	100	08834180253
	120	100	08834180270
1/2 x 3/4 x 1/8	80	100	
Use M-7 Mandrel			
1/2 x 1 x 1/8	50	100	08834180287
Use M-8 Mandrel	60	100	66261132191
	80	100	66261132192
	100	100	08834180288
	120	100	08834180289
	150	100	08834180290
	180	100	08834180291
	240	100	08834180292
			08834180293
			08834180295

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.  
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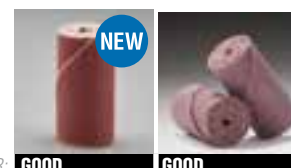
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TIER: **GOOD** **GOOD**  
 BRAND: Norton Merit  
 TRADENAME: **METAL R265** **A/O**  
 ABRASIVE: Aluminum Oxide Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
1/2 x 1-1/2 x 1/8 Use M-9 Mandrel	36	100	08834180304
	40	100	08834180305
	50	100	08834180306
	60	100	66261132194 08834180307
	80	100	66261132195 08834180308
	100	100	08834180309
	120	100	66261132197 08834180310
	150	100	08834180311
	180	100	08834180312
1/2 x 2 x 1/8 Use M-10 Mandrel	240	100	08834180314
	320	100	08834180316
	60	100	08834180326
	80	100	08834180327
	100	100	08834180328
1/2 x 2 x 3/16 Use M-17 Mandrel	120	100	08834180329
	240	100	08834180333
	320	100	08834180335
	60	100	08834180350
1/2 x 2 x 1/4 Use M-22 Mandrel	80	100	08834180653
	120	100	08834180338
	40	100	08834183168
5/8 x 1 x 3/16 Use M-15 Mandrel	80	100	08834180351
	80	100	08834180364
5/8 x 1-1/2 x 1/8 Use M-9 Mandrel	36	100	08834180395
	40	100	08834180392
	50	100	08834180393
	60	100	08834180275
	80	100	08834180789
	120	100	08834180394
5/8 x 1-1/2 x 3/16 Use M-16 Mandrel	60	100	08834180382
	80	100	08834180383
5/8 x 2 x 1/8 Use M-10 Mandrel	60	100	08834182505
	80	100	08834181080
5/8 x 2 x 3/16 Use M-10 Mandrel	50	100	08834180400
	60	100	08834180401
	80	100	08834180402
	100	100	08834180403
3/4 x 1 x 1/8 Use M-8 Mandrel	80	100	08834180469
	120	100	08834181543

Continued



TIER: **GOOD** **GOOD**  
 BRAND: Norton Merit  
 TRADENAME: **METAL R265** **A/O**  
 ABRASIVE: Aluminum Oxide Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/4 x 1 x 3/16 Use M-15 Mandrel	40	100	08834180456
	80	100	08834180459
	120	100	08834180461
3/4 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100	66261132198 08834180490
	80	100	66261132199 08834180527
	120	100	66261132200 08834180487
	36	100	08834180474
3/4 x 1-1/2 x 3/16 Use M-16 Mandrel	50	100	08834180476
	60	100	08834180477
	80	100	08834180478
	120	100	08834180480
	180	100	08834180482
	36	100	08834180907
3/4 x 1-1/2 x 1/4 100/box 400/case Use M-21 Mandrel	60	100	08834180489
	80	100	08834180358
	120	100	08834180488
	150	100	08834182807
3/4 x 2 x 1/8 Use M-10 Mandrel	60	100	08834180791
	40	100	08834180494
	60	100	08834180496
	80	100	08834180497
3/4 x 2 x 3/16 Use M-17 Mandrel	100	100	08834180498
	120	100	08834180499
	60	100	08834180506
	80	100	08834181297
3/4 x 2 x 1/4 Use M-22 Mandrel	100	100	08834180509
	120	100	08834180507
	80	100	08834180584
	36	100	08834181195
1 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100	08834180587
	80	100	08834180583
	60	100	08834180591
1 x 2 x 3/16 Use M-17 Mandrel	80	100	08834180592
	60	100	08834180603
1 x 2 x 1/4 Use M-22 Mandrel	80	100	08834180606
	80	100	08834180606


MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

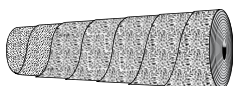
Refer to the back of this section for mandrels.





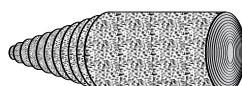
Spiral rolls are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive.

Applications:	Used on inside surfaces and inside corners where other abrasive shapes cannot reach. Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing, or removing machine tool marks, and edge breaking.
Shapes:	Full taper (all stock part numbers), half taper, and sidewall taper
Grit Range:	36 - 240
Abrasive Grain:	Ceramic Alumina, Aluminum Oxide, Silicon Carbide
Backing:	X-weight cotton
Construction:	All spiral roll part numbers shown are full tapered, resin bond, half glued Half-tapered and sidewall-tapered are available for quotation as made-to-order products Quarter and full glue are also available for quotation as made-to-order products
Maximum RPM:	1/8" to 1/2" – 23,000 5/8" to 1" – 18,000 1" to 1-1/2" – 15,000
Machine Used:	



#### Full Taper

- Especially useful for grinding/polishing of channels, fillets and radii, and deburring small holes
- Full taper used when the area to be finished is hard to reach with a full cartridge roll
- The tapered roll conforms to smaller areas
- Fits into irregular concaves, contours, channels



#### Half Taper

- Used when the area to be finished is not narrow but a beginning point on the roll is needed
- The portion of the roll that is not tapered is then used to finish off the sides



#### Sidewall Taper

- The portion of the roll that is tapered guides the roll down to the area to be finished
- The sidewall then finishes off the sides

### APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)					FINER (FINISHING)			
36	40	50	60	80	120	180	240	320
Blending Out Heavy Machine Marks								
Removing Heavy Burrs								
Applying Heavy Scratch Pattern								
Removing Flash/Parting Lines								
Removing Rust/Scale/Pit Marks								
		Preparing Metal for Painting						
		Blending Out Medium Machine Marks						
				Blending Metal Surfaces				
				Applying Light Scratch Pattern				
						Fine Blending and Cleaning		
							Metal Finishing and Polishing	

## NORTON BLAZE R920 CERAMIC ALUMINA

**BEST CHOICE FOR HARD-TO-GRIND MATERIALS INCLUDING SUPER ALLOYS (COBALT, INCONEL, AND TITANIUM) AND STAINLESS STEEL**



#### FEATURES

- Next-generation ceramic alumina abrasive grain
- Advanced grinding aid
- Improved resin bond system
- Strong X-weight cotton backing

#### BENEFITS

- Greatest productivity with significantly faster cut rates
- Resists wear, resulting in 50% – 300% longer life
- Cooler cutting, longer life
- Exceptional grain retention and longer life
- Durability and even wear

## MERIT ALUMINUM OXIDE PLUS

**GOOD CHOICE FOR COOLER GRINDING/POLISHING OF CHANNELS, FILLETS AND RADII, AND DEBURRING SMALL HOLES**

### FEATURES

- Premium aluminum oxide abrasive and grinding aid lubricant
- Strong X-weight cotton backing construction
- Advanced, full resin bond system

### BENEFITS

- Runs cooler and more efficiently; ideal for grinding exotic alloys
- For extended durability and even wear
- Provides exceptional grain retention and longer life

## NORTON METAL R265 ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS A KEY PURCHASING CRITERIA**

### FEATURES & BENEFITS

- Our solid-performance aluminum oxide grain makes these spiral rolls a good starting specification with consistent performance for small jobs or anywhere performance need not be measured

## MERIT ALUMINUM OXIDE

**GOOD CHOICE FOR COOLER GRINDING/POLISHING OF CHANNELS, FILLETS AND RADII, AND DEBURRING SMALL HOLES AT A LOW INITIAL PRICE**

### FEATURES

- Quality aluminum oxide abrasive
- Strong X-weight cotton backing construction
- Durable resin bond system

### BENEFITS

- For the buyer whose major purchasing criterion is low initial price
- Durability and even wear
- Exceptional grain adhesion and longer life

## MERIT SILICON CARBIDE

**GOOD CHOICE FOR TOUGH, DIFFICULT-TO-GRIND MATERIALS, AS WELL AS SOFT, LOADING MATERIALS**

### FEATURES

- Sharp silicon carbide abrasive
- Durable resin bond system

### BENEFITS

- Provides high initial cut on non-ferrous and soft-loading materials such as titanium, masonry, composites, plastic, and rubber
- Exceptional grain retention and longer life



TIER:	<b>BEST</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Merit	Norton	Merit	Merit
TRADENAME:	<b>BLAZE R920</b>	<b>A/O PLUS</b>	<b>METAL R265</b>	<b>ALUMINUM OXIDE</b>	<b>SILICON CARBIDE</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
OTHER:	Supersize	Supersize			


SIZE (D x L x H)	GRIT	STD. PKG.			PART #	
3/8 x 1 x 1/8 Use M-8 Mandrel	60	100		66261132211	08834181714	
	80	100		66261132212	08834181715	
	120	100		66261132213	08834181717	
	180	100			08834181719	
3/8 x 1-1/2 x 1/8 Use M-9 Mandrel	50	100			08834181723	
	60	100	66261194481	77696089010	66261132214	08834181724
	80	100	66261194490	77696089011	66261132215	08834181708
	120	100	66261194491	77696089012	66261132217	08834181727
	180	100				08834181709
1/2 x 1 x 1/8 Use M-8 Mandrel	60	100		66261132218	08834181734	
	80	100		66261132219	08834181735	
	120	100		66261132220	08834181737	
	180	100			08834181739	
1/2 x 1-1/2 x 1/8 Use M-9 Mandrel	36	100			08834181230	
	50	100			08834181743	
	60	100	66261194484	77696089013	66261132221	08834181744
	80	100	66261194492	77696089014	66261132222	08834181745
	100	100				08834181746
	120	100	66261194495	77696089015	66261132223	08834181747
	180	100				08834181749
	240	100				08834181750
1/2 x 2 x 1/8 Use M-10 Mandrel	60	100			08834181754	
	80	100			08834181755	
	120	100			08834181757	
5/8 x 1-1/2 x 1/8 Use M-9 Mandrel	100	100			08834181776	
	120	100			08834181777	
	240	100			08834183313	
5/8 x 1-1/2 x 3/16 Use M-16 Mandrel	80	100			08834181444	
3/4 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100			08834181286	
	80	100			08834180886	
3/4 x 1-1/2 x 3/16 Use M-16 Mandrel	60	100			08834181808	
	80	100			08834181809	
	120	100			08834181811	
3/4 x 2 x 3/16 Use M-17 Mandrel	60	100			08834181820	
1 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100			08834181240	
1 x 2 x 3/16 Use M-17 Mandrel	36	100			08834181875	
	60	100			08834181878	
	80	100			08834181879	

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

Refer to the back of this section for mandrels.



Tapered cone points are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive. Tapered cone points are similar to cartridge rolls but their shape lends greater accessibility to many difficult-to-reach work areas. They are used for deburring holes and in close tolerance work areas.

Applications:	Used on inside surfaces and inside corners where other abrasive shapes cannot reach. Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing, or removing machine tool marks, and edge breaking.
Grit Range:	50 - 320
Abrasive Grain:	Aluminum Oxide
Backing:	X-weight cotton
Construction:	Popular sizes and mandrels are listed, with additional sizes available upon request as made-to-order products
	Ceramic alumina, ceramic alumina blend, aluminum oxide plus, and silicon carbide cone points are available upon request as made-to-order products
Maximum RPM:	1/8" to 1/2" – 23,000 5/8" to 1" – 18,000 1" to 1-1/2" – 15,000
Machine Used:	

### APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)					FINER (FINISHING)			
36	40	50	60	80	120	180	240	320
Blending Out Heavy Machine Marks								
Removing Heavy Burrs								
Applying Heavy Scratch Pattern								
Removing Flash/Parting Lines								
Removing Rust/Scale/Pit Marks								
		Preparing Metal for Painting						
		Blending Out Medium Machine Marks						
			Blending Metal Surfaces					
			Applying Light Scratch Pattern					
					Fine Blending and Cleaning			
						Metal Finishing and Polishing		

## MERIT ALUMINUM OXIDE TAPERED CONE POINTS

**GOOD STARTING SPECIFICATION FOR FLASH REMOVAL, POLISHING, OR REMOVING MACHINE TOOL MARKS AND EDGE BREAKING ON ALL TYPES OF METAL IN DIFFICULT-TO-REACH WORK AREAS**

#### FEATURES

- Quality aluminum oxide abrasive
- Strong X-weight cotton backing construction
- Durable resin bond system

#### BENEFITS

- Tough and durable
- For extended durability and even wear
- Provides longer life



TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **ALUMINUM OXIDE**  
ABRASIVE: Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/16 x 1 x 2-1/2" Use K-110 Mandrel	50	500	08834186892
	60	500	08834186893
	80	500	08834180918
	100	500	08834182197
	120	500	08834182199
	150	500	08834182200
	180	500	08834186894
	240	500	08834186895
	320	500	08834182855

Continued

TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **ALUMINUM OXIDE**  
ABRASIVE: Aluminum Oxide

SIZE (D x L x H)	GRIT	STD. PKG.	PART #
5/16 x 1-1/2 x 5" Use B-20 Mandrel	80	500	08834180873
	100	500	08834182043
	120	500	08834182717
	150	500	08834186890
	180	500	08834182535
	240	500	08834182044
	320	500	08834182537

Refer to next page for mandrels.



# COATED SPECIALTIES – MANDRELS

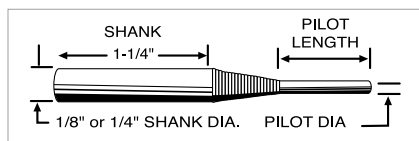
## Cartridge and Spiral Roll Mandrels

MODEL #	PILOT DIA.	PILOT LENGTH	SHANK DIA.	SHANK LENGTH	OVERALL LENGTH	PART #
<b>Cartridge and Spiral Roll Mandrels</b>						
M-2E	3/32	3/4	1/4	1	3	08834183799
M-2	3/32	1	1/8	1	3	08834181202
M-3	1/8	1/2	1/8	1	2-1/2	08834181203
M-4	1/8	3/4	1/8	1	2-1/2	08834181204
M-5	1/8	1	1/8	1	2-3/4	08834181205
M-6	1/8	1-1/2	1/8	1	2-1/2	08834181206
M-7	1/8	1/2	1/4	1-1/4	2-1/4	08834181207
M-8	1/8	3/4	1/4	1-1/4	2-1/2	08834181208
M-9	1/8	1	1/4	1-1/4	2-3/4	08834181209
M-10	1/8	1-1/2	1/4	1-1/4	3-1/4	08834181210
M-11	1/8	2	1/4	1-1/4	4	08834181211
M-12	3/16	1/2	1/8	1-1/4	2-1/4	08834181212
M-13	3/16	3/4	1/8	1-1/4	2-1/2	08834181213
M-14	3/16	1/2	1/4	1-1/4	2-1/2	08834181214
M-15	3/16	3/4	1/4	1-1/4	2-3/4	08834181215
M-16	3/16	1	1/4	1-1/4	3	08834181216
M-17	3/16	1-1/2	1/4	1-1/4	3-1/2	08834181217
M-18	3/16	2	1/4	1-1/4	4	08834181218
M-19	1/4	1/2	1/4	1-1/4	2-1/2	08834181219
M-20	1/4	3/4	1/4	1-1/4	2-3/4	08834181220
M-21	1/4	1	1/4	1-1/4	3	08834181221
M-22	1/4	1-1/2	1/4	1-1/4	3-1/2	08834181222
M-23	1/4	2	1/4	1-1/4	4	08834181223
M-24	5/16	3/4	1/4	1-1/4	2-3/4	08834181224
M-25	5/16	1	1/4	1-1/4	3	08834181225
M-26	5/16	1-1/2	1/4	1-1/4	3-1/2	08834181226
M-27	5/16	2	1/4	1-1/4	4	08834181227

Standard Package = 1

### Recommended Pilot Length for Mandrels

3/4 Roll Length	Use 1/2 Pilot
1 Roll Length	Use 3/4 Pilot
1-1/2 Roll Length	Use 1 Pilot
2 Roll Length	Use 1-1/2 Pilot



## Extra Shank Length Mandrels

MODEL #	SHANK LENGTH	OVERALL LENGTH	PART NO.
<b>Extras Shank Length Mandrels</b>			
M-8-4	4	5-1/4	08834180116
M-8-6	6	7-1/4	08834180122
M-9-2.5	2-1/2	4	08834180096
M-9-3	3	4-1/2	08834180129
M-9-4	4	5-1/2	08834180074
M-9-6	6	7-1/2	08834180131
M-9-8	8	9-1/2	
M-10-4	1-3/4	4	08834180092
M-10-6	3-3/4	6	08834180145

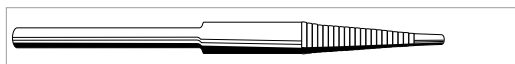
All Extra Shank Length mandrels are 1/4" diameter

Standard Package = 1

## Tapered Cone Point Mandrels

DESCRIPTION	SHANK	PART #
<b>Cone Point Mandrels</b>		
A-10	1/4	08834181300
B-20	1/4	08834181301
C-30	1/4	08834181302
D-40	1/4	08834181303
E-50	1/4	08834181304
F-60	1/4	08834181305
G-70	1/4	08834181306
H-80	1/4	08834181307
I-90	1/4	08834181308
K-110	1/8	08834181310

Standard Package = 1



# COATED SPECIALTIES – TEST KITS



These test kits feature the most popular range and sizes of our coated specialty products in convenient kit formats. Ideal for small job shops, or for travelling to a job site. Our cartridge roll kits are great when you need a small quantity, but a wide range of grits and sizes



## Merit Ceramic Alumina Cartridge Roll Test Kit

- Part # 66261066726
- Kit includes a variety of our Merit ceramic alumina cartridge rolls, spiral rolls and mandrels in popular sizes and grits.



## Merit Aluminum Oxide Cartridge Roll Test Kit "CR"

- Part # 08834181061
- Includes over 120 pieces of our most popular sizes, grits and shapes with their appropriate mandrels.



## Merit General Purpose Test Kit "GP"

- Part # 08834169025
- Includes samples of various Merit abrasive specialties. One of these kits could be worth the cost of the entire kit by solving your problems in deburring, polishing and grinding.



## Merit Porting Test Kit "APK-MO"

- Part # 08834169032
- The samples in this kit highlight Merit specialties for general metal and wood working polishing and finishing applications.

# SQUARE & CROSS PADS, OVERLAP SLOTTED DISCS



Square pads, cross pads and overlap slotted discs are all used on high-speed pneumatic tools for deburring, blending, cleaning, and polishing applications. All of these abrasive specialties are designed for applications in small, tight, hard-to-access locations on parts that are being finished.

## Benefits:

Variety of shapes and sizes to fit application and part geometry

Shapes provide flexibility for the application, while eliminating aggressiveness of the sanding action

Cross pads allow visibility of the surface while sanding, to ensure correct amount of material is removed

## Grit Range:

50 – 180

## Abrasive Grain:

Ceramic Alumina, Aluminum Oxide

## Backing:

X-weight cotton

## Construction

Standard quick-change eyelet for easy mounting and removal on quick-change mandrel minimizes downtime; Mandrel use increases range and versatility

## Maximum RPM:

1" Diameter – 25,000

3" Diameter – 12,000 to 14,000

1-1/2" to 2" Diameter – 18,000 to 23,000

4" Diameter – 8,000 to 12,000

2-1/2" Diameter – 14,000 to 18,000

5" to 6" Diameter – 5,500 to 7,500

## Machine Used:



## APPLICATION/GRIT RECOMMENDATION GUIDE

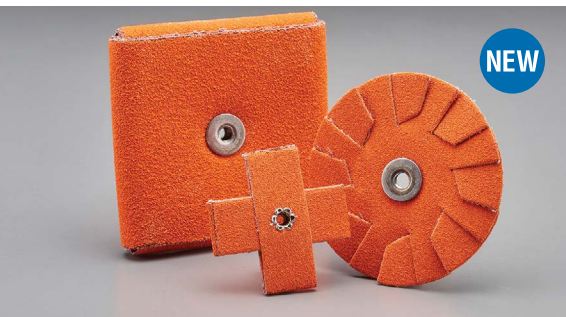
COARSER (GRINDING)

FINER (FINISHING)

50	60	80	100	120	150	180
Light Stock Removal						
	Edge Chamfering/Beveling					
	Blending					
		Deburring/Deflashing				
				Cleaning		
					Finishing	

## NORTON BLAZE R920 CERAMIC ALUMINA

**BEST CHOICE FOR HARD-TO-GROUND MATERIALS INCLUDING SUPER ALLOYS (COBALT, INCONEL, AND TITANIUM) AND STAINLESS STEEL**



NEW

## FEATURES

- Next-generation ceramic alumina abrasive grain
- Advanced grinding aid
- Improved resin bond system

## BENEFITS

- Significantly faster cut rates versus any other abrasive
- Resists wear, resulting in 50%-300% longer life
- Greatest productivity; lowest total cost
- Cooler cutting, longer life
- Improved grain retention and longer life

## NORTON METAL R265 ALUMINUM OXIDE

**GOOD CHOICE WHEN INITIAL PRICE IS A KEY PURCHASING CRITERIA**



NEW

## FEATURES & BENEFITS

- Our solid-performance aluminum oxide grain makes these specialties a good starting specification with consistent performance for small jobs or anywhere performance need not be measured

## MERIT ALUMINUM OXIDE

**GOOD FOR MOST ID DEBURRING AND POLISHING APPLICATIONS**



## FEATURES

- Quality aluminum oxide abrasive grain
- Resin bond system

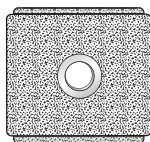
## BENEFITS

- Versatile; ideal for deburring, chamfering, and polishing most radii, holes, recesses, and cylinder walls
- Good grain retention and life

# SQUARE & CROSS PADS, OVERLAP SLOTTED DISCS



## Square Pads



### Square Pads

- Corners wear down consistently exposing fresh abrasive; the pad becomes round for less aggressive stock removal
- Grind almost as fast as hard wheels, but are much smoother and easier to control
- For quick blending of channels, fillets, corners, or spotting flat surfaces

Refer to the back of this section for mandrels.



TIER:	<b>BEST</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Merit
TRADENAME:	<b>BLAZE R920</b>	<b>METAL R265</b>	<b>ALUMINUM OXIDE</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide
OTHER:	Supersize		

SIZE (L x W x T)	EYELET	GRIT	STD. PKG.	PART #	PART #	PART #
1 x 1 x 6 ply	8-32	80	100			08834184826
1 x 1 x 8 ply	8-32	60	100			
		80	100			08834184124
		120	100			
1 x 1 x 1/4	8-32	60	100		66261132258	
		80	100		66261132259	
		120	100		66261132262	
1-1/2 x 1-1/2 x 1/2	1/4-20	60	100			08834184463
		80	100			08834184125
2 x 2 x 1/2	1/4-20	60	100	66261194520	66261132263	08834184334
		80	100	66261194552	66261132264	08834184397
		120	100	66261194554	66261132265	
2 x 2 x 3/4	1/4-20	50	100			
		80	100			08834184394
3 x 3 x 1/4	1/4-20	60	100	66261194531	66261132266	
		80	100	66261194555	66261132268	
		120	100	66261194556	66261132269	
3 x 3 x 1/2	1/4-20	50	100			08834182152
		60	100	66261194528	66261132270	08834182057
		80	100	66261194557	66261132271	08834184336
		120	100	66261194558	66261132272	

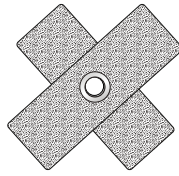
**MERIT STOCK/NON-STOCK STATUS:** Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status. Ceramic Alumina and Alumina Oxide Plus square pads are also available upon request as made-to-order products.



# SQUARE & CROSS PADS, OVERLAP SLOTTED DISCS



## Cross Pads



### Cross Pads

- The shape of cross pads enables you to see through to the contact area, and provides greater flexibility than square pads to conform to variable internal diameters
- Used for close-tolerance polishing of small radii and channels, deburring, and finishing of bell-mouth configurations
- All pads are furnished with standard quick-change eyelet, as listed
- Plain hole sizes must be specified and are available for quotation as made-to-order products



TIER:	<b>BEST</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Merit
TRADENAME:	<b>BLAZE R920</b>	<b>METAL R265</b>	<b>ALUMINUM OXIDE</b>
ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide
OTHER:	Supersize		

SIZE (L x W x T)	PLY	EYELET	GRIT	STD. PKG.	PART #	PART #	PART #
3/4 x 3/4 x 3/8	8	3-48	80	100			08834185578
1 x 1 x 3/8	8	3-48	60	100		66261132230	08834184943
			80	100		66261132231	08834185519
			100	100			08834184195
			120	100		66261132232	08834185164
1-1/2 x 1-1/2 x 1/2	8	8-32	60	100	66261194496	66261132233	08834184258
			80	100	66261194508	66261132234	08834184465
			100	100			08834182196
			120	100	66261194511	66261132235	08834182148
2 x 2 x 1/2	8	8-32	60	100		66261132236	08834182156
			80	100		66261132237	08834182157
			120	100		66261132238	08834182132
2 x 2 x 3/4	8	8-32	60	100	66261194502	66261132239	08834184128
			80	100	66261194513	66261132240	08834184194
			120	100	66261194516	66261132241	
2-1/4 x 2-1/4 x 1/2	8	8-32	80	100			08834184402
2-1/2 x 2-1/2 x 3/4	8	8-32	80	100			08834184206
3 x 3 x 1	8	1/4-20	60	100	66261194504	66261132242	08834182135
			80	100	66261194549	66261132243	08834184119
			120	100	66261194551	66261132244	08834184116
3 x 3 x 1	10	1/4-20	80	100			08834182140
3 x 3 x 1-1/2	10	1/4-20	80	100			08834182184
4 x 4 x 1	8	1/4-20	60	100			08834184142
			80	100			08834184135
			120	100			08834184377
4 x 4 x 1-1/2	8	1/4-20	80	100			08834184129

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

Ceramic Alumina and Alumina Oxide Plus cross pads are also available upon request as made-to-order products.

Refer to the back of this section for mandrels.

# SQUARE & CROSS PADS, OVERLAP SLOTTED DISCS

## Overlap Slotted Discs



### Overlap Slotted Discs

- Used for deburring and polishing radii, holes and cylinder walls
- Our "2 to a set" configuration cuts on the inward motion only
- The "4 to a set" configuration, assembled back to back, cuts on both the inward and outward motions
- All discs are furnished with standard quick-change eyelet
- Plain hole sizes must be specified and are available for quotation as made-to-order products



TIER: <b>BEST</b>					<b>GOOD</b>		<b>GOOD</b>	
BRAND: Norton					Norton		Merit	
TRADENAME: <b>BLAZE</b>					<b>METAL R265</b>		<b>ALUMINUM OXIDE</b>	
ABRASIVE: Ceramic Alumina					Aluminum Oxide		Aluminum Oxide	
OTHER: Supersize, 2 Per Set					2 Per Set		2 Per Set	
DIA.	EYELET	GRIT	STD. PKG.	PART #			PART #	PART #
1	8-32	60	100				08834184346	
		80	100				08834184019	08834184085
		100	100				08834184224	
		120	100				08834184151	08834184236
1-1/4	8-32	60	100				08834184270	
		80	100				08834184065	
		100	100				08834184291	
		120	100				08834184084	
1-1/2	8-32	60	100	66261195051	66261132288		08834184066	
		80	100	66261195368	66261132289		08834184079	
		100	100				08834184279	08834184023
		120	100	66261195367	66261132290		08834186035	
1-3/4	8-32	60	100				08834184655	
		80	100				08834184042	
		100	100					
2	8-32	60	100	66261195054	66261132291		08834184076	
		80	100	66261195055	66261132292		08834184145	
		100	100				08834184055	
		120	100	66261195056	66261132293		08834184444	
2-1/2	8-32	80	100				08834184041	
3	1/4-20	60	100	66261195057	66261132294		08834184077	
		80	100	66261195058	66261132295		08834184082	
		100	100				08834184344	
		120	100	66261195059	66261132296		08834184000	
4	1/4-20	60	100				08834185155	
		120	100				08834184431	
4-1/2	1/4-20	100	100					

MERIT STOCK/NON-STOCK STATUS: Some Merit specialty part numbers are non-stock. Contact your Norton/Merit representative for stock/MTO status.

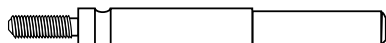
All overlap slotted discs are available (made-to-order) reinforced with a fiber washer

Ceramic Alumina and Alumina Oxide Plus overlap slotted discs are also available upon request as made-to-order products.

## Quick-Change Mandrels for Overlap Slotted Discs, Square and Cross Pads

CROSS PAD SIZE DIA.	SQUARE PAD SIZE DIA.	OAL	MODEL NO.	THD. SIZE	PART #
1/4, 3/8, and 1/2 wide		2-1/2	MM48-4	3-48	08834183162
3/4, 1 wide	Up thru 1-1/2 sq. x 1/2 thick 2 sq. x 1/4 or 3/8 thick	3	MM32-4	8-32	08834183163
		4	MM-32-4-4	8-32	08834121680
		6	MM-32-4-6	8-32	08834121681
All pads 2-1/2 x 1-1/2 and larger	2 sq. x 1/4 or 1/2 thick and larger	3	MM20-4	1/4-20	08834183164

For overlap slotted discs, choose a mandrel with the same thread size as the disc



EXTENDED MANDREL



Flaps of abrasive cloth are stacked, inserted into a holder, and then attached to a mandrel. The flaps are designed to break down during use and reveal the next layer of abrasive.

To create an interleaf bore polisher, cloth flaps are mixed with non-woven flaps.

**Applications:**

For deburring, sizing, cleaning and polishing the interior diameters of cylinders, tubes and hydraulic fittings. Flaps adjust automatically to inside diameter, polishing the entire surface area with each pass.

Bore polishers are self-centering, so they apply equal pressure to full wall of inside diameter. Spring action design gives faster inside diameter cleaning, deburring and polishing to cylinders, deep bores and tubes.

Interleafed bore polishers are designed to polish and finish in one easy application. The abrasive flaps cut, while the non-woven flaps apply a fine finish.

**Grit Range:**

60 - 240






**Abrasive Grain:**

Aluminum Oxide

**Machine Used:**



**APPLICATION-TO-PRODUCT SHAPE RECOMMENDATION GUIDE**

Shape		Application
	Bore Polisher Solid Flaps B-3 Series	<ul style="list-style-type: none"> <li>For 5/8" to 1" interior diameter bores</li> <li>3 abrasive packs 1-1/2" wide, bonded to hub</li> <li>Use with QC-5 mandrel Part # 08834154182</li> </ul>
	Bore Polisher Solid Flaps B-4 Series	<ul style="list-style-type: none"> <li>For 1" to 4" interior diameter bores</li> <li>4 abrasive packs 1-1/2" wide, bonded to hub</li> <li>Use with BPM-4 mandrel Part # 08834154183</li> </ul>
	Bore Polisher Solid Flaps B-8 Series	<ul style="list-style-type: none"> <li>For 2" to 5-7/8" interior diameter bores</li> <li>8 abrasive packs 1-1/2" wide, bonded to hub</li> <li>Use with BPM-8 mandrel Part # 08834154184</li> </ul>
	Bore Polisher Scored Flaps	Available upon request as made-to-order products.
	Bore Polisher Interleaf	Cloth flaps are mixed with non-woven flaps. Merit interleaf bore polishers do double duty. Designed to polish and finish in one easy application, they are the ideal choice when close tolerances must be maintained, while giving an interior a polished finish.

**APPLICATION/GRIT RECOMMENDATION GUIDE**

COARSER (MATERIAL REMOVAL)					FINER (FINISHING)				
60	80	120	180	240					
Blending Out Medium Machine Marks									
Sizing Cylinders									
	Deburring Cylinders								
	Blending Metal Surfaces								
	Cleaning Cylinders								
	Applying Light Scratch Pattern								
			Fine Blending and Cleaning						
			Metal Finishing and Polishing						
SOLID FLAP					INTERLEAF				

## Merit Aluminum Oxide Bore Polishers

TIER: **GOOD**  
 BRAND: Merit  
 TRADENAME: **ALUMINUM OXIDE**  
 ABRASIVE: Aluminum Oxide  
 BACKING: X-Weight Cotton/Poly

DESCRIPTION	GRIT	MAX. RPM	STD. PKG.	PART #
<b>Bore Polishers – Solid Flap B-3 and B-4 Series</b>				
B-305	60	25,000	10	08834154190
Fits ID 5/8 to 1	80	25,000	10	08834154191
	120	25,000	10	08834154193
	180	25,000	10	08834154195
	240	25,000	10	08834154197
B-405	60	22,000	10	08834154091
Fits ID 1 to 1-1/2	80	22,000	10	08834154092
	120	22,000	10	08834154093
	180	22,000	10	08834154094
B-410	60	20,000	10	08834154100
Fits ID 1-1/2 to 2	80	20,000	10	08834154101
	120	20,000	10	08834154102
	180	20,000	10	08834154103
	240	20,000	10	08834154104
B-415	60	16,000	10	08834154109
Fits ID 2-1/8 to 2-1/2	80	16,000	10	08834154110
	120	16,000	10	08834154111
	180	16,000	10	08834154112
	240	16,000	10	08834154113*
B-420	60	15,000	10	08834154118
Fits ID 2-1/2 to 3	80	15,000	10	08834154119
	120	15,000	10	08834154120
	180	15,000	10	08834154121
	240	15,000	10	08834154122
B-425	60	10,000	10	08834154127
Fits ID 3-1/8 to 4	80	10,000	10	08834154128
	120	10,000	10	08834154129
	180	10,000	10	08834154130
	240	10,000	10	08834154131*

\* Non-stock. All other bore polishers, mandrels, and kit are stock products.

TIER: **GOOD**  
 BRAND: Merit  
 TRADENAME: **ALUMINUM OXIDE**  
 ABRASIVE: Aluminum Oxide  
 BACKING: X-Weight Cotton/Poly

DESCRIPTION	GRIT	MAX. RPM	STD. PKG.	PART #
<b>Bore Polishers – Solid Flap B-8 Series</b>				
B-810	60	16,000	10	08834154136
Fits ID 2 to 2-1/2	80	16,000	10	08834154137
	120	16,000	10	08834154138
	180	16,000	10	08834154139*
	240	16,000	10	08834154140*
B-815	60	15,000	10	08834154145
Fits ID 2-5/8 to 3	80	15,000	10	08834154146
	120	15,000	10	08834154147
	180	15,000	10	08834154148*
	240	15,000	10	08834154149*
B-820	60	10,000	10	08834154154
Fits ID 3-1/8 to 4	80	10,000	10	08834154155
	120	10,000	10	08834154156
	180	10,000	10	08834154157
	240	10,000	10	08834154158*
B-825	60	8,000	10	08834154163
Fits ID 4-1/4 to 5-1/4	80	8,000	10	08834154164
	120	8,000	10	08834154165
	180	8,000	10	08834154166
	240	8,000	10	08834154167
B-830	60	8,000	10	08834154172
Fits ID 5-1/4 to 5-7/8	80	8,000	10	08834154173
	120	8,000	10	08834154174
	180	8,000	10	08834154175
	240	8,000	10	08834154176

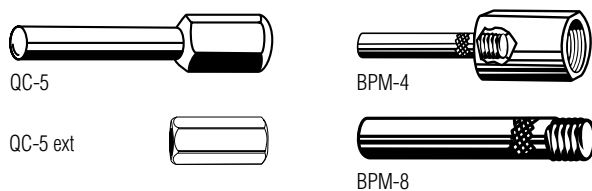
### Bore Polishers – Scored Flaps

Available on request as made-to-order products

### Bore Polishers – Interleaf

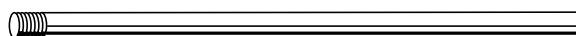
B-405 Interleaf	80	22,000	10	08834150271
Fits ID 1 to 1-1/2	180	22,000	10	08834150273

## Mandrels for Bore Polishers



DESCRIPTION	MODEL NO.	THREAD	STD. PKG.	PART #
For B-3 Series	QC-5	5/16-18	1	08834154182
For B-4 Series	BPM-4	1/2-20	1	08834154183
For B-8 Series	BPM-8	1/4-20	1	08834154184

## Extension Mandrels for Bore Polishers



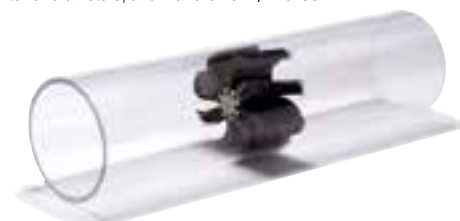
DIAMETER x LENGTH	MODEL NO.	THREAD	STD. PKG.	PART #
1/4 x 4	EM-144	1/4-20	1	08834154185
1/4 x 6	EM-146	1/4-20	1	08834154186
1/4 x 8	EM-148	1/4-20	1	08834154187

To extend a B-4 series bore polisher, attach the adapter piece of the BPM-4 mandrel to the bore polisher, then attach the desired length extension mandrel above to the BPM-4 adapter piece. To extend a B-8 series bore polisher, attach the desired length extension mandrel above directly to the bore polisher.

## Test Kit

### Merit Bore Polisher Test Kit "BP"

- Part # 08834154181
- Contains ten bore polishers and two mini 1/4"-20 thread flap wheels in assorted sizes and grits for finishing 1" to 5" interior diameters, and mandrel for 1/4" chuck.







FlexDrum abrasive segments sweep away flaws. Their extreme longevity and perfect balance make them well-suited for automatic as well as offhand use. Hubs and abrasive segments can be combined to fit your job perfectly.

**Applications**

Blending out parting lines on castings, smoothing out pre-ground welded areas, removing burrs and work flaws, graining stainless, brush-finishing and satin-finishing aluminum, removing rust, deflashing molded plastic and rubber parts, and preparing surfaces for painting or plating.

**Size Range:**

Diameter of loaded FlexDrum: 8" – 18"

Width of FlexDrum: 1-1/2" – 12"

Custom die-cut segments as well as extra wide segments, in widths up to 144" are also available as made-to-order products.

**Grit Range:**

50 – 240

**Bond:**

Resin or glue

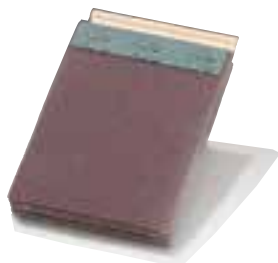
**Backing:**

Heavyweight cotton

**Abrasive Grain:**

Premium Aluminum Oxide

**SHAPE/APPLICATION RECOMMENDATION GUIDE**



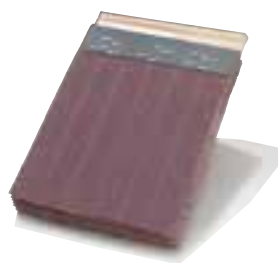
**Plain Segment**

- For flat or mildly contoured surfaces



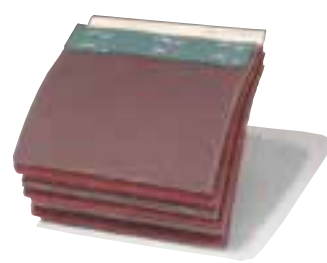
**1/4 Scored (SC) Segment**

- Great for complex parts
- Provides a fine finish



**1/2 Slash (SL) Segment**

- Great for mild and moderate contours



**Interleaf Segment**

- Plain cloth segments are mixed with non-woven segments. Merit interleaf FlexDrums do double duty. Designed to polish and finish in one easy application,
- Available upon request as made-to-order product

**LOADING FLEX DRUM HUBS**



FlexDrum hub end plate removes for easy loading of abrasive segments.



Custom profiled segments eliminate break-in resulting in maximum productivity. Contact your sales representative for more information.

**MERIT**

## Plain Segments – for flat or mildly curved surfaces

TIER: <b>GOOD</b>									
BRAND: Merit Merit Merit Merit Merit Merit Merit									
ABRASIVE: A/O A/O A/O A/O A/O A/O A/O									
GRIT: 50 60 80 100 120 180 240									
WIDTH	TRIM LENGTH*	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #	PART #
1-1/2	2-3/4	12	08834155002	08834155003	08834155004		08834155006	08834155008	08834155010
2	2-3/4	12	08834155013	08834155014	08834155015	08834155016		08834155019	
2	4	20	08834155312	08834155313	08834155314	08834155315	08834155316	08834155318	
2	5	20		08834155568	08834155569		08834155571	08834155573	08834155575
3	2-3/4	12	08834155025	08834155026	08834155027	08834155028	08834155029	08834155031	
3	4	20	08834155324	08834155325	08834155326		08834155328	08834155330	
3	5	20		08834155579			08834155582	08834155584	
4	2-3/4	12	08834155036	08834155037	08834155038	08834155039	08834155040	08834155042	08834155044
4	4	20	08834155336	08834155337	08834155338		08834155340	08834155342	08834155344
4	5	20		08834155590			08834155593	08834150390	08834155593

All FlexDrum segments are available as non-stock. Contact your Norton/Merit representative for current lead-times.

## 1/4 Scored Segments – for complex parts and providing a fine finish

TIER: <b>GOOD</b>									
BRAND: Merit Merit Merit Merit Merit Merit Merit									
ABRASIVE: A/O A/O A/O A/O A/O A/O A/O									
GRIT: 50 60 80 100 120 180 240									
WIDTH	TRIM LTH.*	SCORE	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
1-1/2	2-3/4	1/4	12	08834155082	08834155083	08834155084	08834155085	08834155086	08834155088
2	2-3/4	1/4	12	08834155094	08834155095	08834155096	08834155097	08834155098	08834155100
3	2-3/4	1/4	12	08834155106	08834155107	08834155108	08834155109	08834155110	08834155112
4	2-3/4	1/4	12	08834155117	08834155118	08834155119	08834155120	08834155121	08834155123

All FlexDrum segments are available as non-stock. Contact your Norton/Merit representative for current lead-times.

## 1/2 Slashed Segments – for mild and moderate contours

TIER: <b>GOOD</b>									
BRAND: Merit Merit Merit Merit Merit Merit Merit									
ABRASIVE: A/O A/O A/O A/O A/O A/O A/O									
GRIT: 50 60 80 100 120 180 240									
WIDTH	TRIM LTH.*	SLASH	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
2	4	1/2	20		08834155420	08834155421	08834155422	08834155423	08834155425
2	5	1/2	20			08834155637		08834155639	
3	4	1/2	20	08834155430	08834155431	08834155432	08834155433	08834155434	08834155436
3	5	1/2	20			08834155648			
4	4	1/2	20	08834155443	08834155444	08834155445	08834155446	08834155447	08834155449
4	5	1/2	20		08834155658	08834155659		08834155661	08834150383

All FlexDrum segments are available as non-stock. Contact your Norton/Merit representative for current lead-times.

\*Trim Length is the actual usable length of segment when loaded



### TECH TIP

FlexDrums can be used for polishing large IDs. Just load half the segments with a wheel diameter 1/2" to 1" larger than the ID of your workpiece.

## Hub Units

- FlexDrum hubs are perfectly balanced, last indefinitely and are available in widths from 1-1/2" to 12"
- Extra wide widths are available up to 144" as made-to-order products

MODEL NO.	D x W	ARBOR HOLE/THREAD	SEGMENTS PER HUB	PART #
<b>FlexDrum Hub Units</b>				
81.5-B	2-3/8 x 1-1/2	1 AH	12	08834140065
82-B	2-3/8 x 2	1 AH	12	08834141049
		5/8-11 THD	12	08834140048
83-B	2-3/8 x 3	1 AH	12	08834141018
		5/8-11 THD	12	08834140034
84-B	2-3/8 x 4	1 AH	12	08834140066
		5/8-11 THD	12	08834140049
122-B	4 x 2	1-1/4 AH	20	08834140050
123-B	4 x 3	1-1/4 AH	20	08834140051
124-B	4 x 4	1-1/4 AH	20	08834140061
142-B	6 x 2	1-1/4 AH	30	08834140062
143-B	6 x 3	1-1/4 AH	30	69957399208
144-B	6 x 4	1-1/4 AH	30	08834141060
840-B2	8 x 2	1-1/4 AH	40	63642592550
840-B4	8 x 4	1-1/4 AH	40	63642592548

All FlexDrum hub units are available as non-stock. Contact your Norton/Merit representative for current lead-times.



**2-3/8" DIAMETER HUB  
WITH 1" ARBOR HOLE**

8" WHEEL WHEN LOADED



**2-3/8" DIAMETER HUB ALSO  
AVAILABLE WITH 5/8"-11 ARBOR**

8" WHEEL WHEN LOADED



**4" DIAMETER HUB**

12" WHEEL WHEN LOADED



**8" DIAMETER HUB**

16" OR 18" WHEEL WHEN LOADED



**6" DIAMETER HUB**

14" OR 16" WHEEL WHEN LOADED

**MERIT**

## FlexDrum Reference Charts

FlexDrums can be mounted on any type of arbor.

### Weights

DIAMETER	WEIGHT
<b>Weight of Hubs*</b>	
4" Diameter Hub	1.5 lbs./inch of width
6" Diameter Hub	2 lbs./inch of width
8" Diameter Hub	2.5 lbs./inch of width
<b>Weight of Hubs with Segments*</b>	
4" Diameter Hub	3.4 - 4 lbs./inch of width
6" Diameter Hub	5 - 5.5 lbs./inch of width
8" Diameter Hub	6.75 - 7 lbs./inch of width

\*Approximate values. Actual weight will depend on abrasive type and overall width of hub.

### FlexDrum Maximum RPM

WHEEL DIAMETER	MAXIMUM RPM
8	4,500
12	3,000
14	2,500
16	2,200
18	2,000

### Recommended H.P. Required

HUB	H.P.
4" Diameter Hub	1/2 H.P. /inch of width
6" Diameter Hub	3/4 H.P./inch of width
8" Diameter Hub	1 H.P./inch of width

### Recommended Surface Feet per Minute for using FlexDrum Wheels on Various Materials

MATERIAL	SFPM
Mild Steel	5,000
Stainless Steel	6,500
Alloy Steel	5,000
Titanium	3,500
Hard Aluminum	5,500
Nonferrous	5,000
Rubber	4,500
Hardwood (edge breaking)	4,000
Softwood	3,500
Thermoplastic	3,000



**MERIT**

### FlexDrum Hub Specification Chart

MODEL NO.	82-B	121-B	141-B	840-B
Diameter of Finished Wheel	8	12	14 or 16	16 or 18
Diameter of Hub Alone	2-3/8	4	6	8
Arbor Hole	1 or 5/8-11 thd	3/4 to 1-3/4	1 to 3-1/2	1-1/4 to 5
Segments Per Hub	12	20	30	40

### How to Determine Diameter of Finished FlexDrums

HUB DIAMETER	TRIM LENGTH (X2)	FINISHED WHEEL
2-3/8	2-3/4	8
4	4	12
4	5	14
6	4	14
6	5	16
8	4	16
8	5	18

## TECH TIP

For surface feet per minute, use the following calculation: SFPM=.262 x DIA (in inches) x RPM.



## Coated Abrasives

A coated abrasive product is made up of three basic raw materials: an abrasive mineral, the backing onto which the abrasive is applied, and an adhesive bond.

### Abrasive Types

#### Emery (6)

Emery is a dark gray, round-shaped grain which tends to polish rather than abrade a work surface.

- For polishing and cleaning metal only

#### Garnet (5)

Garnet is reddish brown in color. This natural abrasive is medium hard and relatively sharp, but not as durable as synthetic abrasives.

- For use on wood only
- Particularly good for soft woods such as pine
- Produces an excellent finish

#### Silicon Carbide (4)

Silicon carbide is the hardest and sharpest of the manufactured abrasives. Because of its extreme sharpness, this bluish-black abrasive grain permits fast stock removal and cool cut.

- Cast iron
- Non-ferrous metals, i.e. brass, aluminum and bronze
- Non-metallics, i.e. glass, rubber, plastic and stone
- Final finish on wood and stainless steel
- Abrasive planing particleboard

#### Light Brown Aluminum Oxide (2)

Light brown aluminum oxide is a tough, yet sharp synthetic abrasive characterized by cool cut, long life and the ability to break down under pressure, producing new cutting edges.

- Production wood sanding
- Non-ferrous metal finishing



#### Brown Aluminum Oxide (2, 7)

Brown aluminum oxide is a tough, durable, synthetic abrasive characterized by the long life and wear resistance of its cutting edges. It offers enormous penetrating strength, even at high speeds.

- Ferrous metals
- Aluminum
- Hardwood



#### Heat-treated Aluminum Oxide (2)

Heat-treated aluminum oxide is a tough but cool cutting abrasive which gives both long life and freeness of cut on a wide range of materials.

- Ferrous metals
- Wood sanding



#### Zirconia Alumina (8)

Zirconia alumina is an ultra-tough, synthetic abrasive which provides a free, cool cut for high stock removal applications. It is tougher and sharper than aluminum oxide. It has a micro-crystalline structure which allows for controlled breakdown and self-sharpening.

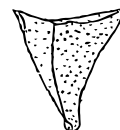
- Heavy-duty snagging and grinding of all ferrous and non-ferrous metals
- Abrasive planing of wood, plywood and particleboard
- Grinding fiberglass, rubber and plastics



#### Ceramic Alumina (9)

The sub-micron structure of ceramic alumina allows each grain to continually expose sharp cutting points, resulting in a cooler cutting action and an extended life.

- All ferrous/non-ferrous metals, carbon steel and exotic alloys



## Backing Types

Backings are the base for the abrasive minerals and, combined with the adhesive bond, support and anchor the abrasive mineral. The backings used in the manufacture of coated abrasives are:

### Paper

Due to the fine surface of paper, a consistent finish is produced. Paper weights include *A, B, C, D, E* and *F* weights with *A* being the lightest and most flexible and *F* being the heaviest and least flexible. *A, B, C* and *D* weight papers are used for hand sanding and light mechanical operations in the form of sheets, PSA (pressure sensitive adhesive) and hook and loop discs and sheet rolls. *E* and *F* weight papers are primarily used for more aggressive mechanical operations in the form of belts and discs.

### Cloth

Cloth backings used for coated abrasives are identified by weight. Cloth backings are filled or "finished" with a variety of materials (glues or resins) to create various backing characteristics, most notably flexibility. Several cloth types are used: cotton, polyester, polyester/nylon and polyester/cotton blends, and rayon.

There are three basic weights of cloth: J-weight or "jeans" is the lightest and most flexible. X-weight or "drills" is a heavier cloth that ranges in flexibility, strength and durability and is used on the broadest range of applications. Y-weight is a heavyweight drills cloth used on heavy-duty, high stock removal operations.

### Fiber

Vulcanized fiber (cotton fibers which are chemically treated and then pressed under temperature and pressure to form a very durable backing) is used exclusively as the backing for resin fiber discs.

### Film

Polyester film backing comes in 3 mil. and 5 mil. thicknesses, which have high strength and surface smoothness. They are used primarily in disc and roll applications requiring consistent surface finish.

### Foam

Primarily used as backing for sponges, finer grit finishing discs, and buffing and polishing pads for cleaning and moist finishing applications.

## Bond Types

An adhesive bond system is required to secure the abrasive mineral to the backing. All coated abrasive products are made with a two stage bonding process, the *make coat* and the *size coat*.

The *make coat* is the first layer of bond applied to the backing. The make coat provides the adhesive base between the abrasive mineral and the backing.

The *size coat* is the second coat, which is applied over the abrasive mineral and make coat to anchor the abrasive mineral and provide the desired physical strength of the finished product.

*Glue, urea resin, and phenolic resin* are the three basic bonding agents most commonly used. There are many size coat and make coat combinations, such as *glue over glue, urea over glue, and resin over resin*. *Glue over glue* is the most flexible bond while *resin over resin* bond is moisture-resistant, harder, less flexible, heat-resistant and has superior grain retention.

## Coating Types

There are two types of abrasive coatings used in the manufacturing of coated abrasives: *open coat* and *closed coat*.

### Open Coat

With an open coat, 50% to 75% of the surface is covered by abrasive grain. There are evenly spaced voids between the particles of grain, helping reduce the effect of loading caused by wood dust or metal particles.



OPEN COAT  
(1/3 LESS GRAIN THAN CLOSED)

### Closed Coat

With a closed coat, the entire surface is covered with abrasive grain, with no voids between the particles. This is the most typical coating, permitting the greatest degree of stock removal and longest product life.



CLOSED COAT

## How to Read a Coated Abrasive Specification

The Norton coated abrasive marking system includes both a generic and a technical marking, which identifies the actual components which make up the product. The markings identify the tradename, abrasive type, bond, backing, and any special features. An example would be: Norton Blaze R980P.

R980P				
Backing / Bond	Principal Abrasive	Coating	Random	Modifier
A = Lightweight Paper (A-D wts.) excluding Waterproof	1 = Aluminum Oxide	1 = Openkote	Designates different products within the same product group.	Additional description, often indicative of a product upgrade, i.e. "P" = Plus
F = Fiber	2 = Aluminum Oxide	2 = Closekote		
H = Heavy Paper / Resin Bond (E and F wts.)	3 = Layered Aluminum Oxide	3 = Openkote		
K = Cloth / Glue Bond (J and X wts.)	4 = Silicon Carbide	4 = Closekote		
PB = B-wt. Paper with Resin Bond and Latex	5 = Garnet	5 = Openkote		
Q = Various (e.g. Screen-Bak, Film, and Foam)	6 = Crocus & Emery	6 = Closekote		
R = Cloth / Resin Bond (H, J, X and Y wts.)	7 = Aluminum Oxide	7 = Openkote	0 = Closekote	
T = Waterproof Paper (A, C wts.)	8 = Zirconia Alumina	8 = Closekote		
U = Lightweight Waterproof Paper/ NORaX Engineered Abrasive Resin Bond	9 = Norton SG Ceramic Alumina	9 = Openkote		

## Coated Abrasive Grit Comparison Chart

AVERAGE PARTICLE SIZE IN MICRONS	GRADING SYSTEMS (OTHER THAN EMERY)			EMERY PRODUCTS
	ANSI	FEPA	JIS	
5.0	—	—	—	—
6.0	—	—	3000	—
6.5	1200	—	2500	4/0
8.4	—	P2500	—	—
8.5	—	—	2000	—
9.2	1000	—	—	3/0
10.3	—	P2000	—	—
10.5	—	—	1500	—
12.2	800	—	1200	—
12.6	—	P1500	—	—
15.0	—	—	—	—
15.3	—	P1200	1000	—
16.0	600	—	—	2/0
18.3	—	P1000	800	—
19.7	500	—	—	0
20.0	—	—	—	—
21.8	—	P800	—	—
23.6	400	—	600	—
25.0	—	—	—	—
25.75	—	P600	—	—
28.8	360	—	500	—
30.0	—	P500	—	—
35.0	—	P400	400	—
36.0	320	—	—	—
40.0	—	—	360	—
40.5	—	P360	—	—
44.0	280	—	—	1
45.0	—	—	—	—
46.2	—	P320	320	—
50.0	—	—	—	—
52.5	—	P280	280	—
53.5	240	—	—	—
55.0	—	—	—	—
58.5	—	P240	—	—
60.0	—	—	240	—
64.0	—	—	—	2
65.0	—	P220	220	—
66.0	220	—	—	—
78.0	180	P180	180	—
79.0	—	—	—	3
93.0	150	—	150	—
95.0	—	—	—	FINE
97.0	—	P150	—	—
116.0	120	—	120	—
127.0	—	P120	100	—
136.0	—	—	—	MEDIUM
141.0	100	—	—	—
156.0	—	P100	—	—
189.0	—	—	—	COARSE
192.0	80	—	80	—
197.0	—	P80	—	—
260.0	—	P60	—	—
268.0	60	—	60	—
326.0	—	P50	50	—
341.0	—	—	—	EX. COARSE
351.0	50	—	—	—
412.0	—	P40	40	—
428.0	40	—	—	—
524.0	—	P36	—	—
535.0	36	—	36	—
622.0	—	P30	—	—
638.0	30	—	30	—
715.0	24	—	—	—
740.0	—	P24	24	—
905.0	20	—	—	—
984.0	—	P20	20	—
1320.0	16	—	16	—
1324.0	—	P16	—	—
1764.0	—	P12	—	—
1842.0	12	—	—	—

## Coated Abrasive Storage

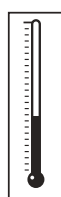
Stored under proper conditions, coated abrasives will retain their efficiency and usefulness over long periods. Improper or inadequate storage can introduce problems of weakened bond, curl, brittleness, and breakage.

Temperature and humidity are the two most important climatic factors influencing coated abrasive performance. Backings and adhesives are sensitive to climatic changes and will gain or lose moisture according to the relative humidity of their surroundings.

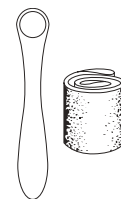
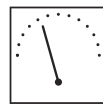
Excessive humidity may cause a softening of some types of adhesive bonds so that the product quickly fills and clogs, or loses its grain during use. Excessive dryness may cause brittleness, reduced flexibility, and distortion of product shapes.

As moisture in the coated abrasive product increases or decreases, dimensional changes can occur. When the backing changes more than the adhesive bond, it causes cupping. High and low humidity can cause concave and convex cupping respectively.

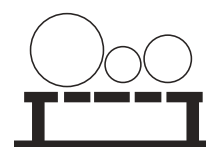
The newer synthetic-backed belts are not affected by moisture. Broad temperature swings will not permanently harm these products either, but cold temperatures will cause a "cold set" condition. Consequently, these products should be allowed to come to room temperature before use.



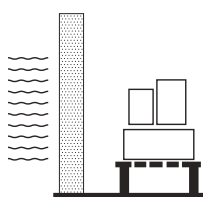
TEMPERATURE/  
HUMIDITY



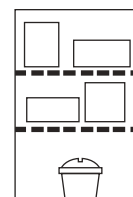
STORE BELTS  
PROPERLY



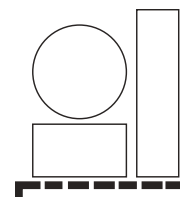
STORE BULK ROLLS  
FLAT



KEEP AWAY FROM  
HEAT/COLD SOURCES



PRECONDITION  
BEFORE USE



KEEP PRODUCTS IN  
ORIGINAL PACKAGES

## Storage Facilities

The ideal storage (stock) room for coated abrasives would be one in which all the walls are inside partitions, rather than the outside walls of the building.

- Constant levels of humidity and temperature should be maintained. Stockroom temperature should be 60-degrees to 80-degrees F and relative humidity between 35 and 50%.
- Cartons should be kept away from damp or cold walls and floors, where they might absorb moisture.
- Store coated abrasives away from heat sources – steam heated radiators, steam pipes, hot air inlets, heat ducts, or rooms near furnaces or ovens.
- Keep products in original packages. These packages facilitate handling and can be stacked in the most practical and convenient manner.
- Bulk rolls should not be allowed to stand on edge after they have been unpacked. Store flat on shelves or pallets.
- Narrow belts which have been removed from the carton should be rolled up and stored on edge on a clean shelf. Belts may be draped over a large cylinder, such as a gallon can, brake drum, or flanged hanger of the type used for a garden hose. Never hang a belt from a nail – the backing will crease and the abrasive belt might crack. Wide belts should be hung over a tube of at least 4" diameter. Center the belt joint over the tube and add a light weight (such as old packaging tubes) to the bottom loop of the belt to aid in removing set. Condition for 24 hours prior to use.
- For maximum product efficiency, precondition coated abrasive products in a chamber of controlled temperature and humidity before use.



# we've surfaced faster solutions **THAT WORK HARD AND PAY BETTER**

For stripping, deburring, blending, finishing, or polishing surfaces and coatings, Norton Bear-Tex non-woven innovations reduce steps and improve surface finish.

## **CLEAN BOND®** TECHNOLOGY

Our patented Clean Bond Technology eliminates smearing.



### **Strip Away Old Ideas**

Quick and easy rough cleaning and stripping of scale and heavy stock on a variety of materials while maintaining its non-loading feature.



### **Prep for the Future**

For cleaning and conditioning: gain higher material removal, longer life and consistent, smear-free finishes - even on high nickel content alloys.



### **Blending In is Easy**

Polishing and blending with Norton Rapid Blend unified discs and wheels leave a smear-free finish in fewer steps.



### **Eliminate the Guesswork**

Get the perfect combination of life, cut, and smear-free finish, with our color-coded (by application and abrasive type) GP convolute wheels.

# HAND PADS, ROLLS AND SPONGES




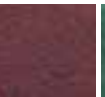









Surface finishing hand pads and rolls are made of a non-woven nylon web impregnated with abrasive grain and resin bond.

- Applications:** Light- to heavy-duty cleaning, deburring, blending, polishing, and finishing of metal, wood, composite, plastics, stone, solid surface and painted surfaces.
- Abrasive Grain:** Aluminum Oxide, Silicon Carbide
- Grit Range:** Medium (M), Fine (F), Very Fine (VF), Ultra Fine (UF), Micro Fine (MF), Non-Abrasive (–)
- Hand Pad Features:**
- Flexible; conform to work surface
  - Gentle action easily removes flashing or burrs without affecting dimension of workpiece
  - Non-loading; constant supply of new cutting edges
  - Non-rusting; no workpiece contamination
- Sponge Pad Features:**
- Resilient construction; long life, increased productivity; solvent resistant; waterproof
  - Non-woven material is laminated to a long-lasting sponge for the convenience of 2 pads in one
- Roll Features:**
- Superior replacement for steel wool
  - Economical alternative to cut pads
  - Can be cut to specific sizes
- Machine Used:**



## APPLICATION/GRIT RECOMMENDATION GUIDE

	MORE AGGRESSIVE, ROUGHER FINISH						LESS AGGRESSIVE, FINER FINISH				
											
PRODUCT #:	#740	#746	#644	#747	#796	#635	#748	Thin-Flex VF	Thin-Flex UF	Thin-Flex BP	#456
COLOR:	Dark Tan	Gray	Maroon	Maroon	Green	Gray	Gray	Maroon	Gray	Gold	White
DESCRIPTION:	Heavy Duty	Blending	GP – Fine	GP Plus – Very Fine	Scouring	Clean & Finish	Final Shine	Cleaning	Cleaning	Blend Prep	Cleaning
ABRASIVE:	AO	SC	AO	AO	AO	SC	SC	AO	SC	AO	Non-Abrasive
GRIT SIZE:	Medium 100 - 150	Medium 100 - 150	Fine 180 - 220	Very Fine 240 - 360	Very Fine 240 - 360	Ultra Fine 400 - 600	Micro Fine 800 - 1200	Very Fine 240 - 360	Ultra Fine 400 - 600	Micro-Fine 800 - 1200	Non-Abrasive - - - -
STEEL WOOL EQUIVALENT:	4 Extra Coarse	3 Coarse	2 Medium Coarse	1 Medium	0 Fine	00 Very Fine	00 Very Fine	00 Very Fine	000 Extra Fine	000 Extra Fine	0000 Super Fine
APPLICATIONS:	<ul style="list-style-type: none"><li>• Smear-free Clean Bond technology</li><li>• 2X life</li><li>• Most durable and aggressive cutting pad</li><li>• Heavy-duty removal<ul style="list-style-type: none"><li>» rust</li><li>» oxidation</li></ul></li><li>• Deburring</li></ul>	<ul style="list-style-type: none"><li>• Blending and deburring<ul style="list-style-type: none"><li>» welds</li><li>» aluminum</li><li>» stainless</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Cleaning and deburring<ul style="list-style-type: none"><li>» machinery</li><li>» metal parts</li><li>» plastic</li><li>» solid surface</li><li>» stone</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Light cleaning, deburring and finishing<ul style="list-style-type: none"><li>» machinery</li><li>» metal parts</li><li>» plastic</li><li>» solid surface</li><li>» stone</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Removing stains, marks, rust, corrosion or oxidation from stainless equipment</li><li>• Light cleaning of metal surfaces</li></ul>	<ul style="list-style-type: none"><li>• Light cleaning and finishing of most surfaces<ul style="list-style-type: none"><li>» steel, aluminum</li><li>» denibbing plastic</li><li>» scuffing acrylics</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Final finishing<ul style="list-style-type: none"><li>» final rub on wood</li><li>» final blend on metal</li><li>» final finish on plastics and acrylics</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Maximum flexibility for consistent finishes</li><li>• Cleaning blending, finishing, and deburring in woodwork, metalwork, MRO, and synthetic applications</li></ul>	<ul style="list-style-type: none"><li>• Maximum flexibility for consistent finishes</li><li>• Cleaning blending, finishing, and deburring in woodwork, metalwork, MRO, and synthetic applications</li></ul>	<ul style="list-style-type: none"><li>• Fine cleaning</li><li>• Fine polishing (most surfaces)</li><li>• Top coat finishing (water-based and solvent)</li></ul>	<ul style="list-style-type: none"><li>• Scratch-free cleaning<ul style="list-style-type: none"><li>» metal</li><li>» fiberglass</li><li>» stone</li><li>» solid surface</li><li>» ceramic</li><li>• Wood<ul style="list-style-type: none"><li>» high-lighting</li><li>» rubbing</li></ul></li></ul></li></ul>

## CROSS REFERENCE GUIDE

	COARSER					FINER				
	#740	#746	#644	#747/847	#796	#635	#748	Thin-Flex VF	Thin Flex UF	#456
<b>NORTON</b>	#740	#746	#644	#747/847	#796	#635	#748	Thin-Flex VF	Thin Flex UF	#456
<b>3M</b>	7440	7446	64659	7447/8447 Production Hand Pad	96	64660	7448	Multi-Flex Maroon	Multi-Flex Gray	7445
<b>Camel</b>	Tan	–	–	Maroon	Green	–	Gray	–	–	White
<b>Mirka</b>	–	–	–	Maroon/Red VF	–	–	–	Mirlon Total Maroon	Mirlon Total Gray	–
<b>Sait</b>	Brown	–	–	Maroon	Green	–	Gray	–	–	–
<b>SIA</b>	6912 Brown	6712 Grey	–	6912 Maroon	6312 Green	–	–	–	–	–
<b>Standard</b>	HD-Tan AO	–	–	GP-Maroon VF	Green-AO	HP-VF	UF Gray	–	–	Cleaning White



# HAND PADS, ROLLS AND SPONGES

					TIER: <b>BEST</b>	BETTER	GOOD
					BRAND: Norton	Norton	Norton
SIZE (W x L)	COLOR	DESCRIPTION	ABRASIVE	GRIT SIZE	STD. PKG.	PART #	PART #
<b>Hand Pads</b>							
4-1/2 x 9	Maroon	Thin Flex Cleaning Pad	A/O	VF	25	66623398062	
	Grey	Thin Flex Cleaning Pad	S/C	UF	25	66623398063	
	Gold	Thin Flex Blend Prep	A/O	MF	25	66261113519	
6 x 9	Dark Tan	740 Heavy-Duty Pad	A/O	Med	40		66261074000
	Gray	746 Blending Pad	S/C	Med	40		66261074600
	Maroon	777 General Purpose Very Fine Pad	A/O	VF	60		66261077700
	Maroon	747 General Purpose Plus Pad	A/O	VF	60	66261074700	
	Maroon	847 General Purpose Plus Perforated Pad	A/O	VF	60	66261084700	
	Green	796 Scouring Pad	A/O	VF	60		66261079600
	Lt. Green	696 Food Pro Pad	A/O	VF	60		66261069600
	Gray	851 General Cleaning Pad	S/C	VF	40		66261085100
	Gray	635 Clean & Finish Pad	S/C	UF	60		66261063500
	Gray	748 Final Shine Pad	S/C	MF	60		66261074800
	White	456 Cleaning Pad	None	—	60		66261045600
<b>Hand Pad Holder</b>							
3-1/4 x 5-1/2	N/A	Hand Pad Holder			10		66261047583
<b>Rolls</b>							
4" x 30 Ft.	Maroon	High Strength Roll	A/O	M	3	66261006358	
	Dark Tan	740 Heavy-Duty Roll IMPROVED!	A/O	M	3		66261010081
	Maroon	644 General Purpose Fine Roll	A/O	F	4		66261058364
	Maroon	777 General Purpose Very Fine Roll	A/O	VF	4	66261006373	66261058361
	Maroon	747 General Purpose Plus Roll	A/O	VF	4	66261051701	
	Gray	851 General Cleaning Roll	S/C	VF	4		66261058360
	Gray	635 Clean & Finish Roll	S/C	UF	5		66261058357
6" x 30 Ft.	Maroon	High Strength Roll	A/O	M	2	66261005182	
	Maroon	747 General Purpose Plus Roll	A/O	VF	3	66261016430	
	Maroon	777 General Purpose Very Fine Roll	A/O	VF	3	66261004281	66261058376
	Gray	851 General Cleaning Roll	S/C	VF	3		66261058377
2" x 15 Ft. Handy Roll Pack	Assorted	1 each A/O Fine, A/O VF, SC MF	—	—	1		66261008108
<b>Scouring Pads/Sponges</b>							
3-1/4 x 6-1/4 x 3/4	Green/Yellow	893 Scour-N-Sponge Pad	A/O	VF	40		66261059403
3-1/4 x 6-1/4 x 3/4	White/Yellow	875 Clean-N-Sponge Pad	None	—	40		66261059402



## THIN and FLEXIBLE: Perfect for Tight Spots

### Norton Bear-Tex Thin-Flex High-Performance Hand Pads

- Achieve performance benefits of a Coarse and Fine grain product in one hand pad: fast cut and definitively better finish than competing pads.
- Extremely thin and conformable; ideal for deburring, cleaning, blending, and finishing contoured surfaces and tight spaces
- Special coated web design for superior and constant cutting action without added effort from user
- Versatile; ideal for woodworking, metalworking, maintenance operations, and synthetics fabrication



When maximum conformability is needed, tough, Norton nylon brushes' flexible nylon filaments embedded with abrasive grain provide exceptional finishing and polishing and eliminate the need for costly and inconsistent hand deburring applications.

Norton nylon brushes are precision-engineered with the highest quality abrasive grains for those markets with the strictest requirements – for easy integration into today's automated machinery, CNC machining centers, transfer lines, robotic cells, and other highly-specialized machinery, as well as hand tools.

Applications:	Deburring, cleaning, finishing, and polishing
Brush Configurations:	Radial wheel brushes, narrow face wheel brushes, disc brushes, end brushes, and twisted brushes
Markets:	Aerospace/aircraft, automotive, construction/utility products, medical, metal finishing, woodworking
Abrasive Grain:	Ceramic Alumina, Silicon Carbide

### WHY CHOOSE NYLON ABRASIVE BRUSHES?

- Abrasive grain cutting points are increased as the grain is exposed and cut equally when pressure is applied to the side or tip of the filament
- Uniform distribution of grain throughout the filaments allows cutting and finishing performance levels to remain consistent throughout the life of the brush – making Norton abrasive brushes ideal for automated applications
- Heat- and stress-resistant filaments prolong brush life and allow for superior conformability to irregular surface shapes
- The grain impregnated filaments act as a flexible file to deburr and radius edge profiles with precision, without gouging or affecting the overall geometry of a part
- The filaments bend at various angles to fit contours, creating a less prominent, more uniform surface finish in comparison to wire wheels or coated abrasive products
- Brush conformability allows usage on variety of complex part shapes without the need for ultra-precise programming and fixturing that is required with other deburring and finishing tools

## NORTON BLAZE CERAMIC ALUMINA

**BEST CHOICE ENGINEERED SPECIFICALLY FOR JOBS REQUIRING CONTROLLABLE SURFACE REFINEMENT AND UNIFORM FINISHING**

### FEATURES AND BENEFITS

- Norton Blaze sharp, penetrating ceramic alumina nylon brushes are engineered specifically for jobs requiring controllable surface refinement and uniform finishing; the fastest, longest lasting, consistent performers – brush after brush



## NORTON SILICON CARBIDE

**GOOD CHOICE FOR USE WHERE MAXIMUM CONFORMABILITY IS NEEDED**

### FEATURES & BENEFITS

- Feature tough, flexible nylon filaments embedded with abrasive grain to provide finishing and polishing where maximum conformability is needed
- Fast cutting silicon carbide abrasive grain



TIER:	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton
ABRASIVE:	Silicon Carbide	Silicon Carbide
GRIT SIZE:	80	120

SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #
<b>Stock Abrasive Brush</b>				
7 x 1 x 7/8	6,000	5	66261058830	66261058834
<i>Use with air-cooled rubber back-up pad and retainer nut</i>				
<b>Abrasive Brush Back-up Pads</b>				
7" Medium	8,600	5	63642543422	



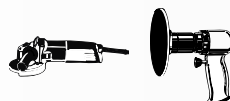
BACK-UP PAD

Currently, all Norton Blaze ceramic alumina nylon abrasive brushes are custom-made to your exact requirements. The Norton Blaze Nylon Brushes Brochure #8571 provides technical information and product availability. Your Norton representative would be pleased to review availability, quotations, and lead-times with you.



Non-woven depressed center discs have three components: strong synthetic fiber mesh and quality abrasives, bonded together by a smear-resistant adhesive. Rapid Strip discs have an open web construction that enables aggressive cutting action while maintaining a cool, non-loading surface. Rapid Blend discs have a unitized construction with varying weave – from open to tighter – for deburring and finishing. Rapid Prep discs have a more open weave that excels in surface preparation and cleaning. Each product provides excellent cutting action while improving surface finish.

Applications: Medium-to-light material removal, deburring, blending, cleaning, finishing, and polishing  
Size Range: 4-1/2" - 7"  
Grit Range: X-Coarse, Coarse, Medium, Fine, Very Fine  
Abrasive Grain: Ceramic Alumina, Silicon Carbide, Engineered Aluminum Oxide, Aluminum Oxide  
Machine Used:



**MATERIAL/APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE – FOR ALL DISCS USED ON RIGHT ANGLE GRINDERS**

	<b>BEST</b> Highest Productivity; Lowest Total Cost	<b>BETTER</b> Excellent Blend of Performance & Price	<b>GOOD</b> Consistent Performance; Low Initial Price
Removing scale and coarse welding marks	Blaze Rapid Strip Ceramic X/Grse	–	Rapid Strip S/C X-Coarse
Removing coatings, epoxy/glue, paint and other clogging material			
Removing rust, oxidation, corrosion and residue			
Removing parting lines and seams on fiberglass parts			
Removing paint/graffiti from concrete/stone			
Removing weld marks and weld splatter	–	Vortex Rapid Blend A/O Coarse	Rapid Blend A/O Coarse
Stainless steel deburring and cleaning			
Removing small flashings and parting lines			
Surface preparation before coatings/plating	–	Vortex Rapid Prep A/O Medium	Rapid Prep A/O Medium
Light cleaning			
Cleaning and prepping welds	–	Vortex Rapid Prep A/O Fine	Rapid Prep A/O Fine
Removing blemishes after welding stainless			
Blending and finishing all metal parts	–	Vortex Rapid Blend A/O Very Fine	Rapid Blend S/C Very Fine
Creating decorative finishes on stainless steel			
Final finishing and polishing			
Final finishing/polishing where high conformability is needed	–	–	Rapid Prep A/O Very Fine

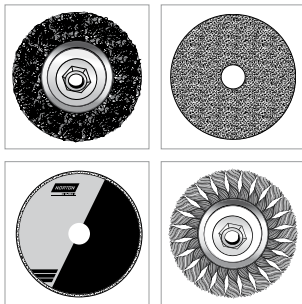
**APPLICATION/PRODUCT RECOMMENDATION GUIDE – FOR ALL DISCS USED ON RIGHT ANGLE GRINDERS**

	MOST AGGRESSIVE / LEAST CONFORMABLE			LEAST AGGRESSIVE / MOST CONFORMABLE		
Depressed Center	Blaze Rapid Strip	Vortex Rapid Blend A/O Med. Rapid Blend A/O Coarse	Rapid Blend A/O Medium	Rapid Blend S/C Fine	Rapid Prep Very Fine	
Discs With Back-Up Pad		Rapid Prep A/O Coarse	Rapid Prep A/O Medium	Rapid Prep A/O Fine		
Scale Removal	Best Choice					
Stock Removal	Best Choice	Second Choice				
Heavy Deburring	Second Choice	Best Choice				
Light Deburring		Best Choice	Second Choice			
Light Finishing		Second Choice	Best Choice			
Blending			Best Choice	Second Choice		
Finishing			Second Choice	Best Choice		
Polishing				Best Choice	Second Choice	

**CROSS REFERENCE GUIDE – FOR ALL DISCS USED ON RIGHT ANGLE GRINDERS**

	STRIPPING (EXTRA COARSE)			SURFACE FINISHING (COARSE – MEDIUM – FINE)		SURFACE PREP (VERY FINE)
	BEST	GOOD	BETTER	GOOD	BETTER	GOOD
<b>NORTON</b>	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	Rapid Blend	Vortex Rapid Prep	Rapid Prep
3M	–	Clean & Strip	–	–	–	SL Surface Conditioning
Bibielle	–	SDR Strip-It/Red	–	BUR Unitized	–	–
Camel	–	EZ Strip Black/Red	–	–	–	–
Flexovit	–	Clean & Strip	–	–	–	–
Hermes	–	Webrax	–	–	–	–
Pearl	–	S/C Stripping	–	–	–	Surface Preparation
Pferd	–	Policlean	–	Poliflex PUR	–	–
Sait	–	Sait-Strip	–	Unitized	–	–
Standard	–	Cleaning	–	Unitized	–	FE, GP, RC
Superior	–	Stripping	–	XL Unitized	–	FD, GD, CC
Walter	–	FX Cleaning	–	–	–	Blendex Surface Conditioning

**WHY CHOOSE NON-WOVEN DEPRESSED CENTER DISCS?**



**Non-Woven Right Angle Discs vs. Fiber Discs, Wire Wheels, and Depressed Center Wheels**

- Deburring, blending and finishing done with one product to reduce the number of steps
- To provide a controlled, sustained finish
- To prevent undercutting and gouging
- To provide a cooler grinding action to lessen the chance of warping or discoloration
- When loading is an issue with fiberglass, adhesives and soft metals
- For stripping coatings and paint off of hard materials like concrete, cement and stone
- Less vibration and quieter for high operator acceptance
- To provide an alternative to wire brushes



**Blaze Your Way to Greatest Productivity**

**Norton Blaze Rapid Strip Type 27 Depressed Center Discs**

Strip/blend cast iron, steels, aluminum, fiberglass and composites

- Open structure; will not load on sticky coatings, adhesives, and soft metals (e.g. aluminum), or snag and shed like a cloth or fiber disc might
- Norton Blaze ceramic alumina grain provides 2X cut rate and life over silicon carbide
- Will not shed on heavily rust-encrusted pieces
- Extremely versatile; use one disc; stiff enough to stand abuse, but soft enough to prevent gouging and rework
- Use on edge for blending weld root forms
- Apply some pressure to strip or remove coatings; lighter pressure finishes like a surface finishing disc
- Fewer safety, ergonomic, and environmental issues due to fewer change-outs, less downtime, and less production waste/landfill scrap



# DEPRESSED CENTER DISCS

## NORTON BLAZE RAPID STRIP CERAMIC ALUMINA

**BEST CHOICE FOR QUICK AND EASY ROUGH CLEANING AND STRIPPING OF ALL MATERIALS**



### FEATURES

- Norton Blaze ceramic alumina grain
- Advanced resin bond
- Uniform coating process
- Open structure

### BENEFITS

- 2X cut rate, 2X life over silicon carbide products
- Does not shed on rust-encrusted pieces, and prevents gouging and rework
- Does not snag when used for deburring
- Abrasive coating covers the entire disc providing a consistent cut rate
- Sticky coating, adhesives and soft metals will not clog the disc

TIER: **BEST**

BRAND: Norton

TRADENAME: **BLAZE RAPID STRIP**

ABRASIVE: Ceramic Alumina

GRIT SIZE: 36-50

GRADE: X-Coarse

TYPE/BACKING: Type 27/Fiberglass

**GOOD**

Norton

**RAPID STRIP**

Silicon Carbide

36-50

X-Coarse

Type 27/Fiberglass

SIZE (D x H)	MAX. RPM	STD. PKG.	PART #	PART #
4-1/2 x 5/8-11	12,000	10	66254498101	66261009585
4-1/2 x 7/8	12,000	10	66623303783	66261009649
5 x 5/8-11	11,000	10	66623303915	
5 x 7/8	11,000	10	66623303916	
7 x 5/8-11	8,000	10	66623303919	66261009650
7 x 7/8	8,000	10	66623303920	66261009586

## NORTON VORTEX RAPID BLEND ALUMINUM OXIDE

**BETTER CHOICE WITH REVOLUTIONARY TECHNOLOGY FOR HEAVY DEBURRING AND FINISHING**



### FEATURES

- Proprietary high-performance, engineered aluminum oxide aggregate grain
- Superior bond technology
- Controlled porosity

### BENEFITS

- Aggressive, fast stock removal cut rate while providing a fine finish
- Twice the wheel life over conventional unified wheels, with minimal shedding
- Consistent performance with no smearing
- Cooler and improved cut rate

TIER: **BETTER**

BRAND: Norton

TRADENAME: **VORTEX RAPID BLEND**

ABRASIVE: Engineered A/O

GRIT SIZE: 100-120

SPECIFICATION: Medium

TYPE/BACKING: Type 27/Fiberglass

**GOOD**

Norton

**RAPID BLEND**

Aluminum Oxide

150-180

NEX-2AM

Type 27/Fiberglass

**GOOD**

Norton

**RAPID BLEND**

Aluminum Oxide

220-280

NEX-2AF

Type 27/Fiberglass

**GOOD**

Norton

**RAPID BLEND**

Silicon Carbide

320-400

NEX-2SF

Type 27/Fiberglass

**GOOD**

Norton

**RAPID BLEND**

Aluminum Oxide

150-180

High Strength Medium

Type 27/Fiberglass

SIZE (D x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
4-1/2 x 5/8-11	12,000	10	66254429243	66261023947	66261023946	66261023943	66261023949
4-1/2 x 7/8	12,000	10	66254429268	66261020548	66261020547	66261020546	66261020549

# STANDARD BACK-UP PAD DISCS

## NORTON VORTEX RAPID PREP ALUMINUM OXIDE DISCS

BETTER CHOICE FOR FINISHING AND BLENDING APPLICATIONS

### FEATURES

- Proprietary, engineered Vortex aluminum oxide abrasive grain, new coating method, and smear-free Clean-Bond technology

### BENEFITS

- Most consistent cutting and finishing surface conditioning products on the market
- Combine maximum cutting speed with the finish of fine grits
- Reduce process times by 50+% by eliminating 2 to 5 grit sequences to 1 step in your technical blending operations
- More resistant to edge wear; up 4X life vs. competitive products
- Friable grain structure keeps Ra specs throughout disc life and reduces scrap and rework

### 7/8" Center Hole

		TIER: <b>BETTER</b>	<b>GOOD</b>
		BRAND: Norton	Norton
		TRADENAME: <b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>
		ABRASIVE: Engineered Aluminum Oxide	Aluminum Oxide
SIZE (DIAMETER)	STD. PKG.	PART #	PART #
<b>Extra Coarse</b>			
4-1/2	25	66623334973	66623326070
5	25	66623334975	66261090645
6	25	66623341359	
7	25	66623341360	66623326085
<b>Coarse</b>			
4-1/2	25	66623334944	66254473868
5	25	66623334946	66261008293
6	25	66623341361	66623325136
7	25	66623341362	66623325138
<b>Medium</b>			
4-1/2	25	66623333612	66623325915
5	25	66623334963	66261017124
6	25	66623341363	66623325918
7	25	66623341364	66623325919
<b>Fine</b>			
4-1/2	25	66623333608	66623325153
5	25	66623334954	66254469132
6	25	66623341365	66623325159
7	25	66623341366	66623325897
<b>Very Fine</b>			
4-1/2	25	66623333616	66623325938
5	25	66623333618	66623325943
6	25	66623341367	66623325958
7	25	66623341368	66623325959

All Rapid Prep 7/8" center hole discs are non-stock. Ask your Norton representative for current lead-times.



DESCRIPTION	MAX. RPM	STD. PKG.	PART NO.
<b>Rapid Prep Disc Back-up Pads</b>			
4-1/2" Medium	11,000	5	63642502122
5" Medium	10,000	5	63642543421
7" Medium	8,600	5	63642543422



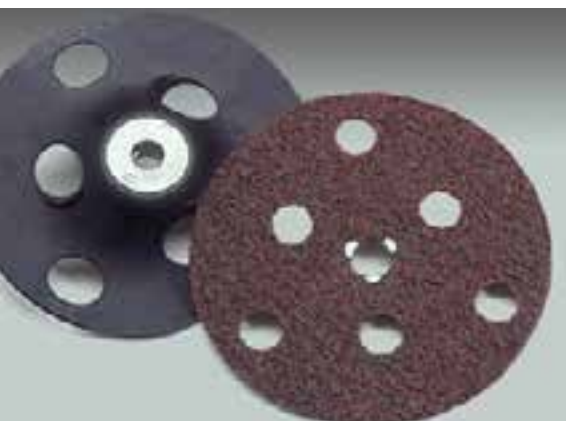
### Norton Rapid Prep Surface Conditioning Products

The Perfect Abrasive, Coating, and Bond Built into Every Disc and Belt

- Available in premium Vortex aluminum oxide aggregate grain and Norton aluminum oxide grain; ideal for many aerospace, metal and stainless steel fabrication, and MRO applications
- Our proprietary coating method extends life and delivers consistent finishes by creating a thick layer of grain throughout the product. Grain does not sit on top of fibers as other competitive products can.
- Our new Clean Bond resin system guarantees smear-free finishes, even on high nickel content alloys; will not load on aluminum and soft metals, as competitive products can

## RAPID PREP AVOS SPEED-LOK ALUMINUM OXIDE

**GOOD CHOICE FOR LIGHT DEBURRING, CLEANING AND FINISHING**



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Patented hole design</li> </ul>	<ul style="list-style-type: none"> <li>Allows interrupted cut, reducing heat up to 30% over standard surface preparation discs</li> <li>Cool cutting results in longer disc life</li> <li>Provides complete vision into the grinding zone</li> <li>Operators can grind more accurately with less re-work</li> </ul>
<ul style="list-style-type: none"> <li>Scooped holes</li> </ul>	<ul style="list-style-type: none"> <li>Create air flow to pull loose abrasive and swarf away from work surface grinding zone – resulting in extended disc life</li> </ul>
<ul style="list-style-type: none"> <li>15 degree angle back-up pad</li> </ul>	<ul style="list-style-type: none"> <li>Grinding at 5°-15° angle allows greater utilization of disc surface</li> <li>Eliminates gouging of workpiece</li> </ul>

### AVOS Speed-Lok

		TIER: <b>BETTER</b>	<b>GOOD</b>
		BRAND: Norton	Norton
		TRADENAME: <b>VORTEX RAPID PREP AVOS</b>	<b>RAPID PREP AVOS</b>
		ABRASIVE: Engineered Aluminum Oxide	Aluminum Oxide
SIZE (DIAMETER)	STD. PKG.	PART #	PART #
<b>Extra Coarse</b>			
5	10	66623374801	
<b>Coarse</b>			
4-1/2	10		66261010447
5	10		66623374818
7	10		
<b>Medium</b>			
4-1/2	10	66623374806	66261010448
5	10		66623374819
<b>Very Fine</b>			
4-1/2	10		66623374823
5	10		66623374824
7	10	66623374814	



DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>AVOS Speed-Lok Back-up Pads – Triangular</b>			
4-1/2 x 5/8-11	13,000	5	63642502985
5 x 3/8-24 Pistol Grip*	20,000	5	63642503029
5 x 5/8-11 Thicker	13,000	5	63642502517
5 x 5/8-11	13,000	5	63642503663
5 x 7/16-20 Pistol Grip*	20,000	5	63642503030
<b>AVOS Speed-Lok Back-up Pads – Round</b>			
7 x 5/8-11 Hard	8,600	5	63642504873

\* Use on air pneumatic and high-speed pistol grip sanders.

### Speed Change 5/8"-11

		TIER: <b>BETTER</b>	<b>GOOD</b>
		BRAND: Norton	Norton
		TRADENAME: <b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>
		ABRASIVE: Engineered Aluminum Oxide	Aluminum Oxide
SIZE (DIAMETER)	STD. PKG.	PART #	PART #
<b>Extra Coarse</b>			
4-1/2	25	66623373667	66623373690
5	25	66623373669	
7	25	66623373670	66623373692
<b>Coarse</b>			
4-1/2	25	66623373671	66623373693
5	25	66623373674	66254498516
7	25	66623373675	66261192908
<b>Medium</b>			
4-1/2	25	66623373678	66623308157
5	25	66623373679	66623373694
7	25	66623373680	66261192913
<b>Fine</b>			
4-1/2	25	66623373681	
5	25	66623373682	66623373695
7	25	66623373684	
<b>Very Fine</b>			
4-1/2	25	66623373685	
5	25	66623373686	66623373699
7	25	66623373687	66623373700



DESCRIPTION	MAX. RPM	STD. PKG.	PART #
<b>Smooth-Face Back-up Pads for 5/8-11 Speed-Change Discs</b>			
4-1/2" Medium	20,000	5	66254492277
5" Medium	12,000	5	63642543235
7" Hard	8,600	5	63642543240
7" Medium	8,600	5	63642543245
7" Soft	8,600	5	63642543250
9" Medium	7,000	5	63642543270

## Non-Woven Hook and Loop Discs

### NORTON VORTEX RAPID PREP

#### BETTER CHOICE FOR FINISHING AND BLENDING APPLICATIONS



#### FEATURES

- Proprietary engineered Vortex aluminum oxide abrasive grain and coating method

- Clean Bond resin system, aerospace-tailored

- Strong hook and loop backing

#### BENEFITS

- Most consistent cutting and finishing of surface conditioning products on the market
- Combine maximum cutting speed with the finish of finer grits
- Reduce process times by 50+% by combining multiple grit sequences to 1 step in a blending operation
- More resistant to edge wear; up 4X life vs. competitive products
- Friable grain structure keeps Ra specs throughout disc life and reduces scrap and rework

- Smear-free, even on high nickel content alloys

- Will not load on aluminum and soft metals, as competitive products can

- Will not fly off rotary sanders

- Discs sit flatter on back-up pads, resulting in a more consistent finish on DA applications

TIER:	<b>BETTER</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>
ABRASIVE:	Engineered Aluminum Oxide	Aluminum Oxide

SIZE (DIAMETER)	STD. PKG.	PART #	PART #
<b>Extra Coarse</b>			
1-1/2	50	66623325061	66623340098
2	50	66623334970	66261017900
3	25	66623333620	66623326059
4	25	66623334971	66261017382
4-1/2	25	66623334972	66261017906
5	25	66623334974	66261017215
6	25	66623333621	66623326077
7	25	66623334976	66261192846
8	25	66623334977	
<b>Coarse</b>			
1-1/2	50	66623325057	66623340099
2	50	66623334882	66261004431*
3	25	66623334883	66261055015
4	25	66623334884	66261055018
4-1/2	25	66623334943	66261017806
5	25	66623334945	66261004435
6	25	66623334949	66261006910
7	25	66623334951	66261055027
8	25	66623334953	66261006913
<b>Medium</b>			
1-1/2	50	66623325059	66623338571
2	50	66623334958	66261004441
3	25	66623334956	66261004442
4	25	66623334959	66261055019
4-1/2	25	66623334961	66261004444
5	25	66623334962	66261055022
6	25	66623334964	66261006911
7	25	66623334965	66261017813
8	25	66623334966	66261017815
<b>Fine</b>			
1-1/2	50	66623325058	66623340101
2	50	66623333604	66623325141
3	25	66623333605	66623325143
4	25	66623333606	66623325145
4-1/2	25	66623333607	66623325147
5	25	66623333609	66623325154
6	25	66623333610	66623325160
7	25	66623334955	66261199465
8	25	66623333611	66623325907

\* Standard Package = 80

Continued



Non-Woven Hook and Loop Discs *continued*

		TIER: <b>BETTER</b>	<b>GOOD</b>
		BRAND: Norton	Norton
		TRADENAME: <b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>
		ABRASIVE: Engineered Aluminum Oxide	Aluminum Oxide
SIZE (DIAMETER)	STD. PKG.	PART #	PART #
<b>Very Fine</b>			
1-1/2	50	66623325060	66623340100
2	50	66623333613	66623325926
3	25	66623333614	66623325934
4	25	66623334967	66261055020
4-1/2	25	66623333615	66623325936
5	25	66623333617	66623325941
6	25	66623334968	66261055026
7	25	66623334969	66261019990
8	25	66623333619	66623325972

Back-Up Pads for Hook And Loop Discs

					TIER: BRAND:	GOOD Norton	GOOD Merit
PAD DIAMETER	SPINDLE OR HOLE SIZE	MAX. RPM	3M EQUIVALENT	STD. PKG.	PART #	PART #	
Back-Up Pads for Hook And Loop Discs							
2	1/4 Steel Shank	23,000	922	5	66261059352	08834168025*	
3	1/4 Steel Shank	20,000	923	5	66261059354	08834168026*	
4	1/4 Steel Shank	18,000	924	5	66261059356		
	5/8-11	13,000	914	5	66261059304	08834168984*	
	M10 x 1.250	13,000		5	66261059305		
4-1/2	5/8-11	10,000	9145	5	66261006948	05539562718	
5	5/16-24 Male	10,000	905	5	66261059360	08834168993**	
	3/8-24 Male	10,000	905	5	66261059308		
	5/8-11	10,000	915	5	66261059310	08834168967*	
6	5/8-11	8,000	916	5	66261059312	05539562723	
7	5/8-11	6,000	917	5	66261059368	08834168032*	
8	5/8-11	4,500	918	5	66261059372		

\* = 1 per Pkg, \*\* = 2 Per Std Pkg.





Norton and Merit non-woven quick-change discs are a combination of strong synthetic mesh and quality abrasives, bonded together by a smear-resistant adhesive. The open construction of the non-woven material enables aggressive cutting action and improved surface finish while maintaining its non-loading feature.

Applications: Medium-light stock removal, beveling, deburring/deflashing, rust removal, blending, cleaning and finishing, polishing, and decorative finishing  
Size Range: 3/4" – 4" diameter  
Grit Range: X-Coarse, Coarse, Medium, Fine, Very Fine, Super Fine  
Abrasive Grain: Ceramic Alumina, Engineered Aluminum Oxide, Aluminum Oxide, Silicon Carbide  
Attachment: Quick-Change Type TR (Type III), Type TS (Type II), and Type TP (Type I)  
Back-up Pads: Rubber with hardness variations for different applications  
Machine Used:



### QUICK-CHANGE ATTACHMENT SYSTEMS AND CROSS REFERENCE GUIDE

Each system enables quick, tool-free, safe disc changes, reducing downtime and operating expenses.

#### Type TS (Type II)

- Features a turn-on/turn-off style fastener
- Fastener is made of metal
- Equivalent to Standard Abrasives SocAtt® locking system



#### Type TR (Type III)

- Features a roll-on/roll-off style fastener
- Fastener is made of plastic
- Equivalent to 3M™ Roloc™ fastening system



#### Type TP (Type I)

- Features a snap-on/snap-off style fastener
- Fastener is made of nylon



	NORTON	TS	TR	TP
3M		Roloc TS/TSM	Roloc TR	Roloc TP
Standard		TS (SocAtt)	TR (Lockit)	TP (ClickOn)
Superior		Type S	Type R	–
Arc		Type S	Type R	Type P
Pferd		Type CD	Type CDR	–
Sait		SAIT-LOK	SAIT-LOK-R	–
Camel		Turn On	Roll On	–
Klingspor		QMC	QRC	–
Garryson		Type S	Type R	–

### APPLICATION/GRIT RECOMMENDATION GUIDE

	MOST AGGRESSIVE ←				→ LEAST AGGRESSIVE
<b>NORTON</b>	Rapid Strip	Vortex Rapid Blend	Vortex Rapid Prep	Rapid Prep	
<b>MERIT</b>		Deburring & Blending			HS Buffing, Buffing
Scale Removal	Best Choice				
Stock Removal	Best Choice	Second Choice			
Heavy Deburring	Second Choice	Best Choice			
Light Deburring		Best Choice	Second Choice		
Light Finishing			Best Choice	Second Choice	
Blending			Best Choice	Second Choice	
Cleaning			Second Choice	Best Choice	
Finishing				Best Choice	Second Choice

## CROSS REFERENCE GUIDE

	STRIPPING			HEAVY/LIGHT DEBURRING		LIGHT DEBURRING/BLENDING/CLEANING/FINISHING	
	BEST	GOOD	BETTER	GOOD	BETTER	GOOD	GOOD
<b>NORTON</b>	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	Rapid Blend	Vortex Rapid Prep	Rapid Prep	
<b>MERIT</b>				Deburring & Blending			HS Buffing, Buffing
3M	–	Clean & Strip Clean Strip XT	–	EXL Unitized	–	Surf Cond, SL, SE	–
Standard	–	Cleaning Disc	–	500-900 Series Unitized	–	FE, GP, RC	Buff & Blend - HS, Buff & Blend
Fiberal/SIA	–		–	–	–	Meteor, Type B & C	–
Superior	–	Type R	–	XL Unitized	–	FD, GD, CC	HS, HD A/O
Arc	–	Arcstrip	–	–	–	Surface Cond	Blend & Finish
Pferd	–	Policlean	–	–	–	Finishing Disc - Hard & Soft	–
Sait	–	SAIT-Strip	–	–	–	HD, GP	Sand-Light Blending
Camel	–	EZ Strip - Black	–	–	–	–	–
Klingspor	–	Strip-It Black	–	–	–	–	–
Garryson	–		–	–	–	Surface Cond	–
Bibielle	–		–	BUR Unitized	–	DCR	–

## ABRASIVE/GRIT/DENSITY KEY

ABRASIVE	SILICON CARBIDE			ALUMINUM OXIDE		CERAMIC ALUMINA
	SHARPER, FINER/BRIGHTER SCRATCH PATTERN			MORE DURABLE, LONGER LASTING, POLISHED FINISH		
GRIT SIZE	XC (24-36)	C (50-80)	M (100-150)	F (180-220)	VF (240-360)	SF (400-600)
	FASTER, AGGRESSIVE CUT, ROUGHER FINISH			REDUCED CUT RATE, FINER FINISH		
DENSITY	2			9		
	SOFT, OPEN, CONFORMABLE, LESS BURNING/LOADING			HARDER, MORE DURABLE, FASTER CUTTING, BETTER FINISH		

## Quick-Change Rapid Strip Discs

## NORTON BLAZE RAPID STRIP CERAMIC ALUMINA AND NORTON RAPID STRIP SILICON CARBIDE

**BEST CHOICE IDEAL FOR REMOVING COATINGS ON A VARIETY OF SUBSTRATES, SUCH AS WOOD, METAL AND PLASTICS**

### FEATURES

- Manufactured with extruded nylon fibers, flexible resin technology, and extra-coarse abrasive grains
- Rapid Strip Blaze

### BENEFITS

- Provide a unique combination of aggressive performance, long life, improved finish
- Outperform traditional coated abrasive products, leaving a thoroughly cleaned surface, ensuring excellent adhesion in subsequent processes such as coating, painting and soldering
- Great alternative to wire brushes
- Will not load on sticky coatings, adhesives, and soft metals, or snag and shed like a fiber disc
- 2X faster cutting than competitive discs; lasts 2X (plus) as long
- Stiff enough to stand abuse; soft enough to prevent gouging and rework. Apply some pressure to strip/remove coatings; lighter pressure finishes like a surface finishing disc



TIER: **BEST**  
BRAND: Norton  
TRADENAME: **BLAZE RAPID STRIP**  
ABRASIVE: Ceramic Alumina  
GRADE: XC  
ATTACHMENT: TR (Type III)



**GOOD**  
Norton  
**RAPID STRIP**  
Silicon Carbide  
XC  
TR (Type III)



**GOOD**  
Norton  
**RAPID STRIP**  
Silicon Carbide  
XC  
TS (Type II)



SIZE (DIAMETER)	MAX. RPM	STD. PKG.	PART #	STD. PKG.	PART #	STD. PKG.	PART #
2 x 1/2	15,500	25	66623303912	10	66261013402		
3 x 1/2	12,000	25	66261096557	10	66261013403	25	66623333374
4 x 1/2 TR+	8,000	5	66623303921	5	66261016580		

Refer to the end of this section for a list of quick-change back-up pads.

## Deburring & Blending Unified Discs

### NORTON BLAZE RAPID BLEND CERAMIC ALUMINA

#### REVOLUTIONARY TECHNOLOGY FOR HEAVY DEBURRING AND FINISHING

##### FEATURES & BENEFITS

- Norton Blaze SG ceramic alumina grain provides quickest cut rate and up to 8X longer life than competitive aluminum oxide discs
- Special resin chemistry resists shedding when used on sharp edges, making it ideal for deburring; no smearing
- New construction: abrasive is distributed throughout the entire disc (top, bottom and side) so all three faces can be used – versus competitive discs' one bottom layer of abrasive
- 3 - 8 times the life of competitive surface blending discs with fewer safety, ergonomic, and environmental issues due to fewer change-outs, less downtime, and less production waste/landfill scrap



### NORTON VORTEX RAPID BLEND ALUMINUM OXIDE

#### REVOLUTIONARY TECHNOLOGY FOR HEAVY DEBURRING AND FINISHING

##### FEATURES & BENEFITS

- Proprietary engineered Vortex aluminum oxide aggregate grain performs the medium to fine grit steps of traditional discs in an easy one-step operation
- Special resin chemistry resists shedding when used on sharp edges, making it ideal for deburring; no smearing
- New construction: abrasive is distributed throughout the entire disc (top, bottom and side) so all three faces can be used – versus competitive discs' one bottom layer of abrasive
- 3 - 8 times the life of competitive surface blending discs with fewer safety, ergonomic, and environmental issues due to fewer change-outs, less downtime, and less production waste/landfill scrap



### NORTON RAPID BLEND ALUMINUM OXIDE

#### GOOD CHOICE FOR LIGHT DEBURRING, BLENDING, AND CLEANING

##### FEATURES & BENEFITS

- Open mesh construction is waterproof, washable, conformable, and non-loading: designed for surface generation where stock removal is not required
- New construction: abrasive is distributed throughout the entire disc (top, bottom and side) so all three faces can be used – versus competitive discs' one bottom layer of abrasive
- 3 - 8 times the life of competitive surface blending discs with fewer safety, ergonomic, and environmental issues due to fewer change-outs, less downtime, and less production waste/landfill scrap
- No smearing



TIER:	<b>BEST</b>	<b>BETTER</b>
BRAND:	Norton	Norton
TRADENAME:	<b>BLAZE RAPID BLEND</b>	<b>VORTEX RAPID BLEND</b>
ABRASIVE:	Ceramic Alumina	Engineered Aluminum Oxide
ATTACHMENT:	TS (Type II)	TS (Type II)
		

SIZE (D x T)	ABRASIVE	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART #	PART #
1 x 1/4	Ceramic Alumina	XC	1	35,100	100	66623313920	
1-1/2 x 1/4	Ceramic Alumina	XC	1	35,100	80	66623313922	
2 x 1/4	Ceramic Alumina	XC	1	12,100	25	66623313925	
	Aluminum Oxide	M	1	12,100	25		66254497070
3 x 1/4	Ceramic Alumina	XC	1	12,100	25	66623313931	
	Aluminum Oxide	M	1	12,100	25		66254497069

Refer to the end of this section for a list of quick-change back-up pads.



## Deburring & Blending Unified Discs *continued*



TIER:	<b>BEST</b>	<b>BETTER</b>	<b>GOOD</b>	<b>GOOD</b>
BRAND:	Norton	Norton	Norton	Merit
TRADENAME:	<b>BLAZE RAPID BLEND</b>	<b>VORTEX RAPID BLEND</b>	<b>RAPID BLEND</b>	<b>DEBURR/BLEND</b>
ABRASIVE:	Ceramic Alunima	Engineered Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
ATTACHMENT:	TR (Type III)	TR (Type III)	TR (Type III)	TR (Type III)

SIZE (D x T)	ABR.	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
1 x 1/4	C/A	XC	1	35,100	100	66623313919			
1-1/2 x 1/4	C/A	XC	1	35,100	80	66623313921			
2 x 1/8	A/O	M	4-6	22,000	60		66254425632		
	A/O	M	7-9	22,000	60		66254433509		
2 x 3/16	A/O	M	2-3	22,000	60		66254428236		
2 x 1/4	C/A	XC	1	35,100	25	66623313923			
	A/O	C	7-9	22,000	60			66261014921	66261054187
	A/O	M	1	12,100	25		66254497067		
	A/O	M	2-3	22,000	60		66254428237	66261014897	66261054183
	A/O	M	4-6	22,000	60		66254413660	66261014911	66261054185
	A/O	M	7-9	22,000	60		66254433510	66261014935	66261054186
	S/C	F	2	22,000	60			66261014889	
	S/C	F	3	22,000	60			66261017306	
	S/C	F	2-3	22,000	60				66261054182
	S/C	F	4-6	22,000	60				66261054184
3 x 1/8	A/O	C	7-9	15,000	40				
	A/O	M	2-3	15,000	40				
	A/O	M	4-6	15,000	40		66261093556		
	A/O	M	7-9	15,000	40		66261090909		
	A/O	F	2-3	15,000	40				
	A/O	F	4	15,000	40				
	A/O	F	6	15,000	40				
3 x 3/16	A/O	M	7-9	15,000	40		66254428239		
3 x 1/4	C/A	XC	1	12,100	25	66623313930			
	A/O	C	7-9	15,000	40			66261014922	66261054198*
	A/O	M	1	12,100	25		66254497068		
	A/O	M	2-3	15,000	40		66254428238	66261014898	66261054193*
	A/O	M	4-6	15,000	40		66254413661	66261014912	66261054196*
	A/O	M	7-9	15,000	40		66254406395	66261014936	66261054197*
	A/O	F	2-3	15,000	40				66261054192*
	A/O	F	4-6	15,000	40			66261015419	66261054194*
	S/C	F	2	15,000	40			66261014890	
	S/C	F	3	15,000	40			66261016005	
	S/C	F	4-6	15,000	40				66261054195*

\* Std. Pkg. = 20 discs

For additional unified wheels – with arbor holes – see the non woven unified wheel section. Refer to the end of this section for a list of quick-change back-up pads.

## Surface Preparation Discs



## NORTON VORTEX RAPID PREP ALUMINUM OXIDE

### BETTER CHOICE FOR FINISHING AND BLENDING APPLICATIONS

#### FEATURES & BENEFITS

- Proprietary engineered Vortex aluminum oxide abrasive grain and coating method combine maximum cutting speed with the consistent finish of finer grits to reduce process times by 50+% by combining multiple grit sequences to 1 step
- More resistant to edge wear; up 4X life versus competitive products; friable grain structure keeps Ra specs throughout disc life, reducing scrap/rework; extended form holding; lowest total cost of consumable tooling per workpiece
- Clean Bond resin system, aerospace-tailored, remains smear-free, even on high nickel content alloys; will not load on aluminum and soft metals, as competitive products can









## NORTON RAPID PREP ALUMINUM OXIDE

### GOOD CHOICE FOR FINISHING AND BLENDING APPLICATIONS

#### FEATURES & BENEFITS

- Clean Bond resin system, aerospace-tailored, remains smear-free, even on high nickel content alloys; will not load on aluminum and soft metals, as competitive products may
- Proprietary coating method; thick layer of grain throughout the product extends life; grain does not sit on top of fibers as other competitive products can

TIER:	BETTER	GOOD	BETTER	GOOD	BETTER	GOOD
BRAND:	Norton	Norton	Norton	Norton	Norton	Norton
TRADENAME:	<b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>	<b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>	<b>VORTEX RAPID PREP</b>	<b>RAPID PREP</b>
ABRASIVE:	Engineered A/O	Aluminum Oxide	Engineered A/O	Aluminum Oxide	Engineered A/O	Aluminum Oxide
ATTACHMENT:	TR (Type III)	TR (Type III)	TS (Type II)	TS (Type II)	TP (Type I)	TP (Type I)
						
SIZE (DIAM.)	STD. PKG.	PART #	PART #	PART #	PART #	PART #
<b>Extra Coarse</b>						
3/4	50	66623325001	66623340002	66623335324	66261022401	66623325000•
1	50	66623325004•	66623340007•	66623325003	66623340006	66623325002
1-1/2	50	66623325007	66623340011	66623325006	66623340010	66623325005
2	50	66623335326	66261016373	66623335325	66261017819	66623325008
3	25	66623335327	66261016994	66623325010	66261017818	66623325009
4	25	66623335329	66261016374	66623335328	66623310706	66623325011
<b>Coarse</b>						
3/4	50	66623325013	66623340021	66623335410	66261095015	66623325012•
1	50	66623325015	66623340023	66623335537	66261024310	66623325014
1-1/2	50	66623335411	66261047579	66623325017	66623340026	66623325016
2	50	66623335414	66261004437	66623335413	66261009183	66623335412•
3	25	66623335417	66261009194	66623335416	66261009186	66623335415
4	25	66623335419	66261008822	66623335418	66261055349	66623325018
<b>Medium</b>						
3/4	50	66623325020	66623340032	66623335420	66254428059	66623325019
1	50	66623335422	66254482331	66623335421	66254482327	66623325021
1-1/2	50	66623335424	66254482332	66623335423	66254482328	66623325022
2	50	66623335427	66261009190*	66623335426	66261009182	66623335425•
3	25	66623335430	66261017522	66623335429	66261009185	66623335428
4	25	66623335432	66261008821	66623335431	66261055350	66623325023
<b>Fine</b>						
3/4	50	66623325026	66623340058	66623325025	66623340056	66623325024•
1	50	66623325029	66623340064	66623325028	66623340062	66623325027•
1-1/2	50	66623325032	66623340070	66623325031	66623340068	66623325030•
2	50	66623325035	66623340077	66623325034	66623340074	66623325033
3	25	66623325038	66623340085	66623325037	66623340082	66623325036
4	25	66623325041	66623340092	66623325040	66623340090	66623325039
<b>Very Fine</b>						
3/4	50	66623325044	66623340044	66623325043	66623340042	66623325042
1	50	66623325047	66254482339	66623325046	66254482335	66623325045•
1-1/2	50	66623325050	66254482340	66623325049	66254482336	66623325048•
2	50	66623335433	66261009189*	66623325052	66254482337	66623325051•
3	25	66623335437	66261009192	66623335436	66261009184	66623325053•
4	25	66623325056	66623340053	66623325055	66623340052	66623325054
<b>Super Fine</b>						
2	50		66261091459			
3	25		66261091460			

• Non-stock. Ask your Norton representative for current lead-times and order quantities

## Surface Preparation Stars



## MERIT SURFACE PREPARATION STARS

### THE PERFECT ITEM FOR ID WORK

#### FEATURES

- Star shape
- 1/4-20 eyelets

#### BENEFITS

- Penetrates the ID and polishes or cleans the surface without disturbing any tolerances
- Attach to Merit MM20-4 mandrel, Part # 08834183164 (See description at end of Overlap Slotted Disc Section.)

TIER: **GOOD**

BRAND: Merit

TRADENAME: **SURFACE PREP**

ABRASIVE: Aluminum Oxide

ATTACHMENT: 1/4-20 Eyelet

SIZE (D x EYELET)	GRIT	STD. PKG.	PART #
1-1/2" x 1/4-20	C	100	08834185923
	M	100	08834185924
	VF	100	08834185925
2" x 1/4-20	C	100	08834185926
	M	100	08834185927
	VF	100	08834485928
3" x 1/4-20	C	100	08834185929
	M	100	08834185678
	VF	100	08834185931
4" x 1/4-20	C	100	08834185932
	M	100	08834185933
	VF	100	08834185934

2", 3" and 4" Merit Surface Prep Stars are non-stock. Ask your Norton/Merit representative for lead-times.

## Cross Buffs



## MERIT CROSS BUFFS

### EXCELLENT FOR BLENDING, POLISHING AND ID USAGE

#### FEATURES

- Unique design
- 8-32 eyelets

#### BENEFITS

- Durable non-woven construction that delivers longer life and cool running
- Attach to Merit MM32-4 mandrel, Part No. 08834183163 (See description at end of Overlap Slotted Disc Section)

TIER: **BETTER**

BRAND: Merit

TRADENAME: **HIGH STRENGTH**

ABRASIVE: Aluminum Oxide

ATTACHMENT: 8-32 Eyelet

**GOOD**

Merit

**BUFFING**

Aluminum Oxide

8-32 Eyelet

SIZE (D x W)	GRIT	PLY	STD. PKG.	PART #	PART #
1-1/2 x 1/2	Coarse	2	100		08834188761
	Medium	2	100	08834189306	08834187312
	Very Fine	2	100	08834189307	08834188585
1-1/2 x 1/2	Coarse	3	100		66623301763
	Medium	3	100	08834189308	08834187311
	Very Fine	3	100	08834189309	08834188586

## Buffing/Polishing Discs

## NORTON & MERIT BUFFING/POLISHING DISCS

DESIGNED FOR LIGHT REMOVAL OF PAINT OR RUST



TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **HIGH-STRENGTH**  
 ABRASIVE: Aluminum Oxide  
 ATTACHMENT: TR (Type III)



### FEATURES

- High-strength discs
- For light removal of paint or rust

### BENEFITS

- Tough, yet conformable, and resist tearing on burrs and sharp edges
- Smear-proof
- Does not affect the base product

BETTER  
 Merit  
**HIGH-STRENGTH**  
 Aluminum Oxide  
 TR (Type III)



BETTER  
 Merit  
**HIGH-STRENGTH**  
 Aluminum Oxide  
 TS (Type II)



GOOD  
 Merit  
**BUFFING**  
 Aluminum Oxide  
 TR (Type III)



GOOD  
 Merit  
**BUFFING**  
 Aluminum Oxide  
 TS (Type II)



GOOD  
 Merit  
**BUFFING**  
 Aluminum Oxide  
 TP (Type I)



SIZE (D)	GRIT	STD. PKG.	PART #	STD. PKG.	PART #	PART #	PART #	PART #	PART #
1-1/2	M			100			08834166368	08834166392	08834166292
	F			100			08834166369		08834166332
2	C			50			08834161649	08834166394	08834161627
	M	160	66261014792	50	08834164064	08834164244	08834166303	08834166395	08834166280
	F			50			08834166304	08834166396	08834166281
	VF			50	08834163987	08834164245	08834166305	08834166405	08834166282
3	C			25			08834161651	08834166397	08834166293
	M	80	66261014793	25	08834164065	08834164252	08834166308	08834166398	
	F			25			08834166309	08834166399	08834166285
	VF			25	08834163559	08834164255	08834166310	08834166403	08834166286

## Quick-Change Back-up Pads

- Hard density pads are for aggressive cutting action
- Medium density pads are for all-purpose applications
- Soft density pads are used for contours and fine finishing work



TR (TYPE III)



TS (TYPE II)



TP (TYPE I)

TIER: **GOOD**  
 BRAND: Norton  
 ATTACHMENT: TR (Type III)



GOOD  
 Merit  
 TR (Type III)



GOOD  
 Norton  
 TS (Type II)



GOOD  
 Merit  
 TS (Type II)



GOOD  
 Merit  
 TP (Type I)



SIZE (DIAMETER)	MAX. RPM	DENSITY	PART #	PART #	PART #	PART #	PART #
<b>Quick-Change Back-up Pads</b>							
3/4"	40,000	Medium		08834164038		08834164206	08834164001
1"	40,000	Medium		08834164037		08834164651	08834164002
1-1/2"	30,000	Hard				08834164622	08834163996
	30,000	Medium	66261047580	08834161174		08834164146	08834164003
2"	30,000	Hard		08834164643	63642543205	08834164624	08834163997
	30,000	Medium	66261055103	08834164922	63642543210	08834164198	08834164004
	30,000	Soft		08834164641		08834161625	08834163949
3"	20,000	Hard	63642504900	08834164036	63642543220	08834161626	08834163998
	20,000	Medium	66261055105	08834164949	63642543225	08834164113	08834164005
	20,000	Soft		08834164644		08834164626	08834163948
4"	15,000	Medium	66261047581	08834164655	63642543232	08834164135	08834164006
4" TR+	8,000	Medium	66261016581	63642555106			

All quick-change back-up pads have a 1/4" diameter shank. Std. Pkg. = 1

Refer to the end of the Coated Abrasive Quick-Change Discs section for a complete list of back-up pads and mandrels.



## Non-Woven High Strength Discs

### NORTON & MERIT HIGH STRENGTH AND FASTCUT DISCS

#### BETTER CHOICE FOR LIGHT DEBURRING AND FINISHING

##### FEATURES

- Firm, durable web
- Tough, yet conformable
- Strong, smear-proof resin binders

##### BENEFITS

- High resistance to tearing on burrs and sharp edges
- Can be "ganged" together and used as a wheel
- Produce light satin finishes

Applications include rust/oxide or coating removal, pipe ID and OD polishing, casting cleaning, highlighting (antiquing), contaminant removal, removal of handling marks, gasket removal, cleaning and blending of surface imperfections, prepping prior to soldering, removal of filling materials, cleaning angles and odd shapes. Will not stretch or shed. Ganging increases versatility.

		TIER: <b>BEST</b>		BETTER		GOOD	
		BRAND: Norton		Norton		Merit	
		TRADENAME: <b>FAST CUT</b>		<b>HIGH STRENGTH</b>		<b>HIGH STRENGTH</b>	
		ABRASIVE: Aluminum Oxide		Aluminum Oxide		Aluminum Oxide	
SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	STD. PKG.	PART #
6 x 1/4	VF	4,000	70		66261007628		
6 x 1/2	M	4,000	70		66261005073	25	08834162410
	F	4,000	70			25	08834167735
	VF	4,000	70	66261000601	66261004980	25	08834162411
8 x 1/2	M	3,000	50		66261005491	25	08834162412
	VF	3,000	50		66261004506	25	08834162413
12 x 1-1/4	VF	1,900	25		66261008723		



FITS HOLE	FOR DISC WIDTH	FOR DISC DIAMETER	SHANK DIAMETER	OVERALL LENGTH	WASHER DIAMETER	STD. PKG.	PART #
<b>Mandrel Assemblies For Using Discs On Edge</b>							
1/4"	1/2" (Standard)	up to 6"	1/4"	2-1/2"	1-1/2"	1	66261009502
1/2"	1/2" (Standard)	Up to 8"	1/4"	3-1/8"	2-1/4"	1	66261059420

## Non-Woven Disc Wheels

### MERIT DISC WHEELS

#### GOOD CHOICE FOR LIGHT DEBURRING AND FINISHING

##### FEATURES

- Discs are "ganged" together to form a wheel

##### BENEFITS

- Mounted on a 1/4" steel mandrel embedded in an epoxy core
- Strong and durable

		TIER: <b>GOOD</b>		BRAND: Merit		ABRASIVE: Aluminum Oxide	
SIZE (D x W x 1/4 SHANK)	GRIT	PLY	MAX. RPM	STD. PKG.	PART #		
2 x 1/2	Medium	2 Ply	12,000	10	08834131551		
2 x 1	Medium	4 Ply	12,000	10	08834131554		
3 x 1/2	Medium	2 Ply	8,000	10	08834131558		
	Very Fine	3 Ply	8,000	10	08834131560		
	Medium	4 Ply	8,000	10	08834131496		
	Fine	5 Ply	8,000	10	08834131557		
	Very Fine	5 Ply	8,000	10	08834131497		
4 x 1/2	Fine	3 Ply	6,000	10	08834131562		
4 x 1	Medium	4 Ply	6,000	10	08834131564		
5 x 1/2	Medium	2 Ply	4,000	10	08834131567		
5 x 1	Medium	4 Ply	4,000	10	08834131570		
	Fine	5 Ply	4,000	10	08834131571		

Disc wheels are constructed by number of plys. The actual face width will vary and will not match the listed width exactly. Face width is given for reference only.



Made from non-woven synthetic fiber mesh, which is impregnated with abrasives and bound with resins, non-woven wheels are designed to create desired surface finish where little or no stock removal is required. The industry's broadest offering is available for light stock removal, deburring, blending, finishing and polishing. Non-woven wheels have an open mesh construction that is waterproof, washable, conformable and non-loading.

#### Applications:

Cleaning and removing imperfections on metal surfaces, cleaning built-up residue, deburring or finishing a variety of surfaces, blending weld seams or creating decorative finishes. Non-woven surface finishing products have excellent versatility.

#### Abrasive Grain:

Ceramic Alumina, Engineered Aluminum Oxide, Aluminum Oxide, Silicon Carbide

#### Grit Range:

Extra Coarse (XC), Coarse (C), Medium (M), Fine (F),

#### Machine Used:



## APPLICATION/GRIT RECOMMENDATION GUIDE

	MOST AGGRESSIVE				LEAST AGGRESSIVE		
NORTON	Rapid Strip Wheels	Rapid Blend Unified Wheels	Rapid Finish GP Convolute Wheels	Metal Finishing Convolute Wheels	Clean & Finish Convolute Wheels	Light Finishing Convolute Wheels	Non-Woven / Interleaf Flap Wheels
Scale Removal	Best Choice						
Stock Removal		Best Choice	Second Choice				
Heavy Deburring		Best Choice	Second Choice				
Decorative Finishing			Best Choice	Best Choice	Second Choice		
Blending				Second Choice			
Cleaning				Second Choice	Best Choice		
Light Deburring			Second Choice			Best Choice	
Light Finishing			Second Choice			Best Choice	
Polishing						Best Choice	Second Choice
Buffing							Best Choice

## SURFACE FINISH VARIABLES

Changes in any one of many factors can affect the surface finish on the workpiece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.

Variable Factor	Rough Finish High Rms Reading		Smooth Surface Lower Rms Reading	
1. Wheel Speed	Slow	Fast		
2. Feed Speed	Faster (Long Scratch)	Slower (Short Scratch)		
3. Oscillation	No Oscillation	Oscillation		
4. Lubricants	Dry	Water	Soluble Oil	Straight Oil
			Compounds	

## NON-WOVEN MARKING SYSTEM

ABRASIVE	SILICON CARBIDE	ALUMINUM OXIDE
	SHARPER, FINER/BRIGHTER SCRATCH PATTERN	MORE DURABLE, LONGER LASTING, POLISHED FINISH
GRIT SIZE	XC (24-36)	C (50-80) M (100-150) F (180-220)
	FASTER, AGGRESSIVE CUT, ROUGHER FINISH	REDUCED CUT RATE, FINER FINISH
DENSITY	2	9
	SOFT, OPEN, CONFORMABLE, LESS BURNING/LOADING	HARDER, MORE DURABLE, FASTER CUTTING, BETTER FINISH

## CROSS REFERENCE GUIDE

		STRIPPING		HEAVY/LIGHT DEBURRING		LIGHT DEBURRING/BLENDING/POLISHING			CLEANING/FINISHING			
		←							→			
		BEST	GOOD	BEST	GOOD	BEST	BEST	BETTER	BEST	BEST	BEST	GOOD
NORTON	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	NEX Rapid Blend	Rapid Finish GP	Series 4000	Series 1000	Light Finishing	Metal Finishing	Clean & Finish	Non-Woven / Interleaf Flap Wheels	
	3M	Clean Strip	Cut & Polish Unitized	EXL Unitized	3M EXL, General Purpose	EX2 & EX3	EXL Deburring	Light Deburring	Metal Finishing	Multi Finishing	Finishing Flap Brush	
	Standard	Britestrip	800 & 900 Series	500 - 700 Series	General Purpose Plus, Light Deburring	GP Plus	Deburring Convolute	LDW	Metal Finishing	Multi Finishing	Buff & Blend Flap Brush	

## Rapid Strip Wheels



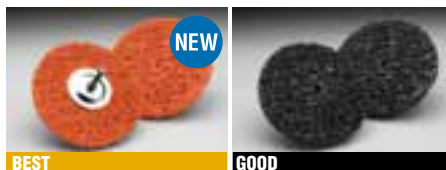
NEW

## NORTON BLAZE RAPID STRIP CERAMIC ALUMINA

**BEST CHOICE FOR REMOVING COATINGS ON A VARIETY OF SUBSTRATES, SUCH AS WOOD, METAL AND PLASTICS**

### FEATURES & BENEFITS

- Norton Blaze ceramic alumina grain provides 2X cut rate, 2X life over silicon carbide products
- Advanced resin bond does not shed on rust-encrusted pieces, and prevents gouging and rework; does not snag when used for deburring
- Leave a thoroughly cleaned surface that ensures excellent adhesion for subsequent processes such as coating, painting and soldering.



NEW

TIER:	<b>BEST</b>	<b>GOOD</b>
BRAND:	Norton	Norton
TRADENAME:	<b>BLAZE RAPID STRIP</b>	<b>RAPID STRIP</b>
ABRASIVE:	Ceramic Alumina	Silicon Carbide
GRIT:	Extra Coarse	Extra Coarse

SIZE	MAX. RPM	STD. PKG.		PART #
<b>Arbor Hole</b>				
4 x 1/4	8,000	25	66261009324	66261008008
4 x 1/2	8,000	25	66623304856	66261007916
6 x 1/4	4,000	15	66623340171	66261007988
6 x 1/2	4,000	15	66261099378	66261008051

Note: Blaze Rapid Strip shown with mandrel inserted into arbor hole.

## Rapid Blend Unified Wheels

Designed for maintenance operations needing an efficient and cost-effective method of deburring, polishing, cleaning or finishing metals and composites. Easily preformed for use on a wide variety of shapes/contours. Hold shape well; less wheel dressing. Non-metallic so no contamination of workpiece. Uniform construction maintains part tolerance; prevents cutting or gouging.

## NORTON VORTEX RAPID BLEND ALUMINUM OXIDE

**BETTER CHOICE FOR LIGHT WELD BEAD AND WELD SPLATTER REMOVAL, HEAVY DEBURRING AND FINISHING APPLICATIONS**

### FEATURES

- High-performance engineered grain and improved resin bond system
- Thick nylon web
- Controlled porosity

### BENEFITS

- Aggressive, fast, stock removal, reduced cycle times, and increased part quality
- 2X longer life and faster finishing – with minimal shedding
- Cool cutting and improved cut rate



TIER:	<b>BETTER</b>
BRAND:	Norton
TRADENAME:	<b>VORTEX RAPID BLEND UNIFIED WHEELS</b>

SIZE (D x T x H)	ABRASIVE	GRIT SIZE	STD. PKG.	MAX. RPM	3 DENSITY PART #	MAX. RPM	5 DENSITY PART #	MAX. RPM	7 DENSITY PART #	MAX. RPM	9 DENSITY PART #
2 x 1/8 x 1/8	A/O	M	60			22,000	66254425657	20,000	66254410849		
2 x 1/8 x 1/4	A/O	M	60					22,000	66261191446		
2 x 1/4 x 1/4	A/O	M	60	18,000	66254428456	22,000	66254433504	22,000	66261080270		
2 x 1 x 1/4	A/O	M	15					22,000	66261080269		
3 x 1/8 x 1/4	A/O	M	40			18,000	66261093448	18,000	66261191445		
3 x 1/8 x 3/8	A/O	M	40			18,000	66254433503	18,000	66254401131		
3 x 1/4 x 1/4	A/O	M	40	12,000	66254428454	18,000	66254414832	18,000	66261199696		
3 x 1/4 x 3/8	A/O	M	40	12,000	66254433505	12,000	66254433506				
3 x 1/2 x 1/4	A/O	M	20			18,000	66254432925	18,000	66261080267	18,000	66254433507
3 x 1/2 x 3/8	A/O	M	20			18,000	66254433508	18,000	66261080266	18,000	66254420696

## Rapid Blend Unified Wheels *continued*

### NORTON NEX RAPID BLEND A/O & S/C

GOOD CHOICE FOR LIGHT DEBURRING AND BLENDING

#### FEATURES

- Uniform construction
- Smear-resistant formula

#### BENEFITS

- Extra long life
- Excellent, consistent, smear-free finishes

TIER: **GOOD**

BRAND: Norton

TRADENAME: **NEX RAPID BLEND UNIFIED WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	2 DENSITY PART #	3 DENSITY PART #	4 DENSITY PART #	6 DENSITY PART #	7 DENSITY PART #	8 DENSITY PART #
1 x 1 x 3/16	A/O	C	30,000	50						66261014915
	A/O	M	18,000	50	66261014891					
	A/O	M	30,000	50				66261014908		66261014924
	S/C	F	18,000	50	66261014883					
	S/C	F	30,000	50				66261014904		66261014923
2 x 1/8 x 1/4	A/O	M	22,000	60						66261014927
2 x 1/4 x 1/4	A/O	M	18,000	60	66261014892					
	A/O	M	22,000	60						66261014926
	A/O	F	22,000	60				66261014901		
	S/C	F	18,000	60	66261014884					
2 x 1/2 x 1/4	A/O	M	22,000	30						66261014925
3 x 1/4 x 1/4	A/O	C	18,000	40						66261014919
	A/O	M	18,000	40				66261014909		66261014930
	S/C	F	12,000	40	66261014886					
3 x 1/4 x 3/8	A/O	C	18,000	40						66261014920
	A/O	M	12,000	40	66261014895					
	A/O	M	18,000	40				66261014910		66261014933
	A/O	F	12,000	40			66261014899			
	S/C	F	12,000	40	66261014887	66261016006				
3 x 1/2 x 1/4	A/O	M	12,000	20	66261014893					
	A/O	M	18,000	20				66261014928		
	S/C	F	12,000	20	66261014885					
3 x 1/2 x 3/8	A/O	M	18,000	20						66261014929
3 x 1 x 3/8	S/C	XC	14,000	10					66261014914	
6 x 1/2 x 1	A/O	M	7,500	4						66261014931
6 x 1 x 1	S/C	F	5,000	2	66261014888					

### NORTON RAPID BLEND DEBURRING A/O & S/C

GOOD STARTING SPECIFICATION FOR HIGH-SPEED DEBURRING APPLICATIONS

#### FEATURES

- Controlled density range

#### BENEFITS

- More durable than General Duty Wheels

TIER: **GOOD**

BRAND: Norton

TRADENAME: **RAPID BLEND DEBURRING  
UNIFIED WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	PART #
2 x 1/4 x 1/4	A/O	220	20,000	60	66261052200
2 x 1/2 x 1/4	A/O	120	20,000	40	66261058876
	S/C	220	20,000	40	66261058782
3 x 1/4 x 1/4	A/O	220	18,000	40	66261058877
	S/C	220	18,000	40	66261058854
3 x 1/2 x 1/4	S/C	220	18,000	20	66261058859
3 x 3/4 x 1/4	A/O	220	18,000	20	66261058881



## Rapid Blend Unified Wheels *continued*

### NORTON RAPID BLEND GENERAL DUTY DEBURRING

GOOD CHOICE FOR GENERAL PURPOSE LIGHT DEBURRING APPLICATIONS

#### FEATURES

- Excellent resistance to snagging

#### BENEFITS

- For general purpose light deburring applications

TIER: **GOOD**

BRAND: Norton

TRADENAME: **RAPID BLEND  
GENERAL DUTY UNIFIED WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART #
1 x 1 x 3/16	A/O	C	8	15,000	50	66261000938
2 x 1/4 x 1/4	A/O	C	8	11,000	60	66261052275
2 x 1/2 x 1/4	A/O	F	4	11,000	40	66261058764
3 x 1/4 x 1/4	A/O	C	8	8,000	40	66261052276
	A/O	F	4	8,000	40	66261058816
	S/C	F	4	8,000	40	66261000745
3 x 1/2 x 1/4	A/O	F	4	8,000	20	66261054046
	S/C	F	4	8,000	20	66261054048
3 x 3/4 x 1/4	A/O	F	4	8,000	20	66261058769
	S/C	M	4	8,000	20	66261058773
	S/C	F	4	8,000	20	66261058771
6 x 1/2 x 1/2	S/C	M	4	4,800	8	66261058779
6 x 1 x 1/2	S/C	M	4	4,800	4	66261058792
	S/C	F	4	4,800	4	66261058790
6 x 1 x 1	S/C	F	4	4,800	4	66261058797

## Assemblies and Mandrels for Unified Wheels

FITS WHEEL CENTER HOLE	FOR WHEEL WIDTH	FOR WHEEL DIAMETER	SHANK DIAMETER	OVERALL LENGTH	WASHER DIAMETER	3M EQUIVALENT	STD. PKG.	PART #
<b>Mandrel Assemblies for Unified Wheels and Discs On Edge</b>								
3/16	1/8 – 1/2	1 – 2	1/4	2	7/16	994	1	66261009852
1/4 – 5/16	Up to 1/2	Up to 2	1/4	2	5/8	932	1	66261015146
1/4 – 5/16	Up to 1	Up to 2	1/4	2-1/2	5/8	932	1	66261059422
	Up to 1	2 – 3	1/4	2-1/2	1	933	1	66261059421
3/8	Up to 1/2	2 – 4	1/4	2-1/2	1	990	1	66261009851
1/2	Up to 1	3 – 6	1/4	3-1/8	1-5/8	934	1	66261009850
FOR CENTER HOLE	USE WITH UNIFIED WHEEL	SHANK DIAMETER	SHANK LENGTH			3M EQUIVALENT	STD. PKG.	PART #
<b>Threaded Mandrel for Unified Wheels</b>								
3/16	1 x 1 x 3/16	1/4"	1-3/4"			948	5	66261047584



MANDREL ASSEMBLY 66261059421



MANDREL ASSEMBLY 66261059422



THREADED MANDREL 66261047584





## Convolute Wheels

Formed by wrapping and bonding web material impregnated with abrasive grain and resin around a center core. Convolute wheels offer a wide range of uses:

- Burr and flashing removal
- Surface roughness reduction
- Blending weld areas on stainless steel
- Blending scratch patterns
- Weld polishing
- Removing rust and oxides
- Applying decorative finishes including antique patterns

### TIP

- Convolute wheels must always run in the direction indicated by the arrow printed on the side of each wheel.
- Light to medium pressure is recommended. Excessive pressure may result in part damage.
- Lubricants such as water-soluble oil and straight oil will decrease the heat and improve the surface finish and lustre.



It is the user's responsibility to refer to and comply with ANSI B7.1



## NORTON RAPID FINISH GENERAL PURPOSE A/O & S/C

**BEST CHOICE FOR BROAD RANGE OF APPLICATIONS: GENERAL DEBURRING, BLENDING, AND FINISHING ON ALL MATERIALS INCLUDING METALS, WOOD, GLASS**

### FEATURES & BENEFITS

- Eliminate smearing and loading on a wide range of workpieces (from high-nickel-content alloys to aluminum and other soft metals with patent-pending Norton Clean Bond resin technology)
- Increase throughput with a 30% faster finish through new Norton grain/bond configuration
- Decrease wheel changes with a 10-30% longer life, provided by a new fiber and the high-temperature resin bond
- Ease wheel selection with color-coding wheel to match the primary use (maroon for General Purpose), and fiberglass core to match the abrasive (black for silicon carbide and white for aluminum oxide)
- Use wet or dry

TIER: **BEST**

BRAND: Norton

TRADENAME: **RAPID FINISH GENERAL PURPOSE**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	PRODUCT CODE	6 DENSITY PART #	7 DENSITY PART #	8 DENSITY PART #	9 DENSITY PART #
6" x 1/2" x 1"	A/O	Med.	6,000	4	C2315		66261134177	66261134178	66261134179
	S/C	Med.	6,000	4	C4315				66261108076
	S/C	Fine	6,000	4	C4415		66261133213	66261106732	66261112985
6" x 1" x 1"	A/O	Med.	6,000	3	C2315	66261134180	66261134181	66261134182	66261134183
	A/O	Fine	6,000	3	C2408	66261132100	66261132322	66261132324	
	S/C	Med.	6,000	3	C4315		66261108074	66261133215	66261108075
	S/C	Fine	6,000	3	C4415	66261114475	66261119988	63642577269	63642581587
	S/C	Very Fine	6,000	3	C4515	66261131970			
6" x 2" x 1"	A/O	Med.	6,000	2	C2315		66261134184		
	S/C	Med.	6,000	2	C4315		66261114471		
	S/C	Fine	6,000	2	C4415		66261132325		
8" x 1" x 3"	S/C	Med.	4,500	3	C4315		66261108066	66261108069	
	S/C	Fine	4,500	3	C4415	66261108064	66261108065	63642553754	63642576004
	S/C	Very Fine	4,500	3	C4515				66261133209
8" x 2" x 3"	S/C	Med.	4,500	2	C4315		66261114473		
	S/C	Fine	4,500	2	C4415		66261114480	66261114483	66261114486
	S/C	Very Fine	4,500	2	C4515				66261133210
10" x 1" x 5"	A/O	Med.	3,600	3	C2315		66261134185		
	S/C	Fine	3,600	3	C4415			66261106554	66261114488
10" x 2" x 5"	S/C	Fine	3,600	1	C4415			63642581044	66261114489
12" x 1" x 5"	A/O	Med.	3,000	2	C2315				66261134186
	S/C	Fine	3,000	2	C4415	66261108053	66261114481	66261114484	66261114074
	S/C	Very Fine	3,000	2	C4515				66261134187
12" x 2" x 5"	S/C	Fine	3,000	1	C4415		66261114482	66261112766	66261114490

## Convolute Wheels continued

### NORTON SERIES 4000 A/O & S/C

#### BEST CHOICE FOR HEAVY DEBURRING APPLICATIONS



#### FEATURES

- Advanced resin bond system
- High quality synthetic web

#### BENEFITS

- Free cutting
- Use both wet and dry
- Long life for heavy deburring, edge breaking and removing parting lines on exotic metals

TIER: **BEST**

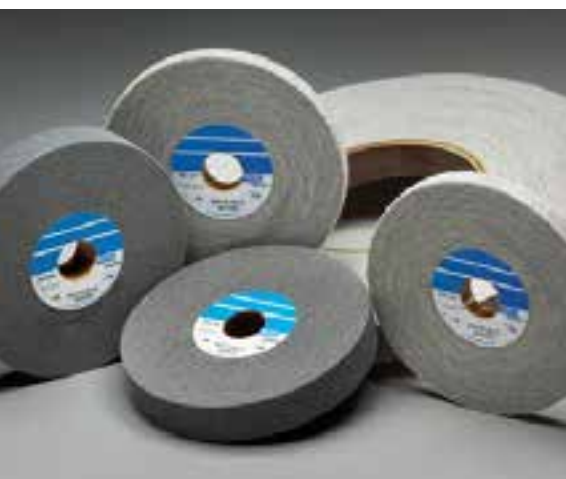
BRAND: Norton

TRADENAME: **SERIES 4000 CONVOLUTE WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	8 DENSITY PART #	9 DENSITY PART #
6 x 1/2 x 1	S/C	F	6,000	4		66261004021
6 x 1 x 1	A/O	M	6,000	3	66261004208	
	S/C	F	6,000	3		66261004141
8 x 1 x 3	A/O	M	4,500	3	66261004165	
	S/C	F	4,500	3	66261004123	66261004135
12 x 1 x 5	S/C	F	3,000	2	66261004284	66261004148
12 x 2 x 5	S/C	F	3,000	1		66261004011

### NORTON SERIES 1000 LONG LIFE A/O & S/C

#### BETTER CHOICE FOR GENERAL DEBURRING, BLENDING, AND FINAL FINISHING



#### FEATURES

- Smear and heat-resistant formula
- Dense web construction (9 density)
- More open web construction (7 density)
- Waterproof
- Non-metallic
- Optimum grain/resin formulation
- Conformable and flexible

#### BENEFITS

- Consistent, high quality results
- Starting point for deburring, blending, polishing and finishing applications
- Smear-resistant and cool cutting on light deburring applications
- Use dry, wet or with oil
- No contamination of workpiece
- Durable, long life construction with versatile application range and consistent cut rate and shed resistance
- Less operator fatigue

TIER: **BETTER**

BRAND: Norton

TRADENAME: **SERIES 1000 LONG LIFE CONVOLUTE WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	7 DENSITY PART #	8 DENSITY PART #	9 DENSITY PART #
6 x 1/2 x 1	A/O	M	6,000	4	66261018857		66261018650
	S/C	M	6,000	4			66261019540
	S/C	F	6,000	4	66261018628		66261018629
6 x 1 x 1	A/O	M	6,000	3	69957397884	66261018636	66261019337
	S/C	M	6,000	3	69957397882	69957397883	66261018630
	S/C	F	6,000	3	66261018631	66261018774	66261018632
8 x 1 x 3	A/O	M	4,500	3	69957397885	66261018855	66261018633
	S/C	M	4,500	3	69957394610	66261018673	66261018997
	S/C	F	4,500	3	66261018639	66261018640	66261018641
12 x 1 x 5	A/O	M	3,000	2	69957397887		66261018896
	S/C	M	3,000	2		66261018786	66261018908
	S/C	F	3,000	2			66261018626

## Convolute Wheels *continued*

### NORTON LIGHT FINISHING SILICON CARBIDE

**BEST CHOICE FOR LIGHT DEBURRING, POLISHING, AND FINE FINISHING APPLICATIONS**

#### FEATURES

- Controlled cut rate
- Very conformable
- Superior form holding
- Durable resin bond system
- Advanced manufacturing process

#### BENEFITS

- Prevents "over benching"
- Deburrs and polishes without altering geometry
- Operator friendly, reduces fatigue
- Consistent, reliable edge breaking and finishing with minimal wheel dressing and reshaping
- Less dust and shedding with more uniform wear
- Substantial extended wheel life in a soft, conformable wheel
- Consistent web forming and grain distribution produce consistent finish on intricate polishing applications

TIER: **BEST**

BRAND: Norton

TRADENAME: **LIGHT FINISHING CONVOLUTE WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	6 DENSITY PART #	7 DENSITY PART #	8 DENSITY PART #
6 x 1/2 x 1	S/C	F	6,000	66261092322	66261092324	66254421572
6 x 1 x 1	S/C	F	6,000	66254403708	66254403709	66254421573
8 x 1/2 x 3	S/C	F	4,500	66254403707	66254409698	66254421575
8 x 1 x 3	S/C	F	4,500	66261095702	66254409924	66254421577

All Light Finishing convolute wheels are non-stock. Ask your Norton representative for current lead-times and order quantities.

### NORTON METAL FINISHING ALUMINUM OXIDE

**BEST CHOICE FOR DECORATIVE FINISHING, BLENDING, AND FINAL FINISHING**

#### FEATURES

- Premium, medium grit aluminum oxide grain
- Dense, very durable web
- Strongest resin binders
- Uniform grain dispersion and coating
- Available in 5 and 6 densities

#### BENEFITS

- Generates uniform distinct satin and antique finishes
- Can be used for blending applications
- Resilient, long life construction
- Clean and condition without gouging or changing dimensions of workpiece
- Ideal for blending and matching #3 and 4 mil. finishes, and surface prep for buffing, polishing and applying decorative finishes

TIER: **BEST**

BRAND: Norton

TRADENAME: **METAL FINISHING  
CONVOLUTE WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART #
6 x 1 x 1	A/O	M	5	6,000	3	66261007936
		M	6	6,000	3	66261010148
6 x 2 x 1	A/O	M	5	6,000	2	66261007957
		M	6	6,000	2	66261009635
8 x 1 x 3	A/O	M	5	4,500	3	66261007831
8 x 2 x 3	A/O	M	5	4,500	2	66261007904
		M	6	4,500	2	66261012971
12 x 1 x 5	A/O	M	5	3,000	2	66261007434
		M	6	3,000	2	66261009481
12 x 2 x 5	A/O	M	5	3,000	1	66261007212
14 x 2 x 8	A/O	M	5	2,550	1	66261007817
		M	6	2,550	1	66261012041



## Convolute Wheels *continued*

### NORTON CLEAN & FINISH SILICON CARBIDE

#### BEST CHOICE FOR FINE FINISHING WITH LIGHT PRESSURE

##### FEATURES

- Silicon carbide grain
- Open mesh construction

##### BENEFITS

- Good for blending, rust removal, applying decorative, contrast finishes and low- to moderate-speed applications
- Not used for deburring
- Used with light to moderate pressure, low speed

TIER: **BEST**

BRAND: Norton

TRADENAME: **CLEAN & FINISH  
CONVOLUTE WHEELS**

SIZE (D x T x H)	ABRASIVE	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART #
4 x 1 x 1	S/C	M	4	4,000	10	66261058502
		F	4	4,000	10	66261058501
6 x 1 x 1	S/C	M	4	3,000	4	66261058507
		F	4	3,000	4	66261058506
6 x 2 x 1	S/C	M	4	3,000	2	66261058510
		F	4	3,000	2	66261058509
6 x 3 x 1	S/C	M	4	3,000	1	66261058512
6 x 4 x 1	S/C	M	4	3,000	1	66261058514
8 x 1 x 3	S/C	M	4	2,500	3	66261058518
8 x 2 x 3	S/C	M	4	2,500	2	66261058521
8 x 3 x 3	S/C	M	4	2,500	1	66261058524
8 x 4 x 3	S/C	M	4	2,500	1	66261058526

## Aluminum Reducing Bushings for Flap and Convolute Wheels

- Durable, aluminum one-piece-design flanges with integrated "contact washer"
- Snug fit; extended usable life
- Available in stock and non-stock sizes in many combinations of ID hole reduction

WHEEL CENTER HOLE	BUSHING REDUCES HOLE SIZE TO	FOR WHEEL DIAMETER	STD. PKG.	PART #
1	3/8	4 - 6	1 Pair	66261080522
	1/2	4 - 6	1 Pair	66261080523
	5/8	4 - 6	1 Pair	66261080524
	3/4	4 - 6	1 Pair	66261080525
	7/8	4 - 6	1 Pair	66261080526
2	1/2	6	1 Pair	66261080527
	5/8	6	1 Pair	66261080528
	1	6	1 Pair	66261080529
	1-1/4	6	1 Pair	66261080530
3	1	8	1 Pair	66261080531
	1-1/4	8	1 Pair	66261080532
	1-1/2	8	1 Pair	66261080383
	2	8	1 Pair	66261080514
5	1	10 and 12	1 Pair	66261080533
	1-1/4	10 and 12	1 Pair	66261080534
	3	10 and 12	1 Pair	66261080535
8	1-1/4	14	1 Pair	66261080536
10	1-1/4	16	1 Pair	66261080520



Non-woven surface finishing flap wheels are an ideal choice for a wide variety of blending and finishing applications common in the metal fabrication, welding and polishing industries. Flap wheels are conformable to intricate shapes and contours. Designed to deliver a consistent finish with a uniform rate of cut, flap wheels wear away continually exposing fresh abrasives.

There are two types of non woven flap wheels: non-woven only abrasive flaps where finishing is the primary application, and interleaf with alternating cloth and non-woven abrasive flaps (less conformable, more aggressive) for stock removal and finishing. Interleaf flap wheels must always be run in the direction indicated by the arrow.

**Applications:** Used for a wide range of metal fabrication and welding applications including blending, deburring, cleaning, finishing, and polishing  
**Size Range:** Flap wheels with mounted steel shanks: 2" – 4" diameter  
 Flap wheels with arbor holes: 3" – 12" diameter  
**Grit Range:** 60 – 320  
**Abrasive Grain:** Aluminum Oxide, Silicon Carbide  
**Machine Used:**



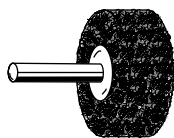
### APPLICATION/GRIT RECOMMENDATION GUIDE

COARSER (GRINDING)				FINER (FINISHING)	
60	80	120	180	240	320
Preparing Metal for Painting					
Blending Out Medium Machine Marks					
	Blending Metal Surfaces				
	Applying Light Scratch Pattern				
		Fine Blending and Cleaning			
				Metal Finishing and Polishing	
INTERLEAF FLAP WHEEL				NON-WOVEN FLAP WHEEL	

**MERIT**



1/4" Mounted Steel Shanks



TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **INTERLEAF**

**GOOD**  
Merit  
**INTERLEAF**

**BETTER**  
Norton  
**NON-WOVEN**

**GOOD**  
Merit  
**NON-WOVEN**

SIZE (D x W x SK.)	ABRASIVE	COATED GRIT	NON-WOVEN GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
2 x 1 x 1/4	A/O	60	Medium	12,000	20	66261051720			
	A/O	60	Very Fine	12,000	10		08834138122		
	A/O	80	Medium	12,000	20	66261051721			
	A/O	80	Very Fine	12,000	10		08834138123		
	A/O	120	Medium	12,000	10	66261051722		66261051716*	66261189992*
	A/O	120	Very Fine	12,000	10		08834144457		
	A/O	180	Very Fine	12,000	10		08834144458		
2 x 1-1/2 x 1/4	A/O	320	Very Fine	12,000	10		08834144459	66261051717*	69957399202
	A/O	80	Very Fine	12,000	10		08834138125		
	A/O	120	Very Fine	12,000	10		08834138126		
3 x 1 x 1/4	A/O	320	Very Fine	12,000	10		08834138128		
	A/O	60	Very Fine	12,000	10		08834138129		
	A/O	80	Very Fine	12,000	10		08834138130		
	A/O	120	Medium	12,000	10	66261051725*		66261051718*	08834131921
	A/O	120	Very Fine	12,000	10		08834138118		
	A/O	180	Fine	12,000	10		08834138120		
	A/O	—	Very Fine	12,000	10			66261051719*	
3 x 2 x 1/4	A/O	320	Very Fine	12,000	10		08834138119		
	A/O	120	Medium Fine	8,000	10			66261058474	
	A/O	120	Very Fine	8,000	10		08834144460		
4 x 2 x 1/4	A/O	180	Very Fine	8,000	10		08834144461		
	A/O	80	Very Fine	12,000	10		08834121115		
	A/O	120	Very Fine	12,000	10		08834120458		

\*Standard package quantity = 20

Refer to Non-Woven Convolute Wheel section for Flap Wheel Reducing Bushings.





Arbor Hole Mounts



TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **INTERLEAF**

TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **INTERLEAF**

TIER: **BETTER**  
BRAND: Norton  
TRADENAME: **NON-WOVEN**

TIER: **GOOD**  
BRAND: Merit  
TRADENAME: **NON-WOVEN**

SIZE (D x W x SK.)	ABRASIVE	COATED GRIT	NON-WOVEN GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
3 x 2 x 3/8	A/O	60	Very Fine	12,000	10		08834139000		
	A/O	120	Very Fine	12,000	10		08834139001		
	A/O	240	Very Fine	12,000	10		08834139028		
	A/O	320	Very Fine	12,000	10		08834139024		
4 x 2 x 5/8	A/O	60	Very Fine	12,000	10		08834126025		
	A/O	240	Very Fine	12,000	10		08834126014		
	A/O	320	Very Fine	12,000	10		08834126027		
	A/O	120	Very Fine	6,000	10		08834126006		
6 x 1 x 1	A/O	240	Very Fine	6,000	10		08834126030		
	A/O	—	Medium	3,000	4			66261058456	
6 x 1 x 2	A/O	180	Fine	3,000	4			66261058487	
	S/C	—	Fine	3,000	4			66261058451	
	S/C	—	Very Fine	3,000	4			66261058450	05539512658
	A/O	80	Very Fine	6,000	10		08834126009		
6 x 2 x 1	A/O	180	Very Fine	6,000	10		08834126018		
	A/O	80	Very Fine	6,000	6		08834126055		
8 x 1 x 3	A/O	120	Medium	2,500	3	66261010711			
	—	—	Fine	2,500	3			66261058491	
8 x 2 x 3	A/O	—	Medium	2,500	2			66261000889	
	A/O	—	Medium	2,500	2				05539512677
	A/O	—	Fine	2,500	2			66261058493	
	A/O	80	Medium	1,900	2	66261010712			
12 x 1 x 5	A/O	80	Medium	1,900	2			66261005070	05539562637
12 x 2 x 5	A/O	—	High Strength	1,900	1				

**MERIT**







Norton non-woven belts are a combination of strong synthetic mesh and quality abrasive, bonded together by a smear-resistant adhesive. The open construction of non-woven material enables aggressive cutting action and improved surface finish while maintaining its non-loading feature.

**Applications:**

Removing surface defects, light edge burrs, parting lines, flashing, rust, oxides, corrosion, paints, and scale; blending mill marks, tool marks, uneven edges, and applying decorative finishes.

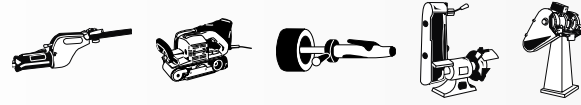
**Abrasive Grain:**

Engineered Aluminum Oxide, Aluminum Oxide






**Grit Range:**

Extra Coarse (Black), Coarse (Brown), Medium (Maroon), Fine (Green), Very Fine (Blue)

**Machine Used:**



**APPLICATION/GRIT RECOMMENDATION GUIDE**

					
	<b>EXTRA COARSE</b>	<b>COARSE</b>	<b>MEDIUM</b>	<b>FINE</b>	<b>VERY FINE</b>
	<b>BETTER Choice - Norton Rapid Prep Vortex</b>				
	<b>GOOD Choice - Norton Rapid Prep</b>				
Scale Removal	X				
Stock Removal		X			
Heavy Deburring		X			
Light Deburring			X		
Light Finishing			X		
Blending				X	
Finishing					X

## NORTON VORTEX RAPID PREP ALUMINUM OXIDE

### BETTER CHOICE FOR FINISHING AND BLENDING APPLICATIONS



**FEATURES**

- Proprietary engineered Vortex aluminum oxide abrasive grain and new coating method
- Clean Bond resin system, aerospace-tailored

**BENEFITS**

- Most consistent cutting and finishing of surface conditioning products on the market
- Combine maximum cutting speed with the finish of fine grits
- Reduce process times by 50+% by eliminating 2 to 5 grit sequences to 1 step in your technical blending operations
- More resistant to edge wear; up to 4X the life of competitive products
- Friable grain structure keeps Ra specs throughout belt life and reduces scrap and rework
- Smear-free, even on high nickel content alloys
- Will not load on aluminum and soft metals, as competitive products can

## NORTON RAPID PREP ALUMINUM OXIDE

### GOOD CHOICE FOR FINISHING AND BLENDING APPLICATIONS



**FEATURES**

- Clean Bond resin system, aerospace-tailored
- Proprietary new coating method
- Extended form holding

**BENEFITS**

- Smear-free, even on high nickel content alloys
- Will not load on aluminum and soft metals, as competitive products can
- Thick layer of grain throughout the product extends life; grain does not sit on top of fibers as other competitive products can
- Lowest total cost of consumable tooling per workpiece
- 50% better life than competitive aluminum oxide products

## Norton Rapid Prep Vortex

		TIER:	BETTER	BETTER	BETTER	BETTER	BETTER
		BRAND:	Norton	Norton	Norton	Norton	Norton
		TRADENAME:	<b>VORTEX RAPID PREP</b>	<b>VORTEX RAPID PREP</b>	<b>VORTEX RAPID PREP</b>	<b>VORTEX RAPID PREP</b>	<b>VORTEX RAPID PREP</b>
		ABRASIVE:	Engineered A/O	Engineered A/O	Engineered A/O	Engineered A/O	Engineered A/O
		GRIT/COLOR:	<b>EXTRA COARSE</b>	<b>COARSE</b>	<b>MEDIUM</b>	<b>FINE</b>	<b>VERY FINE</b>
WIDTH	LENGTH	STD. PKG.	PART #	PART #	PART #	PART #	PART #
2	18-15/16	12	66623313274	66623335031	66623333675	66623333649	66623333688
2-3/4	15-1/2	10	66623333718	66623333628	66623333676	66623333655	66623333694
3	10-11/16	12	66623333719	66623335039	66623335110	66623333656	66623333695
	18	10	66623335149	66623335040	66623335112	66623333657	66623335135
3-1/2	15-1/2	8	66623333725	66623335042	66623335118	66623333665	66623335139
4	24	8			66623335119		

## Norton Rapid Prep

		TIER:	GOOD	GOOD	GOOD	GOOD	GOOD
		BRAND:	Norton	Norton	Norton	Norton	Norton
		TRADENAME:	<b>RAPID PREP</b>	<b>RAPID PREP</b>	<b>RAPID PREP</b>	<b>RAPID PREP</b>	<b>RAPID PREP</b>
		ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
		GRIT/COLOR:	<b>EXTRA COARSE</b>	<b>COARSE</b>	<b>MEDIUM</b>	<b>FINE</b>	<b>VERY FINE</b>
WIDTH	LENGTH	STD. PKG.	PART #	PART #	PART #	PART #	PART #
1/4	18	24		66261011420	66261012524	66623333424	66623333511
	24	24		69957392606	66261097565	66623333425	66623333512
1/2	12	24		66261003177	66261006465	66623318175	66254499884
	18	24		66261055309	66261055310	66623333426	66261055311
	24	24		66261055312	66261008972	66254490859	66261019876
3/4	18	12		66261002111	66261015808	66254490858	66261003622
	20-1/2	12		66261083899	66261003260	66623333427	66623333515
	80	12		66623333411	66623333505	66623333428	66623333516
1	18	12		66261007023	66261017898	66623333429	66623333518
	21	12		66623333412		66623333430	66623333519
	30	12		66261019801	66623336006	66623333431	66261001972
	42	12		66261008317	66254441289	66623333432	66623333521
	60	12		66623333413	66623333506	66623333433	66261055412
	64	12		66623333414	66623301513	66623333434	66261055413
	72	12		66261194240	66261006378	66254493830	66261005583
	132	8		66623314981			
	132	10			66261011414	66254436886	66623333525
1-1/2	60	8		66623333415	66261007644	66623333435	66623303624
2	18-15/16	12	66261018226	66261018224	66623333507	66623333436	66623333528
	34	12		66261063309	66623312203	66623333437	66623333529
	48	10		66261006504	66261006648	66623333438	66623333531
	60	8		66623333416	66261189669	66623333439	66623333532
	72	8		66261002571	66261007757	66623333440	66261002307
	132	6				66261069525	66623333533
2-1/2	60	6		66254429365	66254441491	66623333441	66623333534
2-3/4	15-1/2	10		66623333417	66623333508	66623333442	66623333535
3	10-11/16	12		66261018076	66261067469	66623333443	66623333536
	18	10		66254496043	66254428776	66623333444	66261019836
	21	10		66623333418	66261010870	66623333445	66623333537
	24	10		66623314158	66254428773	66623333446	66261055593
	72	6		66623333419	69957396833	66623333447	66261003176
	80	4		66623333420	66261007149	66623333448	66623333542
	90	4		66623333421	66623333509	66623333449	66623333541
	118	4		66623333422	66623333510	66623333450	66261047121
	132	4		66254490470	66261055322	66623333451	66623333543
3-1/2	15-1/2	8	66623333595	66261055324	66254444576	66623333452	66261055326
4	24	8	66623333596	66254495931	66261031667	66623333453	66623333545
	36	6		66623333423	66261002321	66623333454	66623333546
	132	2		66261009056	66261006898	66623333455	66623333547
	168	2		63642576650	66261009174	66623333456	66623333548
6	48	4		66261055330	66261055331	66623333457	66261055332

If you do not see the Rapid Prep belts you need in our stock offering, call your local Norton distributor to check for made-to-order availability.

## Introduction

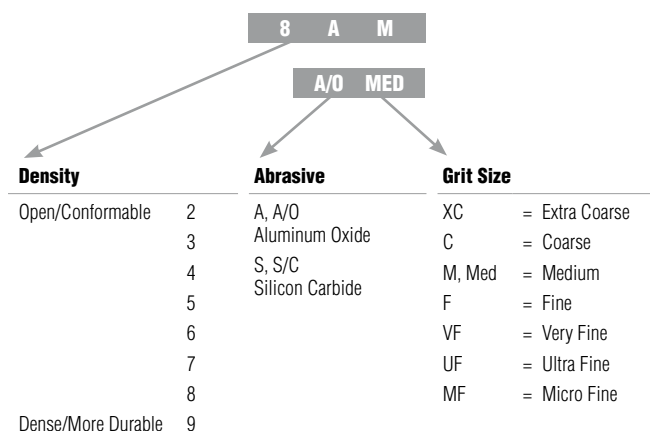
Most Norton Bear-Tex and Merit products consist of a non-woven web of nylon fibers impregnated throughout with abrasive grain and bonded with synthetic resins. This design produces a cushioned, three-dimensional material that is extremely pliable and long lasting. The uniform dispersion of abrasive throughout the web provides a continuous supply of new grain as the old grain and fibers wear away during use.

Norton Bear-Tex and Merit products, with their open mesh construction, are waterproof, washable, resilient, conformable, non-loading, non-conductive, non-metallic and non-rusting. Non-woven wheels are easily pre-formed to conform to special-shaped work pieces.

Since non-woven products are designed for use where stock removal is not required, they begin where other abrasives leave off. The relatively non-aggressive nature of nylon and grit inherent in the material makes it ideal as a finishing tool. While 60 to 80 grits are considered intermediate sizes in other products, they are considered coarse for non-woven items.

Used wet or dry, Norton Bear-Tex and Merit non-woven products offer the following advantages: controlled cut (with little or no stock removal) allows for increased productivity, consistent, uniform finish, ability to automate operations, minimized smearing and reduced operator training. These advantages make our non-woven products an excellent alternative to bristle brushes, set-up wheels, greaseless compounds and steel wool.

## Product Identification System



## Abrasives

Ceramic alumina, silicon carbide and aluminum oxide abrasives are offered. Ceramic alumina cuts the fastest and is the most cost effective on large-volume applications. Silicon carbide is sharper, cuts faster than aluminum oxide, and produces finer scratch patterns on most surfaces. Aluminum oxide is more durable and tends to last longer. It causes less discoloration on aluminum, and is more aggressive on certain applications such as hardened steel parts. Norton Bear-Tex hand pads are also available in a non-abrasive material.

## Grits

Grit refers to the size of the abrasive grain impregnated into the nylon web. The coarser the grit, the more aggressive the cut, the rougher the finish. The finer the grit, the less aggressive the cut and the resulting surface finish will be finer, if all other conditions are equal.

GRIT DESIGNATIONS	GRIT SIZE
Extra Coarse (XC)	24 – 36
Coarse (C)	50 – 80
Medium (M)	100 – 150
Fine (F)	180 – 220
Very Fine (VF)	240 – 360
Super Fine (SF)	400
Ultra Fine (UF)	600
Micro Fine (MF)	800 – 1200

## Densities

The product "density" refers to the number of fibers which have been compressed into the nylon web material. Under identical conditions, harder density wheels cut faster, last longer and produce finer finishes than softer density wheels. Softer density wheels offer greater conformability and have less tendency to load or burn the work piece.

## Fiber Sizing

Several nylon fiber sizes are used in the manufacture of Norton Bear-Tex and Merit web material because the fiber size is a significant factor in the coating process, as each produces distinct cutting characteristics.

## Bonding Agents

Waterproof resins are used in the manufacture of Norton Bear-Tex and Merit web material to bond the nylon fibers together and to firmly anchor the abrasive grains throughout the web.

## Conventional Finishing Methods Versus Norton Bear-Tex and Merit Non-Woven Products

The following chart outlines the advantages achievable when using our products as alternatives to other cleaning, blending, deburring and finishing methods. These products are listed in the sequence of normal preference for the application stated. However, because of the numerous variables, only testing can ensure selection of the most cost-effective product.

CONVENTIONAL FINISHING METHOD	KEY APPLICATION	NORTON/MERIT PRODUCT ALTERNATIVES	ADVANTAGES OF NORTON/MERIT PRODUCT VERSUS ALTERNATE FINISHING METHODS
Bristle Brushes	Cleaning	Clean & Finish Wheels Metal Finishing Wheels Flap Wheels	Superior cleaning performance Higher productivity No slurry or compound required More consistent finish Eliminate compound dust
Greaseless Compounds	Finishing	Flap Wheels Convolute Wheels Unified Wheels	Reduced maintenance No compound, instant set-up Elimination of compound dust More uniform finish More consistent work rate
Set-up Wheels	Blending/ Deburring	Convolute Wheels Unified Wheels	No break-in time required More consistent cut More uniform finish Maintain geometry Safer, no flying wheel pieces
Steel Wool	Cleaning	Rolls Discs Hand Pads	Faster, longer life Less pressure required Non-rusting, cleaner Safer, no splinters

## Getting the Most Out of Norton Bear-Tex and Merit Wheels

Maximum wheel life and best surface conditioning results can be achieved by closely adhering to the following recommendations.

### 1) Wheel Direction

Convolute wheels and interleaf flap wheels must always run in the direction indicated by the arrow printed on the side of each wheel. Conventional flap wheels and unified wheels can be run in either direction.

### 2) Wheel Speed

Wheel speed is an important factor in that it affects product finish, rate of cut, and wheel life. In general, fast wheel speeds give harder action and a finer finish; whereas, slower speeds give a softer action and a coarser finish for the same wheel density.

The following are recommended operating speeds for the most common applications.

APPLICATION	RECOMMENDED SPEED
Cleaning and upgrading of surface conditions	2200 to 6000 SFPM
Cut-buffing on metal surfaces	6500 to 8000 SFPM
Deburring	5500 to 8000 SFPM
Decorative finishing	500 to 3000 SFPM
Imparting decorative finishes	900 to 3000 SFPM
Oxide removal	3500 to 6500 SFPM

*Testing might show that a slower or faster speed is desirable for specific operations. Never exceed the maximum RPM rating of the wheel.*

### 3) Pressure

Light to medium pressure is recommended for most operations.

Flap wheels require much lighter pressure to perform properly than other non-woven wheels; unified wheels can withstand much higher pressures in order to perform deburring jobs. In all cases, avoid excessive pressure which might result in wheel deformation and damage to the work surface.

### 4) Feed Speed

Low feed speed reduces the number of workpieces completed, while producing a shorter scratch pattern. Slow feed speed allows for longer dwell time and permits more work to be done on each piece. Conversely, a fast feed speed increases the number of workpieces completed, while producing a longer scratch pattern.

### 5) Oscillation

Oscillation may be used to break up scratch lines and produce a more uniform finish. Additionally, an increase in cut might be experienced.

A general starting point for oscillation is 3/8" amplitude at 200 cycles per minute.

### 6) Lubricants

Lubricants, such as water, water soluble oil, and straight oil, will decrease the heat generated while running, improve the luster, and reduce the surface finish. The higher the viscosity of the lubricant, the lower the surface finish (RMS value) produced.

## Factors in Wheel Choice

This chart provides a relative comparison of other Norton Bear-Tex wheel variables. It can serve as a useful guide in choosing the most suitable product for a given application. However, as many other factors affect wheel performance, this chart can only be general in nature. The most cost-effective results can always be obtained by wheel testing on the application.

1 Wheel Conformability	MOST CONFORMABLE (SOFT)			LEAST CONFORMABLE (HARD)		
	Flap Wheels	Clean & Finish	Metal Finishing	Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000
2 Wheel Openness	OPEN MESH			CLOSED MESH		
		Clean & Finish	Metal Finishing	Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000
3 Wheel Aggressiveness	MOST AGGRESSIVE			LEAST AGGRESSIVE		
		Metal Finishing		Clean & Finish	Rapid Finish GP	Flap Wheels
4 Finishing Action	COARSER			FINER		
		Metal Finishing	Clean & Finish	Series 4000	Rapid Finish GP Series 4000	Flap Wheels
5 Pressure for Best Results	LIGHTER			HIGHER		
		Flap Wheels	Clean & Finish	Metal Finishing Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000

\* On steel surfaces, silicon carbide wheels will produce a brighter finish than aluminum oxide wheels.

## Surface Finish Variables

Changes in any one of many factors can affect the surface finish on the work piece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.

Variable Factor	Rough Finish High Rms Reading	Smooth Surface Lower Rms Reading
1 Grit Size	Coarse ←	→ Very Fine
2 Wheel Grade	Soft ←	→ Hard
3 Wheel Speed	Slow ←	→ Fast
4 Feed Speed	Faster (Long Scratch) ←	→ Slower (Short Scratch)
5 Oscillation	No Oscillation ←	→ Oscillation
6 Lubricants and Compounds	Dry ←	→ Straight Oil
	Water ←	→ Soluble Oil
	←	→ Compounds



## complementing our **ABRASIVES PORTFOLIO**

To help you finish the job, Norton accessory items let you one-stop shop. Our goal is to get it finished faster, easier and with less hassle of multiple vendors and invoices.



### **Get Wired**

Our broad wire brush offering includes the basic shapes and configurations you'll need for heavy- to light-duty brushing applications.



### **Just the Right Amount of Fiber**

Trap dirt, grime or liquids with microfiber cloths. Whether you are cleaning, dry tacking, or polishing, these cloths make quick work, trapping all unwanted particles.



### **Unmasking the Mystery**

Masking tape choices: Professional High Heat for maximum performance and clean release on multiple surfaces and Blue Core 14-Day tape for easy on/off.



Our Norton wire brush broad offering includes all the basic shapes and configurations. Informative, attractive packaging clearly explains dimensions, structure, safety and machine usage. All brushes are individually clamshell packaged unless otherwise noted. When using wire brushes, be sure to comply with ANSI B165 "Power-Driven Brushing Tools: Safety Requirement for the Design, Care and Use." and safety documents on [www.nortonabrasives.com](http://www.nortonabrasives.com) website.

**Applications:**

Cleaning rust, scale and dirt; light deburring; edge blending; roughening for adhesion; finishing for appearance; finish preparation prior to plating or painting

**Shapes:**

Cup, saucer cup, wheel, joint/crack, end brush, hand brush

**Wire Design:**

Twist knot, crimped, and stringer bead

**Other:**

Color-coded for easy identification:

**Machine Used:**

**STEEL/METAL** **STAINLESS**



## Twist Knot Wire Saucer Cup Brushes

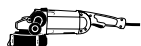
**IDEAL FOR CLEANING CORNERS, RECESSES, AND OTHER HARD-TO-REACH AREAS – FOR STEEL/STAINLESS**

**FEATURES**

- Twist knot style

**BENEFITS**

- For heavy-duty cleaning



DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
4 x .020 x 5/8-11	15,000	5	<b>CARBON</b>	66252833483
5 x .020 x 5/8-11	12,500	10	<b>CARBON</b>	66252835585
5 x .020 x 5/8-11	12,500	10	<b>STAINLESS</b>	66252835586

## High Performance (HP) Cable Crimped Wire Cup Brushes

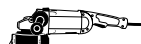
**FOR LIGHT- TO MEDIUM-DUTY BRUSHING APPLICATIONS ON FLAT OR IRREGULAR SURFACES, AND BEVEL BUFFING – FOR STEEL**

**FEATURES**

- 12 wires of .009" brass-coated steel are bundled together into a group, then crimped
- Cable crimped wire breaks down in smaller pieces than standard crimped brushes

**BENEFITS**

- Creates a 50% longer lasting brush compared to standard crimped brushes; better flexibility on irregular surfaces
- Safer to use
- Protective guard



DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>Crimped Cup with Protective Guard – Single Row</b>				
3 x (12 x .009) x 5/8-11	15,000	5	<b>CARBON</b>	66252833493
4 x (12 x .009) x 5/8-11	9,000	5	<b>CARBON</b>	66252833494

## Crimped Wire Cup Brushes

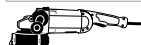
**FOR LIGHT- TO MEDIUM-DUTY BRUSHING APPLICATIONS ON FLAT OR IRREGULAR SURFACES, AND BEVEL BUFFING – FOR STEEL**

**FEATURES**

- Highly flexible heavy wire fill

**BENEFITS**

- Fast cutting



DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
3 x .014 x 5/8-11	15,000	5	<b>CARBON</b>	69936653341
3 x .014 x 5/8-11	15,000	5	<b>STAINLESS</b>	66252836362
4 x .014 x 5/8-11	9,000	5	<b>CARBON</b>	69936653347
4 x .020 x 5/8-11	9,000	5	<b>STAINLESS</b>	66252843844
6 x .014 x 5/8-11	6,000	5	<b>CARBON</b>	69936653348
6 x .020 x 5/8-11	6,000	5	<b>CARBON</b>	69936653349

## TWIST KNOT WIRE CUP BRUSHES

HIGH IMPACT CUTTING AND CLEANING ON MORE DEMANDING APPLICATIONS – FOR STEEL/STAINLESS

### FEATURES

- Rigid structure
- Available with or without plastic guard
- Protective guard opens up into a shield
- Single row construction
- Double row construction

### BENEFITS

- High impact cutting and cleaning on more demanding applications
- Application-specific
- Prevents wire, dust and/or projection from reaching the end-user
- Provides for a friendly handling of the brush, preventing potential pricking caused by the wire ends
- Limits flaring of the brush on corners and angles
- More aggressive; provides twice the cutting points of a single row cup brush for heavy-duty action in very severe applications

DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>Knotted Cup With Protective Guard – Single Row</b>				
2-3/4 x .020 x 5/8-11	15,000	5	CARBON	66252833492
4 x .020 x 5/8-11	9,000	5	CARBON	66252833496
5 x .020 x 5/8-11	6,500	5	CARBON	66252833497
<b>Knotted Cup – Single Row</b>				
2-3/4 x .020 x 5/8-11	15,000	5	CARBON	69936653336
2-3/4 x .020 x 5/8-11	15,000	5	STAINLESS	69936653340
4 x .020 x 5/8-11 with bridle	9,000	5	CARBON	69936653345
4 x .020 x 5/8-11 with bridle	9,000	5	STAINLESS	66252833947
6 x .020 x 5/8-11	6,000	5	CARBON	69936605965
6 x .020 x 5/8-11	6,000	5	STAINLESS	66253371115
6 x .035 x 5/8-11	6,000	5	CARBON	69936602003
<b>Knotted Cup – Double Row</b>				
6 x .020 x 5/8-11	6,000	5	CARBON	69936653346



## CRIMPED WIRE WHEEL BRUSHES

EXCELLENT PERFORMANCE FOR DEBURRING, REMOVING RUST, CORROSION AND DIRT – FOR STEEL/STAINLESS

### FEATURES

- Brushes may be used individually or stacked on a shaft

### BENEFITS

- Single-section, narrow-faced brushes are ideal for general-purpose brushing of uneven or difficult-to-reach surfaces
- Single section, medium-faced brushes clean larger surface areas and have longer life

DIAMETER x WIRE THICKNESS x HOLE	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>Crimped Narrow 3/4" Face</b>				
6 x .014 x 1/2-2**	6,500	5	CARBON	69936653306
<b>Crimped Medium 1" Face</b>				
4-1/2 x .014 x 5/8-11	13,000	6	CARBON	66253370278
6 x .014 x 1/2-2**	6,500	5	CARBON	69936653324
8 x .014 x 1/2-2**	4,500	5	CARBON	69936653326

\*\* 7 bushing sizes included with each brush (fit 1/2" - 2")





## STANDARD TWIST KNOT WIRE WHEEL BRUSHES

IDEAL FOR TOUGHER WELDING AND METAL FABRICATION APPLICATIONS  
(REMOVING WELD SCALE SPATTER, EXTRA-HEAVY RUST AND CORROSION, OR  
SURFACE ROUGHENING) – FOR STEEL/STAINLESS



### FEATURES

- Twist knot wire design
- Pipeline: heavy-duty knot construction

### BENEFITS

- Provides added rigidity for extra cutting and cleaning power
- Small diameter wheels are used for small- to medium-duty jobs requiring some flexibility and lighter brushing action
- Stiffer, longer-lasting knots for tougher applications / heavy build-up
- Longest life for brushing/cleaning joints and preparing expansion joints for filling and scaling

DIAMETER x WIRE THICKNESS x MOUNT/HOLE	MAX. RPM	STD. PKG.	APPLICATION	PART #
3 x .015 x 1/2-3/8	20,000	5	CARBON	69936653314
4 x .020 x 5/8-11	20,000	5	CARBON	66252838300
4-1/2 x .020 x 5/8-11	20,000	5	CARBON	69936606275
4-1/2 x .020 x 5/8-11 with black hub	20,000	6	CARBON PIPELINE	66252840466
4-1/2 x .020 x 5/8-11	20,000	6	CARBON	69936653331
4-1/2 x .020 x 5/8-11	20,000	5	STAINLESS	69936653333
5 x .020 x 5/8-11	12,500	5	CARBON	66252833487
5 x .020 x 5/8-11	12,500	5	STAINLESS	66252833488
6 x .020 x 5/8-11	12,500	5	CARBON	69936653352
6 x .020 x 5/8-11	12,500	5	STAINLESS	66253371540
6 x .020 x 5/8-1/2	12,500	5	CARBON	69936653327

## STRINGER BEAD KNOT WIRE WHEEL BRUSHES

DELIVER HIGH-IMPACT CUTTING AND CLEANING FOR TOUGHEST APPLICATIONS –  
FOR STEEL/STAINLESS



### FEATURES

- Stringer bead wire for hard-to-reach areas
- Heavy-Duty brushes
- Pipeline brushes

### BENEFITS

- Specially suited for groove and weld bead, corners, and t-connections
- 1/3 more welding points which provide 50% more resistance to side load pressure
- 6-7/8" brushes have 76 knots vs. standard 56 knot brushes, resulting in 40% more cleaning action and up to 2X life, with similar life for the smaller versions of the heavy-duty brushes
- Longest life for brushing/cleaning joints and preparing expansion joints for filling and scaling

DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>For Right Angle Grinders</b>				
4 x .020 x 5/8-11	20,000	5	CARBON	69936606277
4 x .020 x 5/8-11	20,000	6*	CARBON	66252833489
4 x .020 x 5/8-11	20,000	10*	CARBON	66253370022
4 x .020 x 5/8-11	20,000	6*	CARBON PIPELINE	66252840467
4 x .020 x 5/8-11	20,000	5	STAINLESS	69936606278
4 x .020 x 5/8-11	20,000	6*	STAINLESS PIPELINE	66252842233
4-1/2 x .020 x 5/8-11	20,000	6	CARBON HEAVY-DUTY	66252844886
4-1/2 x .020 x 5/8-11	20,000	6*	CARBON PIPELINE	66252842299
5 x .020 x 5/8-11	12,500	10*	CARBON	66252833490
5 x .020 x 5/8-11	12,500	10*	STAINLESS	66252833491
6 x .020 x 5/8-11	12,500	10*	CARBON	69936653350
6 x .020 x 5/8-11	12,500	10	CARBON HEAVY-DUTY	66252844887
6 x .020 x 5/8-11	12,500	10*	CARBON PIPELINE	66252840469
6 x .020 x 5/8-11	12,500	10	STAINLESS	69936653351
6-7/8 x .020 x 5/8-11	9,000	10*	CARBON	69936653329
6-7/8 x .020 x 5/8-11	9,000	10*	CARBON HEAVY-DUTY	66252843919
6-7/8 x .020 x 5/8-11	9,000	10*	CARBON PIPELINE	66252840468
6-7/8 x .020 x 5/8-11 Double Hub	9,000	6*	CARBON	66252810992
6-7/8 x .020 x 5/8-11	9,000	10*	STAINLESS	66253371116
9 x .020 x 5/8-11	6,000	6	CARBON	66252837993

\*Bulk packed item



## JOINT/CRACK CLEANING WIRE BRUSHES

DELIVER HIGH-IMPACT FILING AND SCALING FOR TOUGHEST APPLICATIONS – FOR STEEL/STAINLESS

### FEATURES

- Joint/Crack cleaning wire wheel brushes

### BENEFITS

- Used for brushing joints, cleaning cracks in concrete and asphalt, and preparing expansion joints for filling and scaling



DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>For Walk-Behind Machines – Joint/Crack Cleaning Brushes</b>				
12 x .035 x 1 - DP	4,500	2	Carbon	69936606280

## END BRUSHES

CLEAN AND DEBURR A RECESSED AREA OR THE INSIDE DIAMETER OF A TUBE OR PIPE – FOR STEEL/STAINLESS

### FEATURES

- Twist knot wire end brushes
- Crimped wire end brushes

### BENEFITS

- For more aggressive cutting
- For lighter brushing action and contoured surfaces



DIAMETER x WIRE THICKNESS x MOUNT	MAX. RPM	STD. PKG.	APPLICATION	PART #
<b>Stem Mounted Knotted</b>				
3/4 x .020 x 1/4 Shank	20,000	10*	CARBON	69936653316
1 x .014 x 1/4 Shank	20,000	10*	CARBON	69936606279
1 x .020 x 1/4 Shank	20,000	10*	CARBON	69936653310
<b>Stem Mounted Crimped</b>				
3/4 x .006 x 1/4 Shank	20,000	10*	STAINLESS	69936606145
3/4 x .014 x 1/4 Shank	20,000	10*	CARBON	69936653317
1 x .020 x 1/4 Shank	20,000	10*	CARBON	69936653309

\*Bulk packed items

## HAND BRUSHES

FOR STEEL/STAINLESS

### FEATURES

- Long handle and shoe handle brushes
- Plastic handle scratch brush

### BENEFITS

- Steel scratch brushes are made with a high-carbon, brass-coated steel; stainless steel is made with a 304L stainless
- Ergonomic handle
- Crimped wire for longer life
- Wires are wrapped up and around the metal post so they never come out
- Curved face for hard-to-reach places
- Narrow brush allows access into tight areas and slots



SIZE	STD. PKG.	APPLICATION	PART #
Scratch Brush 3 x 19 Long Handle	12	CARBON	66252833948
Scratch Brush 3 x 19 Long Handle	12	STAINLESS	66252833950
Scratch Brush 4 x 16 Shoe Handle	12	CARBON	66252833949
Scratch Brush 4 x 16 Shoe Handle	12	STAINLESS	66252833951
Scratch Brush Plastic Handle	24	CARBON	66252833954
Scratch Brush Plastic Handle	24	STAINLESS	66252833953
Inspection Brush 3 x 7	36	STAINLESS	66252833952



A micro-fiber is a single fiber with a thickness less than a human hair that has been split 16 times and woven into various products. The surface area of a micro-fiber product is increased over 15 times, creating millions of spaces between the fibers which trap dirt, grime or liquids, making this product one of the most absorbent materials. These cloths save you labor, time, and additional costs of multiple cleaning products and chemicals.

**Applications:**

**Cleaning Cloth:** Used for general-purpose wet or dry applications. Works best when sprayed with a light water mist to deep clean.

**Dry Tack Cloth:** This woven terry cloth has a low profile to resist snagging and help pick up embedded debris.

**Polishing Cloth:** Streak-free cleaning of mirrors, optical lens and highly-polished items.

**Other:**

Color-coded for easy identification

Cleaning Cloth: Blue

Dry Tack Cloth: Red

Polishing Cloth: Yellow

**Machine Used:**



DESCRIPTION	COLOR	STD. PKG.	PART #
<b>Micro-Fiber Cleaning Cloth</b>			
16" x 16"	Blue	20	07660705300
<b>Micro-Fiber Dry Tack Cloth</b>			
16" x 16"	Red	20	07660704025
<b>Micro-Fiber Polishing Cloth</b>			
16" x 16"	Yellow	20	07660705301



## TIP

- Use these micro-fiber cloths dry for general cleaning
- To remove spills, stains or grime, lightly dampen the cloth for best results
- All micro-fiber cloths can be used with or without chemicals
- Micro-fiber cloths can be washed up to 300+ times without losing cleaning and trapping abilities
- Clean often for best results



It is the user's responsibility to refer to and comply with all safety regulations.



### Norton Premium Tan High Heat Tape

- Designed for maximum performance and clean release on multiple surfaces
- These high quality masking tapes are ideal for conditions that include exposure to the high heat curing temperatures found in automobile, truck, bus and other transportation assembly operations, as well as aerospace manufacturing applications
- Can be baked up to 230°F and be exposed to wet sanding without adhesive transfer
- Conforms easily to contours and irregular surfaces
- No bleed-through or flaking upon removal
- Available in bulk, accordion-wrapped for protection and work site stocking

SIZE (W x L)	STD. PKG.	PART #
<b>Norton Premium Tan High Heat Tape</b>		
48mm x 54.8m (2" x 60 yards)	24	63642506185
<i>Packed in sleeves, with 4 sleeves to a case</i>		



### Norton Blue Core 14-Day Tape

- Our premium paint masking tape has a specially formulated adhesive system that provides optimum low- to medium-tack adhesion and clean removal from a variety of surfaces, for up to 14 days
- Norton Blue Core masking tape can be used indoors or out
- The crepe paper backing is designed to enable easy unrolling and to minimize slivering
- It delivers very sharp, clean edges on smooth- to moderately-textured surfaces

SIZE (W x L)	STD. PKG.	PART #
<b>Norton Blue Core 14 Day Tape</b>		
36mm x 54.8m (1-1/2" x 60 yards)	24	07660721954
48mm x 54.8m (2" x 60 yards)	24	07660721955
<i>Bulk packed as individual rolls</i>		



## improve your **PROCESS, PRODUCTIVITY, AND COST POSITION**

You know the industry-leading performance of our engineered abrasives. Norton R & D has now created new formulations of these abrasives with our exclusive, proprietary Norton Vitrium3 (VS3) bond. You won't get better productivity from any other grinding wheels and segments.

- Cooler cutting with better chip clearance; improved coolant flow; significantly reduced burn
- Reduced wheel loading
- Improved part quality
- Improved precision profile; ultra-radius accuracy
- Extended wheel life
- Reduced dressing frequency and cost
- Improved cycle and process time
- Able to run at higher operating speed; increased throughput and productivity
- Leverage existing equipment; optimize machine efficiency



### **A Quantum Leap in Technology**

A new generation of Norton Quantum ceramic abrasive products is designed for maximizing performance and cost savings in precision grinding. See new Vitrium3 bond Quantum wheels.



### **Sharper Versatility**

Sharp monocrystalline aluminum oxide grain makes Norton 32A the industry's most versatile abrasive; free cutting on full range of applications and materials. See new Vitrium3 bond 32A wheels.



### **Cooler Cutting**

White, friable 38A abrasive grain delivers exceptionally cool cutting in light pressure, toolroom grinding applications.





Used on surface, cylindrical, and tool and cutter grinders, Norton precision, form-holding vitrified toolroom wheels maximize your productivity. Available in latest-generation ceramic alumina, aluminum oxide, and silicon carbide – for every ferrous and nonferrous MRO, small job shop, and production operation.


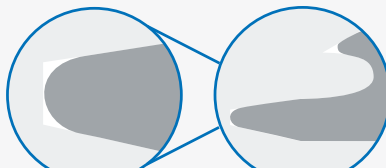
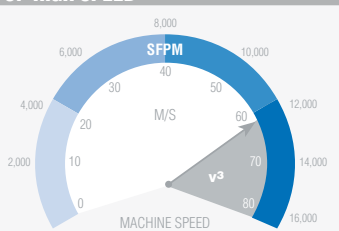
Applications:	Surface grinding, tool and cutter grinding, and reshaping
Shapes:	Type 01 Straight, Type 02 Cylinder, Type 05 and 07 Recessed 1 and 2 Sides, Type 06 and 11 Straight and Flaring Cups, Type 12 Dish, Type 20 Concaved 1 Side, and Type 35 Plate Mounted Disc
Size Range:	3/4" – 18" diameter
Grit Range:	46 – 220
Abrasive Grain:	Ceramic Alumina, Aluminum Oxide, Silicon Carbide

## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

APPLICATION / MATERIAL	PERFORMANCE/PRODUCTIVITY								
	Narrow Contact Area			Medium Contact Area			Wide Contact Area		
	BEST	BETTER	GOOD	BEST	BETTER	GOOD	BEST	BETTER	GOOD
<b>Tool Reshaping</b>									
• Heavy Stock Removal (> .004)									
HSS & Tool Steel RC 50-68	5SG46-KVS	32A46-KVBE	38A46-KVBE	5SG46-JVS	32A46-JVBE	38A46-JVBE	5SG46-GVSP 3SGR46-GVP2	32A46-GVBEP 48A46-GVP2	38A46-GVBEP 38A46-GVP2
• Moderate Stock Removal (.002-.004)									
HSS & Tool Steel RC 50-68	5SG60-KVS	32A60-KVBE	38A60-KVBE	5SG60-JVS	32A60-JVBE	38A60-JVBE	5SG60-GVSP 3SGR60-GVP2	32A60-GVBEP 48A60-GVP2	38A60-GVBEP 38A60-GVP2
Carbide			39C60-JVK			39C60-JVK			
<b>Surface Grinding</b>									
• Heavy Stock Removal (> .004)									
HSS & Tool Steel RC 50-68	5NQ46-JVS	32A46-JVBE	38A46-JVBE	5SG46-IVS	32A46-IVBE	38A46-IVBE	5SG46-GVSP 3SGR46-GVP2	32A46-GVBEP 48A46-GVP2	38A46-GVBEP 38A46-GVP2
400 Series Stainless									
Soft Steels RC 30-45	5SG46-KVS	32A46-KVBE	38A46-KVBE	5SG46-JVS	32A46-JVBE	38A46-JVBE	5SG46-HVSP 3SGR46-HVP2	32A46-HVBEP 48A46-HVP2	38A46-HVBEP 38A46-HVP2
300 Series Stainless									
Cast Iron: Ductile & Gray	5SG46-KVS	32A46-KVBE	38A46-KVBE	5SG46-JVS	32A46-JVBE	38A46-JVBE	5SG46-HVSP 3SGR46-GVP2	32A46-HVBEP 48A46-HVP2	38A46-HVBEP 38A46-HVP2
Nonferrous Alloys			39C46-JVK			39C46-IVK			
• Moderate Stock Removal (.002-.004)									
HSS & Tool Steel RC 50-68	5NQ60-JVS	32A60-JVBE	38A60-JVBE	5SG60-IVS	32A60-IVBE	38A60-IVBE	5SG60-GVSP 3SGR60-GVP2	32A60-GVBEP 48A60-GVP2	38A60-GVBEP 38A60-GVP2
400 Series Stainless									
Soft Steels RC 30-45	5SG60-KVS	32A60-KVBE	38A60-KVBE	5SG60-JVS	32A60-JVBE	38A60-JVBE	5SG60-HVSP 3SGR60-HVP2	32A60-HVBEP 48A60-HVP2	38A60-HVBEP 38A60-HVP2
300 Series Stainless									
Cast Iron: Ductile & Gray	5SG60-KVS	32A60-KVBE	38A60-KVBE	5SG60-JVS	32A60-JVBE	38A60-JVBE	5SG60-HVSP 3SGR60-HVP2	32A60-HVBEP 48A60-HVP2	38A60-HVBEP 38A60-HVP2
Nonferrous Alloys			39C60-JVK			39C60-IVK			
• Light Stock Removal and Finishing (<.001)									
HSS & Tool Steel RC 50-68		32A80-JVBE	38A80-JVBE		32A80-IVBE	38A80-IVBE		32A80-HVBE	38A80-HVBE
400 Series Stainless									
Soft Steels RC 30-45		32A80-KVBE	38A80-KVBE		32A80-JVBE	38A80-JVBE		32A80-IVBE	38A80-IVBE
300 Series Stainless									
Cast Iron: Ductile & Gray		32A80-KVBE	38A80-KVBE		32A80-JVBE	38A80-JVBE		32A80-IVBE	38A80-IVBE
Nonferrous Alloys			39C80-JVK			39C80-IVK			39C80-HVK

## Upgrade to Vitrium<sup>3</sup> to improve your process and productivity in 3 ways

Vitrium<sup>3</sup> bond (VS3) wheels for enhanced-performance are available with these abrasives: NQ, SG, 32A, and 48A

1. COOL CUTTING	2. PRECISE PROFILE	3. HIGH SPEED
<p><b>VITRIUM<sup>3</sup> BOND   BOND-PART INTERACTION</b></p>  <p>Improved holding power (using less bond-to-abrasive ratio) exposes a larger grain surface area, improving freer cut rate.</p>	<p><b>Vitrium<sup>3</sup> wheel After 5 grinding cycles</b></p>  <p>Superior grain-holding properties significantly improve wheel form and corner holding vs. other bond systems – reducing dressing time and dresser wear.</p>	 <p>High Speed – Norton Vitrium<sup>3</sup> bond provides the ultimate wheel strength. This allows for high speed operation on equipment designed and rated for high speed.</p>

## VITRIFIED WHEEL BONDS

Bond	Description
NEW! VS3	Quantum (white) and Norton SG (white): Patented technology produces a strong, exceptionally cool-cutting bond with unprecedented form holding; able to run at higher operating speed; increased throughput and productivity; versatile, for all areas of contact
NEW! VS3P	Quantum (white) Norton SG (white): Porous bond; use where heat is an issue; patented technology produces a strong, exceptionally cool-cutting bond with unprecedented form holding; versatile, for all areas of contact
VS	Quantum (green) and Norton SG (blue): High stock removal; narrow/medium contact area; roughing/finishing; cool cutting
VSP	Quantum (green) and Norton SG (blue): Porous bond; use where heat is an issue; high stock removal; medium/wide contact area; cool cutting; high chip clearance
VBE	32A (purple), 38A (white) and 57A (brown): General purpose; narrow/medium contact area; versatile; economical.
VBEP	32A (purple) and 38A (white): Porous bond; use where heat is an issue; medium/wide contact area; cool cutting; high chip clearance; high stock removal
V	38A (orange): For fine grit, form/corner holding applications; narrow contact area
VK	37C (black) and 39C (green): Designed specifically for silicon carbide abrasives; medium to narrow area of contact ; for non-steel applications
VCP	32A (purple) and 23A (blue/grey): Induced-pore, wide contact area, surface/creepfeed grinding applications
VP2	3SGR (ruby), 48A (ruby), 25A (pink) and 38A (white): Unique, controlled-porosity (NORPOR) bond for heat-sensitive applications

## TECH TIP

### SELECTING A WHEEL WITH THE CORRECT BOND TYPE

#### Single Point Diamond Tools

- Use VBE, V, VS, VS3, and VK bonds for general purpose applications or medium contact areas.
- Use VBEP, VSP, VS3P, VCP, and VP2 bonds on wide contact areas where heat is an issue.



It is the user's responsibility to refer to and comply with ANSI B7.1

## APPLICATION/GRIT RECOMMENDATION GUIDE

Grit	Requirement	Finish	Minimum Corner Radius
46	General Purpose	32 Ra and rougher	0.020"
60	Commercial Finish	32 Ra and better	0.016"
80 – 100	Fine Finish	20 Ra and better	0.0105"
120	Very Fine Finish	10 Ra and better	0.006"
150	Corner-Form Holding		0.005"
180	Corner-Form Holding		0.0035"
220	Corner-Form Holding		0.0026"

## STARTING RECOMMENDATIONS FOR TRUING AND DRESSING NORTON TOOLROOM WHEELS

### TRUING & DRESSING: DRESSING STICK STARTING RECOMMENDATIONS

Size/ Spec.	High Performance Stick Part #	Size/ Spec.	Conventional Stick Part #
3 x 1/2 x 1/4" Norbide	61463610148	6 x 1 x 1" 37C24-SVK	61463610462
		8 x 1 x 1" 37C24-SVK	61463610471
		Other sizes are available. See the Dressing Stick section.	

### DRESSING: SINGLE POINT DRESSING TOOL STARTING RECOMMENDATIONS

		Ceramic (NQ, Norton SG, TG, Etc.), 37C & 39C Wheels		25A, 32A, 38A, 48A, 53A, 57A, 64A, 86A Wheels	
Wheel Sizes	Tool Shank Diameter	Product No.	Part #	Product No.	Part #
Up to 7"	3/8	BCSG2M6	66260157007	BC2M6	66260195000
	7/16	BCSG2M7	66260156905	BC2M7	66260195001
8" to 10"	3/8	BCSG3M6	66260157008	BC3M6	66260195002
	7/16	BCSG3M7	66260156906	BC3M7	66260195003
12" to 14"	3/8	BCSG5M6	66260157009	BC5M6	66260195004
	7/16	BCSG5M7	66260156907	BC5M7	66260195005

These tools are a standard recommendation; see the "Diamond Tool" section for additional tools  
See the Fliesen Tool section for Furioso tools, engineered specifically for Quantum vitrified wheel dressing

## CROSS REFERENCE GUIDE

NORTON	Camel	Cincinnati	Radiac	Tyrolit	Winterthur
Quantum 5NQ		5M5B			
3SGR	AS3	3BP	7BP, 8BP		
5SG	SZA	5MSB	7BW, 8BW		
25A	PA	12A	RAA	88A	57A
32A	AZ	4A, 12A, 29A, 32A	32A, WRA	90A	67A, 68A
38A	83A, WA, AZ (Blue)	9A, 10A, 11A, 82A	WA, 9A	88A, 89A	53A, 49A, 42A
48A			RA	91A	68A
53A	91A, DA	29A, 97A	43A, 45A, 97A, WPA	50A	61A, 64A
57A	94A, CGW, A	A, AK	A	A, 52A	A
37C		6C	C	1C	C
39C		5C	GC	C	11C

## TECH TIP

### Wheel Dressing

#### Single Point Diamond Tools

- Rigidly mount Single Point tools at a 10°-15° angle to the wheel centerline with a line drawn through the center of the wheel, pointing in the direction of wheel travel
- Point of contact should be slightly below centerline of wheel
- Use coolant whenever possible
- Normal infeed is .001" per pass
- Lead selections range from .002" - .010" per wheel revolution
- Rotate the tool 1/4 turn periodically to maintain a sharp point
- Use VBE, V, VS, VK bonds for general purpose applications or medium contact areas.
- Use VBEP, VSP, VS3P, VCP, VP2 bonds on wide contact areas where heat is an issue.

#### Multi-Point Diamond Tools

- Most multi-point tools are used for straight face dressing
- Tool should have full face contact with the wheel
- With new tool, 3 to 5 passes at .005" per pass should be taken to expose diamonds
- Infeed per pass .001" - .002"
- Use coolant whenever possible
- Use appropriate lead (and traverse rate)

Contact your Norton representative for proper tool selection for Targa (TG) wheels



It is the user's responsibility to refer to and comply with ANSI B7.1

#### Dressing Ceramic Wheels

- Use our specially designed Norton SG diamond tools when dressing ceramic wheels
- When first using a Norton SG tool, make 3 to 5 passes at .005" infeed to ensure full face contact between the dressing tool and wheel face
- Reduce normal dressing infeed by half. Do not exceed infeed of .002" per pass.
- The lead selection should be between .006" - .030" per wheel revolution. Faster traverse with Norton SG tools generally provides an open wheel face that can maximize productivity of the ceramic abrasive.
- To optimize applications using ceramic abrasives and/or tools, normal dressing parameters must change. Reduce infeed by 25%. Significant reductions in the amount of infeed and frequency of dress will result in substantially lower cost per part ground.
- See the Fliesen Tool section for Furioso tools, engineered specifically for Quantum vitrified wheel dressing.



## Reshaping the World of Precision Grinding – Norton Vitrium3 VS3 and VS3P Bond Wheels

### A Revolutionary Bond That Lowers Process Cost In Three Ways

Our exclusive bond platform provides unprecedented wheel performance and finished part accuracy across many precision grinding applications.

1. Coolest cutting with maximum chip clearance
  - Significantly reduces burn
  - Increases cutting efficiency and cut rate
  - Improves coolant flow
  - Reduces wheel loading
  - Delivers exceptional part quality
2. Optimized precision profile
  - Ultra radius accuracy
  - Extended wheel life; highest productivity
  - Reduced dressing frequency and cost
  - Improved cycle and process time
3. Able to run at higher operating speeds
  - Increases throughput and productivity
  - Leverages existing equipment
  - Maximizes your machine efficiency
  - Best choice for machinery designed and rated for high speed

Available in non-stock wheels made-to-order to your exact requirements, and in an expanded offering of our best-selling stock wheels.

### TROUBLESHOOTING GUIDE

Check the obvious first. Before changing the grinding wheel specification, investigate the following most common causes for most grinding problems:

1. Diamond dressing tool condition (check if worn or dull, rotate tool or replace if necessary)
2. Coolant direction, volume and filtration
3. Wheel dressing procedures (dress more open to free up cut rate, dress more closed to improve finish)

PROBLEM	POSSIBLE CAUSE	CORRECTION
Workpiece burn	Poor coolant direction	Redirect coolant into grinding zone
	Restricted or low coolant volume	Increase coolant volume
	Wheel too hard	Use one grade softer wheel
	Wheel structure too closed	Use porous bond wheel
	Wheel dressed too fine	Dress wheel coarser, more "open"
	Worn dressing tool	Inspect, rotate or replace dressing tool
	Work speed too slow	Increase work speed
	Infeed too fast	Reduce stock removed per pass or upgrade to 5SG or 5NQ
Wheel loading and glazing	Wheel too fine	Use coarser grit or softer grade wheel
	Wheel too hard	Use one grade softer wheel
	Too durable abrasive	Use a sharper, more friable abrasive
	Poor coolant quality	Change coolant or use high detergent type
	Wheel structure too closed	Use a porous bond wheel
	Wheel too finely dressed	Dress wheel very open
	Diamond dressing tool worn	Replace diamond and dress coarse (open)
	Depth of cut too small	Increase feed and traverse speed
Chatter	Unsupported work	Increase work support
	Machine vibration	Check for worn bearings
	Too heavy cut rate	Reduce cut rate
	Wheel too hard	Use one grade softer wheel
	Wheel structure too closed	Use a porous bond wheel
	Wheel out of balance	Check wheel balance or try new wheel
Chatter marks on workpiece	Worn spindle bearings	Check and correct for truth and end play
	Wheel out of truth	Redress wheel and check mounting
	Poorly clamped wheel	Check tightness of mounting nuts
	Glazed face of wheel	Redress wheel with sharp dressing tool
Poor surface finish	Incorrect wheel dress	Dress wheel finer (slow down dressing tool traverse)
	Worn dressing tool	Inspect, rotate, or replace dressing tool
	Too coarse grit size	Use a finer grit size
	Wheel too hard	Use softer grade
Not holding form	Wheel too soft	Use one grade harder wheel
	Wheel structure too open	Use a more closed wheel structure
Not holding corner	Incorrect wheel dress	Dress wheel finer. Face and side true wheel.
	Too large grit size	Use smaller grit size (maximum grit diameter less than 1.5 times corner radius)
	Wheel too soft	Use harder grade wheel
	Wheel structure too open	Use more closed structure wheel



### Single-Pack Toolroom Wheels

#### The Small Quantity Order Solution

Available in our most popular specification of BEST, BETTER and GOOD performance tiers. Norton single-pack toolroom wheels provide many opportunities:

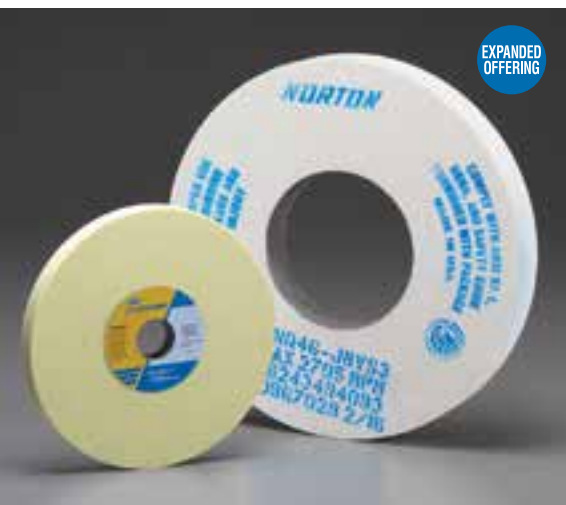
- Test order small quantities of a variety of wheel specifications
- Display and safely store your most often used wheels
- No need to repackage small orders from bulk shipments
- Ensure your wheel arrives on site undamaged



# TOOLROOM VITRIFIED WHEELS

## NORTON QUANTUM (5NQ) CERAMIC ALUMINA

**BEST CHOICE FOR VERSATILITY, MAXIMUM PERFORMANCE AND COST SAVINGS**



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Revolutionary, engineered ceramic grain shape and chemistry with proven bond technology – green in color</li> <li>NEW! Quantum abrasive with coolest cutting, high-speed, precise form holding Vitrium 3 VS3 Bond – white</li> <li>Provide sharp edge on tools and dies</li> </ul>	<ul style="list-style-type: none"> <li>Versatile; for all low, medium and high force applications ranging from cast iron, to stainless steel and hard-to-grind Inconel and titanium</li> <li>Perform well on old and new machines</li> <li>33% to 100% longer life vs. competitive ceramic products</li> <li>30%+ higher metal removal rate</li> <li>15%+ lower threshold power</li> <li>Lowest total grinding costs</li> <li>Highest productivity; lowest cycle and process time; most accurate finished parts</li> <li>Longer life of tools and dies in production</li> </ul>

## NORTON SG CERAMIC ALUMINA

**BEST CHOICE FOR HIGH PRODUCTIVITY, LOW TOTAL PER-PART GRINDING COST**



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>High-performance seeded gel ceramic aluminum oxide abrasive</li> <li>Self-sharpening abrasive</li> <li>NORPOR 3SGR – Norton SG and 48A abrasive blend with VP2 porous bond – purple</li> <li>High performance VS and VSP bonds</li> <li>5SG – durable Norton SG and aluminum oxide blend – blue</li> <li>NEW! 5SG abrasive with coolest cutting, high-speed, precise form holding Vitrium 3 VS3 Bond – white</li> </ul>	<ul style="list-style-type: none"> <li>Fast stock removal, cool, superior cutting</li> <li>3X - 5X more life than aluminum oxide wheels</li> <li>Double rough stock removal rate versus conventional abrasives</li> <li>Less burn, less dressing; very consistent performing wheel</li> <li>Maximum productivity in heat-sensitive, heavy stock removal operations</li> <li>Versatile; exceptional form holding</li> <li>High stock removal rates, excellent productivity, long wheel life, low overall grinding cost</li> <li>Highest productivity; lowest cycle and process time; most accurate finished parts</li> </ul>

## NORTON 32A ALUMINUM OXIDE

**BETTER CHOICE FOR MEDIUM TO HEAVY STOCK REMOVAL**



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive – purple in color</li> <li>NEW! 32A abrasive w/ coolest cutting, high-speed, precise form holding Vitrium 3 VS3 bond wheels – white</li> </ul>	<ul style="list-style-type: none"> <li>Free cutting on a wide range of applications and materials</li> <li>Outstanding form holding</li> <li>Highest productivity; lowest cycle and process time; most accurate finished parts</li> </ul>

## NORTON 38A ALUMINUM OXIDE

**GOOD CHOICE FOR LIGHT GRINDING OF TOOL STEEL**

### FEATURES

- White, friable abrasive grain
- Consistent quality
- NORPOR 38A – most friable, aluminum oxide abrasive with VP2 porous bond – white
- Versatile

### BENEFITS

- Cool and burn-free cutting; ideal for heat-sensitive applications with light to moderate feed rates
- Excellent balance and dimensional accuracy time after time
- Exceptionally cool cutting in light pressure grinding applications, or heat-sensitive applications
- Ideal for use across a broad variety of tool steels

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR USE ON GENERAL PURPOSE APPLICATIONS; ECONOMICAL**

### FEATURES

- Durable aluminum oxide abrasive and strong vitrified bond – Blue
- Versatile, economical

### BENEFITS

- Consistent stock removing performance on narrow to medium contact areas; cool cutting
- Ideal when numerous small jobs are run on one machine
- The choice when initial price is the main purchasing criterion

## ID and Race Wheels

### ID and Race Wheel FastTrack Availability

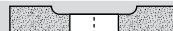
#### Type 01 Straight



Diameter: 0.164" thru 4.532"

Thickness: 0.150" thru 2.750"

#### Type 05 Recessed One Side



Diameter: 0.407" thru 4.625"

Thickness: 3/16" thru 3.100"

ABRASIVE	25A, 32A, 38A, 48A, 53A, 57A	5TG**	Quantum (NQ) 1SG, 3SG, 5SG	32AA
GRIT	46* - 120	80/1, 120/1	36 - 150	46 - 80
GRADE	J - P	I - M	I - N	I - M
STRUCTURE	6	8	6	6
BOND	VFL	VFL	VFL	VFL
SPEED	8,500 SFPM***			
TREAT 22	Available for Quantum (NQ) 32A, and 53A			

\* 46 grit only available in .312 Diameter

\*\* 5TG is available in /1 combination, only

\*\*\* Speeds up to 12,500 SFPM by request and Safety approval

For more program details, ask your Norton sales representative to review the First Line VFL ID & Race Wheel Brochure #6981 with you.

Vitrified First Line (VFL) ID and Race Wheel availability encompasses over 1,000 wheel sizes and most abrasive types. These high-performance wheels are made-to-order and shipped within two weeks of receipt of your order.

Additional dimensions and grinding faces are available as made-to-order products with 4-week lead-times.

## Vitrified Wheels For Steel Applications




**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina



**BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A**  
**ABRASIVE:** Aluminum Oxide



**GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b> 									
2 x 1/2 x 3/8	16,235	10/50			32A60-KVBE	66243428214			
3 x 1/4 x 1/2	10,825	10/50			32A60-KVBE	66243528696			
3 x 1/2 x 3/8	10,825	10/50			32A60-KVBE	66243528825	10/50	38A60-JVBE	66243529032
3 x 1/2 x 1/2	10,825	10/50			32A60-KVBE	66243528828			
3 x 1 x 1/2	10,825						10/10	38A60-MVBE	66243529145
	10,825						10/10	38A80-MVBE	66243529146
4 x 1/4 x 1/2	8,120	1/10			32A60-KVBE	66243529532	1/10	38A60-KVBE	66243529777
	8,120						1/10	38A100-IVBE	66243529782
4 x 1/4 x 3/4	8,120	1/10			32A60-KVBE	66243529736			
4 x 1/2 x 1/2	8,120	1/10					1/10	38A60-KVBE	66243529947
	8,120						1/10	38A100-KVBE	66243529954
4 x 1/2 x 3/4	8,120	1/10			32A60-KVBE	66243529849	1/10	38A60-KVBE	66243529961
	8,120	1/10			32A80-KVBE	66243529850			
4 x 1 x 1/2	8,120						1/10	38A60-MVBE	66243530126
5 x 1/4 x 1/2	4,970	1/10			32A60-KVBE	66252830572			
6 x 1/8 x 1-1/4	4,140	1/10			32A80-KVBE	66252835361	1/10	38A150-LVBE	66252835506
6 x 1/4 x 1/2	4,140	1/10			32A60-KVBE	66252835784			
6 x 1/4 x 1-1/4	4,140	1/10			32A60-KVBE	66252835786	1/10	38A60-KVBE	66252835803
	4,140						1/10	38A80-KVBE	66252835807
	4,140						1/10	38A150-KV	66252835759
6 x 1/2 x 1/2	4,140	1/10			32A60-KVBE	66252836394	1/10	38A60-KVBE	66252836530
	4,140						1/10	38A80-KVBE	66252836548
6 x 1/2 x 1-1/4	4,140	1/10			32A46-KVBE	66252836380	1/10	38A46-KVBE	66252836520
	4,140	1/10	5SG60-KVS	66252803344	32A60-KVBE	66252836396 B	1/10	38A60-KVBE	66252836533
	4,140	1/10			32A80-JVBE	66252836405	1/10	38A80-KVBE	66252836550
	4,140						1/10	38A120-KVBE	66252836664
6 x 3/4 x 1/2	4,140	1/10			32A60-KVBE	66252837420			
6 x 3/4 x 5/8	4,140						1/10	38A60-KVBE	66252837444
6 x 3/4 x 1-1/4	4,140	1/10			32A60-KVBE	66252837421	1/10	38A60-KVBE	66252837445
6 x 1 x 1-1/4	4,140	1/10			32A60-KVBE	66252837921 B			
7 x 1/8 x 1-1/4	3,275	1/10			32A60-IVBE	66252939112	1/10	38A80-IVBE	66252939219
	3,600						1/10	38A100-KVBE	66252939223
7 x 1/4 x 1-1/4	3,600	1/10	5NQ46-IVS	66253350690	32A46-HVBE	66252939543	1/10	38A46-HVBE	66252939690
	3,600	1/10	5NQ46-IVS3	66243495257	32A46-IVBE	66252939544	1/10	38A46-IVBE	66252939691
	3,600	1/10	5NQ60-JVS	66253293579	32A46-JVBE	66252939545	1/10	38A46-JVBE	66252909755
	3,600	1/10	5NQ60-JVS3	66243495258	32A46-KVBE	66252939862	1/10	38A60-HVBE	66252939695
	3,600	1/10	5SG46-IVS	66252940207 B	32A60-HVBE	66252939547	1/10	38A60-IVBE	66252939696
	3,600	1/10	5SG46-IVS	66253288575 S	32A60-IVBE	66252939548 B	1/10	38A60-JVBE	66252939698
	3,600	1/10	5SG60-IVS	66252939459 B	32A60-IVBE	66253288569 S	1/10	38A60-KVBE	66252939700
	3,600	1/10	5SG60-IVS	66253288576 S	32A60-JVBE	66252939549 B	1/10	38A80-HVBE	66252939707
	3,600	1/10	5SG60-IVS3	66243495259	32A60-KVBE	66252939552 B	1/10	38A80-IVBE	66252939808
	3,600	1/10	5SG60-JVS	66252939460	32A60-KVBE	66253288570 S	1/10	38A80-JVBE	66252939809
	3,600	1/10	5SG60-KVS	66252939461 B	32A60-KVS3	66243495260	1/10	38A80-KVBE	66252939812
	3,600	1/10	5SG60-KVS	66253288577 S	32A80-HVBE	66252939557	1/10	38A100-IVBE	66252939823
	3,600	1/10	5SG80-IVS	66252939462	32A80-IVBE	66252939658 B	1	38A100-IVBE	66253288799 S
	3,600	1/10	5SG80-JVS	66252939463	32A80-IVBE	66253288571 S	1/10	38A100-JVBE	66252939826
	3,600	1/10	5SG80-KVS	66252939464	32A80-JVBE	66252939660 B	1/10	38A100-KVBE	66252939827
	3,600	1/10	5SG100-JVS	66252939467	32A80-KVBE	66252939662 B	1/10	38A100-LVBE	66252939830
	3,600	1/10	5SG100-KVS	66252939468 B	32A80-KVBE	66253288572 S	1/10	38A120-JVBE	66252939833
	3,600	1/10	5SG100-KVS	66253288578 S	32A80-KVS3	66243495262	1/10	38A120-KVBE	66252939834
	3,600	1/10			32A100-IVBE	66252939670 B	1/10	38A150-KVBE	66252939838
	3,600	1/10			32A100-JVBE	66252939672	1/10	38A150-LVBE	66252939839
	3,600	1/10			32A100-IVBE	66253288573 S	1/10	38A150-MV	66252939521
	3,600	1/10			32A100-KVBE	66252939673 B	1/10	38A220-KV	66252939528
	3,600	1/10			32A100-KVBE	66253288574 S	1/10	38A220-LV	66252939529
	3,600	1/10			32A120-IVBE	66252939680	1/10	38A220-LVBE	66252939847

B = Best Seller; performs well in a variety of applications for many satisfied customers  
S = Single Pack

Continued

## Vitrified Wheels For Steel Applications (continued)




TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **QUANTUM / NORTON SG**  
 ABRASIVE: Ceramic Alumina



TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **32A / 48A**  
 ABRASIVE: Aluminum Oxide



TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **38A / 25A / GEMINI**  
 ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type O1 Straight</b> 									
7 x 1/4 x 1-1/4	3,600	1/10			32A120-KVBE	66252939682	1/10	38A220-MV	66252939530
	3,600	1/10			32A220-LVBE	66252939689	10/10	Gemini 60-I	66253246722
	3,600	1/10					10/10	Gemini 60-J	66253246788
	3,600	1/10					10/10	Gemini 60-K	66253246789
	3,600	1/10					10/10	Gemini 80-K	66253246792
7 x 3/8 x 1-1/4	3,600	1/10			32A60-KVBE	66252940276	1/10	38A60-KVBE	66252940294
	3,600	1/10			32A80-KVBE	66252940284	1/10	38A80-IVBE	66252940297
7 x 1/2 x 1-1/4	3,600	1/10	5NQ46-HVS3	66253375053	32A46-FVBEP	66252941203	1/10	25A46-HVP2	66252916219
	3,600	1/10	5NQ46-IVS	69083159103	32A46-GVBE	66252940862	1/10	25A60-HVP2	66252916221
	3,600	1/10	5NQ46-IVS3	66253375052	32A46-GVBEP	66252941204 B	1/10	38A46-GVBE	66252941022
	3,600	1/10	5NQ46-JVS	69083159104	32A46-HVBE	66252940863 B	1/10	38A46-GVBEP	66252941323
	3,600	1/10	5NQ60-GVSP	69083159105	32A46-HVBE	66253288775 S	1/10	38A46-HVBE	66252941023
	3,600	1/10	5NQ60-IVS3	66253375047	32A46-HVBEP	66252941205 B	1	38A46-HVBE	66253288770 S
	3,600	1/10	5NQ60-JVS	69083159106	32A46-HVS3	66243494107	1/10	38A46-HVBEP	66252941324
	3,600	1/10	5NQ60-JVS3	66253375046	32A46-IVBE	66252940864 B	1/10	38A46-HVP2	662529416223
	3,600	1/10	3SGP46-GVSP	66252911717	32A46-IVBE	66253288776 S	1/10	38A46-IVBE	66252941024
	3,600	1/10	3SGR46-HVP2	66252916211	32A46-IVBEP	66252941206	1/10	38A46-JVBE	66252941026
	3,600	1/10	3SGR60-HVP2	66252916213	32A46-IVS3	66243495357	1	38A46-JVBE	66253288767 S
	3,600	1/10	5SG46-GVSP	66252940522	32A46-JVBE	66252940865 B	1/10	38A46-KVBE	66252941028
	3,600	1/10	5SG46-HVS3	66253375050	32A46-JVBE	66253288777 S	1/10	38A60-HVBE	66252941035
	3,600	1/10	5SG46-HVSP	66252941130	32A46-JVS3	66243495264	1/10	38A60-HVBEP	66252941330
	3,600	1/10	5SG46-IVS	66252940193 B	32A46-KVBE	66252940867 B	1/10	38A60-IVBE	66252941036
	3,600	1/10	5SG46-IVS	66253288788 S	32A46-KVS3	66243495362	1/10	38A60-JVBE	66252941038
	3,600	1/10	5SG46-IVS3	66253375049	32A54-IVBE	66252940873	1	38A60-JVBE	66253288766 S
	3,600	1/10	5SG46-IVSP	66252940523	32A60-GVBEP	66252941313	1/10	38A60-KVBE	66252941041
	3,600	1/10	5SG46-JVS	66252940194 B	32A60-HVBE	66252940879 B	1	38A60-KVBE	66253288769 S
	3,600	1/10	5SG46-JVS	66253288789 S	32A60-HVBEP	66252941314	1/10	38A60-LVBE	66252911677
	3,600	1/10	5SG46-JVS3	66243495263	32A60-IVBE	66252940880 B	1/10	38A80-HVBE	66252941047
	3,600	1/10	5SG46-KVS	66252940195	32A60-IVBE	66253288779 S	1/10	38A80-IVBE	66252941048
	3,600	1/10	5SG60-GVSP	66252940524	32A60-IVS3	66243495363	1/10	38A80-JVBE	66252941049
	3,600	1/10	5SG60-IVS	66252940196 B	32A60-JVBE	66252940882 B	1/10	38A80-KVBE	66252941054
	3,600	1/10	5SG60-IVS	66253288791 S	32A60-JVBEP	66252941316	1	38A80-KVBE	66253350641 S
	3,600	1/10	5SG60-IVS3	66253375045	32A60-JVS3	66243495364	1/10	38A80-LVBE	66252941056
	3,600	1/10	5SG60-IVSP	66252940525	32A60-KVBE	66252940885 B	1/10	38A100-IVBE	66252941163
	3,600	1/10	5SG60-JVS	66252940197 B	32A60-KVBE	66253288782 S	1/10	38A100-JVBE	66252941165
	3,600	1/10	5SG60-JVS	66253288792 S	32A60-LVBE	66252940888	1/10	38A100-KVBE	66252941168
	3,600	1/10	5SG60-JVS3	66253375043	32A80-HVBE	66252940894	1/10	38A120-JVBE	66252941174
	3,600	1/10	5SG60-KVS	66252940198	32A80-IVBE	66252940895 B	1/10	38A120-KVBE	66252941175
	3,600	1/10	5SG60-LVS	66252940199	32A80-IVBE	66253288783 S	1/10	38A150-JVBE	66252941179
	3,600	1/10	5SG80-IVS	66252940200	32A80-JVBE	66252940897 B	1/10	38A150-MV	66252940595
	3,600	1/10	5SG80-IVSP	66252940527	32A80-KVBE	66252940899 B	1/10	38A220-QV	66252940605
	3,600	1/10	5SG80-JVS	66252940201 B	32A80-KVBE	66253288784 S	10/10	Gemini 46-H	66253246795
	3,600	1/10	5SG80-JVS	66253288793 S	32A80-LVBE	66252940900	10/10	Gemini 46-I	66253246800
	3,600	1/10	5SG80-KVS	66252940202	32A100-IVBE	66252940907	10/10	Gemini 46-J	66253246802
	3,600	1/10	5SG80-LVS	66252940203	32A100-JVBE	66252941008	10/10	Gemini 46-K	66253246812
	3,600	1/10	5SG100-JVS	66252940204	32A120-LVBE	66252941018 B	10/10	Gemini 60-I	66253246818
	3,600	1/10	5SG100-KVS	66252940205	32A120-LVBE	66253288786 S	10/10	Gemini 60-J	66253246820
	3,600	1/10			48A46-HVP2	66252916215 B	10/10	Gemini 60-K	66253246821
	3,600	1/10			48A60-HVP2	66252916217 B	10/10	Gemini 80-K	66253246832
	3,600	1/10					10/10	Gemini 100-K	66253246838
7 x 5/8 x 1-1/4	3,600	1/10			32A60-IVBE	66252941762			
7 x 3/4 x 1-1/4	3,600	1/10	5SG46-IVS	66252942304	32A46-GVBEP	66252942070	1/10	38A46-HVBE	66252941950
	3,600	1/10	5SG46-KVS	66252942305	32A46-HVBE	66252941930	1/10	38A46-KVBE	66252941954
	3,600	1/10	5SG60-JVS	66252942307	32A46-IVBE	66252941931	1/10	38A60-IVBE	66252942207
	3,600	1/10	5SG60-KVS	66252942308	32A46-KVBE	66252941935	1/10	38A60-KVBE	66252942060
	3,600	1/10			32A60-IVBE	66252941938			
	3,600	1/10			32A60-KVBE	66252941943			
	3,600	1/10			32A80-IVBE	66252941946			

B = Best Seller; performs well in a variety of applications for many satisfied customers  
 S = Single Pack



## Vitrified Wheels For Steel Applications (continued)



**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina



**TIER: BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A**  
**ABRASIVE:** Aluminum Oxide



**TIER: GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A / 25A / GEMINI**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b>									
7 x 1 x 1-1/4	3,600	1/10	5SG60-JVS	66252942429	32A46-HVBE	66252942513	1/10	38A46-HVBE	66252942534
	3,600	1/10	5SG60-KVS	66252942430	32A46-JVBE	66252942268			
	3,600	1/10			32A60-IVBE	66252942524			
	3,600	1/10			32A60-KVBE	66252942709			
200mm x 10mm x 31.75mm	2,870	5	320 S/C Organic Micro Dressing wheels	66253296349*					
8 x 1/4 x 1-1/4	+	1/10	5SG60-KVS	66253043351	32A46-HVBE	66253043412	1/10	38A60-IVBE	66253043431
	+	1/10	5SG80-KVS	66253043353	32A46-IVBE	66253043310	1/10	38A60-JVBE	66253043432
	3,600	1/10			32A46-KVBE	66253043413	1/10	38A60-KVBE	66253010825
	3,600	1/10			32A60-IVBE	66253043416 B	1/10	38A80-IVBE	66253043437
	3,600	1/10			32A60-IVBE	66253288796 S	1/10	38A80-JVBE	66253043439
	3,600	1/10			32A60-JVBE	66253043417	1/10	38A80-KVBE	66253043461
	3,600	1/10			32A60-KVBE	66253043399	1/10	38A100-IVBE	66253043445
	3,600	1/10			32A80-IVBE	66253043421	1/10	38A100-KVBE	66253043447
	3,600	1/10			32A80-KVBE	66253043458 B	1/10	38A120-KVBE	66253043450
	3,600	1/10			32A80-KVBE	66253288797 S	1/10	38A150-KVBE	66253043451
	3,600	1/10			32A80-LVBE	66253043425			
	3,600	1/10			32A100-IVBE	66253043426			
	3,600	1/10			32A100-KVBE	66253043428			
	3,600	1/10			32A60-KVBE	66253043565			
8 x 3/8 x 1-1/4	3,600	1/10			32A46-GVBEP	66253043882 B	1/10	25A46-HVP2	66253019354
8 x 1/2 x 1-1/4	+	1/10	5NQ46-HVS3	66253387211	32A46-HVBE	66253043712 B	1/10	38A46-HVBE	66253043746
	3,105	1/10	5NQ46-IVS	69083159107	32A46-HVBE	66253288800 S	1	38A46-HVBE	66253350640 S
	3,105	1/10	5NQ46-IVS3	66253387212	32A46-HVBEP	66253043883 † B	1/10	38A46-HVBEP	66253043891 †
	+	1/10	5NQ46-JVS	69083159108	32A46-HVS3	66243495312	1/10	38A46-IVBE	66253043749
	+	1/10	5NQ46-JVS3	66243494087	32A46-HVS3P	66243495368	1/10	38A46-JVBE	66253043752
	+	1/10	5NQ60-GVSP	69083159109	32A46-IVBE	66253043713 B	1/10	38A46-KVBE	66253043762
	+	1/10	5NQ60-IVS3	66253387214	32A46-IVS3	66243495313	1/10	38A60-HVBE	66253043756
	+	1/10	5NQ60-JVS	69083159110	32A46-JVBE	66253043715 B	1/10	38A60-IVBE	66253043757
	3,600	1/10	5NQ60-JVS3	66253387213	32A46-JVBE	66253288801 S	1/10	38A60-JVBE	66253043858
	+	1/10	3SGP46-HVSP	66253011505	32A46-JVS3	66243495314	1/10	38A60-KVBE	66253043861
	3,600	1/10	3SGP46-JVH	66253013796	32A46-KVBE	66253043716 B	1/10	38A80-IVBE	66253043866
	3,600	1/10	3SGR46-GVP2	66253019345	32A60-FVBEP	66253043886 †	1/10	38A80-JVBE	66253013787
	+	1/10	3SGR46-HVP2	66253019346	32A60-GVBEP	66253043887 †	1/10	38A80-KVBE	66253043869
	+	1/10	3SGR60-HVP2	66253019348	32A60-HVBE	66253043724	1/10	38A100-KVBE	66253043877
	+	1/10	5SG46-GVSP	66253043649	32A60-HVBEP	66253043888	10/10	Gemini 46-H	66253246841
	+	1/10	5SG46-HVS3	66253387220	32A60-IVBE	66253043725 B	10/10	Gemini 46-I	66253246843
	+	1/10	5SG46-HVSP	66253043915 †	32A60-IVBE	66253288802 S	10/10	Gemini 46-J	66253246845
	+	1/10	5SG46-IVS	66253044089 B	32A60-JVBE	66253043727 B	10/10	Gemini 46-K	66253246848
	+	1/10	5SG46-IVS3	66253387221	32A60-KVBE	66253043729 B	10/10	Gemini 60-J	66253246857
	+	1/10	5SG46-IVSP	66253043650	32A60-KVBE	66253288803 S			
	3,600	1/10	5SG46-JVS	66253044090 B	32A80-HVBE	66253043733			
	3,600	1/10	5SG46-JVS	66253288806 S	32A80-IVBE	66253043734			

B = Best Seller; performs well in a variety of applications for many satisfied customers S = Single Pack

\* = For fine grit diamond Polymide wheels

+ = Refer to Tech Tip at the bottom of this page for maximum operating speed

Continued

For non-stock toolroom wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability – including our revolutionary new Quantum ceramic and Vitrium3 bond wheels.

## TECH TIP

+ 8" Type 01 and Type 05 Vitrified Toolroom Wheels' Maximum Operating Speeds:

- Stock NorPor VP2 wheels = 3,600 RPMs
- All other 46 grit, J grade and harder = 3,600 RPMs
- All other 54 grit, I grade and harder = 3,600 RPMs
- All other 60 grit and finer, H grade and harder = 3,600 RPMs

- † Exceptions to the rule: speed-tested to 3,600 RPM
- All other specifications = 3,105 RPMs



It is the user's responsibility to refer to and comply with ANSI B7.1

## Vitrified Wheels For Steel Applications (continued)



**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina



**BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A / 48A**  
**ABRASIVE:** Aluminum Oxide



**GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A / 57A**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b>									
8 x 1/2 x 1-1/4	3,600	1/10	5SG46-KVS	66253044091	32A80-JVBE	66253043736			
	3,600	1/10	5SG60-GVSP	66253043651 †	32A80-KVBE	66253043737			
	3,600	1/10	5SG60-IVS	66253044092	32A100-IVBE	66253043740			
	3,600	1/10	5SG60-IVS3	66253387225	32A100-KVBE	66253043742			
	3,600	1/10	5SG60-IVSP	66253043652	48A46-HVP2	66253019350 B			
	3,600	1/10	5SG60-JVS	66253044093 B					
	3,600	1/10	5SG60-JVS	66253288808 S					
	3,600	1/10	5SG60-JVS3	66253387228					
	3,600	1/10	5SG60-KVS	66253044094					
	3,600	1/10	5SG80-JVS	66253044096					
	3,600	1/10	5SG80-KVS	66253044097					
	3,600	1/10	5SG100-KVS	66253019435					
8 x 3/4 x 1-1/4	3,105	1/10	5NQ46-IVS	69083159111	32A46-GVBEP	66253044195	1/10	38A46-HVBE	66253044175
	3,105	1/10	5NQ46-IVS3	66243494089	32A46-HVBE	66253044159	1/10	38A46-IVBE	66253044177
	3,600	1/10	5NQ46-JVS	69083159112	32A46-HVBEP	66253044196 †	1/10	38A46-KVBE	66253044180
	+	1/10	5NQ46-JVS3	66243494090	32A46-IVBE	66253044215	1/10	38A60-IVBE	66253044184
	+	1/10	5NQ60-GVS3P	66243495369	32A46-JVBE	66253044161			
	+	1/10	5NQ60-GVSP	69083159113	32A46-KVBE	66253044165			
	+	1/10	5NQ60-JVS	69083159114	32A60-GVBEP	66253044198			
	3,600	1/10	5NQ60-JVS3	66243494091	32A60-HVBE	66253044168			
	+	1/10	5SG46-IVS	66253044098	32A60-IVBE	66253044169			
	3,600	1/10	3SGP46-JVH	66253013792	32A60-JVBE	66253044171			
	3,600	1/10	5SG46-JVS	66253044099 B	32A60-KVBE	66253044173			
	3,600	1/10	5SG46-JVS3	66243495315	32A80-KVBE	66253044064			
	3,600	1/10	5SG60-IVS	66253044101					
	3,600	1/10	5SG60-JVS	66253044102					
	3,600	1/10	5SG60-KVS	66253044103					
8 x 1 x 1-1/4	+	1/10	5SG46-KVS	66253002588	32A46-HVBE	66253044616	1/10	38A46-IVBE	66253044636
	+	1/10	5SG60-GVSP	66253003228†	32A46-IVBE	66253044617	1/10	38A60-IVBE	66253044456
	3,600	1/10	5SG60-IVS	66253002639	32A46-KVBE	66253044622	1/10	57A60-MVBE	66253044270
	3,600	1/10			32A60-IVBE	66253044624			
	3,600	1/10			32A60-KVBE	66253044629			
10 x 1/4 x 3	2,485						1	38A80-KVBE	66253149572
10 x 1/2 x 3	2,485	1			32A60-JVBE	66253149729	1	38A60-KVBE	66253149859
	2,485						1	38A80-KVBE	66253149865
10 x 3/4 x 3	2,485	1			32A46-IVBE	66253160024	1	38A46-JVBE	66253160158
	2,485	1			32A60-IVBE	66253160137	1	38A60-IVBE	66253160163
	2,485	1			32A60-KVBE	66253160143			
10 x 1 x 1-1/4	2,485	1			32A60-KVBE	66253160774			
10 x 1 x 2	2,485	1			32A46-IVBE	66253160749			
10 x 1 x 3	2,485	1	5SG46-GVSP	66253160494	32A46-HVBE	66253160747	1	38A46-IVBE	66253160889
	2,485	1	5SG46-IVS	66253160400	32A46-IVBE	66253160750	1	38A46-JVBE	66253160892
	2,485	1	5SG46-JVS	66253160401	32A46-JVBE	66253160754	1	38A60-IVBE	66253160898
	2,485	1	5SG46-JVS3	66243495316	32A46-KVBE	66253160758	1	38A60-KVBE	66253160900
	2,485	1	5SG46-KVS	66253160402	32A60-IVBE	66253160769			
	2,485	1	5SG60-GVSP	66253160495	32A60-KVBE	66253160777			
	2,485	1	5SG60-IVS	66253160403	32A80-KVBE	66253160782			
	2,485	1	5SG60-JVS	66253160404					
	2,485	1	5SG60-KVS	66253160405					

B = Best Seller; performs well in a variety of applications for many satisfied customers S = Single Wheel Pack  
+ = Refer to Tech Tip at the bottom of this page for maximum operating speed

## TECH TIP

+ 8" Type 01 and Type 05 Vitrified Toolroom Wheels' Maximum Operating Speeds:

- Stock NorPor VP2 wheels = 3,600 RPMs
- All other 46 grit, J grade and harder = 3,600 RPMs
- All other 54 grit, I grade and harder = 3,600 RPMs
- All other 60 grit and finer, H grade and harder = 3,600 RPMs

- † Exceptions to the rule: speed-tested to 3,600 RPM
- All other specifications = 3,105 RPMs



It is the user's responsibility to refer to and comply with ANSI B7.1

## Vitrified Wheels For Steel Applications (continued)




**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina



**TIER: BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A / 48A**  
**ABRASIVE:** Aluminum Oxide



**TIER: GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b>									
12 x 1/2 x 3	2,070	2			32A60-JVBE	66253262134			
	2,070	2			32A80-KVBE	66253262110			
12 x 1/2 x 5	2,070	2			32A60-KVBE	66253262107			
	2,070	2			32A80-KVBE	66253262111			
12 x 3/4 x 3	2,070	1	5SG46-IVS	66253262204	32A46-GVBEP	66253262392	1	38A46-JVBE	66253262281
	2,070	1			32A46-HVBE	66253262260			
	2,070	1			32A46-IVBE	66253262261			
	2,070	1			32A60-IVBE	66253262270			
	2,070	1			32A60-KVBE	66253262273			
	2,070	1			32A46-KVBE	66253262570			
12 x 1 x 1-1/4	2,070	1			32A46-GVBEP	66253262840	1	38A46-HVBE	66253262700
12 x 1 x 3	•	1	3SGR46-HVP2	66253220885	32A46-HVBE	66253262562	1	38A46-IVBE	66253262702
	2,070	1	5SG46-HVSP	66253262488	32A46-HVBEP	66253262842	1	38A46-JVBE	66253262704
	2,070	1	5SG46-IVS	66253262500	32A46-IVBE	66253262564	1	38A60-IVBE	66253262713
	2,070	1	5SG46-JVS3	66243495317	32A46-JVBE	66253262567			
	2,070	1	5SG46-KVS	66253262502	32A46-KVBE	66253262572			
	2,070	1	5SG46-KVS3	66243495318	32A60-HVBE	66253262580			
	2,070	1	5SG60-GVSP	66253262593	32A60-IVBE	66253262581			
	2,070	1	5SG60-IVS	66253262503	32A60-KVBE	66253262689			
	2,070	1	5SG60-JVS	66253262504	32A80-KVBE	66253262532			
	•	1	5SG60-KVS	66253262505	48A60-HVP2	66253220891			
12 x 1 x 5	2,070	1	5SG46-GVSP	66253262594	32A46-GVBEP	66253262841	1	38A46-IVBE	66253262703
	2,070	1	5SG46-IVS	66253262508	32A46-HVBE	66253262563	1	38A60-KVBE	66253262719
	2,070	1	5SG46-JVS	66253262509 B	32A46-IVBE	66253262565			
	2,070	1	5SG46-KVS	66253262510	32A46-KVBE	66253262573			
	2,070	1	5SG60-GVSP	66253262595	32A60-HVBE	66253262734			
	2,070	1	5SG60-IVS	66253262511	32A60-IVBE	66253262582			
	2,070	1	5SG60-JVS	66253262512	32A60-JVBE	66253262686			
	2,070	1	5SG60-KVS	66253262513	32A60-KVBE	66253262691 B			
	2,070	1	5SG80-JVS	66253262515	32A80-JVBE	66253262696			
	2,070	1			32A80-KVBE	66253262697			
12 x 1-1/4 x 3	2,070	1			32A46-IVBE	66253262301			
12 x 1-1/2 x 1-1/4	2,070	1			32A46-KVBE	66253263146			
12 x 1-1/2 x 3	2,070	1	5SG46-IVS	66253202820	32A46-HVBE	66253263143			
	2,070	1			32A46-IVBE	66253263144			
	2,070	1			32A60-JVBE	66253263123			
12 x 1-1/2 x 5	2,070	1	5NQ46-IVS	69083159115	32A46-GVBEP	66253263192	1	38A46-IVBE	66253214987
	2,070	1	5NQ46-IVS3	66243494092	32A46-HVBE	66253263128			
	2,070	1	5NQ46-JVS	69083159116	32A46-IVBE	66253263145			
	2,070	1	5NQ46-JVS3	66243494093	32A46-JVBE	66253263120			
	2,070	1	5NQ60-GVSP	69083159117	32A60-HVBE	66253263149			
	2,070	1	5NQ60-JVS	69083159118	32A60-KVBE	66253263034			
	2,070	1	3SGP60-GVSP	66253215030					
	2,070	1	5SG46-GVSP	66253203453					
	2,070	1	5SG46-IVS	66253202842					
	2,070	1	5SG46-IVS3	66243495319					
	2,070	1	5SG46-JVS	66253202926					
	2,070	1	5SG60-GVSP	66253262596					
12 x 2 x 1-1/4	2,070	1			32A46-KVBE	66253263461			
	2,070	1			32A46-MVBE	66253263463			
12 x 2 x 3	2,070	1			32A46-IVBE	66253263459			
12 x 2 x 5	2,070	1			32A46-HVBE	66253263403			
	2,070	1			32A46-IVBE	66253262302			
	2,070	1			32A60-KVBE	66253263465			

+ † Refer to the Tech Tips at the bottom of page 223 • 12" Type 01 Wheel Maximum RPM: NORPOR Wheels = 2,710; all others = 2,070

B = Best Seller; performs well in a variety of applications for many satisfied customers

To maximize the performance of these wheels and finished part quality, refer to the beginning of this section and the "Diamond Tool" and "Dressing Sticks" sections for truing and dressing products.

## Vitrified Wheels For Steel Applications (continued)




**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina



**BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A**  
**ABRASIVE:** Aluminum Oxide



**GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A / 57A**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b> 									
14 x 1/2 x 5	1,800	1	5SG80-KVS	66253363814	32A60-KVBE	66253363761			
14 x 3/4 x 5	1,800	1			32A60-KVBE	66253363772			
14 x 1 x 3	1,800	1	5SG46-IVS	66253363960	32A46-HVBE	66253363912			
	1,800	1	5SG46-KVS	66253363961	32A46-IVBE	66253363914			
	1,800	1			32A60-IVBE	66253363927			
14 x 1 x 5	1,800	1	5SG46-GVSP	66253364108	32A46-GVBEP	66253364074	1	38A46-HVBE	66253364043
	1,800	1	5SG46-HVSP	66253313990	32A46-HVBE	66253363913	1	38A60-IVBE	66253363947
	1,800	1	5SG46-IVS	66253363970	32A46-IVBE	66253363915	1	38A60-JVBE	66253364051
	1,800	1	5SG46-JVS	66253363971	32A46-JVBE	66253363919	1	38A60-KVBE	66253364053
	1,800	1	5SG46-JVS3	66243495320	32A46-KVBE	66253363921	1	38A80-KVBE	66253364058
	1,800	1	5SG60-IVS	66253363974	32A60-GVBEP	66253364077	1	57A60-KVBE	66253364065
	1,800	1	5SG60-IVSP	66253363871	32A60-HVBE	66253363926	1	57A60-LVBE	66253364066
	1,800	1	5SG60-JVS	66253363975	32A60-JVBE	66253363930	1	57A80-MVBE	66253364070
	1,800	1	5SG60-KVS	66253363976	32A60-KVBE	66253363932			
	1,800	1	5SG80-JVS	66253363979	32A60-LVBE	66253364035			
	1,800	1	5SG80-KVS	66253364003	32A80-JVBE	66253364038			
	1,800	1			32A80-KVBE	66253364039			
14 x 1 x 8	1,800	1			32A60-IVBE	66253363887			
14 x 1-1/2 x 5	1,800	1	5NQ46-HVS3	66253387216	32A46-GVBEP	66253364238	1	38A46-HVBE	66253313968
	1,800	1	5NQ46-IVS3	66253387219	32A46-HVBE	66253364335 B	1	38A46-HVBEP	66253313969
	1,800	1	5NQ46-IVS	69083159119	32A46-HVBEP	66253364243	1	38A46-IVBE	66253364090
	1,800	1	5NQ46-JVS	69083159120	32A46-IVBE	66253364336	1	38A46-JVBE	66253364240
	1,800	1	5NQ46-JVS3	66243494095	32A46-JVBE	66253364337	1	38A60-IVBE	66253364247
	1,800	1	5NQ60-GVS3P	66243495372	32A46-KVBE	66253364339			
	1,800	1	5NQ60-GVSP	69083159122	32A60-HVBE	66253364340			
	1,800	1	5NQ60-JVS	69083159124	32A60-IVBE	66253364239			
	1,800	1	5NQ60-JVS3	66243494096	32A60-JVBE	66253364341			
	1,800	1	3SGP46-GVSP	66253306780	32A60-KVBE	66253364342			
	1,800	1	3SGP46-HVSP	66253307025	32A80-JVBE	66253364246			
	1,800	1	3SGP46-JVH	66253313976					
	1,800	1	5SG46-GVSP	66253364320					
	1,800	1	5SG46-HVS3	66253387231					
	1,800	1	5SG46-HVSP	66253302625					
	1,800	1	5SG46-IVS	66253364097					
	1,800	1	5SG46-IVS3	66253387234					
	1,800	1	5SG46-IVSP	66253302498					
	1,800	1	5SG46-JVS	66253364098 B					
	1,800	1	5SG60-IVS	66253364100					
	1,800	1	5SG60-JVS	66253364101					
	1,800	1	5SG60-KVS	66253302160					
	1,800	1	5SG80-KVS	66253363815					
	14 x 2 x 5	1,800	5SG60-JVS	66253364414	32A46-IVBE	66253364323			
		1,800			32A46-JVBE	66253364508			
		1,800			32A46-KVBE	66253364509			
		1,800			32A60-KVBE	66253364510			

B = Best Seller; performs well in a variety of applications for many satisfied customers

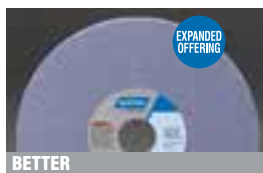
### DRESSING: SINGLE POINT DRESSING TOOL STARTING RECOMMENDATIONS

Wheel Sizes	Tool Shank Diameter	Ceramic (NQ, Norton SG, TG, etc.), 37C & 39C Wheels		25A, 32A, 38A, 48A, 53A, 57A, 64A, 86A Wheels	
		Product No.	Part #	Product No.	Part #
12" to 14"	3/8"	BCSG5M6	66260157009	BC5M6	66260195004
	7/16"	BCSG5M7	66260156907	BC5M7	66260195005

These tools are a standard recommendation; see the "Diamond Tool" section for additional tools.  
See the Fliesen Tool section for Furioso tools, engineered specifically for Quantum vitrified wheel dressing.





Vitrified Wheels For Steel Applications (continued)



TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **32A / 23A**  
 ABRASIVE: Aluminum Oxide



TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **38A / 53A / 57A**  
 ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 02 Cylinder</b> 							
6 x 1 x 4	3,600	1/10	32A46-KVBE	66252838308	1/10	38A80-HVBE	66252838314
Rim 1"	3,600	1/10	32A60-JVBE	66252838309			
Plate A47466							
8 x 2 x 5-1/2	2,865				1/8	53A46-KVBE	66253044942
Rim 1-1/4"							
Plate A50831							
10 x 2 x 7-1/2	2,295	1	32A54-JVG	66253161687	1	53A60-KVG	66253161701
Rim 1-1/4"							
(ME62845)							
Plate A110170							
11 x 5	1,910	1	32A30-HVBE	66253161800			
Rim 1" (ME33437)							
Tape Wound							
11 x 5	1,740	1	32A36-EVBEP	66253161780	1	38A46-GVBE	66253161807
Rim 1" (ME52726)	1,910	1	32A36-GVBEP	66253161808			
Tape Wound	1,910	1	32A46-HVBE	66253161893			
14 x 4 x 11	1,640				1	38A46-KVBE	66253364652
Rim 1-1/2"							
(ME62806)							
Plate A52814							
Tape Wound							
18 x 5 Rim 1-1/2"	1,065	1	32A30-E19VCP	66253465142			
(ME15536)							
Tape Wound							
18 x 5 Rim 1-1/2"	1,170	1	23A30-F19VCP	66253465235			
(ME52719)							
Tape Wound							
Includes Strips							
<b>Type 05 Recessed One Side</b> 							
3/4 x 3/4 x 1/4	43,290	5/40	32A60-KVBE	66243427582			
Recess 1/S 3/8 x 3/8							
1 x 1 x 1/4	32,470	5/40	32A60-KVBE	66243427769			
Recess 1/S 1/2 x 1/2							
1 x 1 x 3/8	32,470	5/40	32A60-KVBE	66243427773			
Recess 1/S 1/2 x 1/2							
1-1/4 x 1 x 3/8	25,975	5/40	32A60-KVBE	66243427799			
Recess 1/S 5/8 x 1/2							
1-1/2 x 1 x 3/8	25,975	5/40	32A60-KVBE	66243427938			
Recess 1/S 5/8 x 1/2							

Continued

For non-stock toolroom wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability – including our revolutionary new Quantum ceramic and Vitrium3 bond wheels.

To maximize the performance of these wheels and finished part quality, refer to the beginning of this section and the "Diamond Tool" and "Dressing Sticks" sections for truing and dressing products.


## Vitrified Wheels For Steel Applications (continued)



**TIER: BEST**  
**BRAND:** Norton  
**TRADENAME:** **QUANTUM / NORTON SG**  
**ABRASIVE:** Ceramic Alumina

**BETTER**  
**BRAND:** Norton  
**TRADENAME:** **32A / 48A**  
**ABRASIVE:** Aluminum Oxide

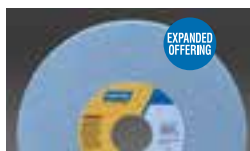
**GOOD**  
**BRAND:** Norton  
**TRADENAME:** **38A / GEMINI**  
**ABRASIVE:** Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type O5 Recessed One Side</b> 									
1-1/2 x 1 x 3/8	21,645	5/40			32A60-KVBE	66243427937			
Recess 1/5 3/4 x 1/2									
2 x 1 x 3/8	16,235	5/40			32A60-KVBE	66243428329			
Recess 1/5 3/4 x 1/2									
2 x 1-1/2 x 5/8	16,235	10/30			32A60-KVBE	66243428332			
Recess 1/5 1 x 3/4									
7 x 3/4 x 1-1/4	3,600	1/10	5SG46-IVS	66252941976	32A46-HVBE	66252942209	1/10	38A46-IVBE	66252942222
Rec 1/5 2-3/4 x 1/4	3,600	1/10	5SG46-IVS3	66243494097	32A46-IVBE	66252942211	1/10	38A60-IVBE	66252942225
	3,600	1/10	5SG60-IVS	66252942312	32A46-IVS3	66243495322			
	3,600	1/10			32A46-JVBE	66252942213			
	3,600	1/10			32A46-JVS3	66243495323			
	3,600	1/10			32A60-IVBE	66252942217			
	3,600	1/10			32A60-JVBE	66252942218			
	3,600	1/10			32A60-KVBE	66252942205			
7 x 3/4 x 1-1/4	3,600						10/10	Gemini 46-J	66253246826
Rec 1/5 3 x 1/4	3,600						10/10	Gemini 60-J	66253246830
7 x 1 x 1-1/4	3,600	1/10	5NQ46-IVS3	66243495326	32A46-GVBEP	66252942826			
Rec 1/5 2-3/4 x 1/2	3,600	1/10	3SGR46-HVP2	66252916228	32A46-HVBE	66252942688			
	3,600	1/10	5SG46-IVS	66252942318	32A46-HVBEP	66252942828			
	3,600	1/10	5SG46-IVS3	66243494098	32A46-IVBE	66252942691			
	3,600	1/10	5SG46-JVS	66252942427	32A46-KVBE	66252942708			
	3,600	1/10	5SG46-JVS3	66243494099	32A60-IVBE	66252942699			
	3,600	1/10	5SG60-JVS	66252942431	32A60-JVBE	66252942701			
	3,600	1/10	5SG60-JVS3	66243494100	32A60-KVBE	66252942703			
	3,600	1/10			48A46-HVP2	66252916232			
7 x 1 x 1-1/4	3,600	1/10	5NQ46-IVS	66253350691	32A46-HVBE	66252942689	1/10	38A46-HVBE	66252942707
Rec 1/5 3 x 1/2	3,600	1/10	5SG46-IVS	66252901814	32A46-IVBE	66252942690	1/10	38A46-IVBE	66252942809
	3,600	1/10	5SG46-IVS3	66243494101	32A60-IVBE	66252942686	1/10	38A46-KVBE	66252942793
	3,600	1/10	5SG60-IVS	66252906907			1/10	38A60-IVBE	66252942815
	3,600	1/10	5SG60-IVS3	66243494102			1/10	38A60-JVBE	66252942816
	3,600						1/10	38A60-KVBE	66252942817
	3,600						10/10	Gemini 46-H	66253246831
	3,600						10/10	Gemini 46-J	66253246835
	3,600						10/10	Gemini 60-J	66253246839
7 x 1-1/4 x 1-1/4	3,600	1/5			32A46-HVBE	66252942833			
Rec 1/5 2-3/4 x 5/8	3,600	1/5			32A60-IVBE	66252942859			
	3,600	1/5			32A60-JVBE	66252942835			
7 x 1-1/2 x 1-1/4	3,600	1/5			32A46-IVBE	66252942843			
Rec 1/5 2-3/4 x 3/4	3,600	1/5			32A60-IVBE	66252942844			
8 x 3/4 x 1-1/4	3,105	1/10			32A46-IVBE	66253044213			
Rec 1/5 3-1/4 x 1/4									
8 x 1 x 1-1/4	3,105						10/10	Gemini 46-H	66253246849
Rec 1/5 3 x 1/2	3,600						10/10	Gemini 46-J	66253246850
8 x 1 x 1-1/4	3,105	1/10	5SG46-IVS	66253013543	32A46-IVBE	66253044790			
Rec 1/5 3-1/4 x 1/2	+	1/10	5SG46-IVS3	66243494103	32A46-JVBE	66253044382			
	3,600	1/10	5SG46-JVS	66253003301	32A46-JVS3	66243495329			
	3,600	1/10	5SG46-JVS3	66243494104	32A60-IVBE	66253044753			
	3,600	1/10			32A60-IVS3	66243495330			
	3,600	1/10			32A60-KVBE	66253044810			
10 x 3/4 x 2	2,485	1			32A60-JVBE	66253160189			
Rec Side A									
5 x 3/16 Face Bev									
Side A 75 Deg									
From 1/8" Flat									

Continued

For non-stock toolroom wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability – including our revolutionary new Quantum ceramic and Vitrium3 bond wheels.



### Vitrified Wheels For Steel Applications (continued)



TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **NORTON SG**  
 ABRASIVE: Ceramic Alumina

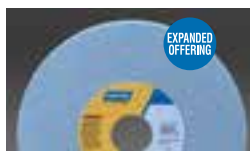
TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **32A / 48A**  
 ABRASIVE: Aluminum Oxide

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **38A / 25A / 53A**  
 ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 05 Recessed One Side</b> 									
12 x 1-1/2 x 3 Rec 1/5 6 x 1/2	2,070	1			32A46-IVBE	66253263186			
12 x 1-1/2 x 5 Rec 1/5 7-1/2 x 1/2	•	1	3SGR46-HVP2	66253220904	32A46-HVBEP	66253263180	1	38A46-IVBE	66253263175
	2,070	1	5SG46-GVSP	66253263127	32A46-IVBE	66253263166			
	2,070	1	5SG46-GVS3P	66243495374	32A46-JVBE	66253263169			
	2,070	1	5SG46-IVS	66253202883	32A46-KVBE	66253263170			
	2,070	1	5SG46-IVS3	66243494105	32A60-KVBE	66253263172			
			5SG60-IVSP	66253263050					
			5SG60-IVS3P	66243495376					
14 x 1-1/2 x 5 Rec 1/5 8 x 1/2	•	1	3SGR46-GVP2	66253319953	32A46-HVBE	66253364359			
	•	1	3SGR46-HVP2	66253319954	32A46-IVBE	66253364300			
	•	1	3SGR60-HVP2	66253319956	32A46-KVBE	66253364362			
	1,800	1	5SG46-IVS	66253364102	32A60-JVBE	66253364364			
	1,800	1	5SG46-IVS3	66243494106	32A60-KVBE	66253364365			
	•	1	5SG46-JVS	66253364103	48A46-HVP2	66253319958			
	1,800	1	5SG60-IVS	66253364104					
	1,800	1	5SG60-JVS	66253364105					
14 x 2 x 5 Rec 1/5 8 x 1/2	2,320	1	3SGR46-GVP2	66253319936	48A46-HVP2	66253319941	1	25A46-HVP2	66253319945
	2,320	1	3SGR46-HVP2	66253319937			1	38A46-HVP2	66253319949
	2,320						1	38A60-HVP2	66253319951
14 x 2 x 5 Rec 1/5 8 x 1	1,800	1			32A60-KVBE	66253364390			
	1,800	1			32A60-LVBE	66253364525			
<ul style="list-style-type: none"> <li>• 12" Type 05 Wheel Maximum RPM: NORPOR VP2 Wheels = 2,710; all others = 2,070</li> <li>• 14" Type 05 Wheel Maximum RPM: NORPOR VP2 Wheels = 2,320; all others = 1,800</li> </ul>									
<b>Type 06 Straight Cup</b> 									
3-1/2 x 1-1/2 x 1/2 Rim 1/2" Back 1/2"	6,550						1/10	38A60-KVBE	66243529372
100mm x 50mm x 20mm Rim 10mm, Back 13mm	6,550						1/10	38A80-JVBE	66243530429
4 x 1-1/2 x 1/2 Rim 1/2" Back 1/2"	5,730	1/10			32A60-KVBE	66243530218			
4 x 1-1/2 x 1-1/4 Rim 1/2" Back 1/2"	5,730						1/10	38A60-KVBE	66243530221
4 x 2 x 20mm Rim 3/8" Back 1/2"	5,730						1/10	38A80-JVBE	66243530523
5 x 1-1/2 x 1-1/4 Rim 3/8" Back 3/8"	4,585	1/10			32A46-KVBE	66252830832	1/10	38A46-KVBE	66252830842
Face Y (ME19243)	4,585	1/10			32A60-JVBE	66252830837		38A60-KVBE	66252830846
5 x 2 x 5/8 Rim 1/2" Back 1/2"	4,585	1/10			32A60-KVBE	66252830838			
					32A60-JVBE	66252830987			
6 x 1-1/2 x 1/2 Rim 1" Back 1/2"	3,820	1/10			32A46-KVBE	66252838458			
6 x 2 x 1-1/4 Rim 1/2" Back 1/2"	3,820	1/10			32A46-IVBE	66252838544	1/10	38A60-KVBE	66252838486
	3,820	1/10			32A60-JVBE	66252838538			
7 x 2 x 1-1/4 Rim 1/2" Back 1/2"	3,275	1/8			32A46-JVBE	66252942856			
9-1/2 x 1-1/2 x 1-1/2 Rim 1-1/2" Back 5/8"	2,415						1	53A46-LVBE	66253149136
10 x 4 x 1-1/2 Rim 1-1/4" Back 1"	2,295						1	38A46-IVBE	66253161797
Tape Wound									
12 x 2-1/2 x 7 Rim 1-1/2" Back 7/8"	1,910	1			32A46-LVBE	66253263614			

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### Vitrified Wheels For Steel Applications (continued)



TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **NORTON SG**  
 ABRASIVE: Ceramic Alumina

TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **32A**  
 ABRASIVE: Aluminum Oxide

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **38A**  
 ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 07 Recessed Two Sides</b> 									
12 x 2 x 3	2,070	1			32A46-IVBE	66253263588			
Rec 2/S 5-1/2 x 3/8					32A46-IVS3	66243495383			
12 x 2 x 3	2,070	1			32A46-HVBE	66253263590			
Rec 2/S 7-1/4 x 1/2	2,070	1			32A46-HVS3	66243495377			
	2,070	1			32A46-JVBE	66253263348			
12 x 2 x 5	2,070	1			32A46-IVBE	66253263594			
Rec 2/S 7-1/4 x 1/2									
12 x 2 x 5	2,070	1	5SG46-JVS	66253209930	32A46-HVBE	66253263591	1	38A46-IVBE	66253263600
Rec 2/S 7-1/2 x 1/2	2,070	1			32A46-HVBEP	66253263603			
	2,070	1			32A46-JVBE	66253263483			
	2,070	1			32A46-KVBE	66253263596			
	2,070	1			32A60-IVBE	66253263597			
<b>Type 11 Flaring Cup</b> 									
3/2-1/4 x 1-1/4 x 3/4	7,640	1/10			32A60-JVBE	66243529183	1/10	38A60-JVBE	66243529197
Rim 1/4" Back 3/8"	7,640	1/10			32A60-KVBE	66243529187			
Face Z (ME21560)	7,640	1/10			32A60-KVS3	66243495338			
3-1/2-2-3/4 x 1-1/2 x 1-1/4	7,640	1/10			32A60-KVBE	66243529358			
Rim 1/4" Back 3/8"									
Face Z (ME24327)									
4/3 x 1-1/2 x 1-1/4	5,730	1/5	5SG46-IVSP	66243530127	32A46-IVBE	66243530240	1/10	38A46-KVBE	66243530378
Rim 1/4" Back 1/2"	5,730	1/5	5SG46-KVS	66243503342	32A46-KVBE	66243530246	1/10	38A60-JVBE	66243530387
Face Z (ME19237)	5,730	1/5	5SG46-KVS3	66243495339	32A60-JVBE	66243530256	1/10	38A60-KVBE	66243530390
	5,730	1/5	5SG60-JVS	66243530415	32A60-KVBE	66243530361	1/10	38A80-JVBE	66243530393
	5,730	1/5	5SG60-JVS3	66243495342	32A60-KVS3	66243495345	1/10	38A80-KVBE	66243530395
	5,730	1/5	5SG60-LVS	66243530417	32A80-KVBE	66243530368			
	5,730	1/5	5SG80-JVS	66243530419					
	5,730	1/5	5SG80-KVS	66243530420					
4-1/2-3-3/4 x 2 x 1-1/4	5,730	1/5			32A46-KVBE	66252830539			
Rim 1/4"									
Back 1/2" (ME20115)									
5/3-3/4 x 1-3/4 x 1-1/4	4,585	1/5	5SG46-KVS	66252803291	32A46-JVBE	66252830858	1/5	38A46-KVBE	66252830971
Rim 1/4" Back 1/2"	4,585	1/5	5SG60-KVS	66252830737	32A46-KVBE	66252830859	1/5	38A60-JVBE	66252830973
Face Z (ME21563)	4,585	1/5	5SG60-KVS3	66243495574	32A46-KVS3	66243495576	1/5	38A60-KVBE	66252830975
	4,585	1/5	5SG60-LVS	66252830736	32A60-JVBE	66252830962			
	4,585	1/5			32A60-KVBE	66252830964			
6/4-1/2 x 2 x 1-1/4	3,820	1/5			32A46-JVBE	66252838491	1/5	38A46-KVBE	66252838495
Rim 3/8" Back 1/2"	3,820	1/5			32A46-KVBE	66252838528	1/5	38A60-KVBE	66252838497
Face Z (ME19241)	3,820	1/5			32A60-JVBE	66252838492			
7/5 x 2 x 1-1/4	3,275	1/8			32A46-JVBE	66252942959	1/8	38A46-HVBE	66252942963
Rim 3/4" Back 1/2"									
(ME19242)									

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## Vitrified Wheels For Steel Applications (continued)



TIER: **BEST**  
 BRAND: Norton  
 TRADENAME: **NORTON SG**  
 ABRASIVE: Ceramic Alumina

TIER: **BETTER**  
 BRAND: Norton  
 TRADENAME: **32A**  
 ABRASIVE: Aluminum Oxide

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **38A**  
 ABRASIVE: Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 12 Dish</b> 									
4 x 1/2 x 3/4 (ME19226)	6,207	1/10			32A60-KVBE	66243530067			
6 x 1/2 x 1-1/4 (ME19229)	4,140	1/10	5SG60-LVS	66252836574	32A46-JVBE	66252836860	1/10	38A60-JVBE	66252836977
	4,140	1/10			32A60-JVBE	66252836966			
6 x 3/4 x 1-1/4 (ME19230)	4,140	1/10	5SG60-KVS	66252837771	32A46-KVBE	66252837732			
	4,140	1/10			32A60-JVBE	66252837734			
	4,140	1/10			32A60-KVBE	66252837735			
7 x 1/2 x 1-1/4 (ME13717)	3,600	1/10			32A46-KVBE	66252941644			
	3,600	1/10			32A60-KVBE	66252941647			
8 x 3/4 x 1-1/4 (ME19231)	3,600						1/10	38A60-KVBE	66253044319
10 x 1 x 1 (ME38702)	2,485	1			32A54-JVBE	66253161196			
10 x 1 x 1-1/4 (ME38702)	2,485	1			32A54-JVBE	66253161197			
<b>Type 20 Concave One Side</b> 									
14 x 1-1/2 x 5	1,800	1	5SG60-JVS	66253302265	32A60-JVBE	66253364250			
Concave from Periphery	1,800	1			32A60-KVBE	66253364332			
1/2" Deep to 8" Flat Spot	1,800	1			32A60-LVBE	66253364375			
<b>Type 35 Plate Mounted Disc</b> 									
9 x 2 x 4-15/16	2,550	1			32A46-MVBE	66253049115			
Rim 2-1/32" (ME31130)	2,550	1			32A60-J25VCF2	66253006557			
Plate A47248	2,550	1			32A70-JVBEP	66253049112			

For non-stock toolroom wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability – including our revolutionary new Quantum ceramic and Vitrium3 bond wheels.

To maximize the performance of these wheels and finished part quality, refer to the beginning of this section and the "Diamond Tool" and "Dressing Sticks" sections for truing and dressing products.





These sharp silicon carbide, vitrified wheels are used for grinding non-steel applications.

### Applications:

Use 39C (green silicon carbide) for cemented carbides, titanium, metal matrix composites and plasma sprayed materials.

Use 37C (black silicon carbide) on 300 series stainless steels, irons, nonferrous metals (aluminum, brass, bronze and copper) and non-metallic materials (stone, marble, rubber, ceramics and glass).

### Shapes:

Type 01 Straight, Type 02 Cylinder, and Type 05 Recessed 1 Side

### Size Range:

3" – 14" diameter

### Grit Range:


24 – 120

### Abrasive Grain:




39C Green Silicon Carbide, 37C Black Silicon Carbide

## Vitrified Wheels For Non-Steel Applications

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **39C / 37C**  
 ABRASIVE: Silicon Carbide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b> 				
3 x 1/2 x 1/2	10,825	10/50	37C60-MVK	66243529041
3 x 1 x 1/2	10,825	10/10	37C60-MVK	66243529166
	10,825	10/10	37C80-HVK	66243529170
	10,825	10/10	37C80-MVK	66243529171
	10,825	10/10	37C100-HVK	66243529172
	10,825	10/10	37C100-MVK	66243529070
3-1/2 x 1-1/2 x 7/8 (ME622)	7,095	1/10	37C24-SVK	66243529339
	7,095	1/10	37C30-SVK	66243529338
4 x 1/2 x 1/2	8,120	1/10	37C60-MVK	66243529960
	8,120	1/10	39C100-IVK	66243530064
6 x 1/2 x 1-1/4	4,140	1/10	39C60-IVK	66252836706
	4,140	1/10	39C80-IVK	66252836816
	4,140	1/10	39C100-IVK	66252836827
	4,140	1/10	39C120-IVK	66252836836
6 x 3/4 x 1-1/4	4,140	1/10	39C60-IVK	66252837584
	4,140	1/10	39C80-IVK	66252837598
	4,140	1/10	39C100-IVK	66252837717
6 x 1 x 1-1/4	4,140	1/10	39C60-IVK	66252838161
	4,140	1/10	39C80-IVK	66252838173
7 x 1/4 x 1-1/4	3,600	1/10	39C80-JVK	66252940007
	3,600	1/10	39C100-IVK	66252940109
	3,600	1/10	39C120-IVK	66252940111
7 x 1/2 x 1-1/4	3,600	1/10	37C46-JVK	66252941488
	3,600	1/10	37C60-OVK	66252941498
	3,600	1/10	39C60-IVK	66252941609
	3,600	1/10	39C60-JVK	66252941611
	3,600	1/10	39C60-KVK	66252941613
	3,600	1/10	39C80-IVK	66252941617
	3,600	1/10	39C80-JVK	66252941618
	3,600	1/10	39C100-HVK	66252941622
	3,600	1/10	39C100-IVK	66252941624
	3,600	1/10	39C120-IVK	66252941632 B
7 x 3/4 x 1-1/4	3,600	1/10	39C80-JVK	66252942096
	3,600	1/10	39C100-JVK	66252942104
7 x 1 x 1-1/4	3,600	1/10	39C60-IVK	66252942666
	3,600	1/10	39C80-IVK	66252942413
	3,600	1/10	39C120-IVK	66252942416
8 x 1/4 x 1-1/4	3,600	1/10	39C80-IVK	66253014526
8 x 3/8 x 1-1/4	3,600	1/10	39C80-IVK	69936664144
8 x 1/2 x 1-1/4	3,600	1/10	39C60-IVK	66253044013
	3,600	1/10	39C80-IVK	66253044015
	3,600	1/10	39C100-IVK	66253044017 B
8 x 3/4 x 1-1/4	3,600	1/10	39C60-JVK	66253044312
	3,600	1/10	39C80-IVK	66253350645
	3,600	1/10	39C100-IVK	66253044314

TIER: **GOOD**  
 BRAND: Norton  
 TRADENAME: **39C / 37C**  
 ABRASIVE: Silicon Carbide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b> 				
8 x 1 x 1-1/4	3,600	1/10	39C60-JVK	66253044770
	3,600	1/10	39C80-IVK	66253044425 B
	3,600	1/10	39C100-IVK	66253044379
10 x 1 x 3	2,485	1	39C60-JVK	66253160348
10 x 1-1/2 x 2	2,485	1	39C60-JVK	66253161640
12 x 1 x 3	2,070	1	39C60-IVK	66253262985
12 x 1 x 5	2,070	1	39C60-IVK	66253262884
	2,070	1	39C80-JVK	66253262988
14 x 1 x 5	1,800	1	39C60-JVK	66253364206
	1,800	1	39C80-JVK	66253364208
14 x 1-1/2 x 5	1,800	1	39C60-JVK	66253364242
14 x 2 x 5	1,800	1	39C60-JVK	66253364322
<b>Type 02 Cylinder</b> 				
6 x 1 x 4	3,600	1/10	39C60-IVK	66252838322
Rim 1"	3,600	1/10	39C60-JVK	66252838324
Plate A47466	3,600	1/10	39C80-IVK	66252838327
	3,600	1/10	39C100-IVK	66252838330
	3,600	1/10	39C120-IVK	66252838193
6 x 1-1/4 x 4	3,600	1/10	39C60-IVK	66252838345
Rim 1"				
Plate A47466				
7 x 1-1/2 x 5	3,600	1/8	39C60-IVK	66252942848
Rim 1"				
Plate A39027				
10 x 2 x 7	2,100	1	39C60-HVK	66253161675
Rim 1-1/2"	2,295	1	39C60-JVK	66253161678
Plate A83831	2,295	1	39C120-IVK	66253161784
14 x 4 x 11	1,640	1	39C60-JVK	66253364657
Rim 1-1/2"				
Plate A52814				
Tape Wound				
<b>Type 05 Recessed One Side</b> 				
14 x 1-1/2 x 5	1,800	1	39C60-IVK	66253364328
Rec 1/S 8 x 1/2				

B = Best Seller; performs well in a variety of applications for many satisfied customers



Large surface grinding wheels are generally used to grind flat stock or flat surfaces within a workpiece. These wheels are typically used on horizontal spindle machines. Applications can vary from heavy, rapid stock removal to precision tolerance operations.

- Applications:
- Producing flat stock
  - Grinding large molds and dies
  - Sharpening knives, blades and cutlery
  - Manufacturing broaches
- Shape: Type 01 Straight, Type 05 Recessed 1 Side, Type 07 Recessed 2 Sides
- Size Range: Stock: 20" diameter  
1" – 6" thickness
- Abrasive Grain: Aluminum Oxide

### CROSS REFERENCE GUIDE

NORTON	GOOD GEMINI
Camel	91A
Cincinnati Milacron	29A, 97A
Radiac	WAA, 97A, 45A

## NORTON GEMINI ALUMINUM OXIDE BLEND

GOOD CHOICE WHEN A BROAD RANGE OF PARTS ARE GROUND ON A FEW MACHINES




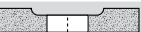

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>• Specially blended aluminum oxide abrasive for many surface grinding applications</li> <li>• Porous bond</li> <li>• Versatile</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent performance at an economical price</li> <li>• Faster grinding rates remove stock; lower rates produce finer finishes</li> <li>• Cool cutting on medium to wide contact areas; high chip clearance and stock removal</li> <li>• Ideal when a broad range of tool steel parts are ground on a few machines</li> </ul>

TIER: **GOOD**

TRADENAME: **NORTON GEMINI**

ABRASIVE: Aluminum Oxide

EXPANDED OFFERING

SIZE (D x T x H)	RECESS	MAX. RPM	STD. PKG.	SPEC.	PART #
<b>Type 01 Straight Wheels</b> 					
20 x 1 x 8	–	1,625	1	Norton Gemini A46-H	66253246937
20 x 2 x 10	–	1,625	1	Norton Gemini A36-J	66253246956
<b>Type 05 Recessed One Side Wheels</b> 					
20 x 1-1/2 x 8	Recess 1 Side 11-1/2 x 1/2	1,625	1	Norton Gemini A46-H	66253246941
<b>Type 07 Recessed Two Sides</b> 					
20 x 2 x 8	Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini 59A46-I	66253246949
	Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini A46-G VSP	66253246953
20 x 3 x 8	NEW! Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini A36-J/K P	66253246965
	Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini A46-G VSP	66253246972
	NEW! Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini A46-I	66253246960
20 x 3 x 10	NEW! Recess Side A 12-1/2 x 1/2, Side B 12-1/2 x 1	1,625	1	Norton Gemini A46-G P	66253246995
	Recess Side A 12-1/2 x 1/2, Side B 12-1/2 x 1	1,625	1	Norton Gemini A46-I	66253246978
	Recess 2 Sides 12-1/4 x 3/4	1,625	1	Norton Gemini 59A46-I VSP	66253058315
	Recess Side A 12-1/2 x 1/2, Side B 12-1/2 x 1	1,625	1	Norton Gemini A36-J VSP	66253246980
	Recess Side A 12-1/2 x 1/2, Side B 12-1/2 x 1	1,625	1	Norton Gemini A46-D VSP	66253246988
20 x 4 x 8	NEW! Recess 2 Sides 11-1/2 x 1/2	1,625	1	Norton Gemini A46-G P	66253247012
20 x 4 x 10	NEW! Recess Side A 12-1/2 x 5/8, Side B 12-1/2 x 1-1/4	1,625	1	Norton Gemini A46-I	66253247017
20 x 6 x 12	NEW! Recess 2 Sides 14-1/4 x 1	1,625	1	Norton Gemini A36-J/K P	66253247038

There are many more sizes and specifications available made-to-your-order. Contact your Norton representative with your custom requirements.



Surface grinding segments are generally used to grind flat stock or flat surfaces within a workpiece. The segment moves over the workpiece in a flat plane or vice versa. Applications can vary from heavy, rapid stock removal to precision tolerance operations.

Applications:	Vertical spindle surface grinding
	Grinding large molds, dies and plates
	Producing flat stock
	Sharpening knives, blades, cutlery
	Ceramic Alumina, Aluminum Oxide
Abrasive Grain:	

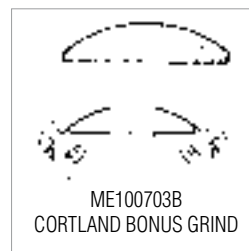
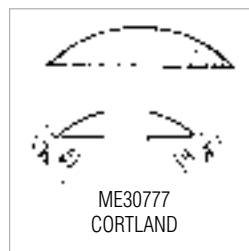
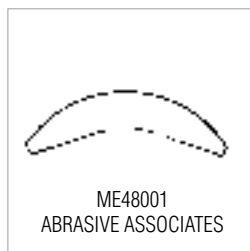
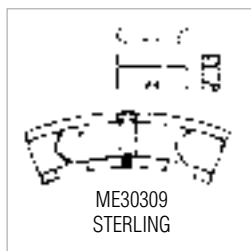
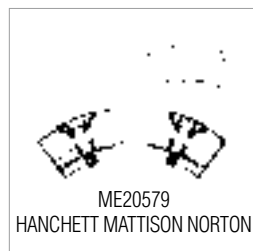
## MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE

Material	Heavy-Duty	General-Duty
Aluminum	86A30-E20VTX2	Norton Gemini 30-E
Bronze (hard)		Norton Gemini 30-G
Cast Iron	QuantumX 20-G	Norton Gemini 30-G
Hastalloy	86A24-G20VTX2	Norton Gemini 30-E
Inconel	QuantumX 30-F	Norton Gemini 30-E
Hardened Steel	QuantumX 20-G	Norton Gemini 30-E
High Speed Steel	QuantumX 20-G	Norton Gemini 30-E
Soft Steel	86A24-G20VTX2	Norton Gemini 30-G
Stainless Steel 300	86A30-E20VTX2	Norton Gemini 30-E
Stainless Steel 400	86A30-E20VTX2	Norton Gemini 30-F

## TROUBLESHOOTING GUIDE

PROBLEM	CORRECTION
Segment acting too hard	Increase rate of downfeed
	Increase table rotation speed (watch amp-meter)
	Dress more frequently
Segment acting too soft	Consider reducing area of table load
	Decrease rate of downfeed
	Decrease table rotation speed
Glazing and/or burning	Check for abnormal machine vibration
	Choose a softer grade
	Increase table speed (watch amp-meter)

## SEGMENT BLUEPRINTS



## NORTON QUANTUM AND QUANTUMX CERAMIC ALUMINA



**BEST CHOICE FOR ALL LOW-, MEDIUM-, AND HIGH-FORCE APPLICATIONS RANGING FROM CAST IRON, TO STAINLESS STEEL AND HARD-TO-GROUND ALLOYS**

### FEATURES

- Revolutionary, engineered ceramic grain shape and chemistry with proven bond technology
- Perform well on old and new machines
- QuantumX with controlled porosity Vitrium<sup>3</sup> bond

### BENEFITS

- Versatile; for applications ranging from cast iron, to stainless steel and hard-to-grind alloys
- 33% to 100% longer life versus competitive ceramic products
- 30%+ higher metal removal rate
- 15%+ lower threshold power
- Lowest total grinding costs
- The newest, strongest bond in the Norton portfolio: patented pore-induced construction; for all low-, medium- and high-force applications; excels on hard-to-grind aerospace alloys and large areas of contact; exceptional form and corner-holding



## NORTON 86A ALUMINUM OXIDE

BETTER CHOICE FOR VERSATILE, CONSISTENT PERFORMANCE

### FEATURES

- Sharper aluminum oxide abrasive
- VTX2 Vitrium 3 bond

### BENEFITS

- Cooler cutting
- The newest, strongest bond in the Norton portfolio: patented pore-induced construction; for all low-, medium- and high-force applications; excels on hard-to-grind aerospace alloys and large areas of contact; exceptional form and corner-holding

## NORTON GEMINI ALUMINUM OXIDE BLEND

GOOD CHOICE WHEN A BROAD VARIETY OF PARTS ARE GROUND ON A FEW MACHINES

### FEATURES

- Quality aluminum oxide abrasive blend

### BENEFITS

- Excellent value for general purpose use, and for the account where initial price is a main purchasing consideration

					TIER:	BEST			BETTER			GOOD
					TRADENAME:	NORTON QUANTUM/QUANTUMX		NORTON 86A				NORTON GEMINI
					ABRASIVE:	Ceramic Alumina		Aluminum Oxide				Aluminum Oxide Blend
WIDTH	THICK	HEIGHT	BLUEPRINT NO.	STD. PKG.	SPEC.	UPC NO.		SPEC.	UPC NO.		SPEC.	UPC NO.
5	1-1/2	6	ME20579	8	QUANTUMX 20-G	66253350603		86A24-G20VTX2	66253350601		Gemini 30-E	66253050295
				8	QUANTUMX 20-H	66253350604		86A24-H20VTX2	66253350602		Gemini 30-F	66253050297
				8				86A30-F12VBEP	61463650273		Gemini 30-G	66253050299
6-13/16	1-1/2	6	ME30309	8				86A24-G20VTX2	66253350595			
				8				86A24-H20VTX2	66253350596			
11	2-1/8	6	ME48001	5				86A24-G20VTX2	66253350586			
				5				86A24-H20VTX2	66253350590			
11-1/4	2-1/4	6	ME30777	5	QUANTUMX 20-G	66253350607		86A24-E12VBEP	61463650279		Gemini 30-E	69936699706
				5	QUANTUMX 20-H	66253350608		86A24-G20VTX2	66253350605		Gemini 30-F	69936699709
				5	3NQP36-G12VSP	66253251527		86A24-H20VTX2	66253350606		Gemini 30-G	69936699710
				5				86A30-E12VBEP	61463650285		Gemini 30-H	66243447588
				5				86A30-F12VBEP	61463650287			
				5				86A30-G12VBEP	61463650289			
				5				86A46-D12VBEP	61463650442			
11-1/4	2-1/4	8	ME30777	5	QUANTUMX 20-G	66253350612		86A24-G20VTX2	66253350609		Gemini 30-E	69936699712
				5	QUANTUMX 20-H	66253350615		86A24-H20VTX2	66253350610		Gemini 30-F	69936699716
				5	QUANTUMX 30-E	66253387810		86A30-E20VTX2	66253387812		Gemini 30-G	69936699717
				5	QUANTUMX 30-F	66253387811		86A30-F20VTX2	66253387813		Gemini 30-H	66243447591
				5	3NQP30-F12VSP	66253238276					Gemini 30-I	66243447592
11-1/4	3	8	ME100703B	4	QUANTUMX 20-G	66253350623		86A24-G20VTX2	66253350617		Gemini 30-E	69936699725
				4	QUANTUMX 20-H	66253350624		86A24-H20VTX2	66253350621		Gemini 30-F	69936699727
				4	QUANTUMX 30-E	66253387808					Gemini 30-G	69936699728
				4	QUANTUMX 30-F	66253387809					Gemini 30-H	66243447594
				4	3NQP30-F12VSP	69083156473					Gemini 30-I	66243447595
				4							Gemini 30-K	66253344077
		1-5/8		10	Vitrified Burr Remover	61463650268*						



Cylindrical wheels are used most often when the part is held between centers and in chucks. There are three methods of cylindrical grinding: plunge, traverse, and angular.

- Plunge grinding – wheel is thrust or plunged into the part
- Traverse grinding – wheel moves across the part
- Angular grinding – wheel contacts the part at an angle

Typical Industries: Automotive, shipbuilding, engine building, bearing, land- and air-based turbine blades, and toolroom

Shape: Type 01 Straight, Type 05 Recessed One Side, and Type 07 Recessed 2 Sides

Size Range: 16", 18", 20", 24" and 30" diameter

Abrasive Grain: Ceramic Alumina and Aluminum Oxide

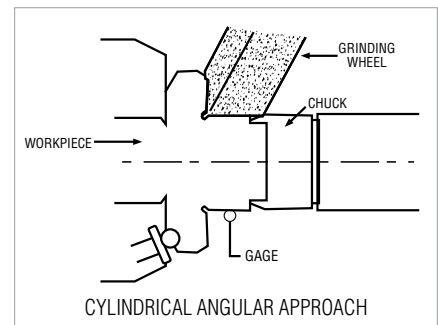
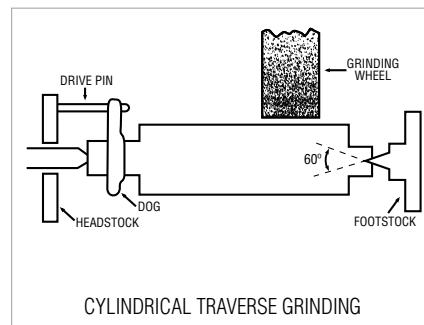
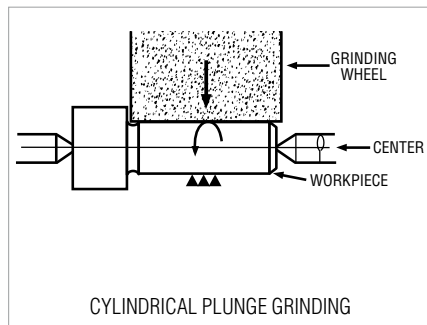
## STATIONARY DRESSING TOOL RECOMMENDATIONS FOR CYLINDRICAL WHEELS

		Single Point		Multi-Point (Grit)					
Grinding Wheel Diameter	Diamond Carat Weight	Tool Product/Part #		Tool Product/Part #		Shape	Tool Product/Part #		Shape
		0° Angle		0° Angle			15° Angle		
16" - 20"	3/4	BC7M7	66260195007	BC62	66260195012	1/4 x 1/2 Rect.	BC63	66260195013	1/4 x 1/2 Rect.
		NS7M7	66260195132	2A6D7	66260195046		2A6E7	66260195049	
21" +	1	BC10M7	66260195009	BC61	66260195011	1/4 x 3/4 Rect.	BC60	66260195010	1/4 x 3/4 Rect.
		NS10M7	66260195137	1A6A7	66260195031		1A6C7	66260195039	

NS Single Point Diamond Tools are resettable. BC Diamond Tools are not resettable. All tools specified above have 7/16" diameter shanks.

## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	SUGGESTED CORRECTION
Burn or cracks on workpiece	Wheel too hard	Try softer wheel or make wheel act softer (see Tech Tip on next page)
	Dress is too fine	Dress faster
	Nozzle not directing coolant properly	Redirect flow
	Work speed too slow or wheel speed too fast	Adjust speeds
	Wheel feed too slow causing excess contact time	Increase feed rate
Chatter marks on workpiece	Loose spindle, end play, bearing failure	Check wheel spindle on assembly
	Work drive faults, out-of-truth plate	Check gear action, truth, drive on pin pressure
	Wheel too hard, poor truing, poor mounting	Use softer grade; dress wheel correctly; secure mounting
Poor quality finish	Poor quality dressing	Reduce final depth of dress on wheel
	Diamond insecurely held	Check and replace diamond and secure properly
	Misalignment of head and tail stocks	Check for properly aligned workpiece
	Dirty coolant	Clean coolant frequently; use efficient filter
	Scored workpiece centers	Check and lap center holes as required



## NORTON 5SG CERAMIC ALUMINA/ALUMINUM OXIDE BLEND

**BEST CHOICE FOR HIGHEST PRODUCTIVITY, LOWEST TOTAL PER-PART GRINDING COST**

### FEATURES

- Durable Norton SG seeded gel ceramic and aluminum oxide blend
- Self-sharpening abrasive

### BENEFITS

- High stock removal rates, excellent productivity, long wheel life, low overall grinding cost
- 3X - 5X more life than aluminum oxide wheels
- Cool cutting; less burn, less dressing; very consistent performing wheel

## NORTON 32A ALUMINUM OXIDE

**BETTER CHOICE FOR MEDIUM TO HEAVY STOCK REMOVAL**

### FEATURES

- Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive

### BENEFITS

- Free cutting on a wide range of applications and materials
- Outstanding form holding

## NORTON 86A ALUMINUM OXIDE

**BETTER CHOICE FOR LONGER WHEEL LIFE**

### FEATURES

- Premium abrasive; superior bond system
- Engineered for easy use

### BENEFITS

- High grinding G-Ratios (metal removal/wheel wear) increase productivity
- Decrease in dress frequency and/or dress compensation
- Less wheel dressing means lower abrasive costs
- Hold form for better part geometry
- Grind cycles do not need to be altered
- No special operator training is needed

## NORTON 64A ALUMINUM OXIDE BLEND

**GOOD CHOICE FOR VERSATILE PERFORMANCE AT AN ECONOMICAL PRICE**

### FEATURES

- Specially blended aluminum oxide abrasive coupled with a superior bond
- Broad availability
- Versatile

### BENEFITS

- Will maintain high grinding rates without wheel breakdown
- Quick delivery on popular sizes
- Engineered to grind a variety of materials

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR USE ON GENERAL PURPOSE APPLICATIONS; ECONOMICAL**

### FEATURES

- Durable aluminum oxide abrasive and strong vitrified bond – Blue
- Versatile, economical

### BENEFITS

- Consistent stock removing performance on narrow to medium contact areas; cool cutting
- Ideal when numerous small jobs are run in one facility



## NORTON GEMINI2 ALUMINUM OXIDE

**GOOD CHOICE FOR SMALLEST VOLUME, LOWEST INITIAL PRICE APPLICATIONS**

**NEW**

### FEATURES & BENEFITS




- Quality aluminum oxide abrasive blend and a durable bond system deliver an efficient cut rate and grinding wheel life to your low-volume precision operations
- Low-initial-priced, made-in-USA wheels are ideal for small-sized manufacturing facilities that perform a variety of jobs on a few machines
- Carefully chosen, versatile specifications and sizes meet many cylindrical grinding applications
- Easy to spec with little to no technical support.

TIER: <b>BEST</b>				<b>BETTER</b>		<b>GOOD</b>	
ABRASIVE: 5SG Ceramic Alumina / Aluminum Oxide				32A, 86A Aluminum Oxide		64A, Gemini, or Gemini2 Aluminum Oxide	
SIZE (D x T x H)	STD. PKG.	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
<b>Type 01 Straight</b>							
16 x 1 x 5	1	5SG60-JVS	66253467007	32A60-J8VBE	66253464836	64A60-K8V127	66253466722
	1			32A60-K5VBE	66253464837	Gemini2 60-I	66243497801
	1					Gemini2 60-K	66243495077
	1					Gemini2 60-M	66243497802
	1					Gemini2 100-I	66243497804
	1					Gemini2 100-K	66243497806
16 x 1 x 8	1			32A60-K5VBE	66253464826	Gemini2 100-M	66243497807
16 x 1-1/2 x 5	1	5SG60-KVS	66253467010	32A46-H8VBE	66253464925		
16 x 2 x 5	1			32A46-J8VBE	66253464995	64A60-K8V127	66253466721
	1			32A60-K5VBE	66253464960	Gemini2 60-I	66243497810
	1					Gemini2 60-K	66243495078
	1					Gemini2 100-I	66243497812
16 x 3 x 5	1					Gemini2 100-K	66243497815
	1					Gemini2 60-I	66243497820
18 x 1 x 5	1					Gemini2 100-I	66243497821
	1					Gemini2 60-I	66243483777
	1					Gemini2 60-K	66243497610
	1					Gemini2 60-M	66243497611
	1					Gemini2 100-I	66243497612
	1					Gemini2 100-K	66243497613
18 x 2 x 5	1					Gemini2 100-M	66243497615
	1					64A60-K8V127	66253466719
	1					Gemini2 60-I	66243483779
	1					Gemini2 60-K	66243497618
18 x 3 x 5	1					Gemini2 100-I	66243497619
	1					Gemini2 100-K	66243497620
20 x 1 x 8	1					Gemini2 60-I	66243483780
	1			86A60-J8V127	69078608982	Gemini2 100-I	66243497621
	1			86A80-J8V127	69078608983	Gemini2 60-I	66243483782
	1					Gemini2 60-K	66243497840
	1					Gemini2 60-M	66243497841
	1					Gemini2 100-I	66243497842
20 x 1 x 10	1					Gemini2 100-K	66243497843
	1					Gemini2 100-M	66243497846
	1					Gemini2 60-I	66243495332
	1					Gemini2 60-K	66243497789
	1					Gemini2 60-M	66243497791
	1					Gemini2 100-I	66243497793
20 x 1 x 12	1					Gemini2 100-K	66243497796
	1					Gemini2 100-M	66243497798
	1					Gemini2 60-I	66243483787
	1					Gemini2 60-K	66243497827
	1					Gemini2 60-M	66243497831
	1					Gemini2 100-I	66243497835
20 x 1-1/2 x 5	1					Gemini2 100-K	66243497837
	1					Gemini2 100-M	66243497838
	1			32A46-H8VBE	69078665382		
	1					64A60-J8V127	69078666713
	1					64A60-K8V127	69078666712
	1			32A46-I8VBE	69078665433	Gemini2 60-I	66243483785
20 x 2 x 8	1			32A60-K5VBE	69078665490	Gemini2 60-K	66243497855
	1					Gemini2 100-I	66243497856
	1					Gemini2 100-K	66243497857
	1					Gemini 60-J	66253246959
	1					Gemini2 60-I	66243495334
	1					Gemini2 60-K	66243497848
20 x 2 x 10	1					Gemini2 100-I	66243497849
	1					Gemini2 100-K	66243497850
	1			32A46-I8VBE	69078665455	Gemini2 60-I	66243483788
	1					Gemini2 60-K	66243497851
	1					Gemini2 100-I	66243497852
	1					Gemini2 100-K	66243497854

For additional stock cylindrical wheels, see the large surface grinding wheel section of this catalog

Contact your Norton representative with your custom cylindrical wheel requirements. There are many more sizes and specifications available made-to-your-order, including wheels made from Norton 55A and Quantum blank stock. Our revolutionary Norton Quantum and Vitrium<sup>3</sup> bond ceramic wheels bring a quantum leap in technology to your operation. See 55A and Quantum Blank Stock FastTrack Service catalog sections for more details.



TIER: <b>BEST</b>				<b>BETTER</b>		<b>GOOD</b>	
ABRASIVE: 5SG Ceramic Alumina / Aluminum Oxide				32A, 86A Aluminum Oxide		64A, Gemini, or Gemini2 Aluminum Oxide	
SIZE (D x T x H)	STD. PKG.	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
<b>Type 01 Straight</b> 							
20 x 3 x 8	1						64A46-I8V127 69078666447
	1						64A60-J8V127 69078608140
	1						Gemini2 60-I 66243483786
	1						Gemini2 100-I 66243497862
20 x 3 x 10	1						Gemini2 60-I 66243495333
	1						Gemini2 100-I 66243497859
20 x 3 x 12	1						Gemini2 60-I 66243483789
	1						Gemini2 100-I 66243497860
24 x 1 x 12	1						Gemini2 60-I 66243483790
	1						Gemini2 60-K 66243497863
	1						Gemini2 100-I 66243497866
	1						Gemini2 100-K 66243497868
	1						Gemini2 100-M 66243497870
24 x 2 x 12	1						64A60-K8V127 69083166710
	1						64A80-K8V127 69083166711
	1						Gemini2 60-I 66243483792
	1						Gemini2 60-K 66243497872
	1						Gemini2 100-I 66243497873
	1						Gemini2 100-K 66243497874
24 x 3 x 12	1						Gemini2 60-I 66243483793
	1						Gemini2 100-I 66243497877
30 x 2 x 12	1						64A60-J8V127 69210466704
	1						Gemini2 60-J 66243497878
	1						Gemini2 60-L 66243497986
30 x 3 x 12	1						64A60-J8V127 69210466697
	1						64A60-K8V127 69210466698
	1						Gemini2 60-J 66243497987
	1						Gemini2 60-L 66243497988
30 x 4 x 12	1						64A60-J8V127 69210401774
	1						Gemini2 60-J 66243497989
	1						Gemini2 60-L 66243497990
<b>Type 07 Recessed Two Sides</b> 							
18 x 2 x 8	1			32A46-I8VBE	66253465110		
Rec 2/S 10-1/2 x 1/2							
20 x 2 x 8	1			32A46-I8VBE	69078665537		
Rec 2/S 11-1/2 x 1/2							
20 x 3 x 8	1			32A46-I8VBE	69078665686		
Rec 2/S 11-1/4 x 1/2							
20 x 3 x 8	1					Gemini 46-H	66253246969
Rec 2/S 11-1/2 x 1/2							
20 x 3 x 10	1			32A46-I8VBE	69078665575		
Rec 2/S 12-1/4 x 5/8							
20 x 6 x 10	1			32A46-I8VBE	69078665854		
Rec Side A 12-1/4 x 2							
Rec Side B 12-1/4 x 1							

For additional stock cylindrical wheels, see the large surface grinding wheel section of this catalog

Contact your Norton representative with your custom cylindrical wheel requirements. There are many more sizes and specifications available made-to-your-order, including wheels made from Norton 55A and Quantum blank stock. Our revolutionary Norton Quantum and Vitrium<sup>3</sup> bond ceramic wheels bring a quantum leap in technology to your operation. See 55A and Quantum Blank Stock FastTrack Service catalog sections for more details.

## TECH TIP

To make a wheel act softer:

- Increase work speed
- Increase traverse speed
- Increase infeed
- Decrease wheel speed
- Increase dresser traverse rate
- Increase depth of dress per traverse
- Dress more often

To make a wheel act harder:

- Decrease work speed
- Decrease traverse speed
- Decrease infeed
- Increase wheel speed (do not exceed MAX RPM marked on wheel)
- Dress at slower traverse rate
- Decrease depth of dress per traverse



It is the user's responsibility to refer to and comply with ANSI B7.1



Centerless grinding is a production process that produces extremely close tolerances on metal cylindrical forms or parts. Centerless grinding is used on a wide variety of workpieces. The key components in the process are the grinding wheel, the work rest blade (used to support the work) and the regulating or "feed" wheel (the drive mechanism for the workpiece).

**Applications:**

- High production operations on large volume continuous grinding
- Parts ranging from miniature roller bearings to train axles and bearings
- Fastener and tool manufacturing
- Steel mills
- Automotive related components
- Bearing
- Machine tools
- Aircraft
- Turbine blades – land- and air-based

**Shape:**

Centerless wheels: Type 01 Straight

Feed wheels: Type 01 Straight and Type 07 Recessed 2 Sides

**Size Range:**

Centerless wheels: 16", 20", and 24" diameter

Feed wheels: 12" and 14" diameter

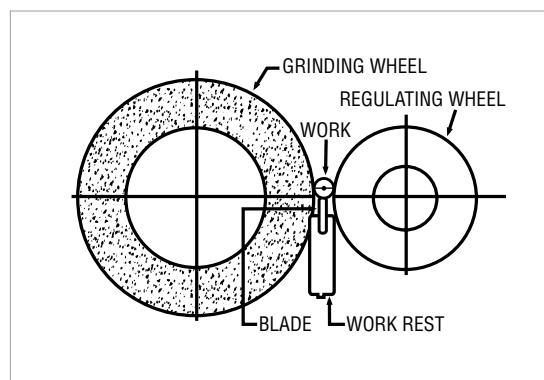
**Abrasive Grain:**

Aluminum Oxide, Aluminum Oxide/Silicon Carbide Blend

**MATERIAL-TO-PRODUCT RECOMMENDATION GUIDE**

Application	Wheel Specifications
Alnico	55A60-KVS3, 32AC54-QB
Cast Iron	55A60-KVS3, 32AC54-QB
Hastalloy	55A60-KVS3
Inconel	55A60-KVS3
Stainless	55A60-KVS3
Stainless – 300 series	55A60-KVS3
Stainless – 400 series (commercial finish)	55A60-KVS3
Steel – Hard or Soft	
Less than 1/2" diameter	55A80-LVS3
5/8" to 2-1/2" diameter	55A60-KVS3
Over 2-1/2" diameter	55A60-KVS3, 2NQMC54-QB45
High Speed (commercial finish)	55A60-KVS3, 2NQMC54-QB45
High Speed (fine finish)	32AC90-QB

*Note: Grade, Grit and Abrasive tuning might be necessary to obtain optimum performance*



**STATIONARY DRESSING TOOL RECOMMENDATIONS FOR CENTERLESS WHEELS**

Grinding Wheel Diameter	Diamond Carat Weight	Single Point	Indexable Single Point	Multi-point (Grit)	Shape	Tool Product #	Shape
		Tool Product # Part # 0° Angle	Tool Product # Part # 0° Angle	Tool Product # Part # 0° Angle		Part # 15° Angle	
11" - 14"	1/2	BC5M7 66260195005	BCUD5 66260195025	BC65 66260195015	3/8 Round	BC63 66260195013	1/4 x 1/2
		NS5M7 66260195127	NSUD5 66260195163	2R6K7 66260195096		2A6E7 66260195049	Rectangle
15" - 20"	3/4	BC7M7 66260195007	N/A	BC62 66260195012	1/4 x 1/2	BC63 66260195013	1/4 x 1/2
		NS7M7 66260195132	NSUD7 66260195164	2A6D7 66260195046	Rectangle	2A6E7 66260195049	Rectangle
21" +	1	BC10M7 66260195009	N/A	BC61 66260195011	1/4 x 3/4	BC60 66260195010	1/4 x 3/4
		NS10M7 66260195137	NSUD10 66260195165	1A6A7 66260195031	Rectangle	1A6C7 66260195039	Rectangle

**STATIONARY DRESSING TOOL RECOMMENDATIONS FOR FEED WHEELS**

Feed Wheel Diameter	Tool Carat Weight	Tool Shank Diameter	Indexable Single Point	
			Tool Product #	Tool Part #
Up to 14"	1/2	7/16"	NSUD5	66260195163

## NORTON QUANTUM (2NQ) CENTURY45 CERAMIC ALUMINA

BEST CHOICE FOR CAST IRON TO STAINLESS AND HARD-TO-GRIND MATERIALS AND ALLOYS (TITANIUM, INCONEL...)

NEW

### FEATURES & BENEFITS

- Proprietary Century45 2NQ ceramic abrasive and resin bond formulation engineered specifically to maximize productivity of centerless applications
- Wheel life increase from 30%–100+% versus standard ceramic wheels
- Over 30% improvement of stock removal
- Up to 50% reduction in cycle time
- Less grinding noise significantly improves operator safety
- More versatility to grind a wide range of materials
- Improved surface finish on the part

## 55A-VS3 ALUMINUM OXIDE

BETTER CHOICE FOR PERFORMANCE TO PRICE RATIO

### FEATURES & BENEFITS

- Advanced combination of monocrystalline 55A aluminum oxide and coolest cutting, high-speed, precise form holding, controlled porosity Norton Vitrium 3 VS3 bond
- Superior performance on throughput grinding applications with 2X+ the life of competitive aluminum oxide wheels
- Ideal for simple- to complex-shaped components
- Increased productivity; more quality parts at low cost per part

## 32AC ALUMINUM OXIDE / SILICON CARBIDE BLEND

BETTER CHOICE WHEN ONE WHEEL IS USED TO GRIND SEVERAL DIFFERENT MATERIALS

### FEATURES & BENEFITS

- Aluminum oxide/silicon carbide abrasive blend in a strong resin bond is ideal when one wheel is used to grind several different materials from high-to-low tensile strength
- Proprietary Century45 32AC aluminum oxide/silicon carbide abrasive blend and resin bond formulation engineered specifically to increase productivity and part quality of medium volume centerless applications

NEW

## 57A ALUMINUM OXIDE WITH FINE/HARD SIDE

GOOD CHOICE FOR HARD-TO-GRIND FASTENERS

### FEATURES & BENEFITS

- Durable, aluminum oxide abrasive with a strong vitrified bond for cool cutting with consistent stock removing performance on narrow-to-medium contact areas
- 3/16" thick fine/hard side provides good form holding while grinding stainless and Inconel fasteners

## 64A ALUMINUM OXIDE BLEND

GOOD CHOICE FOR GRINDING A VARIETY OF MATERIALS, ECONOMICALLY

### FEATURES & BENEFITS

- Specially blended aluminum oxide abrasive coupled with a superior vitrified bond will maintain high grinding rates without wheel breakdown
- Broad availability for quick delivery on popular sizes
- Versatile; engineered to grind a variety of materials

## NORTON GEMINI ALUMINUM OXIDE

**GOOD CHOICE FOR USE ON GENERAL PURPOSE APPLICATIONS; ECONOMICAL**

### FEATURES

- Durable aluminum oxide abrasive and strong vitrified bond – Blue
- Versatile, economical

### BENEFITS

- Consistent stock removing performance on narrow to medium contact areas; cool cutting
- Ideal when numerous small jobs are run in one facility

## NORTON GEMINI2 ALUMINUM OXIDE

**GOOD CHOICE FOR SMALLEST VOLUME, LOWEST INITIAL PRICE APPLICATIONS** **NEW**

### FEATURES & BENEFITS

- Quality aluminum oxide abrasive blend and a durable bond system deliver an efficient cut rate and grinding wheel life to your low-volume precision operations
- Low-initial-priced, made-in-USA wheels are ideal for small-sized manufacturing facilities that perform a variety of jobs on a few machines
- Carefully chosen, versatile specifications and sizes meet many centerless grinding applications
- Easy to spec with little to no technical support.

### TECH TIP

#### Proper Wheel Mounting

1. Thoroughly clean spindle and flange bearing area of all dirt and foreign material.
2. Inspect for worn, distorted or damaged areas on flanges and spindle.
3. If mounting a wide centerless wheel on a spindle (i.e., twin-grip), do not use grease or other petroleum lubricants. Use a silicone spray lubricant on the spindle to ease mounting the wheel, if necessary.
4. Ensure mount up arrow is at the top of the wheel. In the case of butted sets, assemble so that the arrow is formed across the top of the wheel face.
5. Ensure proper blotters are installed; one on each flange mating surface. Always use new blotters.
6. Install blotter flange and snug up the bolts only finger tight.
7. Using a torque wrench, tighten all bolts in an alternating pattern from side to side to 15 foot pounds.
8. Repeat the same tightening sequence, increasing the torque to 35 foot pounds.
  - » for wide wheels (18"-20"), torque the bolts at 45 to 50 foot pounds
  - » for narrower wheels (2"-12"), a torque of 35 foot pounds is sufficient
9. Retorque the flange bolts to specification after the first eight hours of operation.

### TECH TIP

- Use vitrified bond wheels for form holding and plunge grinding
- Use resinoid bond wheels for stock removal, long irregular parts and faster throughfeed grinding
- Vitrified Centerless Wheel Speeds:
  - » 64A46-KVCE wheels: 6500 SFPM max. operating speed
  - » All other vitrified centerless stock products: 8500 SFPM max. operating speed
  - » Always check wheel speed markings on wheels before running wheel



It is the user's responsibility to refer to and comply with ANSI B7.1

### TECH TIP

#### To make a wheel act softer:

- Increase work speed/regulating wheel speed
- Increase throughput speed/regulating wheel speed
- Increase infeed
- Decrease wheel speed
- Dress at a faster traverse rate

#### To make a wheel act harder:

- Decrease work speed/regulating wheel speed
- Decrease throughput speed/regulating wheel speed
- Decrease infeed
- Increase wheel speed (observe safe limits)





### Centerless Wheels

TIER: <b>BEST</b> <b>NEW</b>				EXPANDED OFFERING		BETTER		BETTER		GOOD	
TRADENAME: <b>QUANTUM CENTURY45</b>				32AC / 32AC CENTTURY 45		55A		55A		53A, 57A, 64A, GEMINI, GEMIN2	
ABRASIVE: Ceramic Alumina				Aluminum Oxide/Silicon Carbide		Aluminum Oxide		Aluminum Oxide		Aluminum Oxide	
SIZE (D x T x H)	STD. PKG.	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
<b>Type 01 Straight</b>											
16 x 4 x 10	1									57A80-L8VCN	66253465001
20 x 2 x 12	1									53A60-K8VCN	69078665347
20 x 4 x 12	1									64A60-KVCE	69078666723
	1									64A80-LVCE	69078666727
20 x 6 x 12	1	2NQMC46-QB45	66243496406	32AC80-NB45	66243496398	55A60-KVS3	66253387817	64A60-KVCE	69078666729		
	1			32AC54-QB	69078666545	55A80-LVS3	66253387815	Gemini 60-L	69078666794		
	1							Gemini2 60-K	66253451854		
	1							Gemini2 100-L	66253451855		
20 x 8 x 12	1	2NQMC46-QB45	66243496407	32AC80-NB45	66243496400	55A60-KVS3	66253387819	64A60-KVCE	69078666748		
	1			32AC54-QB	69078666546	55A80-LVS3	66253387818	64A60-LVCE	69078666749		
	1							64A80-KVCE	69078666751		
	1							Gemini 54-J	66253247001		
	1							Gemini2 60-K	66253451857		
	1							Gemini2 100-L	66253451858		
24 x 1-1/2 x 12	1							57A 80/120 O/Q	66253193575		
w/ 3/16" fine/hard layer	1							57A 80/120 P/R	66253354449		
24 x 2-1/2 x 12	1							57A 80/120 O/Q	66253285629		
w/ 3/16" fine/hard layer	1							57A 80/120 P/R	66253340540		
24 x 3 x 12	1							64A60-K8V127	69083166708		
24 x 4 x 12	1							Gemini2 60-K	66253451860		
	1							Gemini2 100-L	66253451861		
24 x 6 x 12	1	2NQMC46-QB45	66243496408	32AC80-NB45	66243496401	55A80-LVS3	66253387821	Gemini 60-K	66253247047		
	1			32AC54-QB	69083166547			Gemini2 60-K	66253451862		
	1							Gemini2 100-L	66253451863		
24 x 8 x 12	1	2NQMC46-QB45	66243496409	32AC80-NB45	66243496403	55A60-KVS3	66253387827	Gemini2 60-K	66253451864		
	1			32AC54-QB	69083166548	55A80-LVS3	66253387825	Gemini2 100-L	66253451865		
24 x 10 x 12	1	2NQMC46-QB45	66243496410	32AC80-NB45	66243496404	55A60-KVS3	66253387830	Gemini2 60-K	66253451866		
	1			32AC54-QB	69083166549	55A80-LVS3	66253387828	Gemini2 100-L	66253451867		
24 x 20 x 12	1			32AC54-QB	69083166552						
Composed of 2 Wheels	1			32AC54-SB	69083166553						
10" Thick (ME90362)											

### Rubber Bond Feed Wheels

TIER: <b>BETTER</b>			
ABRASIVE: Aluminum Oxide			
SIZE (D x T x H)	STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b>			
12 x 2 x 5	1	57A80-RR51	66253222840
<b>Type 07 Recessed Two Sides</b>			
12 x 4 x 5	1	57A80-RR51	66253222844
Rec 2 Sides 7-1/2 x 1-1/2			
12 x 6 x 5	1	57A80-RR51	66253222846
Rec Side A 7-1/2 x 1-1/2			
Rec Side B 7-1/2 x 1-1/2			
12 x 6 x 5	1	57A80-RR51	66253222847
Rec 2 Sides 7-1/2 x 1-1/2			
12 x 8 x 5	1	57A80-RR51	66253222850
Rec Side A 7-1/2 x 2-1/2			
Rec Side B 7-1/2 x 1-1/2			
14 x 8 x 5	1	57A80-RR51	66253322859
Rec Side A 8 x 2			
Rec Side B 8 x 1-1/2			
14 x 20 x 6	1	57A80-RR51	66253322196
Rec 2 Sides 8-1/2 x 1-1/2			
Butted Feed Wheels			
Composed of 2 Wheels			
10" Thick (ME91512)			

### Plastic Bond Feed Wheels

TIER: <b>BETTER</b>			
ABRASIVE: Aluminum Oxide			
SIZE (D x T x H)	STD. PKG.	SPEC.	PART #
<b>Type 07 Recessed Two Sides</b>			
12 x 8 x 5	1	57A80-RP4	66253222199
Rec Side A 7-1/2 x 2-1/2			
Rec Side B 7-1/2 x 1-1/2			

There are many more sizes and specifications available made-to-your-order, including wheels made from our blank stock FastTrack Service for rush orders. Contact your Norton representative with your custom centerless requirements.

# CREEPFEEED BLANK STOCK FASTTRACK SERVICE



Norton creepfeed wheels are the best performing creepfeed wheels in the industry. These high-performance blank stock wheels can be altered to your dimensional requirements.

Applications:	Heat-sensitive, porous grinding of difficult-to-grind alloys
Typical Industries:	Aerospace, automotive, toolroom, gear, energy
Size Range:	Blank Stock: 16" – 25" diameter Finished Wheel: 14" – 25" diameter
Grade/Porosity:	C28 – F26
Abrasive Grain:	Ceramic Alumina, Fused Aluminum Oxide

## NORTON QUANTUM X CERAMIC ALUMINA AND VORTEX ALUMINUM OXIDE BLEND

**BEST CHOICE FOR VERSATILITY, MAXIMUM PERFORMANCE, AND HIGHEST PRODUCTIVITY**



EXPANDED OFFERING

### FEATURES

- Leading Norton technologies produce the most free-cutting creepfeed wheel: patented pore-induced construction, a blend of Norton Quantum ceramic and Vortex aluminum oxide abrasives, and the newest, strongest Norton bond: Vitrium3

### BENEFITS

- Versatile; for all low-, medium- and high-force applications on hard-to-grind Inconel, titanium, and aerospace alloys
- Excel on large area of contact applications
- Exceptional form and corner-holding; 20+% less power draw
- Best MRR vs. all other ceramic creepfeed wheels
- Reduce grinding cycle times up to 50%

## NORTON VORTEX ENGINEERED ALUMINUM OXIDE

**BETTER CHOICE FOR HEAT-SENSITIVE, POROUS GRINDING OF DIFFICULT-TO-GRIND ALLOYS**



### FEATURES

- High-performance, engineered, fused aluminum oxide abrasive, optimally spaced
- Highly porous and permeable

### BENEFITS

- High metal removal rates; able to grind large areas of contact
- Exceptional part integrity and quality; superior surface finish
- Long wheel life: dramatically shorter grinding cycles = less wheel changes and more parts/wheel = high productivity

### Key Program Features

- Standard lead-time: 2 weeks
- Alteration Parameters:
  - » Diameter may be altered to 2" smaller than the original blank stock diameter
  - » Thickness may be altered to 1/2 the original blank stock thickness
  - » Bore may be altered to these parameters 5" altered up to 8" max. 8" altered up to 12" max.

# CREEPFEEED BLANK STOCK FASTTRACK SERVICE

TIER: **BEST**


EXPANDED  
OFFERING

**BETTER**

TRADENAME:

**NORTON QUANTUM X 3NQX  
CERAMIC UNFINISHED BLANK STOCK**

**NORTON VORTEX  
A/O UNFINISHED BLANK STOCK**

SIZE (D x T x H)	SPEC.	UF BLANK PART #	SPEC.	UF BLANK PART #
<b>Type 01 Straight</b>				
16 x 1 x 5	3NQX60-C28VTX2	00310438575		
	3NQX60-D28VTX2	00310425238		
	3NQX60-D+28VTX2	00310479157		
	3NQX60-E24VTX2	00310425239		
	3NQX80-E+28VTX2	00310479160		
16 x 3 x 5	3NQX60-C28VTX2	00310438656		
	3NQX60-D28VTX2	00310425240		
	3NQX60-D+28VTX2	00310479158		
	3NQX60-E24VTX2	00310425241		
	3NQX80-D+28VTX2	00310479163		
16 x 4 x 5			IPA60-D29VTX	00310312485
			IPA60-E26VTX	00310312486
16 x 5 x 5	3NQX60-D28VTX2	00310425242		
	3NQX60-E24VTX2	00310425243		
16 x 6 x 5	3NQX60-C28VTX2	00310438657		
	3NQX80-D+28VTX2	00310479164		
	3NQX80-E+28VTX2	00310479162		
20 x 1 x 8	3NQX60-C28VTX2	00310438658		
	3NQX60-D28VTX2	00310425244		
	3NQX60-E24VTX2	00310425245		
20 x 2-1/2 x 8			IPA60-E26VTX	00310303130
			IPA60-F17VTX	00310303131
			IPA80-D29VTX	00310303132
20 x 3 x 8	3NQX60-C28VTX2	00310438659		
	3NQX60-D28VTX2	00310425256		
	3NQX60-E24VTX2	00310425257		
20 x 4 x 8			IPA60-D29VTX	00310303133
			IPA60-E26VTX	00310303134
20 x 5 x 8	3NQX60-D28VTX2	00310425258		
	3NQX60-E24VTX2	00310425259		
20 x 6 x 8	3NQX60-C28VTX2	00310438660		
24 x 4 x 8			IPA60-C29VTX	03103925091
			IPA60-D29VTX	00310406547
			IPA60-F26VTX	00310303135
25 x 2-1/2 x 8			IPA60-E26VTX	00310404613
25 x 3-1/2 x 8			IPA60-E26VTX	00310404678



# QUANTUM BLANK STOCK FASTTRACK SERVICE



The newest-generation ceramic Norton Quantum vitrified wheels deliver the highest productivity of any wheel in the marketplace. They will grind with superior results in many applications. They can be altered to your specific needs within two weeks of receipt of your order.

Applications:	Centerless plunge and throughfeed grinding
	Surface grinding
	Cylindrical grinding
Size Range:	Blank Stock: 18" – 30" diameter
	Finished Wheel: 16" – 30" diameter
Grit Range:	60, 80, and 120
Grade Range:	I – M
Abrasive Grain:	Ceramic Alumina

## NORTON QUANTUM CERAMIC ALUMINA

**BEST CHOICE FOR VERSATILITY, MAXIMUM PERFORMANCE, AND COST SAVINGS**



### FEATURES


- Revolutionary, sharp, durable, engineered ceramic alumina grain shape and chemistry; highly-porous

### BENEFITS

- Versatile; for all low-, medium- and high-force applications ranging from cast iron, to stainless steel and hard-to-grind Inconel and titanium
- Perform well on old and new machines
- 30%+ higher metal removal rate
- 15%+ lower threshold power
- Highest productivity; lowest total grinding cost

TIER: **BEST**

TRADENAME: **NORTON QUANTUM CERAMIC UNFINISHED BLANK STOCK**

SIZE (D x T x H)	SPECIFICATION	UNFINISHED BLANK PART #
<b>Type 01 Straight</b> 		
18 x 1 x 5	3NQ80-K10VS	00310405993
18 x 2 x 5	3NQ80-K10VS	00310405994
18 x 3 x 5	3NQ80-K10VS	00310405995
20 x 1 x 8	3NQ80-K10VS	00310405985
20 x 1 x 12	3NQ80-K10VS	00310406017
	3NQ120-MVS	00310405924
20 x 2 x 8	3NQ80-K10VS	00310406036
20 x 3 x 8	3NQ80-K10VS	00310406037
20 x 6 x 12	3NQ80-L10VS	00310406018
20 x 8 x 12	3NQ80-L10VS	00310406026
24 x 1 x 8	3NQ80-K10VS	00310406034
24 x 1 x 12	3NQ80-K10VS	00310406038
24 x 2 x 8	3NQ80-K10VS	00310406035
24 x 2 x 12	3NQ80-K10VS	00310406029
24 x 3 x 8	3NQ60-J10VS	00310425121
	3NQ80-K10VS	00310406046
24 x 3 x 12	3NQ60-J10VS	00310425120
	3NQ80-K10VS	00310406030
24 x 6 x 12	3NQ80-L10VS	00310406031
24 x 8 x 12	3NQ80-L10VS	00310406032
24 x 10 x 12	3NQ80-L10VS	00310406033
30 x 2 x 12	3NQ80-I10VS	00310427211
	3NQ80-J10VS	00310406047
	3NQ80-K10VS	00310406048
30 x 3 x 12	3NQ60-I10VS	00310427212

There are many finished sizes and specifications available. Contact your local Norton distributor or salesperson with your size and specification requirements for quantity guidelines, quotations and helpful ordering instructions.

*Please note "2-week delivery request" if needed, on your order.*



# 55A BLANK STOCK FASTTRACK SERVICE



55A-VH blank stock wheels are competitively-priced, monocrystalline grain wheels specifically engineered for numerous carbon steel applications requiring moderate to heavy stock removal rates. They can be altered to your specific needs within two weeks of receipt of your order.

Applications:	Centerless plunge and throughfeed grinding
	Surface grinding
	Cylindrical grinding
Size Range:	Blank Stock: 18" – 42" diameter
	Finished Wheel: 16" – 42" diameter
Grit Range:	60 – 120
Grade Range:	I – M
Abrasive Grain:	Aluminum Oxide

## 55A-VH ALUMINUM OXIDE

BETTER CHOICE FOR PRECISION GRINDING OF CARBON STEEL AND CAST IRON


### FEATURES & BENEFITS

- Advanced combination of monocrystalline 55A aluminum oxide abrasive and superior VH bond
- Superior performance on centerless plunge and throughfeed, surface, and cylindrical grinders with up to 2X the life of competitive aluminum oxide wheels
- Ideal for simple- to complex-shaped components
- Increased productivity; more quality parts at lowest cost per part



TIER: **BETTER**

OTHER: **55A-VH  
ALUMINUM OXIDE UNFINISHED BLANK STOCK**

SIZE (D x T x H)	GRIT	GRADE	UNFINISHED BLANK PART #
<b>Type 01 Straight</b>			
18 x 1 x 5	80	K	00310404552
18 x 2 x 5	80	K	00310404554
18 x 3 x 5	80	K	00310404555
20 x 1 x 8	60	K	00310020910
20 x 1 x 12	100	K	00310302177
	120	K	00310302220
	120	M	00310064512
20 x 1-1/2 x 12	80	K	00310302221
	100	K	00310302222
20 x 2 x 8	80	K	00310020918
	100	K	00310020920
	120	M	00310064252
20 x 3 x 8	80	K	00310425116
20 x 3 x 12	80	K	00310425117
20 x 6 x 12	80	K	00310020965
24 x 1 x 8	80	K	00310021884
24 x 1 x 12	60	K	00310020921
	80	M	00310020923
24 x 1-1/4 x 12	60	M	00310302224
24 x 1-1/2 x 8	80	K	00310302223
24 x 1-1/2 x 12	80	K	00310302225
	80	M	00310302226
24 x 2 x 8	80	K	00310021885
24 x 2 x 12	60	K	00310020924
	80	I	00310020926
24 x 3 x 8	80	K	00310021757
24 x 5 x 12	60	L	00310302227
24 x 6 x 12	60	K	00310020968
24 x 8 x 12	100	K	00310302228
24 x 10 x 12	80	K	00310020972
30 x 2 x 12	60	L	00310020929
30 x 3 x 12	60	L	00310020930
42 x 1-1/2 x 12	60	M	00310020931

There are many finished sizes and specifications available. Contact your local Norton distributor or salesperson with your size and specification requirements for quantity guidelines, quotations and helpful ordering instructions.

*Please note "2-week delivery request" if needed, on your order.*

# GEAR WHEEL BLANK STOCK FASTTRACK SERVICE



Norton quality non-stock gear wheels are designed to produce high metal removal rates with less power draw. The blank stock wheels below comprise our FastTrack alteration service. All Norton FastTrack wheels are altered on state-of-the-art CNC controlled machines and are finished using Saint-Gobain dressing wheels. The Saint-Gobain dressing wheels and machines give these wheels excellent accuracy and repeatability.

## Vitrium 3 VS3G bond wheels

Our revolutionary, exclusive bond platform provides unprecedented wheel performance and finished part accuracy across many precision grinding applications – while lowering process time and cost in three ways:

1. Coolest cutting with maximum chip clearance
2. Optimized precision profile delivers ultra radius accuracy
3. Able to run at higher operating speeds (maximizing your older and newer machines' performances)

Size Range:	Blank Stock: 120mm – 450mm diameter Finished Wheel: 115mm – 450mm diameter
Grit Range:	60 – 120
Abrasive Grain:	Ceramic Alumina and Aluminum Oxide

## KEY PROGRAM FEATURES

- Standard lead time:
  - » 2 weeks
- Alteration Parameters:
  - » Diameter may be altered to 2" smaller than the original blank stock diameter
  - » Thickness may be altered to 1/2 the original blank stock thickness

## NORTON QUANTUM X CERAMIC ALUMINA AND VORTEX ALUMINUM OXIDE BLEND

**BEST CHOICE FOR VERSATILITY, HIGHEST PRODUCTIVITY, AND LOWEST TOTAL COST**

EXPANDED OFFERING

### FEATURES & BENEFITS

- Best MRR (metal removal rate) versus all other ceramic gear wheels; reduce grinding cycle times up to 50%
- Best choice for grinding from solid
- Leading Norton technologies produce the most free-cutting gear wheels: patented pore-induced construction, Norton Quantum X ceramic alumina and Vortex aluminum oxide abrasive blend, and strong Norton bond
- Versatile; for all low-, medium- and high-force applications on hard-to-grind Inconel, titanium, and aerospace alloys
- Excel on large area of contact applications with exceptional form and corner-holding; 20+% less power draw

## NORTON TARGA TG, 3GT, STG CERAMIC ALUMINA

**EXCELLENT CHOICE FOR THE MOST DEMANDING OPERATIONS**

EXPANDED OFFERING

### FEATURES & BENEFITS

- The unique elongated shape of our second generation Norton seeded gel ceramic alumina abrasive offers exceptional durability for the most demanding applications and materials
- Consider Targa (TG) when your requirements for SG have been exceeded
- VS3G Vitrium3 bond is the newest, strongest bond in the Norton portfolio: patented pore-induced construction; for all low-, medium- and high-force applications; excels on hard-to-grind aerospace alloys and large areas of contact; exceptional form and corner-holding

## NORTON SG CERAMIC ALUMINA

**EXCELLENT CHOICE FOR HIGH PRODUCTIVITY, LOW TOTAL PER-PART GRINDING COST**

EXPANDED OFFERING

### FEATURES & BENEFITS

- High-performance seeded gel ceramic aluminum oxide abrasive provides fast stock removal, cool, superior cutting, and 3X - 5X more life than aluminum oxide wheels, and double rough stock removal rate versus conventional abrasives
- Self-sharpening abrasive for less burn, less dressing; very consistent performing wheel
- Versatile, high-performance VS and VSP bonds provide exceptional form holding
- 5SG – durable Norton SG and aluminum oxide blend – blue, for high stock removal rates, excellent productivity, long wheel life, low overall grinding cost

## NORTON 86A ALUMINUM OXIDE


**BETTER CHOICE FOR VERSATILE, CONSISTENT PERFORMANCE**

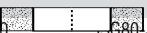
EXPANDED OFFERING

### FEATURES & BENEFITS

- Sharper aluminum oxide abrasive for cooler cutting
- VS3G Vitrium3 bond is the newest, strongest bond in the Norton portfolio: patented pore-induced construction; for all low-, medium- and high-force applications; excels on hard-to-grind aerospace alloys and large areas of contact; exceptional form and corner-holding

# GEAR WHEEL BLANK STOCK FASTTRACK SERVICE

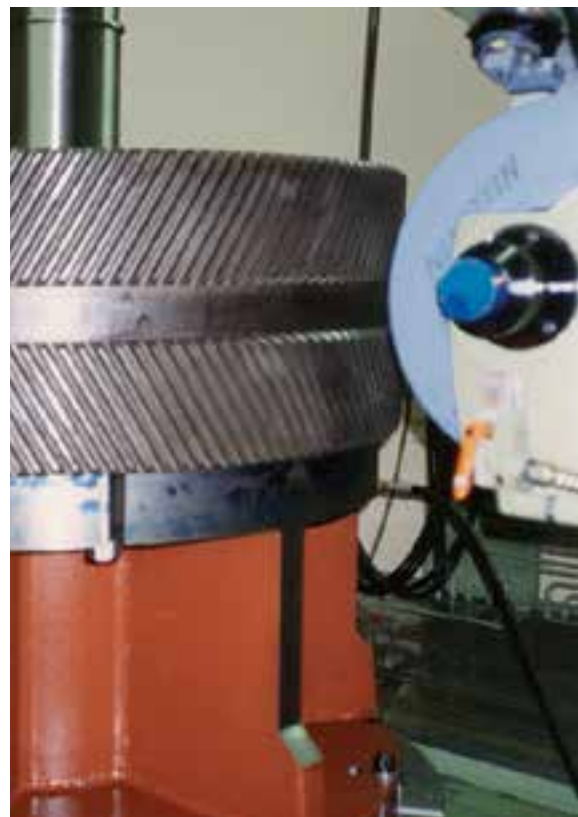
TIER:	BEST	EXPANDED OFFERING	BEST	EXPANDED OFFERING	BETTER	EXPANDED OFFERING	BETTER	EXPANDED OFFERING
TRADENAME:	<b>NORTON QUANTUM X: 5NQX</b> <b>NORTON QUANTUM:</b> <b>NQ, 3NQ, 5NQ</b> <b>VS3G = VITRIUM3 BOND</b>		<b>NORTON SEEDER GEL:</b> <b>3TGP, SG, 5SG</b> <b>VS3G = VITRIUM3 BOND</b>		<b>BRGL</b> <b>VS3G = VITRIUM 3 BOND</b>		<b>86A, 25A, X25A</b> <b>VS3G = VITRIUM 3 BOND</b>	
ABRASIVE:	Ceramic Alumina Unfinished Blank Stock		Ceramic Alumina Unfinished Blank Stock		BRGL – Ceramic Alumina Unfinished Blank Stock		86A, 25A, X25A – Aluminum Oxide Unfinished Blank Stock	
SIZE (D x T x H)	SPECIFICATION	BLANK PART #	SPECIFICATION	BLANK PART #	SPECIFICATION	BLANK PART #	SPECIFICATION	BLANK PART #
<b>Type O1 Straight</b>								
<b>Worm Profile Wheels</b>								
220mm x 180mm x 76.2mm					BRGL80-GVPHS	00310048274		
275mm x 125mm x 160mm							86A90-J10VS3G	00310477165
							86A100/5-I10VTX2	00310458402
275mm x 160mm x 160mm	5NQM90-J10VS3G	00310491163					86A90-J10VS3G	00310486397
							25A100-I10VS3G	00310460909
280mm x 160mm x 115mm	NQ80-H8VS3G	00310448492	SG80-HVX	00310419856			X25A70-G16VPAP	00310410369
							25A80-H8VS3G	00310448494
							86A80-H10VS3G	00310470137
300mm x 125mm x 160mm	3NQ90-J10VH	00310394338					86A100/5-J10VTX2	00310458405
							86A100/5-I10VTX2	00310458404
300mm x 160mm x 160mm							86A90-J10VS3G	00310486981
							86A120-J10VS3G	00310486983
320 x 125 x 115	NQ80-H8VS3G	00310472371						
350mm x 104mm x 160mm					BRGL80-GVPHS	00310066976		
					BRGL100-GVPLS	00310066991		
350mm x 125mm x 160mm	3NQ90-H10VS3G	00310448495					25A90-H10VS3G	00310448496
<b>Single Rib Wheels</b>								
120mm x 30mm x 20mm	5NQX100-G20VTX2	00310490920	3TGP80/3-G12VS3G	00310448502				
300mm x 30mm x 50.8mm	5NQX60-G20VTX2	00310490863	3TGP80/3-G12VS3G	00310448501				
300mm x 60mm x 50.8mm	5NQX60-G20VTX2	00310490864	3TGP80/3-G12VS3G	00310448500				
400mm x 50mm x 127mm			3TGP60-G20VSPF	00310404596				
400mm x 60mm x 127mm	5NQX60-G20VTX2	00310490865						
400mm x 75mm x 127mm			3TGP60-G20VSPF	00310404597				
400mm x 100mm x 127mm	5NQX60-G20VTX2	00310490916	3TGP60-G20VSPF	00310404598				
400mm x 150mm x 127mm	5NQX60-G20VTX2	00310490917						
450mm x 50mm x 127mm			3TGP80/3-G12VS3G	00310448499				
450mm x 60mm x 127mm	5NQX60-G20VTX2	00310490918						
450mm x 100mm x 127mm	5NQX60-G20VTX2	00310490921	3TGP80/3-G12VS3G	00310448498				
450mm x 150mm x 127mm	5NQX60-G20VTX2	00310490919	3TGP80/3-G12VS3G	00310448497				

TIER:		BEST		NEW
TRADENAME:		NORTON SEEDER GEL: TG, 5TG, 5SG		
ABRASIVE:		Ceramic Alumina Unfinished Blank Stock		
SIZE (D x T x RIM)	PLATE #	SPECIFICATION	BLANK PART #	
Type O2 Plate-Mounted Cylinder				
3.000 x 3.000 x .600	A311220	 5SG80-JVS	310485211	
3.350 x 3.000 x .650	A311220	5SG80-JVS	310485212	
3.750 x 3.000 x .650	A311220	5SG80-JVS	310485213	
4.100 x 3.000 x .700	A311220	5SG80-JVS	310485214	
5.200 x 3.500 x .800	A311250	5SG80-JVS	310485215	
5.700 x 3.500 x .800	A311250	5SG80-JVS	310485226	
7.000 x 3.500 x 1.050	A311251	5SG80-JVS	310485227	
8.400 x 3.500 x 1.050	A311384	5SG80-JVS	310485228	
		TG280-H12V-X575	310485229	
8.346 x 3.500 x 1.043	A311384	5TG80-3-J8VH	310480245	

Gear blank stock alteration orders must include complete blueprint information.

Please ask your Norton representative for appropriate blueprint worksheet to fill in:

- Worm wheel blueprint worksheet: ME161508
- Single rib wheel blueprint worksheet: ME161178



## How to Read an Abrasive Product Specification

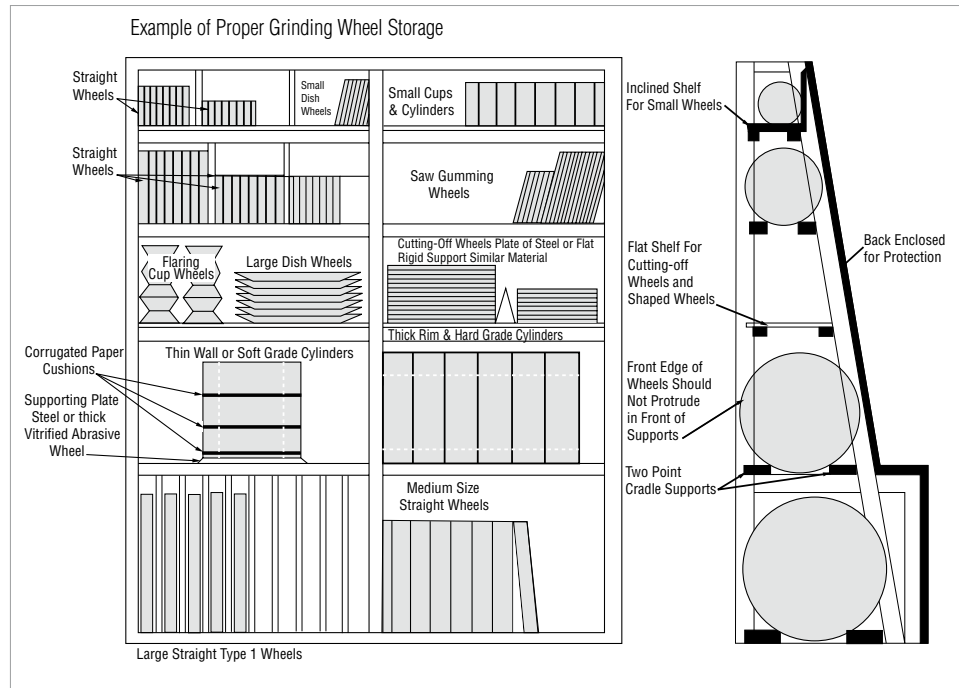
Conventional Grinding Wheels												
32A 46 I 8 V BE												
Abrasive				Grit Size			Grade			Structure	Bond Type	Norton Symbol
Aluminum Oxide	Ceramic	Silicon Carbide	Zirconia Alumina	Coarse	Medium	Fine	Soft	Medium	Hard	Relative grain spacing	Resin = B	Designates a variation or modification to bond.
23A	Aluminum Oxide	37C	4NZ	12	30	80	D	I	Q	Dense	Shellac = E	
25A	3SGP	39C	4ZF	14	36	90	E	J	R		Plastic = P	
32A	3SGR	Crystolon	5ZF	16	46	100	F	K	S		Rubber = R	
32AC (blend)	5SG	Masonry	AZ (blend)	20	54	120	G	L	T		Vitrified = V	
38A	BRG		BlueFire	24	60	150	H	M	u			
48A	SG		Charger (blend)		70	220		N	V			
53A	SXG							O	Y			
55A	NorZon Plus (blend)		NZ					P	Z			
57A	NQ		NZC (blend)									
U57A	Quantum		NZIII									
64A	Targa		NZIV									
86A			NorZon									
90A			ZI									
Alundum												
FabCut												
India												
Gemini												
Metal												
Vortex												

## Shelf Life and Proper Storage of Grinding Wheels

It has always been Saint-Gobain Abrasives recommendation that resinoid bonded grinding wheels be used within 2 years from the date of manufacture. This recommendation assumes that resinoid bonded grinding wheels have been stored under ideal storage conditions. It might be true that under ideal storage conditions resinoid bonded grinding wheels can survive without any degradation in strength for well over two years. However, it is always wise to suspect any wheels over two years old and have them reinspected or re-speed tested to determine if there has been any degradation in strength. If the wheels are stored under less than ideal conditions, they might have a much shorter shelf life depending upon the severity of storage conditions. These same comments also apply to rubber and shellac bonded grinding wheels.

As for vitrified grinding wheels, the shelf life is less influenced by humidity and adverse storage conditions as compared to resinoid, rubber or shellac, but even vitrified grinding wheels do not have an infinite shelf life. The best procedure and the best rule of thumb is to have any wheel that is two years old or older re-speed tested and reinspected to ensure it is fit for use. The procedure for having this done and the charges will be explained by our Customer Service Department, but the cost of shipping as well as the cost of re-inspection is the customer's responsibility. Also, any wheels rejected or otherwise lost in the re-inspection process will also be the responsibility of the customer.

Keep in mind, however, that this procedure is good to verify the reliability of a product but must not be performed until you are ready to consume the wheel. If wheels are sent back after the two year time frame for re-inspection and re-testing and then put back on the shelf, there is no telling how long they will be fit for use after that last inspection. Therefore, these wheels must be consumed as soon as is practical.





# our dressing tools **MAKE THE PERFECT POINT**

The Norton full line of expertly-crafted stationary and rotary dressing tools - whether stock or custom-engineered - delivers your every application need. And, our expert resetting and relapping services renew used tools to reduce your "cost per dress".



## **Single Has Advantages**

Our extensive single point tool offering leads the industry for resetaable and non-resetaable products for all abrasive types and the technology-leading "Indexable" tool design.



## **Exceeding Conventional**

Since Norton multi-point tools never need turning or resetting, they pay for themselves time and time again with higher productivity from your grinding wheels and dressing operations.



## **When Shape Matters**

For intricate forms, tight tolerances, and the most difficult applications, Norton customized tools can be made-to-order to meet a special shape and quality requirement.





Our Norton offering is the industry's most comprehensive line of stock and made-to-order products to true (restore the wheel's profile) and dress (opening – to remove stock – or closing to finish) the face of the wheel. In addition to these catalog stock stationary tools, Norton manufactures a full line of custom stationary tools, rotary diamond dressers and truing/dressing devices to meet all your specific application needs. Contact us at 1-800-438-4773.

**Applications:** Truing and dressing conventional and superabrasive wheels, straight, step, radius and form dressing

**Tool Types:** Stationary: Single Point, Toolroom, Multi-Point, Blade, Form, and Cluster Tools, and Truing Devices

Rotary: Reverse Plated and Infiltrated Form Plunge Diamond Rolls, Diamond CNC Traversing Discs, and Dressing Spindles

## DETERMINING THE BEST VALUE

- Remember that diamonds are a rare commodity—the larger the stone and the better the quality, the higher the initial cost. The key to successful diamond tool productivity and use is based on the “cost per dress.” Normally, higher quality diamonds and a proactive resetting program will result in the lowest “cost per dress.”
- In those situations where a resetting program is not feasible or low initial cost is the primary purchasing consideration, Norton offers a complete line of non-resettable tools.

## RESETTING YOUR USED DIAMOND TOOLS

### Resetting – Minimizing Your Cost

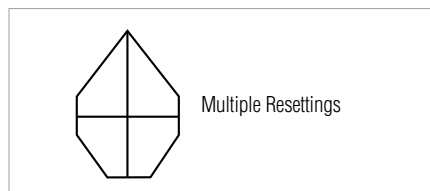
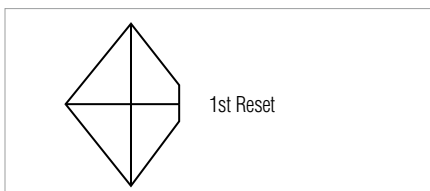
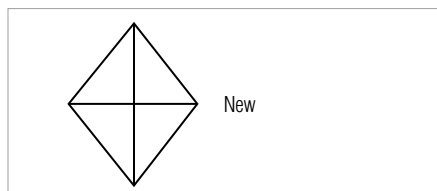
**Buying a higher quality diamond is your best value, especially if you participate in a proactive resetting program. Although initial cost may be higher, the payback comes through several factors:**

- Diamond durability, providing longer tool life
- Tighter form tolerances
- Consistent finish rates
- Resetting the diamond lowers the overall tooling cost

Used properly, the overall cost of a higher quality, resettable diamond will compare favorably with that of an inexpensive, non-resettable diamond. Initially, the best diamond point is selected for use. When returned, the next best diamond point is selected for resetting, and so on.

### To ensure you get the best value for your diamond:

- Rotate the diamond tool ¼ turn periodically to maintain a sharp point
- Use proper flow of coolant to protect the diamond from heat which can create fracturing of the diamond
- Excessive wear on the diamond point may impact the ability to reset the diamond. The widest point of the diamond is referred to as the girth. The diamond girth is buried in a powder metal matrix. Using a diamond into the girth zone might impact the ability to reset other diamond points



## TECH TIP

### Selecting the Correct Diamond Tool

To determine the type of Norton dressing tool to use, it is best to think about the desired shape of the wheel face. Finished wheel face shapes are generally categorized into six types, as illustrated below.

### Typical Wheel Forms Dressed by Stationary Diamond Tools

Look for the applicable wheel forms beside each product type to help you choose the correct product for your application



Straight



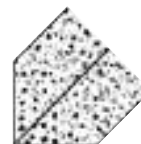
Tapered



Convex



Concave



Angled



Multi-Angled



## Single Point Tools

Our Norton line of single point tools is used in straight and simple form dressing applications. It includes: resettable and non-resettable products, tools for all abrasive types (conventional and advanced ceramic grains) and the technology-leading Norton "Indexable" tool design.

### Wheel Forms Dressed by These Tools



STRAIGHT



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## SPEC CHECK

### Selection Guide

#### Stock Tools for Ceramic Abrasive Wheels

SG/Ceramic	Engineered for use on ceramic (SG, NQ, Targa, etc.) wheels but may also provide significant benefits when used on conventional abrasive products. These tools are furnished with top quality specially selected diamonds.
BCSG/Ceramic	Economical alternative to an "SG" tool. Best choice when a disposable tool is preferred.

#### Stock Tools for Conventional Abrasive Wheels

NS	Engineered for use on conventional abrasives. These high quality, value-priced tools can be used for a variety of dressing applications.
BC	Economical alternative to an "NS" tool. Best choice when a disposable tool is preferred.

#### Selecting the Correct Single Point Tool:

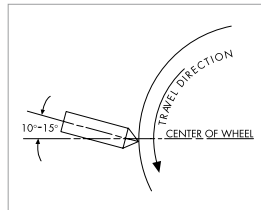
- Identify the wheel abrasive type: aluminum oxide, silicon carbide, or ceramic
- Determine the wheel diameter – to select the optimum carat weight
- Determine the tool holder size – to select appropriate shank diameter

#### Examples of Single Point Tool Selection

Conventional Wheel Spec:	32A46-IVBE 7" x 1/2" x 1-1/4"
	Machine has a 7/16" tool holder
Tool Selections:	Resettable: NS2M7 or NSUD2 (Indexable)
	Non-Resettable: BC2M7 or BCUD2 (Indexable)
Ceramic Wheel Spec:	5SG60-JVS or 5NQ60-IVS 10" x 1" x 3"
	Machine has a 3/8" tool holder
Tool Selections:	Resettable: SG3M6
	Non-Resettable: BCSG3M6

## TECH TIP

- Rigidly mount single point tools at a 10° - 15° angle to the wheel centerline with a line drawn through the center of the wheel, pointing in the direction of wheel travel.
- Point of contact should be slightly below centerline of wheel as shown.
- Use coolant whenever possible.
- Normal infeed is .001" per pass.
- Lead selections range from .002" – .010" per wheel revolution.
- Rotate the tool 1/4 turn periodically to maintain a sharp point.



To optimize applications using ceramic abrasives and/or tools, normal dressing parameters must change. Reduce infeed by 25%. Significant reductions in the amount of infeed and frequency of dress will result in substantially lower cost per part ground.

### Single Point Dress Traverse Rate

Select a Lead Value based on desired Surface Finish and run the formula below.

Finish	Lead Value (Per Wheel Revolutions)
For Coarse Finish (approx. 64 RMS)	.008" to .010"
For Medium Finish (approx. 32 RMS)	.005" to .009"
For Fine Finish (approx. 16 RMS)	.002" to .004"

### Lead Value x Wheel Speed (RPM) = Traverse Rate in Inches/Minute

- Slower traverse rates result in a closed wheel face and lower surface finish readings on the workpiece.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.



It is the user's responsibility to refer to and comply with ANSI B7.1

### Single Point Tools *continued*

Single Point Tools for Truing/Dressing Ceramic Abrasives

## SG/CERAMIC SINGLE POINT TOOLS

### FEATURES

- Specially selected broad-shaped, diamond
- Each diamond is hand selected for stone shape, quality and structural integrity
- Multi-purpose

### BENEFITS

- Withstands the increased grinding pressures of ceramic abrasives
- Consistent tool performance
- Accommodate most straight dressing and simple form dressing applications
- Stand up to ceramic (Norton SG, NQ, TG, etc.) abrasive sharpness; can also be used to dress conventional abrasives

## RESETTABLE SG/CERAMIC SINGLE POINT TOOLS

### FEATURES & BENEFITS

- Norton high quality diamond and a proactive resetting program will result in the lowest dressing cost per part

## NON-RESETTABLE BCSG/CERAMIC SINGLE POINT TOOLS

### FEATURES & BENEFITS

- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

TIER:				BEST		GOOD	
WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIAMETER	TOOL LENGTH	PRODUCT #	3 SETTABLE PTS (2 RESETS) PART #	PRODUCT #	NON-RESETTING PART #
Stock Single Point Tools for Truing/Dressing Ceramic Abrasives							
Up to 7"	1/4 (.25)	3/8"	2"	SG2M6	66260195365	BCSG2M6	66260157007
		7/16"	2"	SG2M7	66260195366	BCSG2M7	66260156905
8" to 10"	1/3 (.33)	3/8"	2"	SG3M6		BCSG3M6	66260157008
		7/16"	2"	SG3M7	66260195368	BCSG3M7	66260156906
11" to 14"	1/2 (.50)	3/8"	2"	SG5M6	66260195369	BCSG5M6	66260157009
		7/16"	2"	SG5M7	66260195370	CSG5M7	66260156907
15" to 20"	3/4 (.75)	7/16"	2"	SG7M7	66260195372	BCSG7M	66260156908
21"+	1 (1.00)	7/16"	2"			BCSG10M7	66260157010

Standard Package = 1 tool

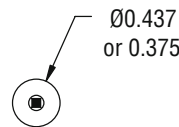
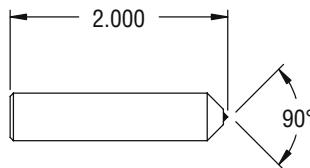
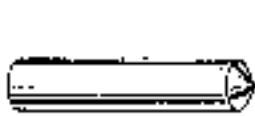
Wheel Forms Dressed by These Tools



STRAIGHT

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## TECH TIP

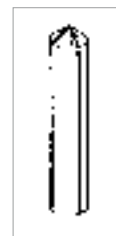
### Stock Single Point Tool Marking System

Diamond Quality	Diamond Size	Shank Design	Shank Diameter
SG/Ceramic	1 = 1/5 (.20) carat	M	6 = 3/8"
BCSG/Ceramic	2 = 1/4 (.25) carat	J	7 = 7/16"
NS	3 = 1/3 (.33) carat		
BC	5 = 1/2 (.50) carat		
	7 = 3/4 (.75) carat		
	10 = 1 carat		

Example: **NS 2 M 6**



SHANK J



SHANK M

### Single Point Tools *continued*

Single Point Tools for Truing/Dressing Conventional Abrasives



## CONVENTIONAL SINGLE POINT TOOLS

### FEATURES

- Consistent diamond structure and shape
- Well defined, sharp diamond point
- Steeper 60 degree included angle head design

### BENEFITS

- Repeatable dressing performance
- Durable; maximum cost effectiveness for dressing conventional abrasives
- Greater machine and part clearance produce forms with tighter tolerances

## RESETTABLE NS (NORTON STANDARD) SINGLE POINT TOOLS

### FEATURES & BENEFITS

- High quality diamonds, value priced
- Selection of the correct tool and a proactive resetting program will result in the lowest dressing cost per part

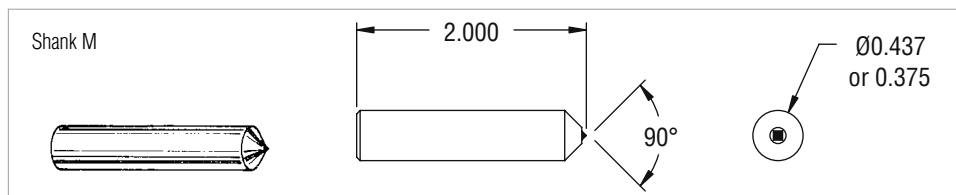
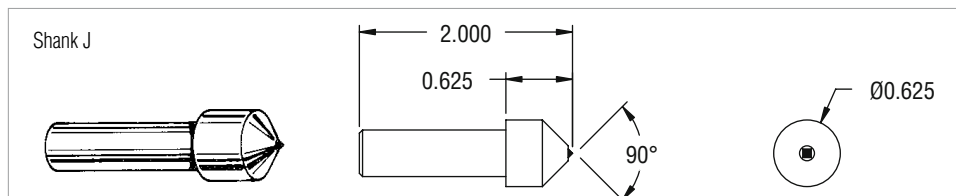
## NON-RESETTABLE BC SINGLE POINT TOOLS

### FEATURES & BENEFITS

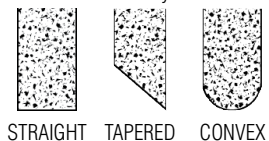
- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

TIER: <b>BETTER</b> TRADENAME: <b>NS (NORTON STANDARD)</b>						<b>GOOD BC</b>	
WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIAMETER	PRODUCT #	2 SETTABLE PTS (1 RESET) PART #		PRODUCT #	NON RESETTABLE PART #
<b>Stock Single Point Tools for Truing/Dressing Conventional Abrasives</b>							
Internal Wheel	1/5 (.20)	3/8"				BC1M6	66260195021
		7/16"				BC1M7	66260195022
Up to 7"	1/4 (.25)	3/8"	NS2M6	66260195116		BC2M6	66260195000
		7/16"	NS2M7	66260195117		BC2M7	66260195001
8" to 10"	1/3 (.33)	3/8"	NS3M6	66260195121		BC3M6	66260195002
		7/16"	NS3M7	66260195122		BC3M7	66260195003
11" to 14"	1/2 (.50)	3/8"	NS5M6	66260195126		BC5M6	66260195004
		7/16"	NS5M7	66260195127		BC5M7	66260195005
15" to 20"	3/4 (.75)	3/8"				BC7M6	66260195006
		7/16"	NS7M7	66260195132		BC7M7	66260195007
		7/16"	NS7J7*	66260195130			
21" +	1 (1.00)	3/8"	NS10M6	66260195136		BC10M6	66260195008
		7/16"	NS10M7	66260195137		BC10M7	66260195009
		7/16"	NS10J7 *	66260195135			

\* J-shank tools are available in 7/16" diameter with 5/8" head. Standard Package = one tool



### Wheel Forms Dressed by These Tools



Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [www.nortonabrasives.com](http://www.nortonabrasives.com) or your Norton representative for more in-depth information on all Norton superabrasive stock and made-to-order products.



## Single Point Tools *continued*

### Indexable Single Point Tools

Indexable tools are specifically designed to alleviate any misalignment issues and are the tools of choice for CNC grinders. They feature a two-part construction with the head and shank as separate pieces. After the initial installation, operators simply turn the indexable head with a wrench, while the tool shank remains secure (and aligned) in the tool holder.

## INDEXABLE SINGLE POINT TOOLS

### FEATURES

- Easily turned without removing tool from the holder
- U-Dex-It and Mini-Dex tools have a 60° included angle head design

### BENEFITS

- Easier for operators to turn than conventional tools – increasing frequency of beneficial tool turning
- Extended life; less downtime and increased productivity
- Provides additional form versatility through better machine and part clearance
- Excellent choice for regulating wheels



Indexable Single Point Tools for Truing/Dressing Ceramic Abrasives

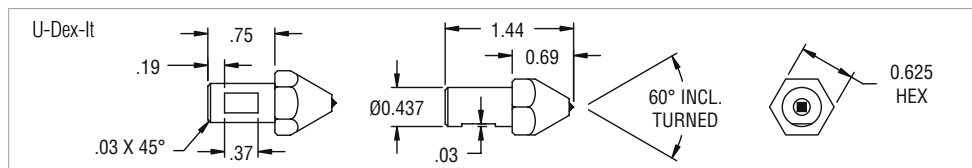
## NON-RESETTABLE BCSGUD/CERAMIC U-DEX-IT INDEXABLE SINGLE POINT TOOLS

### FEATURES AND BENEFITS

- These U-Dex-It tools contain specially selected diamonds to withstand increased ceramic (SG, Quantum NQ, Targa TG, etc.) grinding pressures
- Ideal for centerless grinders; using standard 5/8" wrench, the head can be turned through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

TIER: <b>GOOD</b>				
WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL SIZE	PRODUCT #	NON-RESETTABLE PART #
<b>Stock Indexable Single Point Tools for Truing/Dressing Ceramic Abrasives</b>				
11" to 14"	1/2 (.50)	7/16" x 1-7/16" with 5/8" head	BCSGUD5	66260159894

Standard Package = one tool



Wheel Forms Dressed by These Tools



STRAIGHT



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Indexable Single Point Tools for Truing/Dressing Conventional Abrasives

## RESETTABLE NORTON STANDARD NSUD U-DEX-IT INDEXABLE SINGLE POINT TOOLS

### FEATURES AND BENEFITS

- High quality diamonds, value priced
- Ideal for centerless grinders; using standard 5/8" wrench, the head can be turned through the hole in the side of the wheel guard without removing the guard
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

## RESETTABLE NORTON STANDARD NSMD MINI-DEX INDEXABLE SINGLE POINT TOOLS

### FEATURES AND BENEFITS

- High quality diamonds, value priced
- Use a standard 7/16" wrench to turn; designed for internal, bearing race, and twist drill flute machines
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

## Single Point Tools *continued*

Indexable Single Point Tools for Truing/Dressing Conventional Abrasives continued

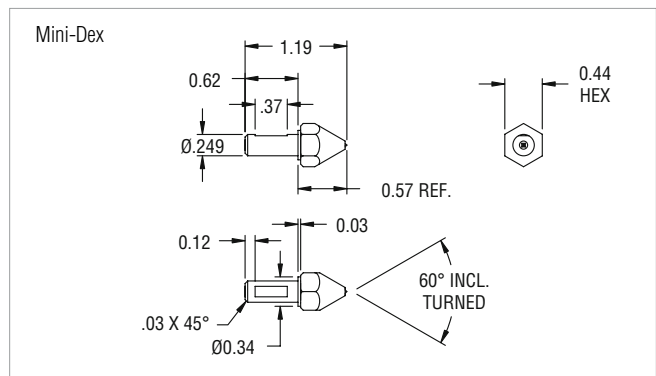
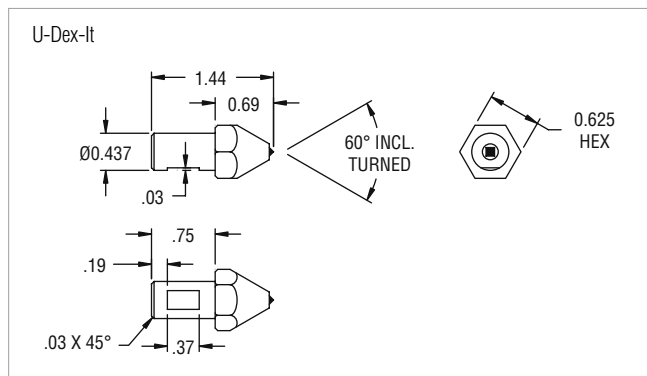
# NON-RESETTABLE BCUD U-DEX-IT INDEXABLE SINGLE POINT TOOLS

## FEATURES AND BENEFITS

- Ideal for centerless grinders; using standard 5/8" wrench, the head can be turned through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

			TIER:	BETTER		GOOD	
WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL SIZE	PRODUCT #	2 SETTABLE PTS (1 RESET) PART #		PRODUCT #	NON-RESETTABLE PART #
Stock Indexable Single Point Tools for Truing/Dressing Conventional Abrasives							
Up to 7"	1/4 (.25)	7/16" x 1-7/16" with 5/8" head				BCUD2	66260195023
		1/4" x 1-3/16" with 7/16" head	NSMD2		66260195171		
8" to 10"	1/3 (.33)	7/16" x 1-7/16" with 5/8" head	NSUD3		66260195162		
11" to 14"	1/2 (.50)	7/16" x 1-7/16" with 5/8" head	NSUD5		66260195163	BCUD5	66260195025
15" to 20"	3/4 (.75)	7/16" x 1-7/16" with 5/8" head	NSUD7		66260195164		

Standard Package = one tool



## Internal Grinding Tools



# RESETTABLE INTERNAL GRINDING TOOLS

## FEATURES AND BENEFITS

- Q style shank is used on a Heald internal grinder (resettable)

TIER: BEST					
MACHINE TYPE	CARAT WEIGHT	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	2 SETTABLE PTS (1 RESET) PART #
Stock Internal Grinding Tools					
Heald	1/5 (.20)	7/16"	1"	NI21Q7	66260195180
Standard Package = 1 Tool					

Standard Package = 1 Tool

## Wheel Forms Dressed by These Tools



STRAIGHT



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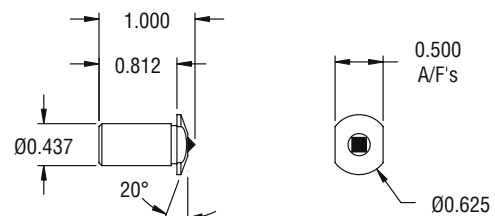


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## Shank Q for Heald Machine



Single Point Tools *continued*

Thread Grinding Tools

## RESETTABLE SG/CERAMIC THREAD GRINDING TOOLS

### FEATURES AND BENEFITS

- These wheels are used on J & L and Excello thread grinding machines to accurately dress the grinding wheels that form the desired thread configuration (non-resettable)

TIER: <b>BEST</b>						
MACHINE TYPE	SHANK DIAMETER	TOOL LENGTH	INCLUDED ANGLE	MAX. RADIUS ON POINT	PRODUCT #	NON-RESETTABLE PART #
Stock Thread Grinding Tools						
J & L	1/4"	1"			38RL4*	66260195100
J & L	1/4"	1"	80°	.010"	NT1L4	66260195187
EXCELLO	3/8"	1-5/8"	60°	.010"	NT106	66260195190

\* 38RL4 is a multi-point (grit) 30 - 40 mesh tool  
Standard Package = 1 Tool

Wheel Forms Dressed by These Tools

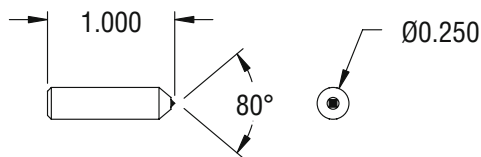


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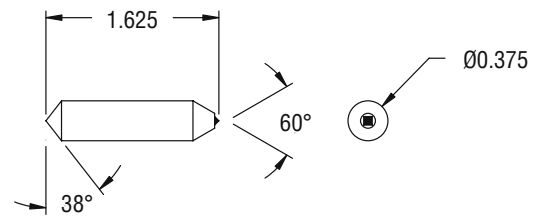


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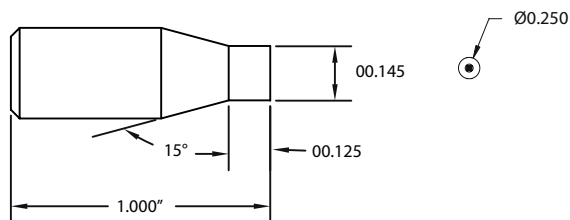
NT1L4 for Jones & Lamson Machine



NT106 for Excello Machine



38RL4 for Jones & Lamson Machine



Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [www.nortonabrasives.com](http://www.nortonabrasives.com) or your Norton representative for more in-depth information on all Norton superabrasive stock and made-to-order products.



Phono-Point Tools



## Toolroom Tools

Norton Toolroom Dressing Tools are primarily used on surface grinders to form the grinding wheel to an exact concave or convex radius. Although some tools are designed for use on a specific machine, many radius tools can be used on any grinder having the correct set-up.

Used generally on 8" diameter and smaller vitrified toolroom wheels, our Norton offering includes phono-point, conventional radius, and full ball radius tools.

Wheel Forms Dressed by These Tools



STRAIGHT



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CONVEX



MULTI-ANGLED

## NON-RESETTABLE PHONO-POINT TOOLS

### FEATURES AND BENEFITS

For general toolroom concave and convex dressing on small diameter grinding wheels

TIER: BETTER			GOOD			
INCLUDED ANGLE	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	NON-RESETTABLE PART #	PRODUCT #	NON-RESETTABLE PART #
Stock Phono-Point Tools						
60°	1/8"	1"	NP1M2	66260195225	BCPP-60	66260195017
	3/16"	1"	NP1M3	66260195226		
	1/4"	1"	NP1M4	66260195227		
75°	1/8"	1"	NP2M2	66260195228	BCPP-75	66260195018
	1/4"	1"	NP2M4	66260195230		
90°	1/8"	1"	NP3M2	66260195231	BCPP-90	66260195019
	3/16"	1"	NP3M3	66260195232		
	1/4"	1"	NP3M4	66260195233		

Standard Package = one tool

Wheel Forms Dressed by These Tools



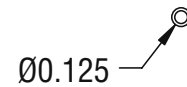
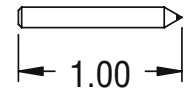
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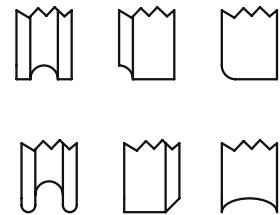
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TYPICAL WHEEL FORMS



## SPEC CHECK

Phono-Point Tool Marking System

Tool Type	Included Angle On Diamond	Shank Style	Shank Diameter
NP	1 = 60°	M	2 = 1/8"
BCPP	2 = 75°		3 = 3/16"
	3 = 90°		4 = 1/4"

Example: **NP 1 M 3**

## TECH TIP

How to Use Toolroom Tools

- We recommend dressing with coolant. However, if dressing totally dry, allow three to five seconds between passes for diamond to cool.
- Use extremely light cuts from .0002" to .001" maximum.
- Rotate tool if the application and set-up allow.
- Full Ball Radius Tools should be returned for relap after minimum wear.

## Toolroom Tools *continued*

### Radius Tools

#### Concave Radius Tools

This line offers a specially-shaped single point diamond, designed for forming concave radii on small diameter grinding wheels. Not resettable.

#### Convex Radius Tools

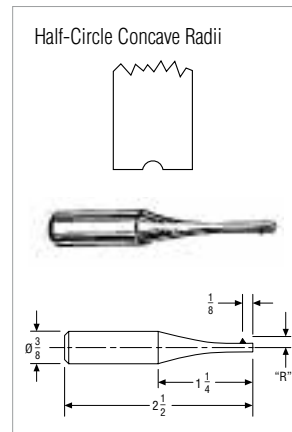
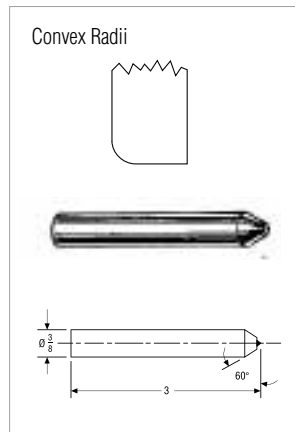
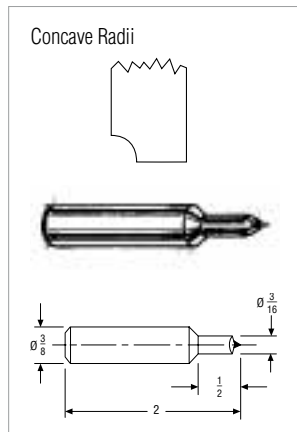
This line offers a specially-shaped single point diamond, designed for forming convex radii on small diameter grinding wheels. Not resettable.

#### Half-Circle Concave Radius Tools (Available as Non-stock Only)

This line offers a specially-shaped diamond set in the side of the shank for forming half-circle radii on small diameter grinding wheels. The tool is rotated to form the radius. Commonly called a "rat tail dresser." Not resettable.

		TIER: BEST			GOOD	
RADIUS SIZE TO BE DRESSED	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	NON-RESETTABLE PART #	PRODUCT #	NON-RESETTABLE PART #
Stock Concave Radius Tools						
.010" to .015"	3/8"	2"	NR1P6	66260195210		
.016" to .020"	3/8"	2"	NR2P6	66260195211		
.021" to .032"	3/8"	2"	NR3P6	66260195212		
.033" to .062"	3/8"	2"	NR4P6	66260195213	BCRD	66260195016
.063" to .125"	3/8"	2"	NR5P6	66260195214	BCRD	66260195016
.126" to .250"	3/8"	2"	NR6P6	66260195215	BCRD	66260195016
Stock Convex Radius Tools						
.020" to .125"	3/8"	2"	NR2M6	66260195216		
.126" to .250"	3/8"	2"	NR12M6	66260195217		

Standard Package = one tool



Full-Ball Radius Tools for precision plunge form dressing of concave radii in the center of a grinding wheel are available made to your custom requirements. Ask your Norton representative for details.

Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [nortonindustrial.com](http://nortonindustrial.com) or your Norton representative for more in-depth information on all Norton superabrasive stock and made-to-order products.





## Multi-Point (Grit) Tools

Since Norton conventional and high-performance Multi-Point tools never need turning or resetting, they are the most economical way to accomplish a variety of straight, tapered, and step dressing operations on all sizes of cylindrical, centerless, surface, and toolroom grinding wheel applications.

### Wheel Forms Dressed by These Tools



STRAIGHT



TAPERED

## NORTON MULTI-POINT TOOLS

### FEATURES

- Uniformly distributed diamonds in a tough, durable matrix
- Fresh, multiple diamond points exposed in truing operation; no turning or resetting required
- Overall diamond weight exceeds equivalent single point tool

### BENEFITS

- Consistent performance throughout tool life
- Faster, more consistent straight face dressing with maximum efficiency and longer tool life than single point tools
- The most economical way to dress straight and tapered forms

## SPEC CHECK

### Tech Tip Heading

- Identify the wheel abrasive type: ceramic (Norton SG, Quantum NQ, Targa TG), aluminum oxide, or silicon carbide
- Determine the wheel diameter and grit size
- Determine the tool's approach angle to the centerline of the wheel
- Identify the tool holder diameter
- Use 1E shape for angular wheel slide, cylindrical grinding and for shoulder or step truing

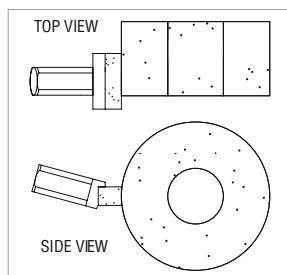
### Examples of Multi-Point Tool Selection

Conventional Wheel Spec:	32A46-IVBE 7" x 1/2" x 1-1/4" Machine has a 3/8" tool holder
Tool Selection:	1R6J6
Ceramic Wheel Spec:	5SG60-JVS or 5NQ60-IVS 10" x 1" x 3" Machine has a 7/16" tool holder
Tool Selections:	SG1R6J7

## TECH TIP

### Multi-Point Tools – Straight Face Dressing and Truing

- Most multi-point tools are used for straight face dressing.
- Tool should have full face contact with the wheel.
- With new tool, 3–5 passes at .005" per pass should be taken to expose diamonds.
- Infeed per pass .001" – .002"
- Use coolant whenever possible.
- Use appropriate lead (and traverse rate).
- Contact your Norton representative for proper tool selection for Targa wheels.



### Multi-Point Dress Traverse Rate

Select a Lead Value based on desired Surface Finish and run the formula below.

FINISH	LEAD VALUE (PER WHEEL REVOLUTIONS)
For Coarse Finish (approx. 64 RMS)	.023" to .030" (.58mm – .76mm)
For Medium Finish (approx. 32 RMS)	.013" to .022" (.33mm – .57mm)
For Fine Finish (approx. 16 RMS)	.006" to .012" (.15mm – .33mm)

$Lead\ Value \times Wheel\ Speed\ (RPM) = Traverse\ Rate\ in\ Inches/Minute$

- Slower traverse rates result in a closed wheel face that produces less stock removal and improved workpiece finish.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.



It is the user's responsibility to refer to and comply with ANSI B7.1

**Multi-Point (Grit) Tools *continued***

**SPEC CHECK**

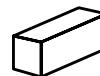
Multi-Point Tool Diamond Section Specifications

SHAPE	WIDTH	LENGTH	DEPTH	TOOL APPROACH ANGLE TO WHEEL	FOR WHEEL DIAMETER
1A	1/4"	3/4"	5/16"	0°	Over 20"
2A	1/4"	1/2"	3/8"	0°	15" – 20"
3A	5/32"	3/8"	1/4"	0°	Over 20"
1E	5/32"	3/8"	5/16"	–	
2E	1/4"	1/2"	1/2"	–	20" x 2" and up
1R	1/4" Round		1/4"	0°	Up to 10"
2R	3/8" Round		3/8"	0°	11" – 14"

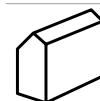
Multi-Point Tool Marking System

Diamond Shape	Tool Diamond Size	To Dress Grinding Wheels With Grit Size Of:	Shank Design	Shank Diameter
1A	4	= 46 grit	See the following pages for shank configurations	6 = 3/8"
2A	6	= 54 - 100 grit		7 = 7/16"
3A	8	= 120 - 150 grit		8 = 1/2"
1E	12	= 150+ grit		
2E	14	= Special Applications		
1R				
2R				

Example: **1A 6 A 7**



A Shape is used primarily for straight face dressing.



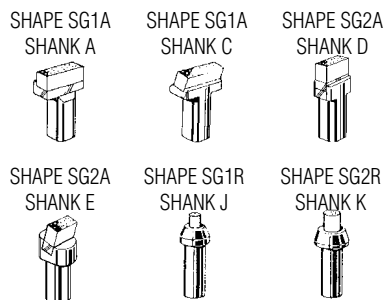
E Shape (double angle top face) [is used for standard N-Face wheels, angular wheels, face and side truing of cylindrical wheels, and in step dressing.



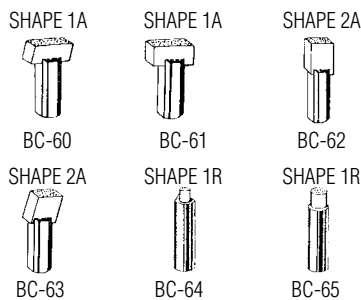
R Shape is used for straight face dressing where the tool holder is perpendicular to the wheel face (no drag angle), and on thread grinding machines.

Multi-Point Tools for Straight Dressing

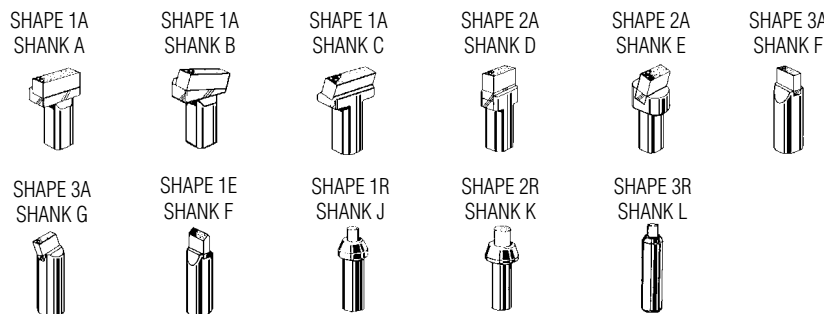
SG MULTI-POINT TOOL SHAPE AND SHANK AVAILABILITY



CONVENTIONAL TOOLROOM MULTI-POINT TOOL SHAPE AND SHANK AVAILABILITY



CONVENTIONAL ABRASIVE MULTI-POINT TOOL SHAPE AND SHANK AVAILABILITY



Shapes 3A (F and G Shanks) are used for form, shape, and step truing. Shape 1E is used for angle dressing

**TECH TIP**

Optimizing SG Multi-Point Tool Performance

- To optimize applications using ceramic abrasives/tools, normal dressing parameters must change. Significant reductions in the amount of infeed and frequency of dress will result in significantly lower cost per part ground.
- While all Norton SG/Ceramic tools have been designed to improve the efficiency of ceramic grinding applications, they can also offer significant benefits in many applications using conventional abrasives.
- When first using a Norton SG/Ceramic tool, make 3 to 5 passes at .005" infeed to ensure full face contact between the dressing tool and wheel face.
- Reduce normal dressing infeed by half. Do not exceed infeed of .002" per pass.
- The lead selection should be between .006"-.030" per wheel revolution. Faster traverse with a Norton SG/Ceramic tool generally provides an open wheel face that can maximize productivity of the ceramic abrasive.

## Multi-Point (Grit) Tools *continued*

Multi-Point Tools for Truing and Straight Dressing

## SG/CERAMIC MULTI-POINT TOOLS

### FEATURES AND BENEFITS

- Designed specifically for use on ceramic (Norton SG, Quantum NQ, Targa TG, etc.) abrasives, SG tools contain a higher diamond concentration to withstand the increased grinding pressures generated by the ceramic abrasives. These tools have improved life and dress quality; they can also offer significant benefits in many applications using conventional abrasives.

## STANDARD MULTI-POINT TOOLS

### FEATURES AND BENEFITS

- The ideal selection for use on conventional abrasives in high-production applications

## BC MULTI-POINT TOOLS

### FEATURES AND BENEFITS

- These general-purpose tools are the ideal selection for conventional toolroom applications
- BC multi-point tools contain a specially selected diamond size for a broad range of dressing applications

TIER: <b>BEST</b>						<b>BETTER</b>		<b>GOOD</b>	
TO DRESS: Ceramic Abrasives						Conventional Abrasives		Conventional Toolroom	
WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT #	PART #	PRODUCT #	PART #	PRODUCT #	PART #
<b>Multi-Point Tools for Straight Dressing</b>									
Up to 10"	54 to 100	0°	7/16"			1R6J7	66260195088	BC64	66260195014
		0°	3/8"			1R6J6	66260195085		
11" to 14"	54 to 100	0°	7/16"	SG2R6K7	66260195378	2R6K7	66260195096	BC65	66260195015
15" to 20"	46	15°	7/16"			2A4E7	66260195048		
		0°	7/16"			2A6D7	66260195046	BC62	66260195012
	54 to 100	15°	7/16"	SG2A6E7	66260195376	2A6E7	66260195049	BC63	66260195013
		0°	7/16"			2A8D7	66260195047		
	120 to 150	15°	7/16"			2A8E7	66260195050		
21" +	46	15°	7/16"			1A4C7	66260195038		
		0°	7/16"			1A6A7	66260195031	BC61	66260195011
	54 to 100	15°	7/16"			1A6B7	66260195035		
		15°	7/16"			1A6C7	66260195039	BC60	66260195010
	120 to 150	15°	7/16"			1A8C7	66260195040		

Standard Package = one tool

Wheel Forms  
Dressed by  
These Tools



STRAIGHT

## Multi-Point Tools for Form, Shape, or Step Dressing Conventional Abrasives

TIER: <b>BETTER</b>					
WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT #	PART #
<b>Stock Multi-Point Tools for Form, Shape, and Step Dressing</b>					
All	54 to 100	0°	7/16"	3A6F7	66260195055
		15°	7/16"	3A6G7	66260195975

Standard Package = one tool

Wheel Forms Dressed by  
These Tools



STRAIGHT



TAPERED

TIER: <b>BETTER</b>					
WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT #	PART #
<b>Stock Multi-Point Tools for Angular Dressing Conventional Abrasives</b>					
All	54 to 100	0°	7/16"	1E6F7	66260195080

Standard Package = one tool

Wheel Forms Dressed by  
These Tools



TAPERED



ANGLED

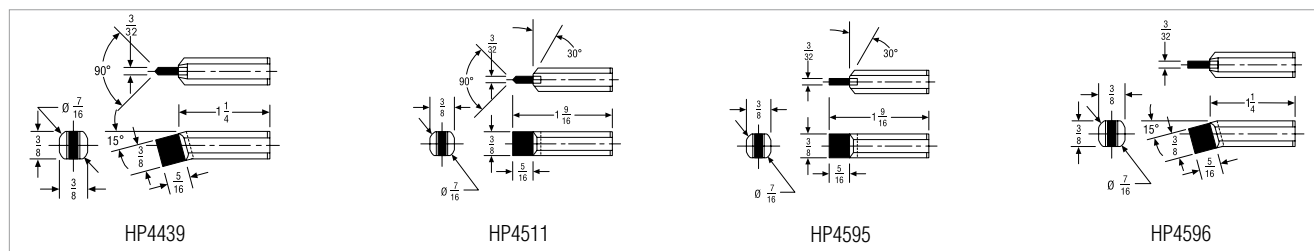
## High Performance Grit Tools

Norton High Performance grit tools are used in the same manner as multi-point tools, but are designed to produce a superior finish. They are used on 120 - 150 grit wheels. The traverse rates are equal to or faster than ordinary tools. Mounted on standard shanks, standard High Performance grit tools have a 3/8" wide by .100" thick diamond impregnated blade with a greater number of sharp points than in ordinary multi-point tools.

Since High Performance grit tools contain a higher concentration of diamond than found in standard multi-point tools, they are well suited for ceramic abrasive applications.

### Typical Machines and Applications

- HP4439: cylindrical machines, grinding thrust walls, bearing diameters and multi-diameter shafts with radii
- HP4511: angular machines plunge grinding multi-diameter shafts and plunge grinding on dual-wheel forms
- HP4595: cylindrical machines grinding main bearing and lobes on camshafts
- HP4596: centerless machines step grinding and machines dual-wheel grinding transmission shafts



TIER: <b>BEST</b>					
WHEEL DIAMETER	WHEEL GRIT SIZE	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	PART #
<b>Stock High Performance Grit Tools</b>					
Up to 20"	120 to 150	7/16"	1-9/16"	HP4439	66260195270
Up to 20"	120 to 150	7/16"	1-9/16"	HP4511	66260195271
Up to 20"	120 to 150	7/16"	1-9/16"	HP4595	66260195272
Up to 20"	120 to 150	7/16"	1-9/16"	HP4596	66260195273

Standard Package = one tool

Wheel Forms Dressed by These Tools



STRAIGHT



TAPERED

Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [www.nortonabrasives.com](http://www.nortonabrasives.com) or your Norton representative for more in-depth information on all Norton superabrasive stock and made-to-order products.

## Blade Tools



With the choice of natural and synthetic diamond in three performance/price tiers, Norton blade tools can meet all your angle, step, and radius dressing requirements for cylindrical, surface, and centerless grinding.

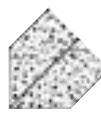
### Wheel Forms Dressed by These Tools



STRAIGHT



TAPERED



ANGLED



MULTI-ANGLED

## SYNTHETIC BLADE TOOLS – USB AND NORTON QUANTUM

### FEATURES

- USB (made-to-order)
- NEW! Norton Quantum NQ (made-to-order)
- Synthetic diamond with a controlled diamond shape provides a constant cross section of diamond to the wheel throughout the life of the tool

### BENEFITS

- For dressing aluminum oxide wheels
- For dressing ceramics and silicon carbide wheels
- Provides consistent wheel conditioning from the first dress to last
- Ideal for close tolerance wheel dressing on manual and CNC grinders, long production runs, and critical form and finish applications (e.g. automotive cam, crank, and valve grinding)
- Economical, long-lasting alternative to chisel-type tools for centerless form grinding

## MULTI-CUT BLADE TOOLS (AVAILABLE IN STOCK AND MADE-TO-ORDER)

### FEATURES

- Manufactured with top quality elongated-shaped natural diamond

### BENEFITS

- The choice when natural diamond is preferred on surface, cylindrical, and centerless grinders
- Durable performing tools in a medium price range

## LONG LIFE BLADE TOOLS (ALL ARE MADE-TO-ORDER)

### FEATURES

- Manufactured with processed elongated-shaped natural diamond

### BENEFITS

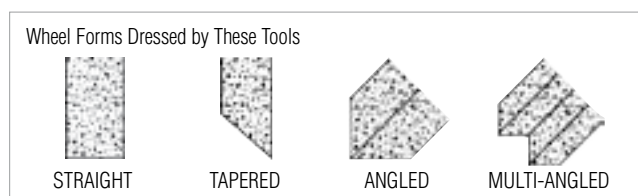
- Developed as the first generation of the blade tool line for surface, cylindrical, and centerless grinders
- The choice when initial price is the primary purchasing consideration

TIER: <b>BEST</b>					<b>BETTER</b>	
TRADENAME: <b>NORTON QUANTUM TOOLS</b>					<b>MULTI-CUT TOOLS</b>	
WHEEL DIAMETER (WIDTH ≤ 9")	TOOL APPROACH ANGLE	SHANK DIAMETER	PRODUCT #	PART #	PRODUCT #	PART #
<b>Stock Blade Tools</b>						
12" to 17"	0°	7/16"	NQ20A7	07958747944*	MC355	66260195266
	15°	7/16"	NQ215A7	07958747945*		
18" to 29"	0°	7/16"	NQ30A7	07958747946*		
	15°	7/16"	NQ315A7	07958747947*		
30" - 36"	0°	7/16"	NQ50A7	07958747948*		
	15°	7/16"	NQ515A7	07958747950*		

*These stock tools are composed of 1 layer with 3 diamonds. These tools are not resettable or relappable.*

*\*Non-Stock: Please contact your Norton representative for current lead-times.*

*Standard Package = one tool*





## Form Tools

Norton Form Tools have diamond lapped to specific angles and radii required for a particular application, machine, contour dressing system, or CNC operation. Due to the high degree of accuracy necessary, the diamond is of special shape and quality.

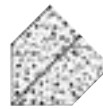
### Wheel Forms Dressed by These Tools



CONVEX



CONCAVE



ANGLED



MULTI-ANGLED

## CONE POINT TOOLS

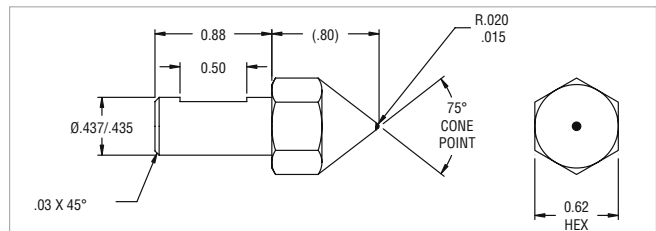
### FEATURES AND BENEFITS

- The Norton vacuum braze technology used in the manufacturing surpasses all traditional diamond retention methods.
- Benefits of this technology include absolute diamond retention, diamond pullout prevention during the dressing cycle, and longer tool life through multiple relaps
- Because the diamond is accurately coned to the specific included angle and radius, these tools are ideal when the most intricate, precise forms and radii are required
- Can be relapped

### U-Dex-It Cone Point Tool

Used for precision dressing of intricate forms and radii. Specially designed with 5/8" indexable head for easy turning during use. These tools can be relapped.

TIER: <b>BEST</b>						
INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAM.	TOOL LENGTH	PRODUCT #	RELAPPABLE PART #
<b>Stock U-Dex-It Cone Point Tool</b>						
75°	.020"	.50	7/16"	1.678"	CPUD720-7	66260158981
<i>Standard Package = one tool</i>						



WHEEL FORMS DRESSED BY THESE TOOLS				
CONVEX	CONCAVE	ANGLED	MULTI-ANGLED	

## SPEC CHECK

### Cone Point Tool Marking System

Tool Type	Included Angle On Diamond	Radius On Diamond	Carat Weight	Shank Diameter
CP	6 = 60°	05 = .005"	L = .10 - .15	6 = 3/8"
	7 = 75°	10 = .010"	M = .20 - .25	7 = 7/16"
	9 = 90°	15 = .015"	H = .33	
		20 = .020"	X = .50	
		25 = .025"		
		30 = .030"		

Example: **CP 6 10 M-6**

Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [www.nortonabrasives.com](http://www.nortonabrasives.com) or ask your Norton representative for information on our made-to-order form tools for the following machines:

- Jones & Lamson
- Moore Pantograph
- Hoglund
- Dia-Form

## TECH TIP

### How to Use Form Dressing Tools

- Proper centerline and light infeeds are essential to minimize side pressure. Excessive pressure will cause the diamond to fracture.
- Cone point tools should be rotated approximately 1/4 turn daily.

## Form Tools *continued*

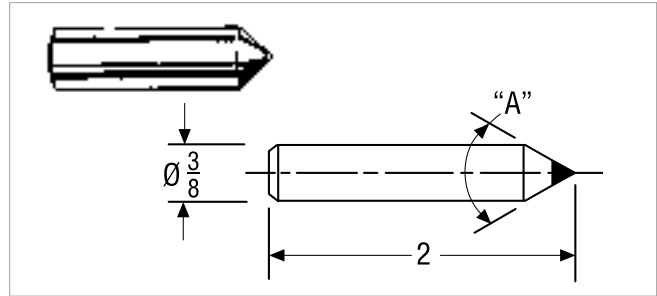
### Standard Cone Point Tool

These tools are used for precision dressing when the most intricate forms and radii are required. Can be relapped.

TIER: **BEST**

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAM.	TOOL LENGTH	PRODUCT #	RELAPPABLE PART #
<b>Stock Standard Cone Point Tools</b>						
60°	.010"	.20 - .25	3/8"	2"	CP610M-6	66260195240

Standard Package = one tool



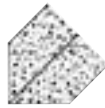
Wheel Forms Dressed by These Tools



CONVEX



CONCAVE



ANGLED



MULTI-ANGLED

Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections on [www.nortonabrasives.com](http://www.nortonabrasives.com) or your Norton representative for more in-depth information on all Norton superabrasive stock and made-to-order products.

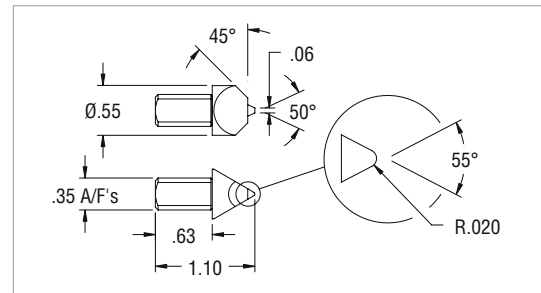
### Chisel Point Tool for Toyoda Grinders

High-precision chisel point tool designed for forming intricate shapes and radii. Specifically engineered to fit Toyoda machine series GL32 and GL4, it can also be used on various straight and angle-head grinders – for dressing conventional and ceramic abrasive wheels, sizes 12" to 24". This tool can be reset/relapped.

TIER: **BEST**

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAM.	TOOL LENGTH	PRODUCT #	RELAPPABLE PART #
<b>Stock Chisel Point Tool</b>						
55°	.020"	.75	7/16"	1.10"	CHT520-7	66260103741

Standard Package = one tool



Wheel Forms Dressed by These Tools



CONVEX



CONCAVE



ANGLED



MULTI-ANGLED

## TECH TIP

### Chisel Point Tool Marking System

Tool Type	Included Angle On Diamond	Radius On Diamond	Carat Weight	Shank Diameter
CH =	6 = 60°	05 = .005"	L = .10 - .15	6 = 3/8"
Natural	7 = 75°	10 = .010"	M = .20 - .25	7 = 7/16"
Diamond	9 = 90°	15 = .015"	H = .33	
		20 = .020"	X = .50	
		25 = .025"		
		30 = .030"		

Example: **CH 9 5 M-6**

## TECH TIP

### CHISEL POINT TOOLS

Chisel Point Tools should be rotated 180° when dulling or contour problems occur.

## Cluster Tools

Norton Cluster tools are designed specifically for straight face dressing of large diameter, coarse grit grinding wheels on single or double disc, centerless, or surface grinders.

### Wheel Forms Dressed by These Tools



### Multi-Point Cluster Tools

Multi-Point Cluster tools are typically used for straight face dressing on disc and centerless operations. For greatest efficiency, these tools should be mounted at a 15° angle so that three diamonds are in contact with the wheel face at all times. The tool should be rotated at frequent intervals. Not resettable.

TIER: BETTER				
DIAMONDS ON FACE	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	NON-RESETTABLE PART #
<b>Stock Multi-Point Cluster Tools</b>				
7	7/16"	1-5/16"	NC7K7	66260195206

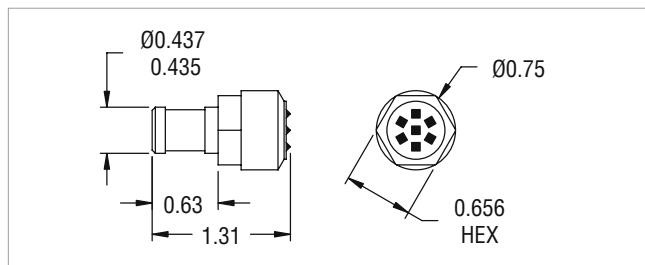
Standard Package = 1 Tool

### Dia-Pak Tools

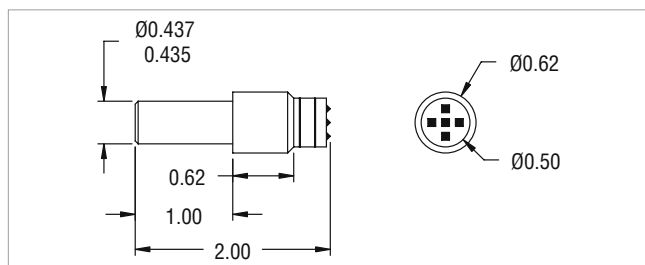
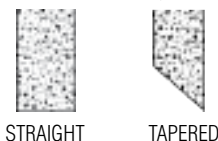
Dia-Pak tools are primarily used in straight face disc grinding, but are extremely versatile and may also be used in centerless and surface operations. Designed for maximum economy, three layers of diamond are carefully arranged so that a new layer is exposed before the previous layer is completely worn away. Not resettable.

TIER: BETTER					
FOR WHEEL DIAMETERS	DIAMONDS PER LAYER	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	NON-RESETTABLE PART #
<b>Stock Dia-Pak Tools</b>					
Up to 14"	5-4-5	7/16"	2"	DP20	66260195200
Up to 20"	7-6-7	7/16"	2"	DP30	66260195201
Any	7-6-7	7/16"	2"	DP35	66260195202

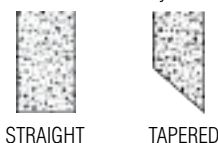
Standard Package = 1 Tool



### Wheel Forms Dressed by These Tools



### Wheel Forms Dressed by These Tools



## TECH TIP

### Cluster and Dia-Pak Tools – Straight face dressing of hard / coarse wheels:

Tool should approach the wheel at a 15° angle and be rotated periodically to keep three diamonds in contact with the wheel at all times.

Tools can also be used at a 90° to the wheel face.

Multi-Point Cluster tools should be rotated at frequent intervals.

Infeed per pass should not exceed .0015" (.001" with ceramic – Norton SG, Quantum, Targa TG, etc. – wheels).

Use coolant whenever possible.

These tools permit a faster traverse rate providing a freer cutting wheel than when dressed by a conventional single-point tool.



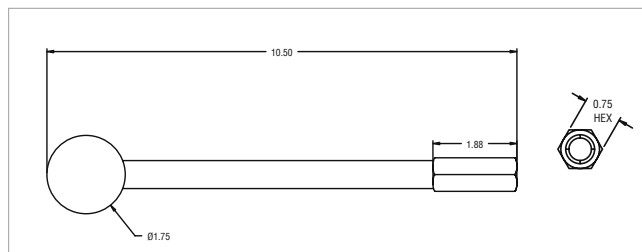
## Accessories

Tool holders typically used in toolroom applications.

### Tool Holder/Hand Dresser

Designed for use when offhand truing and dressing on tool and cutter, or benchstand grinders. This stock hand dresser will not rust, and is 10-1/2" long, with a hollow shaft that accepts any tool shank length from 3/4" to 9". The 1-3/4" diameter plastic knob ensures a firm grip. The collet accepts a 7/16" diameter tool shank.

DESCRIPTION	PART NUMBER
Hand Dresser	66260195020



# DIAMOND STATIONARY FLIESEN TOOLS

## Open or Closed Dressing... You Can Count on Fliesen Tools

Whether dressing a wheel OPEN or CLOSED you can count on Fliesen tools. Open wheels (sharp, free-cutting abrasive grains are exposed) are created by increasing the speed a Fliesen tool moves across the wheel when dressing. Generally considered the most favorable wheel conditioning, open wheels avoid workpiece burn while maximizing a wheel's ability to remove metal quickly when grinding.

Slowing a Fliesen tool as it moves across the wheel creates a closed wheel condition (abrasive grains are smoother, less sharp), a very helpful condition when trying to lower part surface finish readings.

- Harder, H-bond metal formulation tools have been specifically engineered to efficiently dress durable silicon carbide and ceramic wheels
- Furioso Fliesen tools have a unique bond system developed for optimal performance when dressing Norton Quantum (NQ) ceramic wheels
- W-bond Fliesen tools are designed for conventional aluminum oxide wheels

### The Benefits of Fliesen Tools

#### Spend More Time Grinding

Single point, chisel, and cone point tools require operator attention to ensure proper tool rotation at regular intervals. Fliesen tools require no adjustments. Simply install the tool, dress the wheel to break it in, and the tool will do the rest. Operators spend more time grinding – rather than making non-productive dressing adjustments.

#### Longer Tool Life

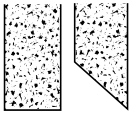


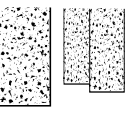

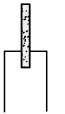




Expect long life when using a Fliesen tool. Other stationary tools, made with a single diamond stone, develop flat spots ("wear flats") over time – which create chatter and burn. Fliesen tools use hand-set, fine diamond grit, eliminating the creation of wear flats.

#### Fliesen Tool Configurations: Plate and Shank

Fliesen tools are available in two basic tool configurations. The most common is a plate configuration, which is somewhat rectangular-shaped with a mounting hole. Fliesen shank tool configurations are plates mounted in shanks of varying sizes and shapes. Most grinding machines accommodate one or the other tool configuration. To find the correct tool configuration for your machine, check the existing dressing tool, or consult your grinding machine manual.

#### Choosing The Correct Fliesen Tool

Using the chart below, find your desired wheel form – then locate the preferred diamond position. Next, find the correct tool configuration for your machine: plate or shank tool. Follow down that column to find the Fliesen page for your plate or standard shank tool configuration. Go to the appropriate page. Locate the corresponding zone for your wheel diameter and width on the graph. Find that zone number in the part number chart. Next, moving to the right, find your wheel abrasive type and grit size. Locate the part number for your Fliesen tool.

Desired Wheel Form					
Diamond Positions					
	Blade Only FR	Side-Mounted FRS, FAS, FBS, FCS & FDS	Center-Mounted FAS, FBS, FCS & FDS	Double-Sided FCSD & FDSD	Twin FDST, FSST & 1TFAS

#### TOOL CONFIGURATION

##### Plates



Consult  
Customer Service

Page 287 – 288

Consult Customer Service

Consult  
Customer Service

Page 287 – 288

##### Shank Tools



Consult  
Customer Service

Consult Customer Service

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Customer Service



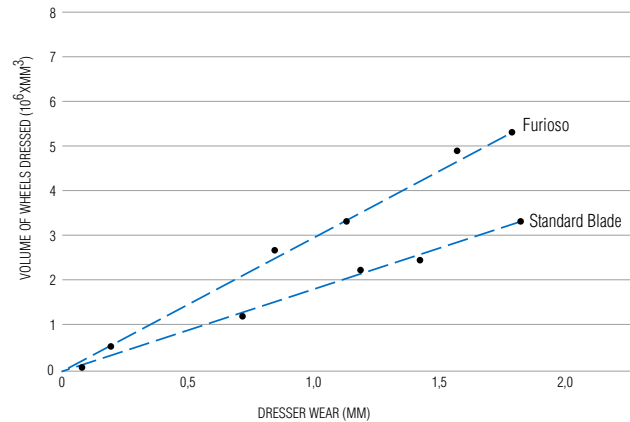
# DIAMOND STATIONARY FLIESEN TOOLS

## Furioso Tools

The new generation of highly wear-resistant stationary diamond dressing tools for dressing modern ceramic abrasives

### PERFORMANCE ADVANTAGE

Furioso vs. Standard Blade



## FURIOSO TOOLS

**BEST CHOICE FOR OPTIMUM PERFORMANCE OF NORTON QUANTUM CERAMIC WHEELS**

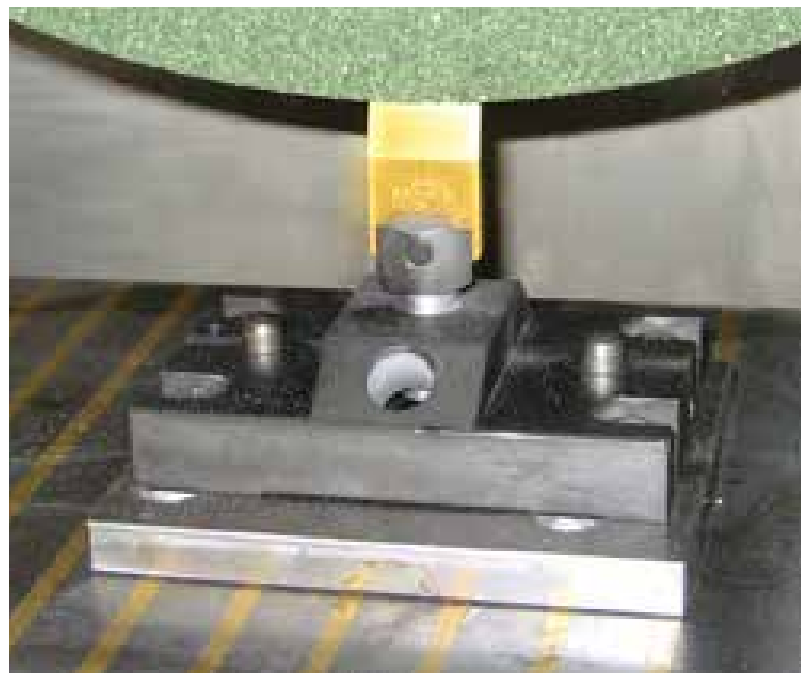
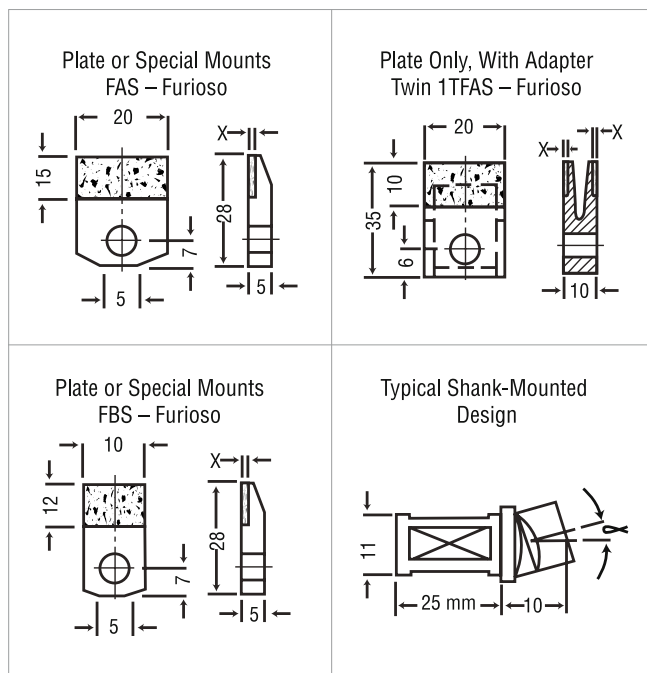
### FEATURES

- The optimized combination of diamond quality, bond and setting pattern when dressing Norton Quantum (NQ) ceramic grinding wheels

### BENEFIT

- Improved wear-resistance
- Excellent dressing behavior
- Constant surface roughness

### Standard Furioso Plate Drawings



See the complete line of Norton Fliesen Tools

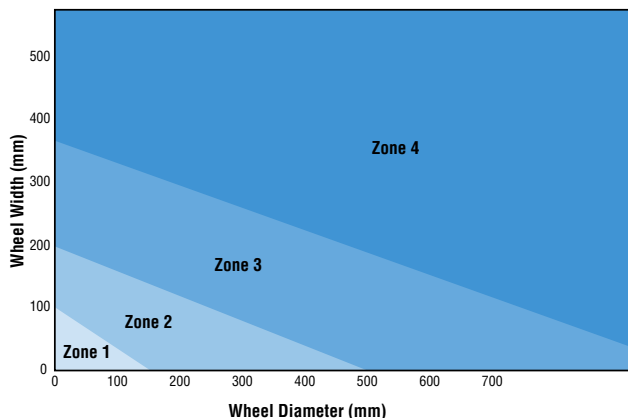
These three pages highlight a small sample of our Fliesen tool offering. Refer to our Diamond and cBN Superabrasive Standard Product Catalog #8068 sections or see the “Fliesen Tool” section on [nortonindustrial.com](http://nortonindustrial.com) or ask your Norton representative for complete product listing and information on these tools.

## Furioso Plates; Side-Mounted and Twin




Use the Wheel/Tool Graph to identify your grinding wheel's Zone number, and the chart below to find the Furioso tool for your application.

### Wheel / Furioso Tool Graph

Select Zone based on wheel diameter and width



TIER: **BEST**  
TO DRESS: Norton Quantum NQ Ceramic Wheels

ZONE NO. / SERIES	WHEEL GRIT SIZE	TOOL #	PART #	DESCRIPTION
<b>Side-Mounted</b>				
 <b>Zone 2</b> FBS Series	36 - 54	DT1463	69014122948 •	FBS 140 Furioso
	54 - 80	DT1462	69014122947 •	FBS 115 Furioso
	80 - 120	DT1461	69014122946 •	FBS 90 Furioso
	120 - 180	DT1460	69014122944 •	FBS 75 Furioso
 <b>Zone 3</b> FAS Series	36 - 54	DT1467	69014122952 •	FAS 140 Furioso
	54 - 80	DT1466	60157690579 •	FAS 115 Furioso
	80 - 120	DT1465	60157693885 •	FAS 90 Furioso
	120 - 180	DT1464	69014122950 •	FAS 75 Furioso
<b>Twin</b>				
 <b>Zone 4</b> 1TFAS Series	36 - 54	DT1471	69014122956 •	1TFAS 140 Furioso
	54 - 80	DT1470	69014122955 •	1TFAS 115 Furioso
	80 - 120	DT1469	69014122954 •	1TFAS 90 Furioso
	120 - 180	DT1468	69014122953 •	1TFAS 75 Furioso

• ALL FURIOSO PLATES shown ship in 10 business days from receipt of order.

## SPEC CHECK

### Blade Size

DESCRIPTION	DIMENSION
1 FBS	10 mm thick, 15 mm usable length
2 FAS	20 mm thick, 15 mm usable length
3 TFAS	Twin blade with cooling duct

### Diamond Grit Size

DESCRIPTION	FEPA
140	D1181
115	D1001
90	D711
75	D501

## Furioso Shank Tools

Made-to-order Furioso shank tools are also available. Ask your Norton representative for ordering assistance.

### Side-Mounted Diamond Sections

Tools are available in different offset positions and angles.



Offset Left,  
Specify  
angle amount



Zero Offset



Offset Right,  
Specify  
angle amount

### Tipping the Diamond Plates on Shank Tools

Diamond sections can be tipped right or left.



Diamond  
Tipped Left,  
Specify angle



Diamond  
Tipped Right,  
Specify angle



There are many different diamonds making up a single plate as this cut-away view shows.



Norton diamond rotary truing and dressing tools provide a very efficient way to modify the shape and topography of your grinding wheels.

Products:

Form Rolls: plunge dressing

- Infiltrated diamond form rolls
- Reverse plated diamond form rolls

Dressing Discs: uni-axial traverse dressing

- Infiltrated dressing discs
- BPR dressing discs
- IDW dressing discs

Truing and Dressing Spindles and Devices

#### Form Roll: Plunge Dressing

- Diamond roll geometry matches geometry of part to be ground
- Roll is fed into grinding wheel to generate the desired form and wheel surface condition
- Used where lowest cycle time and highest accuracy is required

#### Dressing Disc: Uni-Axial Traverse Dressing

- Diamond dressing disc has a thin diamond section that is traversed across the face of the grinding wheel
- Profile is generated with a CNC program or template
- Used for simple profiles or where flexibility is necessary

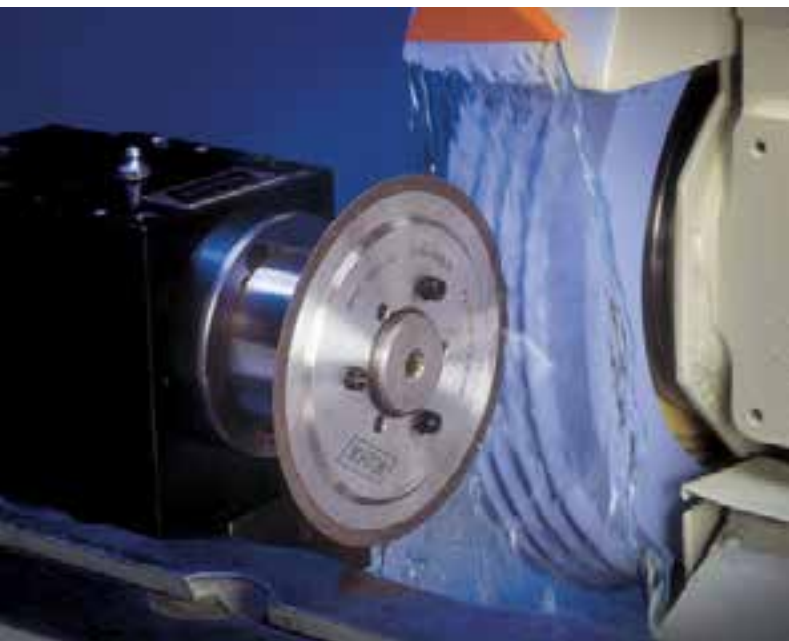


#### How to Order Rotary Dressing Tools

Provide the following information to your local sales representative or customer service representative

**Legible blueprint of roll, wheel, or part with the following geometry:**

- Overall diameter
- Overall length
- Bore size and tolerances required
- Mounting pattern
- Any feature with tolerances less than 0.0002" (5 µm) must be clearly defined for engineering review.
- If designing from a part, a fully dimensioned part drawing is required
- Abrasive type (natural diamond, synthetic diamond, CVD stones, etc.)
- Specification of wheel to be dressed (need at least the grit type and size)
- Dressing type (Plunge or CNC Profiling)



Request the "Norton Rotary Truing and Dressing" brochure, form # 8535, and contact your Norton representative for more information and expert assistance with your dressing operation.

## setting a new industry standard **FOR PRODUCTIVITY**

From the most comprehensive stock offering to the industry's largest custom-manufactured availability, our Norton superabrasive product portfolio gives you the most options with uncompromising performance.



### **A Paradigm Shift in Manufacturing**

Online truing and dressing capability results in lower cutting energies and highest quality part edges and finish. Choose Paradigm stock or custom products for your exact requirements.



### **99 More Reasons to Choose Norton**

The Norton "B99" line includes 250+ USA-made, ISO-certified, diamond and cBN products for precision finishing applications without the wait ... in stock and available now.



### **A Superhero CNC Standard Offering**

Norton offers the broadest line of products to grind carbides, hardened steels and other hard-to-grind materials. Choose stock or custom-engineered made-to-order products.

# NORTON DIAMOND / CBN STOCK WHEELS



The “99” line of quality stock Diamond and cBN (cubic Boron Nitride) grinding products includes resin, vitrified, metal and MSL (metal single layer) bond offerings. Premium, high performance resin bond diamond and cBN wheels are also available.

## Applications:

### Norton B99 Diamond Wheels

- Sharpening cemented carbide cutting tools
- Cutting off carbide rod
- Grinding or cutting off non-ferrous materials such as ceramics or glass
- Surface grinding dies
- O.D. grinding spray coatings

### Norton B99 cBN Wheels

- Sharpening high-speed (M2, D2, T15, etc.) steel cutting tools
- Surface and ID grinding hardened steel die components
- Precision grinding steel parts Rc 50 or harder
- DW Mounted Points, HH1 and HH2 Hand Hones, and 1A1, 1A1R, 1V1P, 4A2P, 6A2C, 6A2H, 11V9, 12A2, 12V9, and 15V9 Wheels

## Stock Shapes:

## Abrasive Grain:

## Abrasive Bonds:

Diamond and cBN (cubic Boron Nitride)

Resin, Metal, Metal Single Layer, and Vitrified

## STOCK DIAMOND WHEELS

### FEATURES

- High quality synthetic diamond
- Pre-engineered resin bond – B99
- Premium, heavy-duty resin bond – B105
- Metal bond – M99
- MSL (metal single layer) diamond tools; no wheel dressing required
- Vitrified bond – V99

### BENEFITS

- High material removal rates; longer wheel life vs. conventional green silicon carbide wheels
- Free cutting; superior form holding; efficient wet or dry
- Ideal for dry toolroom reconditioning applications
- Ideal for 1A1R cut-off applications and grinding glass or ceramic materials
- Fast stock removal, cool cutting; excellent for dry offhand finishing of carbide
- Most durable under high grinding forces; excellent for wet, offhand finishing of carbide tools

## STOCK CBN WHEELS

### FEATURES

- cBN (cubic Boron Nitride) abrasive material is second in hardness to diamond
- Pre-engineered resin bond – B99
- Premium Aztec III resin bond
- Premium Aztec .007 resin bond

### BENEFITS

- Easily cuts difficult-to-grind steel parts Rc 50 or harder
- Highly wear resistant and thermally stable
- Free cutting, superior form holding
- Most efficient for dry tool resharpener
- Most efficient for dry tool resharpener where heavy stock removal is desired

## TECH TIP

- Truing makes the wheel concentric with the spindle
- Dressing opens the wheel's cutting face
- Always true and dress diamond and cBN wheels prior to use
- Diamond and cBN wheels with grit sizes 100 – 180 can be trued with a Brake Controlled Truing Device
- Refer to the “Mounting, Truing and Dressing Guide” for more information



It is the user's responsibility to refer to and comply with ANSI B7.1



# NORTON DIAMOND / CBN STOCK WHEELS

## NORTON DIAMOND PRODUCT IDENTIFICATION SYSTEM / USAGE INFORMATION

ASD 120 – R 75 B99 1/8					
Abrasive Type	Grit Size	Grade	Concentration	Bond	Abrasive Depth
<b>ASD</b> <ul style="list-style-type: none"> <li>Used with B99 and B105 bonds</li> <li>Armored</li> <li>Durable</li> <li>Versatile</li> <li>Use wet or dry</li> <li>Carbide/steel operations</li> </ul>	<ul style="list-style-type: none"> <li>100S – Roughing</li> <li>120 – Roughing/cutting-off</li> <li>150 – Combined roughing and finishing</li> <li>180 – Improving finish</li> <li>220, 320 &amp; 400 – Finishing only</li> <li>10/20 mic</li> <li>6/12 mic</li> </ul>	<b>Resin Bond</b> R – Norton standard N – Free cutting <b>Metal Bond</b> N – Norton standard <b>Vitrified Bond</b> P – Norton standard R – Most durable	<b>50</b> <ul style="list-style-type: none"> <li>Most economical</li> <li>For broad area of contact</li> </ul> <b>75</b> <ul style="list-style-type: none"> <li>Norton standard</li> <li>Freer cutting than 100</li> <li>Dry grinding with ASD</li> </ul> <b>100</b> <ul style="list-style-type: none"> <li>Very durable</li> <li>For flood coolants</li> <li>Use with 220 grit or finer</li> <li>Use for cutting-off</li> </ul> <b>115</b> <ul style="list-style-type: none"> <li>For CNC grinding machines</li> </ul> <b>125</b> <ul style="list-style-type: none"> <li>Form holding</li> <li>For high volume, high pressure coolant, precision applications on high-speed tool steels</li> </ul>	<b>B99</b> <ul style="list-style-type: none"> <li>Resin bond</li> <li>Use wet or dry</li> <li>Tool making; resharpening</li> </ul> <b>B105</b> <ul style="list-style-type: none"> <li>Premium resin bond</li> <li>Advanced heat-reducing bond</li> </ul> <ul style="list-style-type: none"> <li>Use dry; reconditioning</li> </ul> <b>B610 and B80</b> <ul style="list-style-type: none"> <li>For CNC grinding machines</li> </ul> <b>M99</b> <ul style="list-style-type: none"> <li>Metal bond</li> <li>1A1R cut-off</li> <li>Glass and ceramics</li> </ul> <b>MSL</b> <ul style="list-style-type: none"> <li>Metal single layer</li> <li>Type 6A2C only</li> <li>Use dry</li> <li>Offhand reconditioning/finishing carbide</li> </ul> <b>V99</b> <ul style="list-style-type: none"> <li>Vitrified bond</li> <li>Offhand finishing of carbide tools</li> <li>Plunge grinding</li> </ul>	1/16" 1/8" 1/4" 9/32" 3/8" 1/2" 3/4" Solid
<b>CD</b> <ul style="list-style-type: none"> <li>Used with B99 bond</li> </ul>					
<b>D</b> <ul style="list-style-type: none"> <li>Used with B99 bond</li> <li>Micron-sized diamond; finishing</li> </ul>					
<b>M3D</b> <ul style="list-style-type: none"> <li>Used with M99 bond</li> </ul>					
<b>M4D</b> <ul style="list-style-type: none"> <li>Used with M99 bond</li> <li>Armored</li> <li>Durable; for non-metallics</li> </ul>					
<b>RMD</b> <ul style="list-style-type: none"> <li>Used with V99 bond</li> </ul>					
<b>SD</b> <ul style="list-style-type: none"> <li>Used with B99 and V99 bonds</li> <li>Norton standard</li> <li>Use wet or dry</li> <li>Free cutting</li> <li>Low horsepower (3/4 hp or less)</li> </ul>					

## NORTON CBN PRODUCT IDENTIFICATION SYSTEM / USAGE INFORMATION

CB 120 – T B99 1/8				
Abrasive Type	Grit Size	Grade	Bond	Abrasive Depth
<b>CB – cubic Boron Nitride</b> <ul style="list-style-type: none"> <li>Used with B99 bond</li> <li>Armored</li> <li>Use wet or dry</li> </ul>	<ul style="list-style-type: none"> <li>100 – Roughing</li> <li>120 – Roughing/cutting-off</li> <li>150 – Combined roughing and finishing</li> <li>180 – Improving finish</li> <li>220, 320, 400 – For finishing only</li> </ul>	<b>Q</b> <ul style="list-style-type: none"> <li>Approx. 50 concentration</li> <li>Type 6A2</li> <li>Broad area of contact</li> </ul> <b>T</b> <ul style="list-style-type: none"> <li>Approx. 75 concentration</li> <li>Norton standard</li> <li>First choice</li> <li>Lower horsepower</li> <li>Broad area of contact</li> <li>Dry grinding</li> <li>Resharpening applications</li> </ul> <b>W</b> <ul style="list-style-type: none"> <li>Approx. 100 concentration</li> <li>Most durable</li> <li>High volume coolant</li> <li>Flute polishing</li> <li>Surface grinding</li> <li>Cylindrical grinding</li> </ul>	<b>B99</b> <ul style="list-style-type: none"> <li>Resin bond</li> <li>Use wet or dry</li> </ul> <b>Aztec III</b> <ul style="list-style-type: none"> <li>Premium resin bond</li> <li>Use dry</li> <li>Tool resharpening</li> </ul> <b>Aztec .007</b> <ul style="list-style-type: none"> <li>Premium resin bond</li> <li>Use dry</li> <li>Increased feed rates</li> <li>Heavy stock removal</li> <li>Heavier cuts</li> </ul>	1/16" 1/8" 1/4" 1/2" Solid

# NORTON DIAMOND / CBN STOCK WHEELS

## HOW TO SELECT NORTON STOCK DIAMOND WHEELS

Select:			
WHEEL SHAPE			Select desired wheel shape
WHEEL DIMENSIONS	D x T x H	Select Diameter x Thickness x Hole from the availability tables. Use blueprint numbers where available.	
ABRASIVE	Resin Bond Wheels:		Select the abrasive based on horsepower, grinding wet or dry, and contact with steel.
	ASD	Armored diamond, durable. Versatile: can be used wet or dry. Also should be used when carbide and steel are ground in the same operation.	
	D	Micron-sized diamond. Used for finishing and polishing operations.	
	SD	Free cutting standard. Used wet or dry; should be used on low horsepower (3/4 hp or less) machines.	
	Metal Bond Wheels:		
	M4D	Armored, durable standard. A strong, blocky crystal designed for high performance on glass, ceramics, refractories and other non-metallics.	
	Vitrified Bond Wheels:		
	RMD	Medium strength. Specifically designed for use with vitrified bonds.	
	SD	Free cutting standard.	
	GRIT SIZE	100	
120		For roughing where 100 is too coarse. Also for cut-off applications.	
150		Medium stock removal plus good finish. For combined roughing and finishing applications.	
180		Medium stock removal plus good finish. To improve finish.	
220		Finishing	
320		Finishing	
400		Fine Finishing	
10/20 Mic		Super Fine Finishing	
6/12Mic		Super Fine Finishing	
GRADE	Resin Bond Wheels:		The hardness of the wheel
	R	Norton standard	
	N	Free cutting	
	Metal Bond Wheels:		
	N	Norton standard	
	Vitrified Bond Wheels:		
	P	Norton standard	
CONCENTRATION	R	Most durable	Select the abrasive concentration based on grinding wet or dry, material removal rates and form-holding requirements.
	50	Most economical. For broad area of contact grinding.	
	75	Norton standard. Freer cutting than 100 and the most economical for dry grinding with ASD diamond.	
	100	Very durable. Recommended under flood coolant conditions; for use with 220 grit or finer, when durability is required, and for cut-off applications.	
	125	Form holding. Used in high volume, high pressure coolant, precision applications on high-speed tool steels.	
BOND	Resin Bond:		Select the bond based on the material being ground and grinding application.
	B99	Norton standard. Versatile enough to be used wet or dry on most tool making or resharpening applications.	
	B105	Premium, heat-reducing bond. For dry toolroom reconditioning applications.	
	Metal Bond:		
	M99	Best suited for 1A1R cut-off applications as well as grinding glass or ceramic materials.	
	MSL	Metal Single Layer. Available in shape 6A2C for dry, offhand reconditioning of carbide tools.	
	Vitrified Bond:		
ABRASIVE DEPTH	V99	Best for wet offhand finishing of carbide tools as well as plunge grinding of carbide tools.	Usable abrasive
	1/16		
	1/8		
	1/4		
	9/32		
	Solid		

# NORTON DIAMOND / CBN STOCK WHEELS

## HOW TO SELECT NORTON STOCK CBN WHEELS

Select

WHEEL SHAPE			Select desired wheel shape
WHEEL DIMENSIONS	D x T x H	Select Diameter x Thickness x Hole from the availability tables. Use blueprint numbers where available.	
ABRASIVE	Resin Bond Wheels:		Select Norton cBN abrasive to grind hard tool steels such as A2, D2, T15, etc., and tough alloy steels.
	CB	Norton standard coated cBN (cubic Boron Nitride). Optimized for high performance in resin bond systems.	
GRIT SIZE	100	Roughing. The most common grit size for roughing operations.	Select the grit size based on finish and material removal rate required.
	120	For roughing where 100 is too coarse. Also for cut-off applications.	
	150	Medium stock removal plus good finish. For combined roughing and finishing applications.	
GRADE	Q	Approximately 50 concentration. Used on wide area of contact applications.	The hardness of the wheel
	T	Norton standard. Approximately 75 concentration. T is the first choice for lower horsepower equipment or large area of contact between the wheel and the work piece. Ideal for resharpening applications with 11V9, 12A2, 4A2P, and 15V9 wheel shapes when dry grinding.	
	W	Most durable. Approximately 100 concentration, W is recommended for high volume coolant operations: flute grinding from solid, flute polishing, surface, and cylindrical grinding.	
BOND	B99	Norton standard. Pre-engineered for optimal performance with cBN abrasive. Available in all shapes.	Select the bond depending on the type of grinding application.
	Aztec III	The Norton advanced heat-reducing, lubricating resin bond. Used for dry grinding tool steels.	
	Aztec .007	The Norton premium resin bond for increased feed rates, high stock removal and heavier cuts – when dry grinding tool steels.	
ABRASIVE DEPTH	1/16		Usable abrasive
	1/8		
	1/4		
	Solid		

Our Norton line offers a comprehensive stock product selection to service most of your needs – with the fastest delivery and lowest total costs.

Review this stock section first. If you can not find the specification you need:

- Then refer to the brief descriptions of our B99 Express and CNC lines (following this section)
- See the more in-depth B99 Express product availability in our "Diamond and cBN Superabrasives Standard Catalog" #8068 on [www.nortonabrasives.com](http://www.nortonabrasives.com) or contact your Norton representative for a complete listing of Norton made-to-order superabrasive products.

## TECH TIP

### Diamond Grinds:

In general, diamond is used to grind non-ferrous materials, because of an adverse reaction between diamond and iron.

- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Stone
- Abrasives
- Electronic components and materials

### cBN GRINDS:

cBN is used to grind ferrous materials.

- High-speed tool steels
- Die steels
- Hardened carbon steels
- Alloy steels
- Aerospace alloys
- Hardened stainless steel
- Abrasion-resistant ferrous materials



It is the user's responsibility to refer to and comply with ANSI B7.1

# NORTON DIAMOND / CBN STOCK WHEELS

## APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE – DIAMOND WHEELS

Application or Common Machine Type		Common Wheel Size, Type & Blueprint	Application Variables		Recommended Specification
Carbide Grinding – Toolroom Production					
Blanchard Grinding		10", 11", 16" & 18" diameters	Wet – solid carbide	1" or larger pieces – roughing	SD100-R75B99E*
Vertical Spindle Surface Grinding		Type 2A2T		Small pieces	ASD100-R75B99E*
			Carbide & steel (combination)		ASD100-R75B99E*
Hand Burr Grinding		6" x 3/32" x 1-1/4" Type 1V1P V – 20° ME89562	Dry		ASDC320B-R125B99
Centerless (wet)	Throughfeed Grinding	12", 14", 16", 18" & 20" diameters Type 1A1	Roughing		ASD100-R75B99E*
	Unison Dedtru Grinder	7" x 1" x 1-1/4" Type 1A1			ASD150-R75B99E*
Cutting Off (wet)		6" x .035" x 1-1/4" Type 1A1R ME43572	Most durable		ASD100S-R100B99
		10" x .050" x 1-1/4" Type 1A1R ME43565	Free cutting		SD100-R75B99
					SD120-R100B99
Cylindrical Grinding (wet)		10", 12", 14", 16" & 20" diameters Type 1A1	Wet, rough grinding of cemented carbides, hard (55 Rc+) plasma and ceramic spray coatings		ASD180-R100B99
					ASD180-R75B99E*
					ASD150-R75B99
			Wet, finish grinding of all carbides, plasma and ceramic spray coatings		ASD120-R75B99
Tool Sharpener Bench Grinder (wet)		5" x 1" x 1-1/4" Type 6A2H ME27084 Rim Width (W) = 1-1/16	Tool sharpening		SD320-R50B99
Hand Honing (dry)		Various sizes Type HH1 or HH2			ASD100-R100B99
Lamination Dies (wet)		Various sizes Type 1A1	Surface grinding of carbide		SD320-100V99
Surface Grinding (wet) Straight Wheels		Various sizes Type 1A1	Roughing	Durable	ASD100S-R100B99E*
				Free cutting	SD100S-R100B99
			Finishing only		SD220-R100B99
			General purpose		ASD150-R75B99
Tool & Cutter Grinding		Various sizes Type 11V9, 12V9 or 15V9	Wet or dry		ASD120-R7599
Carbide Grinding – Offhand					
Single-Point Carbide Tools		6" x 3/4" x 1-1/4" Type 6A2C ME27853	Wet roughing	Durable	RMD150-P50V99*
				Free cutting	SD150-P50V99
			Wet finishing	Durable	RMD220-P50V99*
				Free cutting	SD220-P50V99
			Wet or dry grinding where free-cutting and self-dressing wheels are required	Roughing	ASD120-R75B99
				Finishing	SD220-R50B99E*

Note: Diamond depths are not indicated in above listings. When ordering, be sure to include Diamond depth (1/16, 1/8, etc.).

\*Express Made-To-Order; Refer to the B99E Express Made-to-Order Wheel section.

# NORTON DIAMOND / CBN STOCK WHEELS

## APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE – CBN WHEELS

Application or Common Machine Type	Common Wheel Size, Type & Blueprint	Application Variables	Recommended Specification
<b>Toolroom Grinding</b>			
Cutter Sharpening	3-3/4" x 1-1/2" x 1-1/4" Type 11V9 ME92192	Dry	Aztec III 120T
Milling Cutters, Broaches, Reamers, etc.	6" x 1" x 1-1/4" Type 12A2 ME27758	Wet	CB120-TB99
	6" x 3/4" x 1-1/4" Type 12V9 ME48666	Wet or dry	CB120-TB99
	6" x 3/4" x 1-1/4" Type 15V9 ME40633	Wet or dry	CB100-WB99E*
Surface Grinding	10" x 1/2" x 3" Type 1A1	Wet or dry	CB100-TB99E*
Cylindrical Grinding	12" x 1/2" x 3" Type 1A1	Wet or dry	CB150-WB99E*
Internal Grinding Tools	Thinner than 1/2" Type DW	Wet or dry	CB100-WB99
	1/2" or thicker Type 1A1	Wet or dry	CB120-TB99E*
Slotting	7" x .040" x 1-1/4" Type 1A1R	Water-base coolant	CB120-WB99E*

Note: cBN depths are not indicated in above listings. When ordering, be sure to include cBN depth (1/16, 1/8, etc.)

\*Express Made-To-Order; Refer to the B99E Express Made-to-Order Wheel section.

## CROSS REFERENCE GUIDE

	Abrasives				Bonds						
	Resin Diamond	Resin Diamond	Metal Diamond	Resin/Vitrified cBN	Resin Diamond	Resin Diamond	Metal Diamond	Vitrified Diamond	Resin cBN	Resin cBN	Resin cBN
<b>NORTON</b>	ASD	SD	M4D	CB	B99/B99E	B105	M99	V99	B99/B99E	B99EF	AZTEC
3M /	CGD,	GD,		CB	PS			V		BC	
General Industrial Diamond / Diamond Productions, Inc	ND	D, MD									
Abrasive Technology	SN	S		cBN	B		M		B		
Accurate Diamond Tool	NCD	D, MD		BN	B		M				
Citco	5SD, 6SD	SD	MD	CB	B43, B52		M		B26	C3	
Engis	NMD	D, MD		cBN, CB							
Noritake				CBC		BX4			BD/B38		BX4
Radiac / US Diamond	NCD, WD, 1WD, MDC	D, MD	MD4C	B, CB, BZ	B7Z, BB, B5, B56, BN		M, MF	V	BZ, BN		
Regal Diamond				B, BB	BJ						
Superabrasives, Inc.	MDN	D, MD		B					B82	B5	
Tyrolit / Wickman / Bay State / Cincinnati	SDM, XDL, XDN, D, 7D, CMD	SD, D, 6D, MD	1D	5B, 1BN, BN, BM	BD, BC, BX33, B52, B6	Amigo	MI, MSS, MB		B72, B56, BG, B7	BXU8	Amigo
Wendt / Slip Naxos / Winterthur	SDK			B, BXW					RN	RR	

	ABRASIVES		BONDS	
	Univel/G-Force		Diamond and cBN	
<b>NORTON POLYIMIDE</b>	Diamond AD	cBN BX	Univel	G-Force
3M /	D	CB	BP	BPP
General Industrial Diamond / Diamond Productions, Inc				
Citco	SD	CB	P	C5



# NORTON DIAMOND / CBN STOCK WHEELS

## TROUBLESHOOTING GUIDE – DRY GRINDING

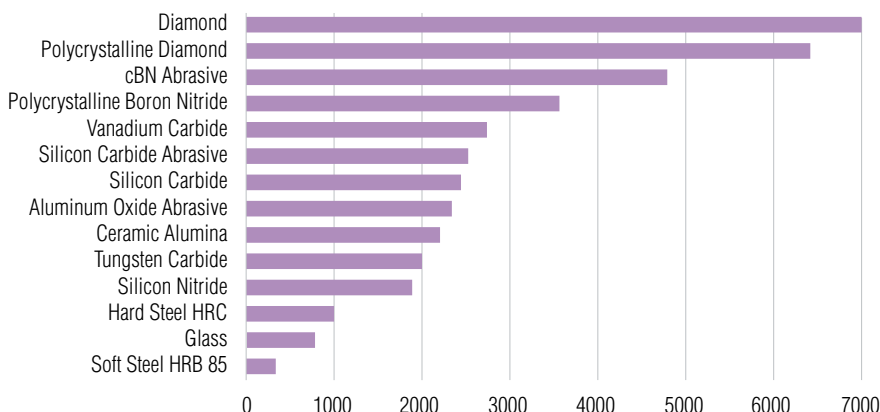
Problem	Possible Causes	Suggested Correction
Burning (excessive heat)	Wheel loaded or glazed	Dress wheel with a dressing stick
	Excessive feed rate	Reduce infeed of wheel or workpiece
	Wheel too durable	Use freer cutting specification or slow down wheel speed
Poor finish	Grit size too coarse	Select a finer grit size
	Excessive feed rate	Reduce infeed of wheel or workpiece
Chatter	Wheel out of truth	True wheel; ensure it is not slipping on mount (See “Mounting, Truing and Dressing Guide”)

## TROUBLESHOOTING GUIDE – WET GRINDING

Problem	Possible Causes	Suggested Correction
Burning (excessive heat)	Wheel glazed or loaded	Re-dress wheel
	Poor coolant placement	Apply coolant directly to wheel/workpiece interface
	Excessive material removal rate	Reduce downfeed and/or crossfeed
Poor finish	Excessive dressing	Use lighter dressing pressure
		Stop dressing as soon as wheel starts to consume stick rapidly
	Grit size too coarse	Select a finer grit size
	Poor coolant flow or location	Apply heavy flood so it reaches wheel/work interface
Chatter	Wheel out of truth	True wheel; ensure it is not slipping on mount
Wheel will not cut	Glazed by truing	Dress lightly until wheel opens up
	Wheel loaded	Dress lightly until wheel opens up
		Increase coolant flow to keep wheel surface clean
		Never run wheel with coolant turned off
Slow cutting	Low feeds and speeds	Increase feed rate; increase wheel speed (Do not exceed wheel MOS)
Short wheel life	Incorrect coolant flow	Apply coolant to flood wheel/work surface
	Low wheel speed	Increase wheel speed (observe maximum operating speed)
	Excessive dressing	Use lighter dressing pressure
	Wheel too soft or too hard	Change grit or grade; use higher concentration

## MATERIAL HARDNESS SCALE

Superabrasives is a term used to describe those abrasives of extreme hardness which produce outstanding results when properly used on specific applications. This graph provides a hardness comparison (Knoop Hardness Scale) between diamond and cBN superabrasives, aluminum oxide and silicon carbide standard abrasives, and some common materials these abrasives are used to grind.



## TECH TIP

### Avoid Grinding Steel

- Avoid steel when grinding with diamond wheels. Keep the amount of steel ground to an absolute minimum.
- On brazed tools, use aluminum oxide wheel to back off the steel shank.
- A high lubricity grinding fluid should be used.
- For some steels, an armored (AMD) diamond wheel might prove most economical.

### Use Rigid Work Support

- All workpieces should be supported firmly during the grinding process. Any amount of vibration will cause wheel wear and produce chatter or wave marks on the ground surface.
- On work ground between centers, centerholds should be properly prepared.
- Minimize work overhang.
- If the ground work is supported by a work finger, ensure the finger is strong enough to provide vibration-free support.

### Coolant – Grind Wet

- Diamond wheels should be used with a full flood coolant properly directed toward the grinding zone. Water with a rust inhibitor is recommended.
- Vitrified diamond wheels should be used only with a coolant.
- When flood application can't be used, try mist or spray application.
  - » Use compressed air to “atomize” water or soluble oil.
  - » Direct the spray at the grinding zone to help dissipate heat and prevent heat damage to the work.

### Avoid Excessive Feeds

- Excessive feeds will result in premature wheel wear. Excessive feed rates are characterized by:
  - » A hard grinding sound
  - » Chatter
  - » Burn
  - » High wheel wear rate
  - » Vibration

# NORTON DIAMOND / CBN STOCK WHEELS

## Decimal and Metric Equivalents of Common Fractions

FRACTIONS OF AN INCH	DECIMALS OF AN INCH	MILLIMETERS
1/64	.0156	0.397
1/32	.0313	0.794
3/64	.0469	1.191
1/16	.0625	1.588
5/64	.0781	1.985
3/32	.0938	2.381
7/64	.1094	2.778
1/8	.1250	3.175
9/64	.1406	3.572
5/32	.1563	3.969
11/64	.1719	4.366
3/16	.1875	4.762
13/64	.2031	5.159
7/32	.2188	5.556
15/64	.2344	5.953
1/4	.2500	6.350
17/64	.2656	6.747
9/32	.2813	7.144
19/64	.2969	7.541
5/16	.3135	7.937
21/64	.3281	8.334
11/32	.3438	8.731
23/64	.3594	9.128
3/8	.3750	9.525
25/64	.3906	9.922
13/32	.4063	10.319
27/64	.4219	10.716
7/16	.4375	11.112
29/64	.4531	11.509
15/32	.4688	11.906
31/64	.4844	12.303
1/2	.5000	12.700
33/64	.5156	13.097
17/32	.5313	13.494
35/64	.5469	13.891
9/16	.5625	14.287
37/64	.5781	14.684
19/32	.5938	15.081
39/64	.6094	15.478
5/8	.6250	15.875
41/64	.6406	16.272
21/32	.6563	16.688
43/64	.6719	17.085
11/16	.6875	17.462
45/64	.7031	17.859
23/32	.7188	18.256
47/64	.7344	18.653
3/4	.7500	19.050
49/64	.7645	19.447
25/32	.7813	19.843
51/64	.7969	20.240
13/16	.8125	20.637
53/64	.8281	21.034
27/32	.8438	21.430
55/64	.8594	21.827
7/8	.8750	22.224
57/64	.8906	22.621
29/32	.9063	23.018
59/64	.9219	23.415
15/16	.9375	23.812
61/64	.9531	24.209
31/32	.9688	24.606
63/64	.9844	25.003
1	1.0000	25.400

## Expected Surface Finish by Grit Size

Use these charts as guides only. Surface finish is affected by several variables: machine type and condition, type of material ground, coolant, wheel speed, bond system, etc.

### DIAMOND

Grit Size	Expected Finish Micro Inch AA	Maximum Depth of Cut per Pass for Grit Size
100	24 to 32	0.001" to 0.002"
120	16 to 18	0.001" to 0.002"
150	14 to 16	0.001" to 0.002"
180	12 to 14	0.0007" to 0.001"
220	10 to 12	0.0007" to 0.001"
320	8	0.0004" to 0.0006"
400	7 to 8	0.0003" to 0.0005"

### CBN

Grit Size	Expected Finish With Oscillation	Expected Finish Plunge
100	35 – 40	40 – 45
120	30 – 35	35 – 40
150	25 – 30	30 – 35
180	20 – 25	25 – 30
220	15 – 20	20 – 25
320	10 – 15	15 – 20
400	4 – 8	5 – 10

## Recommended Wheel Speeds for Diamond and cBN Wheels

WET GRINDING	Cup Wheels 11V9, 12V9, 15V9, etc.	Peripheral Wheels 1A1, 1V1, 1A1R, etc.
	Diamond Grinding Wheels	Diamond Grinding Wheels
Resin Bond Wheels	4921 to 7874 SFPM 25 to 40 m/s	4921 to 7874 SFPM 25 to 40 m/s
Metal Bond Wheels		3937 to 5906 SFPM 20 to 30 m/s
Vitrified Bond Wheels	2953 to 5906 SFPM 15 to 30 m/s	2953 to 5906 SFPM 15 to 30 m/s
CBN Grinding Wheels	Cup Wheels 11V9, 12V9, 15V9, etc.	Peripheral Wheels 1A1, 1V1, 1A1R, etc.
	Diamond Grinding Wheels	Diamond Grinding Wheels
Resin Bond Wheels	5906 to 9843 SFPM 30 to 50 m/s	5906 to 9843 SFPM 30 to 50 m/s
Resin Bond Wheels	2756 to 3543 SFPM 14 to 18 m/s	2756 to 3543 SFPM 14 to 18 m/s
Resin Bond Wheels	2953 to 5906 SFPM 15 to 30 m/s	2953 to 5906 SFPM 15 to 30 m/s

Note: These are not the maximum operating speeds (MOS).

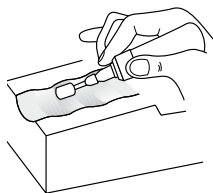
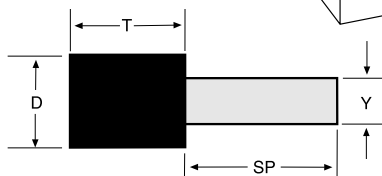
Consult ANSI B7.1 or contact your Norton representative for MOS.

## Wheel Speed Calculation

To convert m/s to SFPM:	Multiply M/S x 196.85 = SFPM
To convert SFPM to M/S:	Divide SFPM by 196.85 = M/S
To convert RPM to SFPM:	Multiply wheel diameter in inches x RPM x 0.262
M/S = meters/second RPM = Revolutions Per Minute SFPM = Surface Feet Per Minute	

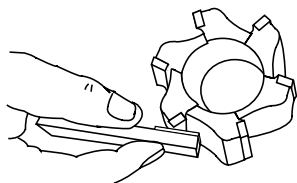
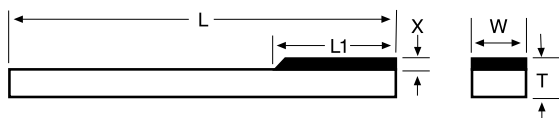
## Type DW

D - Diameter  
T - Thickness  
Y - Spindle Diameter  
SP - Spindle Length



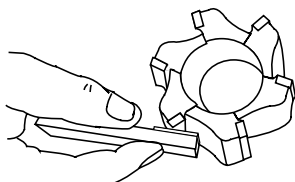
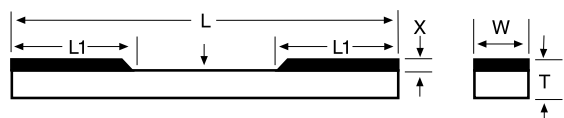
## Type HH1

L - Length  
L1 - Length of Abrasive  
X - Abrasive Depth  
W - Width  
T - Thickness (Back)



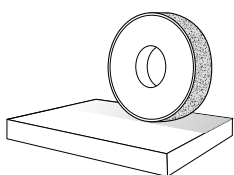
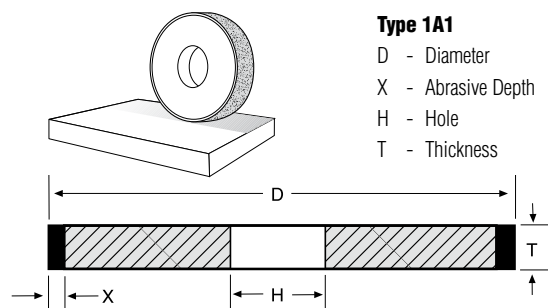
## Type HH2

L - Length  
L1 - Length of Abrasive  
X - Abrasive Depth  
W - Width  
T - Thickness (Back)



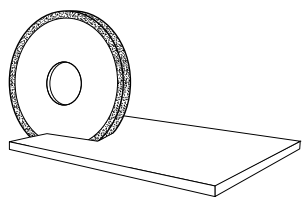
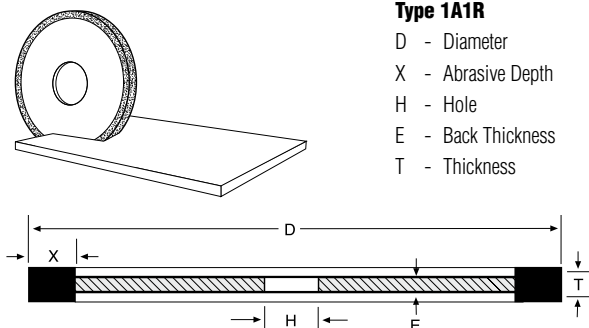
## Type 1A1

D - Diameter  
X - Abrasive Depth  
H - Hole  
T - Thickness



## Type 1A1R

D - Diameter  
X - Abrasive Depth  
H - Hole  
E - Back Thickness  
T - Thickness



SIZE (D x T)	SPECIFICATION	PART #
<b>Type DW Mounted Points – Diamond</b>		
3/16 x 1/4	SD100-R100B99-SOLID	69014192238
Steel Spindle 1/8 x 1-1/2		
1/2 x 1/2	SD220-R100B99-SOLID	69014192249
Steel Spindle 1/4 x 1-1/2		
3/4 x 3/8	SD150-R100B99-SOLID	69014192251
Steel Spindle 1/4 x 1-1/2		
1 x 1/2	SD100-R100B99-SOLID	69014192428
Steel Spindle 1/4 x 1-1/2		
<b>Type DW Mounted Points – cBN</b>		
3/16 x 1/4	CB150-WB99-SOLID	69014192258
Carbide Spindle .125 x 1-3/4		
SIZE (T x W x L)	SPECIFICATION	PART #
<b>Type HH1 Hand Hones – Diamond</b>		
1/4 x 1/4 x 6	ASD220-R100B99-1/16	69014192139
One 1/16 deep 1" long insert in one 1/4 surface		
1/4 x 3/8 x 4	ASD100-R100B99-1/16	69014192141
One 1/16 deep 1" long insert in one 3/8 surface	ASD180-R100B99-1/16	69014192142
	ASD220-R100B99-1/16	69014191670
	ASD320-R100B99-1/16	69014191672
	ASD400-R100B99-1/16	69014192143
	D10/20MIC-R100B99-1/16	69014192144
	SD320-100V99-1/16	69014192140
<b>Type HH2 Hand Hones – Diamond</b>		
1/4 x 3/8 x 4	ASD120/220-R100B99-1/16	69014192150
Two 1/16 deep 1" long inserts in one 3/8 surface	ASD220/320-R100B99-1/16	69014192178
	ASD220/400-R100B99-1/16	69014192179
	ASD320/400-R100B99-1/16	69014192180
	SD220/320-100V99-1/16	69014192149
SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 1A1 Straight – Diamond</b>		
1 x 1/4 x 1/4	SD100-R100B99-1/8	69014192175
1-1/2 x 1/2 x 1/2	D6/12MIC-N100B99-1/8	69014192176
2 x 1/8 x 1/4	SD100-R100B99-1/8	69014192184
3 x 1/4 x 3/4	SD180-R100B99-1/8	69014192187
4 x .020 x 1-1/4	SD320-R100B99-1/8	69014192188
4 x 1/32 x 1-1/4	SD100S-R100B99-1/4	69014192192
4 x 1/16 x 1-1/4	SD100S-R100B99-1/4	66260273583
	SD150-R100B99-1/4	66260273584
	SD220-R100B99-1/4	66260273586
4 x 1/8 x 3/4	SD150-R100B99-1/4	69014192024
4 x 1/8 x 1-1/4	SD150-R100B99-1/4	69014191677
4 x 1/4 x 1/2	SD150-R100B99-1/4	66260273590
4 x 1/4 x 3/4	SD150-R100B99-1/4	66260273592
4 x 1/4 x 1-1/4	SD100S-R100B99-1/4	66260273587
	SD120-R100B99-1/4	66260273588
	SD150-R100B99-1/4	66260273589
4 x 1/2 x 1-1/4	SD150-R100B99-1/4	66260273594
6 x 1/32 x 1-1/4	SD220-R100B99-1/8	69014192197
6 x 1/16 x 1-1/4	SD100-R100B99-1/4	66260273596
	SD150-R100B99-1/4	66260273597
	SD180-R100B99-1/4	66260273598
	SD220-R100B99-1/4	66260273599
6 x 1/8 x 1-1/4	ASD150-R75B99-1/4	66260273617
	SD100-R100B99-1/4	66260273611
	SD150-R100B99-1/4	66260273613
	SD180-R100B99-1/4	66260273614
	SD220-R100B99-1/4	66260273615
6 x 1/4 x 1-1/4	ASD100S-R75B99-1/4	69014192205
	ASD120-R75B99-1/4	69014192769
	ASD150-R75B99-1/4	66260273609
	ASD180-R75B99-1/4	69014192770
	ASD220-R75B99-1/4	69014192771
	ASD320-R75B99-1/4	69014192772
	RMD180-P100V99-1/8	69014192203
	SD120-R100B99-1/4	69014191691
	SD150-R100B99-1/4	69014191692
	SD180-R100B99-1/4	69014191693
	SD220-R100B99-1/4	69014192764

Standard Package = 1 mounted point, hand hone, or wheel  
Continued

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 1A1 Straight – Diamond (cont'd)</b>		
6 x 3/8 x 1-1/4	ASD120-R75B99-1/4	69014192773
	ASD150-R75B99-1/4	69014191695
	SD150-R100B99-1/4	69014191696
6 x 1/2 x 1-1/4	ASD120-R75B99-1/4	69014192777
	ASD150-R75B99-1/4	69014191698
	ASD220-R75B99-1/4	69014192779
	ASD320-R75B99-1/4	69014192780
	SD120-R100B99-1/4	66260273557
	SD150-R100B99-1/4	66260273561
	SD180-R100B99-1/4	69014191700
7 x 1/4 x 1-1/4	ASD150-R75B99-1/4	69014191701
	SD100S-R100B99-1/4	69014192210
	SD120-R100B99-1/4	66260273566
	SD150-R100B99-1/4	69014191703
	SD180-R100B99-1/4	69014191704
7 x 3/8 x 1-1/4	SD220-R100B99-1/4	69014191705
	SD120-R100B99-1/4	69014191849
	SD220-R100B99-1/4	69014191852
7 x 1/2 x 1-1/4	ASD100-R75B99-1/4	69014192211
	ASD150-R75B99-1/4	69014191853
	ASD180-R75B99-1/4	69014192212
	SD120-R100B99-1/4	69014191854
	SD150-R100B99-1/4	69014191855
	SD180-R100B99-1/4	69014191856
	SD220-R100B99-1/4	69014191857
8 x 1/2 x 1-1/4	SD150-R100B99-1/4	66260273574
10 x 1/2 x 3	ASD120-R75B99-1/4	69014192305
	ASD180-R100B99-1/4	69014192306
12 x 1/2 x 3	ASD150-R75B99-1/4	69014192310
12 x 1/2 x 5	ASD150-R75B99-1/4	69014192311
12 x 1 x 3	ASD120-R75B99-1/4	69014192312
12 x 1 x 5	ASD120-R75B99-1/4	69014192313
14 x 1/2 x 5	ASD150-R75B99-1/4	69014192314
14 x 1 x 5	ASD120-R75B99-1/4	69014192316
20 x 1 x 12	ASD120-R75B99-1/4	69014192325

Standard Package = 1 wheel

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 1A1 Straight – cBN</b>		
6 x 1/8 x 1-1/4	CB120-TB99-1/4	66260273601
6 x 1/4 x 1-1/4	CB120-TB99-1/4	66260273605
6 x 1/2 x 1-1/4	CB120-TB99-1/4	66260273607
7 x 1/4 x 1-1/4	CB120-TB99-1/4	69014192021
7 x 1/2 x 1-1/4	CB120-TB99-1/4	66260273567
12 x 1/2 x 5	CB150-TB99-1/4	66260273560
12 x 1 x 5	CB150-TB99-1/4	66260273562
<b>Type 1A1R Cut-Off – Diamond</b>		
3 x .020 x 1/2 (ME104177)	M4D150-N50M99-1/8	69014192060
4 x .012 x 1/2 (ME104180)	M4D180-N75M99-1/8	69014192063
4 x .020 x 1/2 (ME104180)	M4D220-N75M99-1/8	69014192064
4 x .030 x 1/2 (ME104180)	M4D220-N100M99-1/8	69014192067
4 x .030 x 1/2 (ME104180)	M4D150-N75M99-1/8	69014192068
4 x 1/32 x 3/4 (ME43570)	SD100S-R100B99-1/4	69014192151
4 x 1/32 x 1-1/4 (ME43570)	SD120-R100B99-1/4	69014191706
5 x .015 x 1/2 (ME104180)	SD100S-R100B99-1/4	69014192152
6 x .017 x 1-1/4 (ME104180)	M4D220-N100M99-1/8	69014192070
6 x .025 x 1-1/4 (ME104180)	M4D150-N100M99-1/8	69014192082
6 x .035 x 5/8 (ME104177)	M4D220-N100M99-1/8	69014192083
6 x .035 x 1-1/4 (ME43572)	M4D150-N100M99-1/8	69014192086
	M4D100-N75M99-1/8	69014192088
	SD100-R75B99-1/4	69014192155
	ASD100S-R100B99-1/4	69014192158
	ASD120-R100B99-1/4	69014192159
	SD100-R100B99-1/4	69014191858
	SD100S-R100B99-1/4	69014192156
	SD220-R100B99-1/4	69014192157

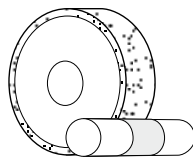
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**NEW!** See page 305 for Norton Thriftline stock wheels, engineered at low initial cost, for small volume operations.

### TECH TIP

Cylindrical grinding applications – 1A1 wheels:

- Includes all outside grinding of round parts, even though the finished product is not always a true cylinder.
- Infeed at both ends of the traverse to keep wheel face flat.
- Use work supports to prevent deflection.
- Rough grinding traverse speed should be 1/2 to 2/3 of the thickness of the wheel per work revolution.
- Finishing grinding traverse speed should be 1/2" or less per work revolution.

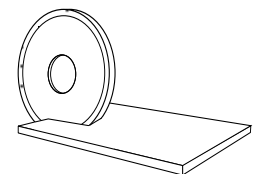


It is the user's responsibility to refer to and comply with ANSI B7.1

### TECH TIP

Cut-off applications – 1A1R wheels:

- Use the largest diameter flanges possible
- Use flanges of equal diameter
- Use the thickest wheel possible for increased stiffness and straightness of cut



cBN wheels are used on hardened steels.

Diamond wheels are used to cut or slot carbide, glass or ceramic parts.



It is the user's responsibility to refer to and comply with ANSI B7.1

### TECH TIP

Diamond Grinds:

- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Stone
- Abrasives
- Electronic components and materials

cBN Grinds:

- High-speed tool steels
- Die steels
- Hardened carbon steels
- Alloy steels
- Aerospace alloys
- Hard stainless steel
- Abrasion-resistant ferrous materials

### Can't Find Your Specification Here?

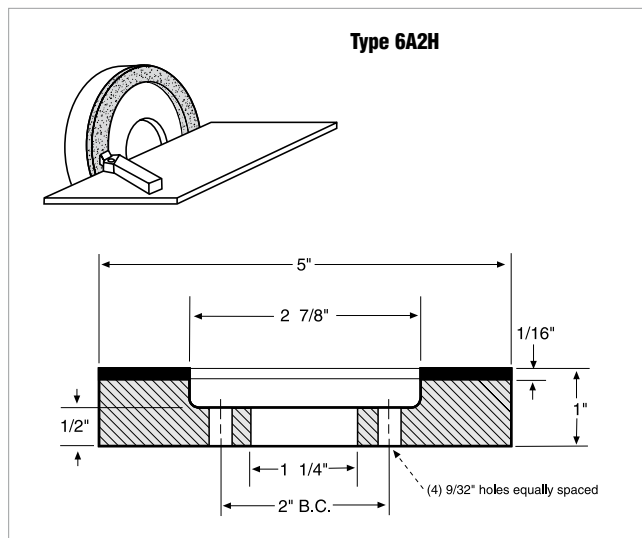
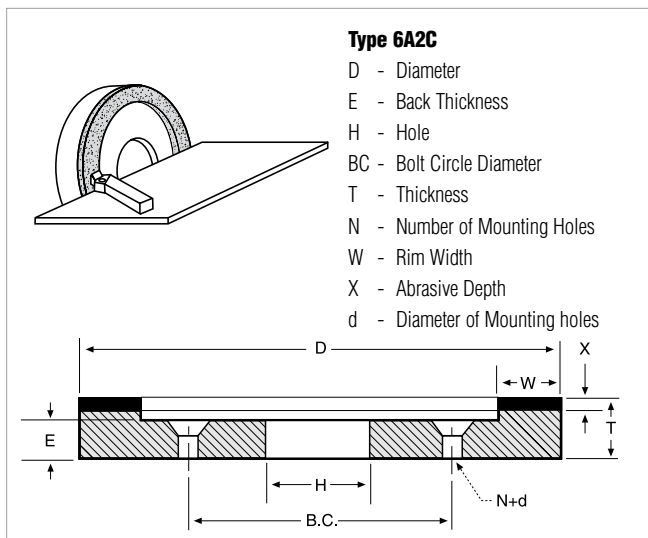
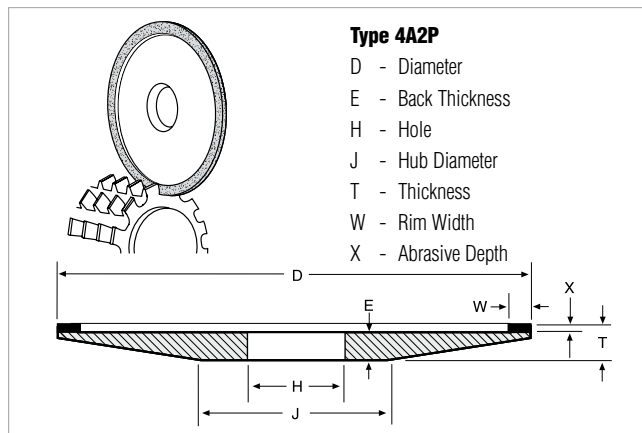
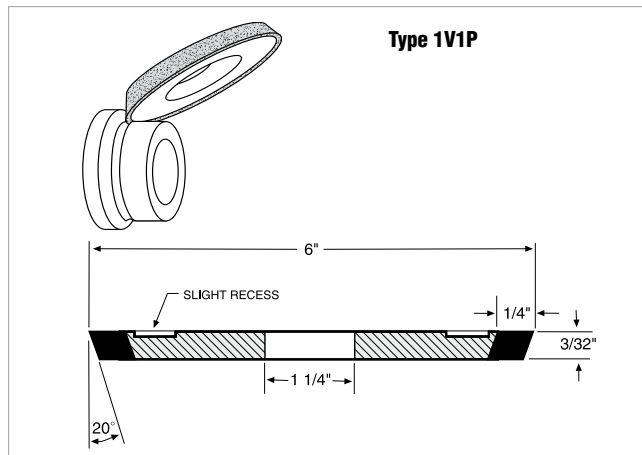
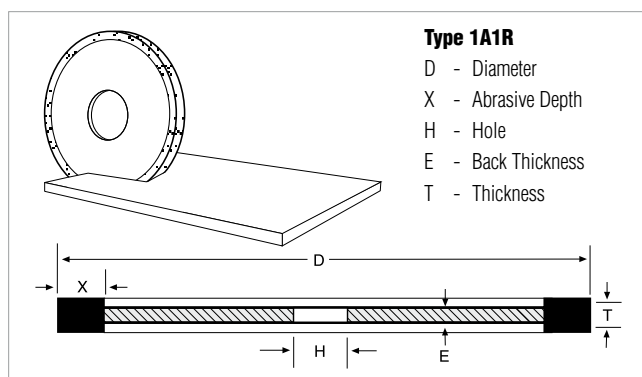
Review this stock section first. If you can not find the specification you need:

- Then refer to the brief descriptions of our B99 Express and CNC lines (following this section)
- See the more in-depth B99 Express product availability in our "Diamond and cBN Superabrasives Standard Catalog" #8068 on [www.nortonabrasives.com](http://www.nortonabrasives.com) or contact your Norton representative for a complete listing of Norton made-to-order superabrasive products.

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 1A1R Cut-Off – Diamond</b>		
6 x .035 x 1-1/4 (ME73316)	ASD100S-R100B99-9/32	69014192164
	ASD120-R100B99-9/32	69014192165
	SD100-R100B99-9/32	69014192161
	SD120-R100B99-9/32	69014192162
	SD150-R100B99-9/32	69014192163
	SD100-R50B99-1/8	69014192166
6 x .045 x 1-1/4 (ME83991)		
6 x .055 x 1-1/4 (ME104177)	M4D100-N75M99-1/8	69014192099
7 x .035 x 1-1/4 (ME82347)	ASD100-R100B99-1/4	66260238686
7 x .055 x 1-1/4 (ME104177)	M4D120-N100M99-1/8	69014192108
8 x .030 x 1-1/4 (ME104180)	M4D180-N75M99-1/8	69014192110
8 x .045 x 5/8 (ME43569)	SD120-R100B99-1/4	69014192167
8 x .045 x 1-1/4 (ME43569)	SD120-R100B99-1/4	69014192169
8 x .050 x 1-1/4 (ME104180)	M4D180-N75M99-1/8	69014192114
10 x .050 x 1-1/4 (ME 43565)	ASD120-R100B99-1/4	66260230236
	CD100-R100B99-1/4	69014192815
	SD120-R100B99-1/4	69014192170
12 x .070 x 3/4 (ME 43567)	SD150-R100B99-1/4	69014192173
14 x .070 x 3/4 (ME 106589)	SD120-R100B99-1/4	66260259011
<b>Type 1A1R Cut-off – cBN</b>		
6 x .035 x 1-1/4 (ME43572)	CB100-WB99-1/4	69014192160
<b>Type 1V1P Fluting – Diamond</b>		
6 x 3/32 x 1-1/4	ASDC320C-R100B99-1/4	69014192761
Face Bevel 1 Side 20 Deg	ASD320B-R125B99-1/4	69014192302
Copper Core (ME89562)		
<b>Type 4A2P Dish – Diamond</b>		
6 x 3/8 x 1-1/4	ASD120-R75B99-1/16	69014192280
Rim Width 1/4" (ME88369)		

Standard Package = 1 wheel

Refer to “Brake Controlled Truing Devices” and “Dressing Sticks” sections for truing and dressing products.





# NORTON DIAMOND / CBN STOCK WHEELS

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 6A2C Straight cup – Diamond</b>		
6 x 7/16 x 1-1/4 Rim Width 1" (0640185M)	D120/140-H-MSL	66260269172
6 x 3/4 x 1-1/4 Rim Width 3/4" (ME27853)	SD220-R50B99-1/16	69014191665
	ASD120-R75B99-1/16	69014191860
	ASD120-R75B99-1/8	69014192786
	SD150-P50V99-1/16	69014192217
	SD220-P50V99-1/16	69014191623
6 x 3/4 x 1-1/4 Rim Width 1/2" (ME30621)	ASD120-R75B99-1/8	66260273565

Standard Package = 1 wheel

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 6A2H Straight Cup – Diamond</b>		
5 x 1 x 1-1/4 Rim Width 1-1/16" (ME27084)	SD320-R50B99-1/16	69014192221

Standard Package = 1 wheel

**NEW!** See page 305 for Norton Thriftline stock wheels, engineered at low initial cost, for small volume operations.

## ASD DIAMOND / B105 RESIN BOND WHEELS

### BEST CHOICE FOR DRY GRINDING CARBIDE TOOLS

#### FEATURES

- Premium quality diamond
- Advanced, heat-reducing bond
- Self-lubricating bond
- Unique self-dressing core

#### BENEFITS

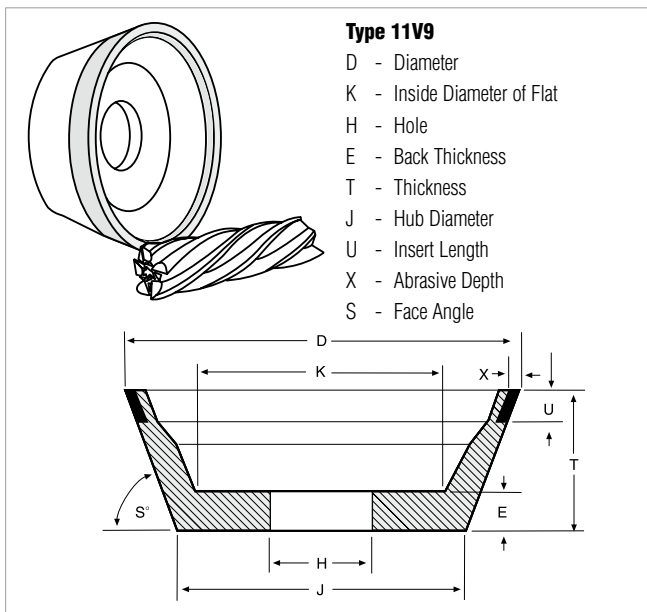
- Produces keen cutting tools that hold their shape, are easier to sharpen, and require fewer reconditionings
- Minimizes heat generation and thermal damage to tool
- Increases tool life and productivity
- Lasts more than 2X as long as standard diamond wheels
- Lowest total wheel costs; highest productivity
- No steel or braze loading
- Uses less power
- Eliminates wheel core damage
- Eliminates downtime to dress core

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 11V9 Flaring Cup – Diamond</b>		
3-3/4 x 1-1/2 x 1-1/4 Insert Length 3/8" (ME92192)	ASD120-R75B105-1/16	69014191905
	ASD150-R75B105-1/16	69014191906
	ASD100S-R75B105-1/8	69014191908
	ASD120-R75B105-1/8	69014191909
	ASD150-R75B105-1/8	69014191910
5 x 1-3/4 x 1-1/4 Insert Length 7/16" (ME98298)	ASD120-R75B105-1/16	69014191913
	ASD150-R75B105-1/16	69014191914
	ASD100S-R75B105-1/8	69014191916
	ASD150-R75B105-1/8	69014191918

Standard Package = 1 Wheel

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 11V9 Flaring Cup – Diamond</b>		
3 x 1-1/4 x 3/4 Insert Length 3/8" (ME93912)	ASD120-R75B99-1/16	69014192291
	ASD150-R75B99-1/16	69014192292
	SD150-R100B99-1/16	69014192293
3-3/4 x 1-1/2 x 3/4 Insert Length 3/8" (M92192)	ASD120-R75B99-1/16	69014192022
3-3/4 x 1-1/2 x 1-1/4 Insert Length 3/8" (ME92192)	ASD150C-R50B99-1/8	69014190751
	ASD120-R75B99-1/16	69014191660
	ASD150-R75B99-1/16	69014191725
	ASD100S-R75B99-1/8	69014191653
	ASD120-R75B99-1/8	69014191652
	ASD150-R75B99-1/8	69014191651
	ASD180-R75B99-1/8	69014191650
	SD120-R100B99-1/16	69014191657
	SD150-R100B99-1/16	69014191656
	SD220-R100B99-1/16	69014191654
	SD320-R100B99-1/16	69014192814
	SD100S-R100B99-1/8	69014192427
	SD120-R100B99-1/8	69014191649
	SD150-R100B99-1/8	69014191648
	SD180-R100B99-1/8	69014191647
	SD220-R100B99-1/8	69014191646
5 x 1-3/4 x 1-1/4 Insert Length 7/16" (ME98298)	ASD100S-R75B99-1/16	69014191645
	ASD120-R75B99-1/16	69014191644
	ASD150-R75B99-1/16	69014191643
	ASD100S-R75B99-1/8	69014191637
	ASD120-R75B99-1/8	69014191636
	ASD150-R75B99-1/8	69014191635
	ASD180-R75B99-1/8	69014191634
	SD120-R100B99-1/16	69014191641
	SD150-R100B99-1/16	69014191640
	SD220-R100B99-1/16	69014191638
	SD150-R100B99-1/8	69014191632
	SD180-R100B99-1/8	69014191631

Standard Package = 1 Wheel



# NORTON DIAMOND / CBN STOCK WHEELS

## NORTON AZTEC CBN WHEELS

### BEST CHOICE FOR DRY TOOL RESHARPENING

#### FEATURES

- Consistent, high quality cBN (cubic Boron Nitride) abrasive
- Advanced heat-reducing bond conducts heat away from the workpiece

#### BENEFITS

- 85% longer life than standard cBN wheels
- Eliminates heat build-up and damage
- Extends wheel life
- Freer cutting action
- Maintains cutting tool steel integrity
- Extends cutting tool life

#### AZTEC III

- Lubricating bond
- Eliminates steel and braze loading
- Reduces drag
- Allows greater infeeds

#### AZTEC .007

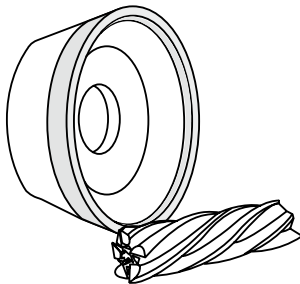
- Allows increased infeed (start at .007)
- High stock removal rate
- Heaviest cuts with less wheel wear
- Lower grinding forces
- Elimination of chatter

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 11V9 Flaring Cup – cBN</b>		
3-3/4 x 1-1/2 x 1-1/4 Insert Length 3/8" (ME92192)	AZTEC .007-100-1/16	69014195683
	AZTEC .007-150-1/16	69014195679
	AZTEC III 100T-1/16	69014191832
	AZTEC III 120T-1/16	69014191833
	AZTEC III 150T-1/16	69014191834
	AZTEC .007-150-1/8	69014195680
	AZTEC III 100T-1/8	69014191838
	AZTEC III 120T-1/8	69014191839
5 x 1-3/4 x 1-1/4 Insert Length 7/16" (ME98298)	AZTEC III 150T-1/8	69014191840
	AZTEC .007-100-1/16	69014195685
	AZTEC III 100T-1/16	69014191841
	AZTEC III 120T-1/16	69014191842
	AZTEC III 150T-1/16	69014191843
	AZTEC .007-100-1/8	69014195686
	AZTEC .007-150-1/8	69014195682
	AZTEC III 100T-1/8	69014191844

Standard Package = 1 Wheel

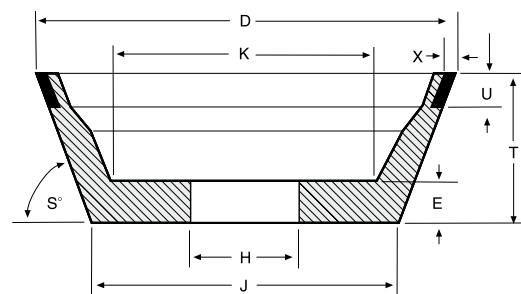
SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 11V9 Flaring Cup – cBN</b>		
3-3/4 x 1-1/2 x 1-1/4 Insert Length 3/8" (ME92192)	CB100-TB99-1/16	69014191719
	CB100-TB99-1/8	69014191722
	CB120-TB99-1/8	69014191723
	CB150-TB99-1/8	69014191724
	CB120-WB99-1/16	69014191720
5 x 1-3/4 x 1-1/4 Insert Length 7/16" (ME98298)	CB120-TB99-1/8	69014191715
	CB150-TB99-1/8	69014191716

Standard Package – 1 Wheel



#### Type 11V9

- D - Diameter
- K - Inside Diameter of Flat
- H - Hole
- E - Back Thickness
- T - Thickness
- J - Hub Diameter
- U - Insert Length
- X - Abrasive Depth
- S - Face Angle



Refer to "Brake Controlled Truing Devices" and "Dressing Sticks" sections for truing and dressing products.

SIZE (D x T x H)	SPECIFICATION	PART #
<b>Type 12A2 Dish – Diamond</b>		
4 x 1/2 x 1-1/4 Rim Width 1/4" (ME40745)	SD180-R75B99-1/8	69014192223
6 x 1 x 1-1/4 Rim Width 3/16" (ME27758)	ASD120-R75B99-1/8	69014191630
	ASD180-R75B99-1/8	69014192226
<b>Type 12A2 Dish – cBN</b>		
6 x 1 x 1-1/4 Rim Width 3/16" (ME27758)	CB120-TB99-1/16	69014192227
<b>Type 12V9 Dish – Diamond</b>		
3 x 7/16 x 3/4 Insert Length 7/16" (ME41755)	SD150-R100B99-1/16	69014192228
4 x 1/2 x 1-1/4 Insert Length 1/4" (ME58734)	SD180-R100B99-1/8	69014191629
6 x 3/4 x 1-1/4 Insert Length 3/8" (ME48666)	ASD150-R75B99-1/16	69014191628
<b>Type 12V9 Dish – cBN</b>		
4 x 1/2 x 1-1/4 Insert Length 1/4" (ME58734)	CB120-TB99-1/8	69014192229
6 x 3/4 x 1-1/4 Insert Length 3/8" (ME48666)	CB120-TB99-1/8	69014192020
	CB150-TB99-1/8	69014192784
<b>Type 15V9 Dish – Diamond</b>		
6 x 3/4 x 1-1/4 Insert Length 3/8"	SD150-R100B99-1/16	69014192230

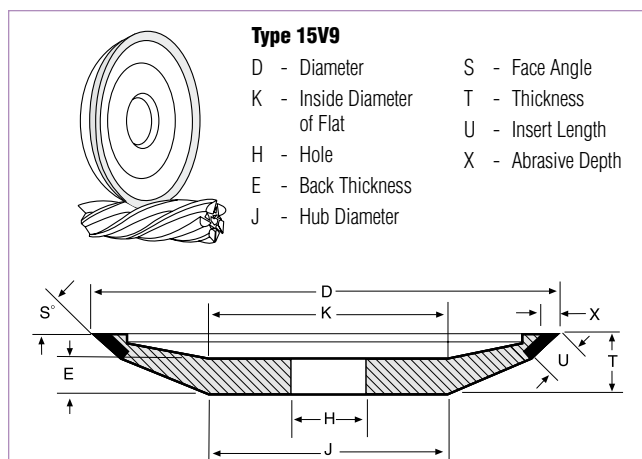
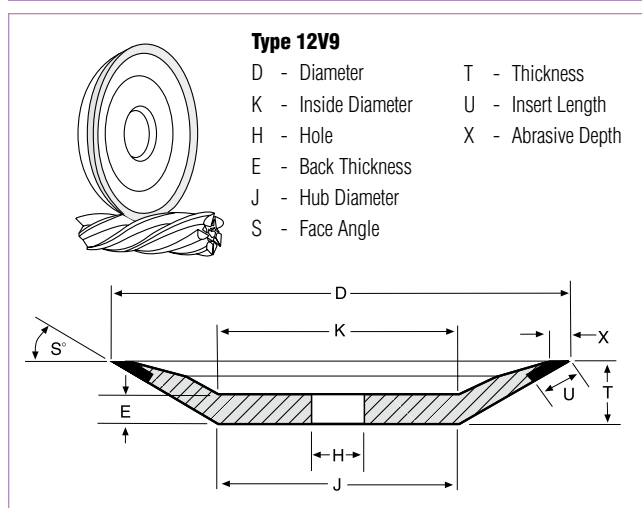
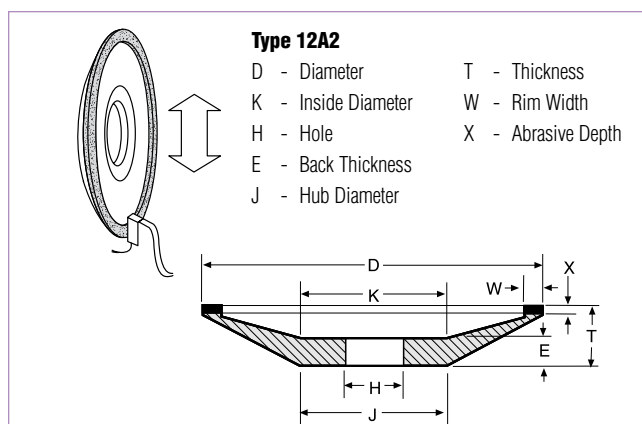
Standard Package = 1 wheel

Norton offers a comprehensive stock product selection to service most of your needs

– with the fastest delivery and lowest total cost.

Review this stock section first. If you can not find the specification you need:

- Then refer to the brief descriptions of our B99 Express and CNC lines (following this section)
- See the more in-depth B99 Express product availability in our "Diamond and cBN Superabrasives Standard Catalog" #8068 on [www.nortonabrasives.com](http://www.nortonabrasives.com) or contact your Norton representative for a complete listing of Norton made-to-order superabrasive products.



## Norton B99 Express Service

The Norton B99 Express service is designed to offer you up to 65,000 made-to-order choices of resin bond Diamond and cBN wheels. Almost all popular sizes are offered. 12" and less diameter B99 Express wheels will ship in two weeks or less from the date the order is received by Norton. 14" and larger wheels are available at standard lead-times.

See the more in-depth B99 Express product availability in our "Diamond and cBN Superabrasives Standard Catalog" #8068 on [www.nortonabrasives.com](http://www.nortonabrasives.com) or contact your Norton representative for a complete listing of Norton made-to-order superabrasive products.



65,000+ made-to-order resin products; 25 wheel shapes, with one- and two-week lead-times for 12" and less diameter wheels. 14" and larger wheels and 80 grit and coarser wheels are available with standard made-to-order lead-times. If you do not find the resin specification and/or shape you need in our stock offering, you will most likely find it in our B99 Express made-to-order offering.

#### Applications:

#### Norton B99E Diamond Wheels

- Sharpening cemented carbide cutting tools
- Cutting-off carbide rod
- Grinding or cutting-off non-metallic materials such as ceramics or glass
- Surface grinding dies
- O.D. grinding spray coatings

#### Norton B99E cBN Wheels

- Sharpening high-speed (M2, D2, T15, etc.) steel cutting tools
- Surface and ID grinding hardened steel die components
- Precision grinding steel parts Rc 50 or harder

## B99 EXPRESS MADE-TO-ORDER DIAMOND AND CBN RESIN BOND WHEELS

#### FEATURES

- Superior diamond and cBN abrasives in durable resin bond systems
- Thousands of abrasive, grit, grade, concentration, and bond combinations
- Made in our state-of the art, USA, ISO-certified facilities
- Priced as stock products
- Two-week (and less) lead-times

#### BENEFITS

- These quality wheels will get your job done
- There is a B99 Express wheel for almost every resin bond application
- Exceptional quality and performance
- Excellent performance/price ratio
- Minimal time from order to production floor

### HOW TO SELECT B99 EXPRESS MADE-TO-ORDER DIAMOND WHEELS

Select			Select desired wheel shape
<b>WHEEL SHAPE</b>			
<b>WHEEL DIMENSIONS</b>	D x T x H	Select Diameter x Thickness x Hole from the availability tables. Use blueprint numbers where available.	
<b>ABRASIVE</b>	ASD	Armored diamond; most durable. Versatile: can be used wet or dry. ASD should be used when carbide and steel are ground in the same operation.	Select the abrasive based on horsepower, grinding wet or dry, and contact with steel.
	SD	Free cutting standard. Can be used wet or dry; should be used on low horsepower (3/4 hp or less) machines.	
<b>GRIT SIZE</b>	80	Roughing	Select the grit size based on finish and material removal rate required.
	100	Roughing. The most common grit size for roughing operations.	
	120	For roughing where 100 is too coarse. Also for cut-off applications.	
	150	Medium stock removal plus good finish. For combined roughing and finishing applications.	Note: Standard made-to-order lead-times apply to 80 grit and coarser wheels.
	180	Medium stock removal plus good finish. To improve finish.	
	220	Finishing	
	320	Finishing	
<b>GRADE</b>	400	Fine finishing	
	R	Resin bond standard	The hardness of the wheel
	50	Shape 2A2T only. For broad area of contact grinding.	Select the concentration based on grinding wet or dry, material removal rates, and form holding requirements.
<b>CONCENTRATION</b>	75	Norton standard. Freer cutting than 100 grit and the most economical for dry grinding with ASD diamond.	
	100	Very durable. Recommended under flood coolant conditions. For use with 220 grit or finer, when durability is required. Also for cut-off applications.	
<b>BOND</b>	125	Improved form holding. Used with B99EF bond only for form holding in high-volume, high-pressure coolant applications. Used with ASD abrasive.	
	B99E	Norton standard pre-engineered resin bond. Versatile enough to be used wet or dry on most tool making or resharpening applications as well as for grinding non-metallic materials such as ceramics or glass. Available in all shapes.	Select the bond based on the material being ground and grinding application.
	B99EF	Improved form holding. More durable than B99E. Improved heat dissipation in wet or dry applications. Available in wheel shapes 1V1, 1B1, 1E1, 1EE1, 1F1 and 1FF1.	
<b>ABRASIVE DEPTH</b>	1/16		Usable abrasive
	1/8		
	1/4		
	1/2		

### HOW TO SELECT B99 EXPRESS MADE-TO-ORDER CBN WHEELS

Select			
<b>WHEEL SHAPE</b>			Select desired wheel shape
<b>WHEEL DIMENSIONS</b>	D x T x H	Select Diameter x Thickness x Hole from the availability tables. Use blueprint numbers where available.	Note: Standard made-to-order lead-times apply to 14" and larger wheels.
<b>ABRASIVE</b>	CB	Norton standard coated cBN (cubic Boron Nitride). Optimized for high performance in resin bond systems.	Select Norton cBN abrasive to grind hard tool steels such as A2, D2, T15, etc., and tough alloy steels.
<b>GRIT SIZE</b>	100	Roughing. The most common grit size for roughing operations.	Select the grit size based on finish and material removal rate required.  Note: Standard made-to-order lead-times apply to 80 grit and coarser wheels.
	120	For roughing where 100 is too coarse. Also for cut-off applications.	
	150	Medium stock removal plus good finish. For combined roughing and finishing applications.	
	180	Medium stock removal plus good finish. To improve finish.	
	220	Finishing	
	320	Finishing	
<b>GRADE</b>	400	Fine finishing	The hardness of the wheel
	T	Norton standard. Approximately 75 concentration, T is the first choice for lower horsepower equipment or wide area of contact between the wheel and the workpiece. Ideal for reshaping applications with 11V9, 12A2, 4A2P, and 15V9 wheel shapes when dry grinding.	
	W	Very durable. Approximately 100 concentration, W is recommended for high volume coolant operations: flute grinding from solid, flute polishing, surface, and cylindrical grinding.	
<b>BOND</b>	Z	Form holding. Approximately 125 concentration, Z grade is extremely durable and is recommended where long life or form holding is required in high-volume, high-pressure coolant applications. Used with B99EF bond only.	Select the bond depending on the type of grinding application.
	B99E	Norton standard resin bond. Pre-engineered for optimal performance with cBN abrasive. Available in all shapes.	
	B99EF	Improved form holding. More durable than B99E. Improved heat dissipation in wet or dry applications. Available in wheel shapes 1V1, 1B1, 1E1, 1EE1, 1F1 and 1FF1.	
<b>ABRASIVE DEPTH</b>	1/16		Usable abrasive
	1/8		
	1/4		
	1/2		

See the more in-depth B99 Express product availability in our "Diamond and cBN Superabrasives Standard Catalog" #8068 on [www.nortonabrasives.com](http://www.nortonabrasives.com) or contact your Norton representative for a complete listing of Norton made-to-order superabrasive products.

### TECH TIP

#### Diamond Grinds:

In general, diamond is used to grind non-ferrous materials, because of an adverse reaction between diamond and iron.

- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Stone
- Abrasives
- Electronic components and materials

#### cBN Grinds:

cBN is used to grind ferrous materials.

- High-speed tool steels
- Die steels
- Hardened carbon steels
- Alloy steels
- Aerospace alloys
- Hardened stainless steel
- Abrasion-resistant ferrous materials



It is the user's responsibility to refer to and comply with ANSI B7.1



# CNC DIAMOND / CBN WHEELS



These superior, pre-engineered wheels have been specifically developed to meet the demanding needs of precision cutting tool manufactures as well as re-sharpeners. The use of the highest quality diamond and cBN abrasives matched to superior high temperature bond systems, guarantees high performing wheels. These wheels are manufactured under the strictest quality control protocols ensuring the same, consistent, high-performing product. Cutting tool manufactures who use these wheels report much improved dimensional accuracy and superior cutting edges.

This product offering provides wheel sizes for most CNC machines and wheels shapes to produce the required cutting tool geometries. If you do not find a wheel in this offering to suit your specific needs, a custom-made wheel can be provided.

Applications: CNC cutting tool manufacturing and reshaping: fluting, end fluting, gashing, and OD relief

## NORTON PARADIGM DIAMOND WHEELS

FOR CNC WC ROUND TOOL MANUFACTURING



## NORTON G-FORCE CBN WHEELS

FOR CNC HSS ROUND TOOL MANUFACTURING

### FEATURES & BENEFITS

- Truable: online and offline truable, lights-out mfg. for maximum productivity
- Wear and load resistant: better control over core growth, and superior grinding on 6% to 12% cobalt
- High grain retention; uniform structure and high G-ratio; up to 2.5 times longer life and 30% higher MRR than existing superabrasive wheels
- Low specific cutting energy for faster grinding with lower power draw and less burn

## NORTON G-FORCE AND UNIVEL POLYIMIDE DIAMOND WHEELS

BETTER CHOICE FOR CNC WC ROUND TOOL MANUFACTURING



### FEATURES & BENEFITS

#### UNIVEL AND G-FORCE PREMIUM PRODUCTS

- Polyimide bond systems provide superior form-holding and lower-power requirements compared to premium competitive wheels, reducing frequency of dresses, and decreasing chances of burn and heat damage to the part

#### G-FORCE

- Unique bond technology excels on round, carbide and steel tools; abrasive is strongly held – and wear-resistant
- Self-dressing; maintains a consistently sharp grinding edge which allows for lights-out manufacturing
- Excellent depth of cut, traverse rates, and form holding; reduces total grinding costs by 30% or more

## WINTER AND NORTON CNC WHEELS

GOOD CHOICE FOR SHORT RUNS AND FREQUENT GEOMETRY CHANGES



### FEATURES & BENEFITS

#### NORTON/WINTER

- A price competitive alternative to Paradigm, Univel, and G-Force wheels; ideal for short-run manufacturing jobs where frequent wheel profile changes are required, and premium wheels can not be cost-justified
- Can be reshaped for numerous short runs; great performance/price ratio

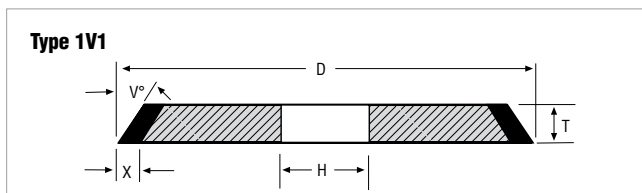
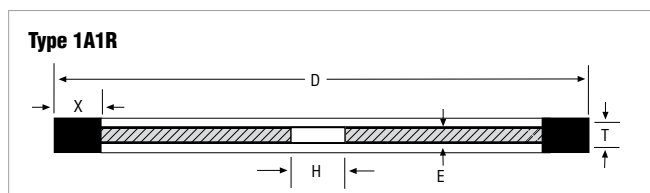
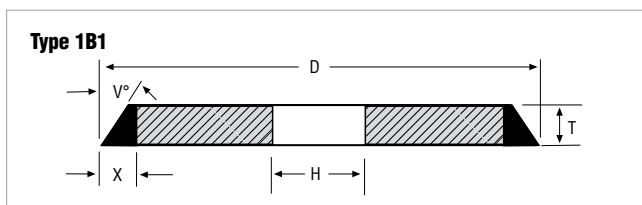
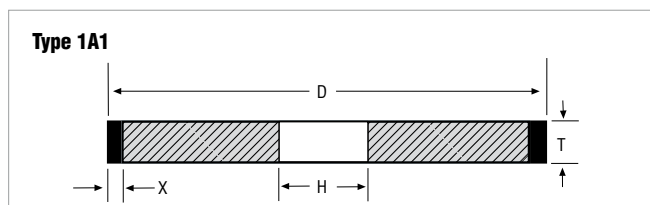
#### NORTON

- Ideal for reshaping and short-run manufacturing operations; competitively-priced while providing premium performance
- Free cutting phenolic specifications formulated for oil coolants grind with less heat and pressure – eliminating burning
- Consistent wheel-to-wheel performance for reduced cycle times, less dressing = longer wheel life
- Precision tolerances; repeatable part geometry

### Diamond CNC Wheels

TIER: <b>BEST</b>					<b>BETTER</b>			<b>GOOD</b>		
TRADENAME: <b>NORTON PARADIGM</b>					<b>NORTON G-FORCE/UNIVEL</b>			<b>WINTER AND NORTON</b>		
SIZE (D x T x H) U, W	ANGLE V	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X	PART #
<b>TYPE 1A1 – Diamond Flute</b>										
4 x 1/2 x 1-1/4		SD320-D168-P100C	3/8	07958783055*	AD320-UP061 G-Force	1/4	60157663909	A4D180-R115B610	1/4	69014118200
								D220-C100-K+925	6mm	60157623605
5 x 3/8 x 1-1/4		SD320-D168-P100C	1/2	07958783058*	AD320-UP061 G-Force	1/2	60157668409	A4D220-R115B610	1/2	69014118255
								D220-C100-K+925	6mm	60157625123*
5 x 1/2 x 1-1/4		SD320-C176-P100C	1/2	07958783061	AD320-UP061 G-Force	1/2	60157662240	A4D180-R115B610	1/2	69014118202
								D220-C100-K+925	6mm	60157613099
5 x 5/8 x 1-1/4		SD320-C176-P100C	1/2	07958783063*	AD320-UP061 G-Force	1/2	60157663486*	A4D180-R115B610	1/2	69014118203*
6 x 1/2 x 1-1/4		SD320-C176-P100C	1/2	07958783064	AD320-UP061 G-Force	1/4	60157682133*	A4D180-R115B610	1/4	69014118216*
								D280-N100K+1421	6mm	60157624551*
<b>TYPE 1A1 – Diamond Polish</b>										
5 x 1/2 x 1-1/4					80D1000-100UP731 Univel	1/2	07958784316*			
<b>TYPE 1A1 – Diamond Relief</b>										
6 x 1/2 x 1-1/4		SD320-E168-P100C	1/2	07958783073*	AD320-UP892 G-Force	1/2	69014117684*	A4D180-R115B610	1/2	69014118217*
								D280-N100-K+1421	6mm	60157624551
<b>TYPE 1A1RN – Diamond Flute</b>										
5 x 3/8 x 1-1/4		SD320-D168-P100C	1/2	07958783067*	AD320-UP061 G-Force	1/2	60157663501	A4D180-R115B610	1/2	69014118201
								D220-C100-K+925	6mm	60157625123
5 x 1/2 x 1-1/4					AD220-UP061 G-Force	1/2	66260322280			
5 x 5/8 x 1-1/4					AD220-UP061 G-Force	1/2	60157664141			
<b>TYPE 1B1 – Diamond Flute</b>										
4 x 3/8 x 1-1/4	V=20°	SD320-D168-P100C	3/8	07958783054						
<b>TYPE 1B1 – Diamond Flute/Gash</b>										
5 x 3/8 x 1-1/4	V=45°	SD320-E168-P100C	1/2	07958783065						
<b>TYPE 1B1 – Diamond Gash</b>										
5 x 1/2 x 1-1/4	V= 45°	SD320-E168-P100C	1/4	07958783062*						
5 x 1/2 x 1-1/4	V=60°	SD320-E168-P100C	1/4	07958783060*						
5 x 1/2 x 1-1/4	V=30°	SD320-E168-P100C	3/4	07958783070*				A4D320-R115B610	3/4	69014118207
								D220-C100-K+925	6mm	60157613112
5 x 1/2 x 1-1/4	V=45°	SD320-E168-P100C	3/4	07958783068*	AD320-UP531 G-Force	3/4	66260329603	A4D320-R115B610	3/4	69014118208
								D220-C100-K+925	6mm	60157623673
<b>TYPE 1V1 – Diamond Flute</b>										
4 x 3/8 x 1-1/4	V=20°				AD320-UP061 G-Force	1/4	66260316591	A4D180-R115B610	1/4	69014118263
5 x 1/2 x 1-1/4	V=10°	SD320-C176-P100C	1/2	07958783071*	AD320-UP061 G-Force	1/2	66260116723	A4D180-R115B610	1/2	69014118204
5 x 1/2 x 1-1/4	V=20°	SD320-C176-P100C	1/2	07958783074	AD320-UP061 G-Force	1/2	60157693843	A4D180-R115B610	1/2	69014118205
								D220-C100-K+925	6mm	60157623953
5 x 1/2 x 1-1/4	V=30°	SD320-C176-P100C	1/2	07958783085*	AD320-UP671 G-Force	1/2	60157693841	A4D180-R115B610	1/2	69014118206

\* Non-Stock: Please contact your Norton representative for current lead-times.  
All holes (bores) are machined to (H7) class fit.

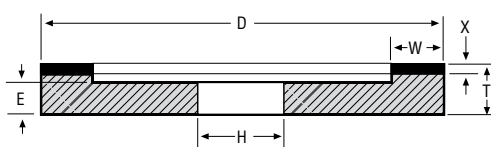


### Diamond CNC Wheels

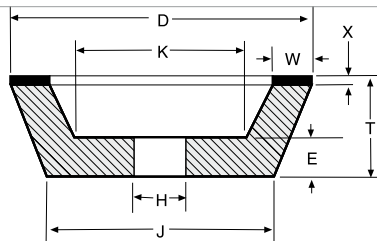
TIER: <b>BEST</b>					BETTER			GOOD		
TRADENAME: <b>NORTON PARADIGM</b>					<b>NORTON G-FORCE/UNIVEL</b>			<b>WINTER AND NORTON</b>		
SIZE (D x T x H) U, W	ANGLE V	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X	PART #
<b>TYPE 1V1 – Diamond Flute/Gash</b>										
5 x 3/8 x 1-1/4	V=45°				AD320-UP531 G-Force	1/2	60157696562	A4D320-R115B610	1/2	69014118257
<b>TYPE 1V1 – Diamond Gash</b>										
5 x 1/2 x 1-1/4	V= 45°				AD320-UP531 G-Force	1/4	66260329604	A4D320-R115B610	1/4	69014118209
5 x 1/2 x 1-1/4	V=60°				AD320-UR331 Univiel	1/4	66260329469	A4D320-R115B610	1/4	69014118210
<b>TYPE 6A2 – Diamond Point</b>										
4 x 1-1/4 x 1-1/4 W=1/4		SD320-E168-P100C	1/4	07958783057*	AD320-UP251 G-Force	1/4	69014118644*	ASD320C-R100B56	1/4	69014118219*
<b>TYPE 11A2 – Diamond Relief</b>										
3 x 1-1/4 x 1-1/4 W=1/4					10D320-NB100U Univiel	1/4	60157692199			
4 x 1-1/4 x 1-1/4 W=1/4		SD320-E168-P100C	1/4	07958783059*	AD320-UP701 G-Force	1/4	60157696315	ASDC320-R100B80	1/4	69014118213
4 x 1-1/4 x 1-1/4 W=1/4					AD320-UP561 G-Force	1/4	69014118479*	ASDC320-R100B80	1/4	69014118265*
<b>TYPE 11V5 – Diamond Relief</b>										
4 x 1-1/4 x 1-1/4 V=30° W=1/4					AD320-UP561 G-Force	1/4	69014117838	ASDC320-R100B80	1/4	69014118211
4 x 1-1/4 x 1-1/4 V=10° W=3/8					AD320-UP561 G-Force	1/4	69014117812	ASDC320-R100B80	1/4	69014118212
<b>TYPE 11V9 – Diamond Relief</b>										
3-3/4 x 1-1/2 x 1-1/4 U=3/8					10D240-PB125-U Univiel	1/8	66260322134	ASDC320-R100B80	1/8	69014118259
5 x 1-3/4 x 1-1/4 U=5/8					10D240-PB125-U Univiel	1/8	66260118300	ASDC320-R100B80 D280-R100-K+4821	1/8 3mm	69014118215 60157612443
<b>TYPE 12V9 – Diamond Relief</b>										
4 x 3/4 x 1-1/4 U=3/8					AD320-UP531 G-Force	1/8	66260127950*	ASDC320-R100B80 D280-R100K+4821	1/8 3mm	69014118221* 60157612442*
5 x 3/4 x 1-1/4 U=1/2					AD320-UP531 G-Force	1/8	66260127911*	ASDC320-R100B80	1/8	69014118222*

\* Non-Stock: Please contact your Norton representative for current lead-times.  
All holes (bores) are machined to (H7) class fit.

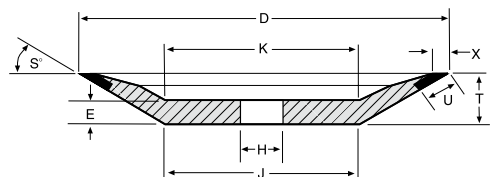
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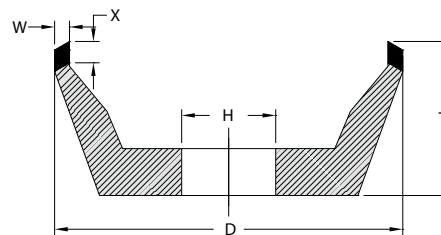
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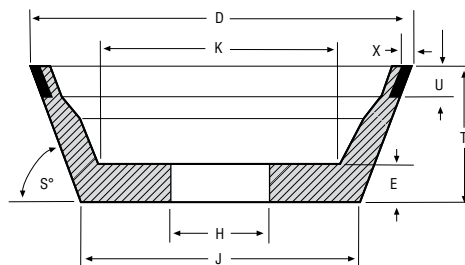
**Type 12V9**



**Type 11V5**



**Type 11V9**



### cBN CNC Wheels

TIER: <b>BEST</b>				GOOD		
TRADENAME: <b>NORTON G-FORCE/UNIVEL</b>				<b>WINTER AND NORTON</b>		
SIZE (D x T x H) U, W	ANGLE V	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X
<b>TYPE 1A1 – cBN Flute</b>						
4 x 1/2 x 1-1/4		BX220-UP241 G-Force	1/4	60157669935*	BAM180-WBXD3037	1/4
					B220-V240-KSS920	6mm
5 x 3/8 x 1-1/4		BX220-UP241 G-Force	1/2	69014118436*	BAM320C-WBXD3037	1/2
5 x 1/2 x 1-1/4		BX220-UP241 G-Force	1/2	60157670869*	BAM180-WBXD3037	1/2
					B220-V240-KSS920	6mm
5 x 5/8 x 1-1/4		BX220-UP241 G-Force	1/2	66260329385*	BAM180-WBXD3037	1/2
6 x 1/4 x 1-1/4		BX240-UP241 G-Force	1/4	69014118435*	BAM180-WBXD3037	1/4
<b>TYPE 1A1 – cBN Relief</b>						
6 x 1/2 x 1-1/4		BX320-UP892 G-Force	1/2	69014117679*	BAM180-WBXD3037	1/2
<b>TYPE 1A1RN – cBN Flute</b>						
5 x 1/4 x 1-1/4		BX150-UP241 G-Force	1/2	07958773216*		
5 x 3/8 x 1-1/4		BX150-UP241 G-Force	1/2	07958773217*		
5 x 1/2 x 1-1/4		BX150-UP241 G-Force	1/2	69014141373*		
<b>TYPE 1B1 – cBN Gash</b>						
5 x 1/2 x 1-1/4 V=30°		BX320-UP701 G-Force	3/4	66260329388*	BAM320C-WBXD3037	3/4
5 x 1/2 x 1-1/4 V=45°		BX320-UP531 G-Force	3/4	66260329391*	BAM320C-WBXD3037	3/4
					B220-V240-KSS920	6mm
<b>TYPE 1V1 – cBN Flute</b>						
4 x 3/8 x 1-1/4 V=20°		BX220-UP241 G-Force	1/4	69014118342*	BAM180C-WBXD3037	1/4
5 x 1/2 x 1-1/4 V=20°		BX220-UP241 G-Force	1/2	60157680042*	BAM180-WBXD3037	1/2
					B220-V240-KSS920	6mm
5 x 1/2 x 1-1/4 V=30°		BX220-UP241 G-Force	1/2	60157691380*	BAM180-WBXD3037	1/2
5 x 1/2 x 1-1/4 V=10°		BX220-UP241 G-Force	1/2	66260119876*	BAM180-WBXD3037	1/2
<b>TYPE 1V1 – cBN Flute/Gash</b>						
5 x 3/8 x 1-1/4 V=45°		BX220-UP531 G-Force	1/2	60157697699*	BAM320C-WBXD3037	1/4
					B220-V240-KSS920	6mm
<b>TYPE 1V1 – cBN Gash</b>						
5 x 1/2 x 1-1/4 V=60°		BX320-UR331 Univiel	1/4	66260329461*	BAM320C-WBXD3037	1/4
5 x 1/2 x 1-1/4 V=45°		BX320-UP531 G-Force	1/4	66260329275*	BAM320C-WBXD3037	1/4
					B220-V240-KSS920	6mm
<b>TYPE 6A2 – cBN Point</b>						
4 x 1-1/4 x 1-1/4 W=1/4		BX320-UP241 G-Force	1/4	69014118543*	CB320C-WBB	1/4
5 x 1-1/4 x 1-1/4 W=1/2		BX320-UP241 G-Force	1/4	69014118447*	CB320C-WBB	1/4

\* Non-Stock: Please contact your Norton representative for current lead-times.  
All holes (bores) are machined to (H7) class fit.

### TECH TIP

#### Diamond Grinds:

In general, diamond is used to grind non-ferrous materials, because it reacts with iron.

- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Stone
- Abrasives
- Electronic components and materials

#### cBN Grinds:

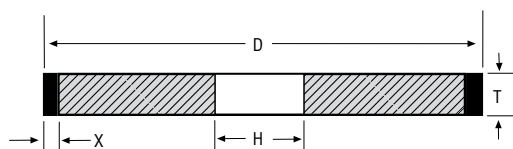
cBN is used to grind ferrous materials.

- High-speed tool steels
- Die steels
- Hardened carbon steels
- Alloy steels
- Aerospace alloys
- Hardened stainless steel
- Abrasion-resistant ferrous materials

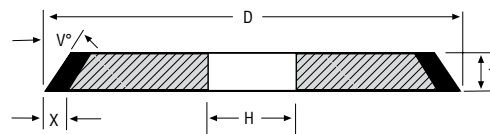


It is the user's responsibility to refer to and comply with ANSI B7.1

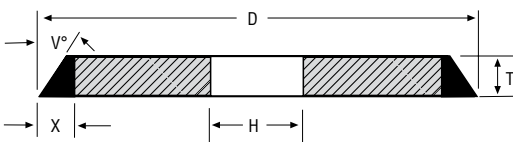
**Type 1A1**



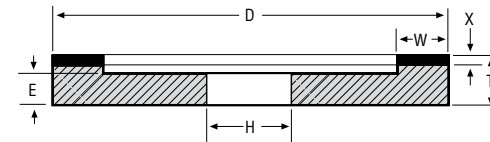
**Type 1V1**



**Type 1B1**



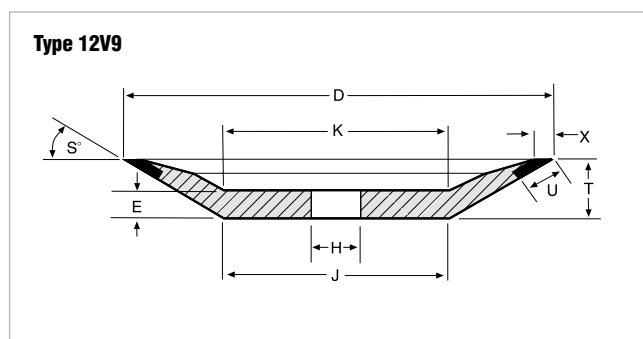
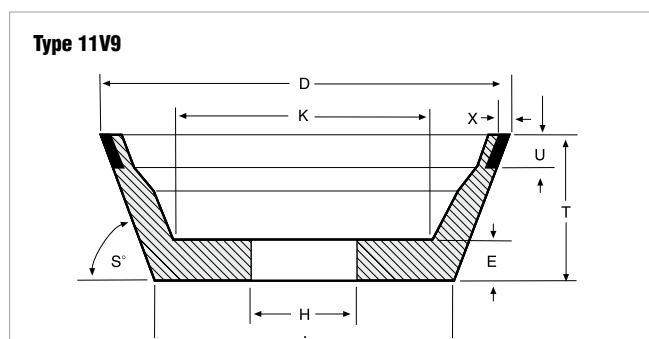
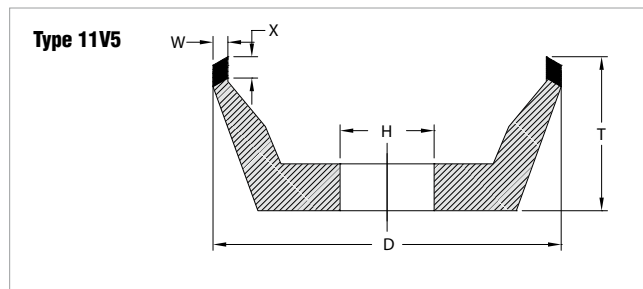
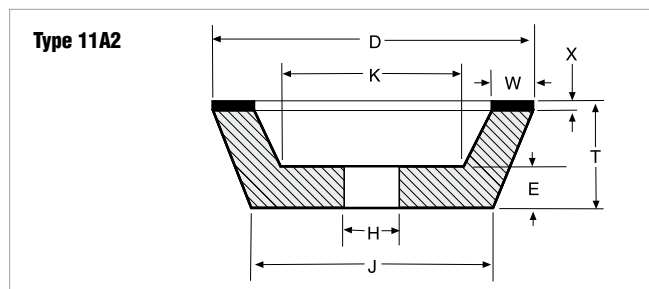
**Type 6A2**



## cBN CNC Wheels

TIER: <b>BEST</b>					GOOD		
TRADENAME: <b>NORTON G-FORCE/UNIVEL</b>					<b>WINTER AND NORTON</b>		
SIZE (D x T x H) U, W	ANGLE V	SPECIFICATION	ABR. DEPTH X	PART #	SPECIFICATION	ABR. DEPTH X	PART #
<b>TYPE 11A2 – cBN Relief</b>							
5 x 1-1/2 x 2 W=1/4		BX320-UP531 G-Force	1/4	69014118406*	BAM220-WBE	1/4	69014118254*
<b>TYPE 11A2 – cBN Relief</b>							
4 x 1-1/4 x 1-1/4 W=1/4		BX320-UP531 G-Force	1/4	69014118445*	BAM220-WBE	1/4	69014118266*
<b>TYPE 11V5 – cBN Relief</b>							
4 x 1-1/4 x 1-1/4 V=30° W=1/4		BX320-UP701 G-Force	1/4	69014117833*	BAM220-WBE B220-J240-KSS63Y	1/4 6mm	69014118233* 60157623563
4 x 1-1/4 x 1-1/4 V=10° W=3/8		BX320-UP701 G-Force	1/4	69014117820*	BAM220-WBE	1/4	69014118234*
<b>TYPE 11V9 – cBN Relief</b>							
3-3/4 x 1-1/2 x 1-1/4 U=3/8		90B240-PB125-U Univel	1/8	69014118345*	BAM220-WBE	1/8	69014118260*
<b>TYPE 11V9 – cBN Relief</b>							
3-3/4 x 1-1/2 x 1-1/4 U=3/8		90B240-PB125-U Univel	1/8	69014118029*	BAM220-WBE	1/8	69014118235*
5 x 1-3/4 x 2 U=3/8		90B240-PB125-U Univel	1/8	69014118043*	BAM220-WBE	1/8	69014118248*
<b>TYPE 12V9 – cBN Relief</b>							
4 x 3/4 x 1-1/4 U=3/8		BX320-UP531 G-Force	1/8	69014118470*	BAM220-WBE	1/8	69014118241*
5 x 3/4 x 1-1/4 U=1/2		BX320-UP531 G-Force	1/8	69014118441*	BAM220-WBE	1/8	69014118242*

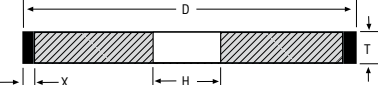
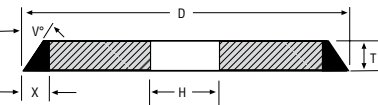
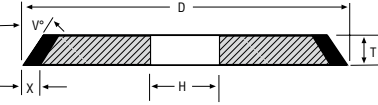
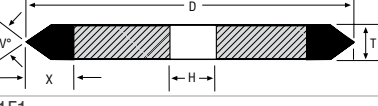
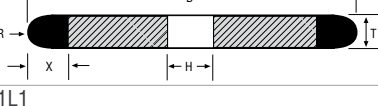
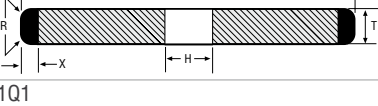
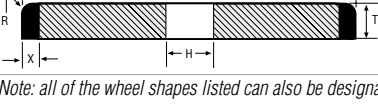
\* Non-Stock: Please contact your Norton representative for current lead-times.  
All holes (bores) are machined to (H7) class fit.





### Norton CNC Express Blank Stock for Made-To-Order Wheels

Blank Stock Inventory to be altered to your specifications within 5-10 days

Wheel Shape	Tool Material	Application	G-Force Specification AD = Diamond BX = cBN	Diameter D	THK. T	Hole H	Abr. Depth X	Angle (V) or Radius (R)
	WC	Fluting	AD320-UP061E	5	7/16" min. to 1/2" max.	1/2" min. to 2" max.	1/2"	—
	HSS	Fluting	BX320-UP241E	5				
	WC	Fluting	AD320-UP061E	6				
	WC	Fluting	AD320-UP061E	5				1 deg. - 30 deg.
	WC	Fluting	AD320-UP061E	6				
	HSS	Fluting	BX320-UP241E	5				
	WC	Gashing	AD320-UP531E	5				1 deg. - 55 deg.
	HSS	Gashing	BX320-UP531E	5				
	WC	Fluting	AD320-UP061E	5				90 deg. to 178 deg.
	HSS	Fluting	BX320-UP241E	5				
	WC	Fluting	AD320-UP061E	6				
	WC	Fluting	AD320-UP061E	5				T/2 or greater
	HSS	Fluting	BX320-UP241E	5				
	WC	Fluting	AD320-UP061E	6				
	WC	Fluting	AD320-UP061E	5				Less than T/2
	HSS	Fluting	BX320-UP241E	5				
	WC	Fluting	AD320-UP061E	6				
	WC	Fluting	AD320-UP061E	5				Less than T/2
	HSS	Fluting	BX320-UP241E	5				
	WC	Fluting	AD320-UP061E	6				

Note: all of the wheel shapes listed can also be designated to have .010 relief(s) 1 side, or 2 sides on 1A1P and 1A1RN wheels.

### CNC Express Wheel Service for WC and HSS Tools

- G-Force Diamond and cBN wheels altered from blank stock
- Available for a large range of special geometries
- 2-week standard lead time for first-time orders (new part numbers)
- 1-week lead-time for repeat orders (existing part numbers)

#### How To Request An Express Wheel Quote And Order

Refer to this chart and choose:

- Wheel shape by application
- Diameter "D"
- Thickness "T" from the range of 7/16" to 1/2"
- Hole "H" from the range of 1/2" to 2"
- Angle ("V"), Radius ("R") dimensions from the range provided
- Abrasive depth "X" will always be 1/2" for these CNC wheels
- Specifications required for material and application
- NOTE: Please remember to include the "E" at the end of the specification to indicate Express lead-time is required



## Brake Controlled Truing Devices

Designed for truing diamond and cBN wheels rapidly, effectively, and with a minimum of superabrasive loss. Recommended for wheels up to 12" in diameter.

### Applications:

Truing straight, cup and cylinder wheels:

- Straight wheels, used on chip breaker, tool and cutter, surface, and cylindrical grinding machines
- Cup wheels, used on vertical spindle surface grinders
- Internal grinding wheels
- Cut-off wheels

## Non-Stock 4597 Brake Controlled Truing Device

The 4597 is engineered for heavier and more frequent truing applications. The adjustable speeds allow for varying conditions (between 1050 and 1500 SFPM). It comes complete with a reusable case, "True to Form, Dress to Cut" training video, two 3" 38A60-M8VBE\* vitrified wheels, Truing Device Tips book and a dressing stick. It can be rebuilt using the 4597RK Rebuild Kit.

Worn #4597 Brake Controlled Truing Devices (UPC 66260195350) in need of reconditioning (beyond new shoes and springs) may be returned to be rebuilt. Contact Customer Service for return instructions and quote.

## Stock 3597 Pacesetter Brake Controlled Truing Device

The Pacesetter model is ideal for light-duty use. The pre-set brake speed requires no adjusting. This model includes one 3" 38A60-M8VBE\* vitrified wheel and can be rebuilt using the 3597RK Rebuild Kit.

## Stock 4597RK and 3597RK Rebuild Kits

The truing devices can be rebuilt with these kits, consisting of 3 brake shoes, 3 springs, and 3 screws.

ITEM	TIER: BETTER		GOOD	
	PRODUCT NO.	PART #	PRODUCT NO.	PART #
<b>Truing Devices</b>				
4597 Brake Controlled Truing Device	4597	66260195350*		
3597 Pacesetter Brake-Controlled Truing Device	3597	66260135578		
<b>Truing Device Rebuild Kits</b>				
4597 Rebuild Kit	4597RK	66260195351		
3597 Pacesetter Rebuild Kit	3597RK	66260135595		
<b>Replacement Wheels</b>				
3 x 1 x 1/2			38A60-MVBE	66243529145
			38A80-MVBE	66243529146
			37C60-MVK	66243529166
			37C80-HVK	66243529170
			37C80-MVK	66243529171
			37C100-HVK	66243529172
			37C100-MVK	66243529070

\*Non-Stock: Please contact your Norton representative for current lead-times.

## SPEC CHECK

Truing Diamond and cBN Wheels

SUPERABRASIVE WHEEL	TRUING WHEEL SPECIFICATION
<b>Resin and Vitrified Bond</b>	
80, 100, and 120 grits	38A60-MVBE, 37C60-MVK
150, 180, and 220 grits	38A80-MVBE, 37C80-MVK
320 and finer grits	37C100-HVK
<b>Metal Bond</b>	
80, 100, and 120 grits	38A60-MVBE
150, 180, and 220 grits	38A80-MVBE
240 and finer grits	37C80-HVK

## TECH TIP

- Prior to truing the wheel, run a wax crayon over the wheel face. Important: do NOT use any liquid-based ink on superabrasive wheels.
- Any crayon left on the wheel face after truing will reveal untrued areas.
- Indicate the superabrasive wheel runout before starting... usually within .001" to .002", to minimize wheel loss.
- Mount the device spindle parallel to the wheel spindle to ensure proper straight face truing.
- For cup-shaped wheels, the device spindle will be mounted perpendicular to the wheel spindle.
- Always use the brake-controlled truing device dry.
- Bring the diamond/cBN wheel and the truing wheel together until they almost touch.

- Start the diamond/cBN wheel to normal speed; spin the truing wheel in the same direction at point of contact.
- Bring the two wheels together until they touch.
- Make sure the truing wheel is spinning at time of contact.
- Traverse the wheel back and forth at 30 to 60 inches/minute.
- Downfeed .0005" to .001" at the end of each traverse.
- At the end of truing, the diamond/cBN wheel should be smooth and in truth.
- Apply a dressing stick to sharpen the wheel.



It is the user's responsibility to refer to and comply with ANSI B7.1

### Diamond and cBN Wheel Mounting, Truing and Dressing Guide

To achieve the best results using Norton diamond and cBN products, the following steps for mounting, truing and dressing should be practiced:

#### MOUNTING – Putting Wheel on Machine Spindle

- Examine wheel flanges and spindle carefully.
- Be sure flanges' surfaces are clean and free of damage.
- Ensure that the mounting flanges are flat and of equal diameter, especially on wheels with rigid centers, such as vitrified bond wheels.
- Paper or plastic blotters should only be used when mounting superabrasive wheels with vitrified cores. Using paper or plastic blotters on any other core material might result in the wheel loosening during grinding.
- Inspect machine spindle for excessive runout.
  - » TIR (Total Indicated Runout) should be no greater than 0.0002".
- Mount wheel between hand-tightened flanges.
- Using a dial indicator, tap the wheel lightly with a rubber or wooden block to minimize runout to less than .0010".

#### TRUING – Making Wheel Round and Concentric with the Spindle Axis

- Prior to truing the wheel, run a wax crayon over the wheel face. Important: do not use any liquid-based ink on superabrasive wheels.
- Any crayon left on the wheel face after truing will reveal untrued areas.
- Indicate the superabrasive wheel runout before starting... usually within .001" to .002", to minimize wheel loss.
- Norton brake controlled truing devices are most commonly used to true Diamond and cBN straight, cup and cylinder wheels.
  - » Mount the device spindle parallel to the wheel spindle to ensure proper straight face truing.
  - » For cup wheels, the device spindle will be mounted perpendicular to the wheel spindle.
  - » Always use brake controlled truing device dry.

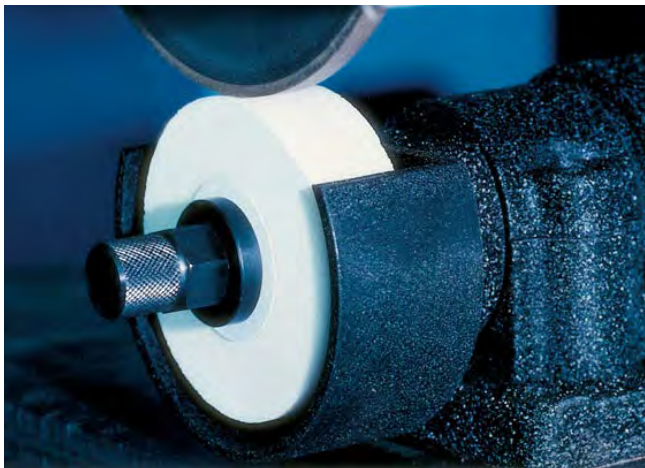
#### DRESSING – Opening the Face of a Trued Wheel

- Dressing the abrasive – a cleaning/sharpening process to expose sharp, free-cutting grit:
  - » For resinoid and vitrified bond wheels, the dressing stick should be one or two grit sizes finer than the abrasive in the diamond/cBN wheel – in a soft grade such as H or I.
  - » For metal bond wheels, choose a stick with the same grit or one grit coarser than the wheel abrasive – in a medium grade (K – N).
  - » See the "Dressing Stick" section for recommendations.

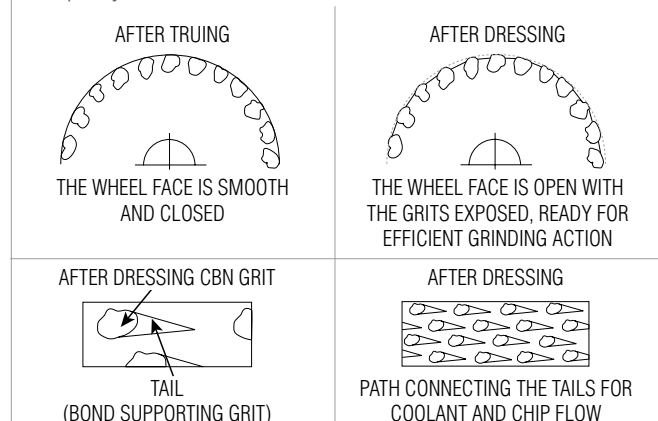
- Tighten flange securely and recheck with indicator.
- Allow a newly mounted wheel to operate for one full minute before grinding.
- The use of one permanent mounting for the life of the wheel is recommended whenever possible:
  - » If the grinding machine has a tapered spindle, mount each straight, flaring cup or dish wheel on a separate collet or adapter.
  - » When changing wheels the entire unit is removed, keeping the wheel in running truth.
  - » When needed again, the entire unit can be placed directly on the spindle or arbor, thereby eliminating the time and abrasive lost in retrueing.

- » Bring the diamond/cBN wheel and the truing wheel together until they almost touch.
- » Start the diamond/cBN wheel to normal speed; start the truing wheel in the same direction.
- » Bring the two wheels together until they touch.
- » Make sure the truing wheel is spinning at time of contact.
- » Traverse the wheel back and forth at 30 to 60 inches per minute.
- » Downfeed .0005" to .001" at the end of each traverse.
- » At the end of truing, the diamond/cBN wheel should be smooth and in truth.
- » Apply a dressing stick to sharpen the truing wheel.

- Dressing the core – The core material (the part of the wheel that holds and supports the abrasive-bearing section) should never contact the work piece during grinding; rubbing will generate excessive heat. As the abrasive section of a cup wheel wears, the core material might become exposed, necessitating dressing.
  - » Use a single-point carbide or steel tool to dress an exposed resaloy core.
  - » Clamp the tool in a vise.
  - » Direct the cutting edge accurately to leave a 1/16" of abrasive section exposed.



#### Properly Dressed Wheel Face





Regular use of properly selected dressing sticks will help you achieve maximum performance from your grinding wheels.

Applications: Truing, cleaning, and dressing diamond, cBN, and conventional abrasive grinding wheels  
 Grit range: 16 – 1200  
 Abrasive grain: Aluminum Oxide, Boron Nitride, Silicon Carbide  
 Shape: Square, rectangular, and round  
 Machine Used:



## GRINDING WHEEL-TO-PRODUCT RECOMMENDATION GUIDE

Selecting the appropriate dressing stick for each application depends on the wheel size, type, speed, specification, and grit size, as well as the workpiece material. Initial starting specifications are listed below. We recommend testing several sticks to find the best one for your application.

### VITRIFIED DRESSING STICKS

	Product	Specification
<b>Superabrasive Wheels - Resin and Vitrified Bond</b>		
- 80, 100, and 120 grits	Dressing Stick	38A150-HVBE
- 150, 180, and 220 grits	Dressing Stick	38A220-HVBE
- 320 and finer grits	Superfine Stick	NMVC400-J5VCA
<b>Superabrasive Wheels - Metal Bond</b>		
- 80, 100, and 120 grits	Dressing Stick	37C80-NV
- 150, 180, and 220 grits	Dressing Stick	37C150-KV
- 240 and finer grits	Dressing Stick	37C220-KV
<b>Conventional Vitrified Wheels - Vitrified Bond</b>		
- 46 grit and finer and M grade and softer	High Performance Dressing Stick	Norbide
	Conventional Dressing Stick	37C24-SVK



## Norbide High Performance Sticks

For offhand truing and dressing of medium grit, soft- and medium-grade vitrified grinding wheels. Norton Norbide sticks are the hardest sticks you can buy. Made from boron nitride, they are well suited for dressing tool and cutter wheels 10" and smaller, especially cup and saucer shapes.

TIER: **BETTER**  
 BRAND: Norton

SIZE (T x W x L*)	STD. PKG.	SPEC.	PART #
<b>High Performance Long Life Stick</b>			
1/4 x 1/2 x 3	5	Norbide	61463610148

\* Thickness x Width x Length

## TECH TIP

### Dressing Diamond and cBN Wheels

- Resin and Vitrified Bond Diamond, and cBN Wheels
  - » Choose a dressing stick one or two grit sizes finer than the abrasive in the wheel – in a soft grade (H or I).
- Metal Bond Diamond, and cBN Wheels
  - » Choose a stick the same grit size or one grit size coarser than the abrasive in the wheel – in a medium grade (K–M).



It is the user's responsibility to refer to and comply with ANSI B7.1

## Vitrified Dressing Sticks

### Aluminum Oxide (White)

For dressing and cleaning cBN wheels; these sticks also work well for diamond wheels.

### Silicon Carbide (Black)

Coarse grit (16 - 46) and hard-grade (R and harder) sticks are used for dressing conventional vitrified wheels. Finer grit and softer grades are used for dressing diamond wheels.

TIER: <b>BETTER</b>			
BRAND: Norton			
SIZE (T x W x L)	STD. PKG.	SPEC.	PART #
<b>Vitrified Dressing Sticks – Aluminum Oxide</b>			
3/8 x 3/4 x 4	5	38A150-IVBE	61463639635
1/2 x 1/2 x 4	5	38A220-HVBE	61463610555
1/2 x 1/2 x 6	5	38A150-IVBE	61463610303
	5	38A220-HVBE	61463610103
1/2 x 3/4 x 4	5	38A60-LVBE	61463610415
1/2 x 1 x 4	5	38A180-IVBE	61463699705
3/4 x 3/4 x 4	5	38A60-LVBE	61463610440
	5	38A80-MVBE	61463610362
	5	38A90-LV	61463639632
	5	38A150-HVBE	61463610291
	5	38A150-IVBE	61463610368
	5	38A220-HVBE	61463610290
3/4 x 3/4 x 8	5	38A220-HVBE	61463610280
1 x 1 x 6	5	38A150-HVBE	61463610405
	5	38A150-IVBE	61463610453
	5	38A220-HVBE	61463610406
1 x 1 x 8	5	38A120-IVBE	61463610390
	5	38A150-IVBE	61463610455

## Vitrified Superfine Sticks

For dressing superabrasive wheels.

TIER: <b>BETTER</b>			
BRAND: Norton			
SIZE (T x W x L)	STD. PKG.	SPEC.	PART #
<b>Vitrified Superfine Sticks – Aluminum Oxide</b>			
1 x 1 x 6	5	PCD Coarse - 400 grit	61463647865
	5	PCD Fine - 800 grit	61463647867
1 x 1 x 8	5	NSA320-H8V	61463610597
<b>Vitrified Superfine Sticks – Silicon Carbide</b>			
1/2 x 1/2 x 6	5	NMVC320-J5VCA	61463610599
	5	NMVC400-J5VCA	61463650324
1 x 1 x 6	5	NMVC320-J5VCA	61463610605
	5	NMVC400-J5VCA	61463650450

## Offhand Grinding Wheel Dressing Stick and Holder

This convenient metal holder is widely used by mechanics and foundry-men for truing, dressing and changing the face of the wheel. The JT246 dressing stick – an extra coarse grit silicon carbide for dressing conventional vitrified wheels – is firmly held and adjusted by the knurled control.



TIER: <b>BETTER</b>				
BRAND: Norton				
SIZE (D x L)	SPEC.	STD. PKG.	PRODUCT #	PART #
<b>Offhand Grinding Wheel Dressing Stick and Holder</b>				
1/2 x 6 Round	Silicon Carbide Extra Coarse Grit Round Dressing Stick	5	JT246	61463687900
10 Overall	Dressing Stick Holder	5	H6	61463687895



## Rubber Finishing Sticks

These sticks are used for manual or mechanical honing on machines where they are mounted in holders or fixtures. Intended for use where precision dimensional limits and grade controls are required, such as die polishing.

TIER: **BETTER**

BRAND: Norton

SIZE (T x W x L)	MIN./STD. PKG.	SPEC.	PART #
<b>Rubber Finishing Sticks</b>			
1/2 x 1/2 x 6	5/20	57A120-B2RR	61463610608
1/2 x 1 x 6	5/20	57A120-B2RR	61463610609

## Blank Stock FastTrack Made-to-Order Microabrasive Superfinishing Sticks



Superfinishing blank stock encompasses a wide range of different specifications. These blanks can be finished to your dimensional requirements within two weeks from the date that the order is received at Norton Customer Service. Small lots, for test purposes, can be express shipped.

APPLICATIONS	ABRASIVE TYPE – BOND	GRIT RANGE	TREATMENT TYPE
Superfinishing / Finishing and Dressing	NLA – V	240 – 1200	Sulfur, Wax
	NMVC – VCA		
	NSA – V		
Honing	SG – VS	54 – 220	
	SGG – VS1		



Our extensive offering of stock diamond and cBN electroplated products has been engineered to meet the diverse demands of traditional and emerging tool and die, ceramic, and composite applications.

**Applications:**

Small hole/ID grinding, deburring, cleaning, honing, precision drilling, forming dies and molds, routing, reaming, blending radii, notching and cutting-off with saw blades in ceramic, tool and die, and composite applications

**Products:**

Mounted points, mandrels, drills, routers, contour tools, wheels, files, and saw blades

**Abrasive Grain:**

Diamond and cBN (cubic Boron Nitride)

## Abrasive Applications

Although diamond and cBN (cubic Boron Nitride) are both superabrasives, the use of diamond and cBN varies, depending upon the materials to be ground.

**Diamond Grinds:**

- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Composites
- Abrasives
- Stone
- Electronic components and materials

**cBN Grinds:**

- High-speed tool steels
- Die steel
- Hardened carbon steels
- Hardened stainless steels
- Alloy steels
- Aerospace alloys
- Abrasion-resistant ferrous materials

In general, cBN is used to grind ferrous materials. Diamond is used to grind non-ferrous materials, because of an adverse reaction between diamond and iron.

## TECH TIP

### Coolants

Although coolants may not be necessary, using a coolant produces superior surface finishes, a longer tool life, higher performance, and reduces tool loading.

### Feeds

Suggested feeds for jig or internal grinding are from .0002" – .0004" per pass.

### Speeds

**Maximum Operating Speeds (MOS)**

Never exceed the maximum operating speed marked on the superabrasive product being used.

Electroplated Products: 25,000 SFPM

Maximum speeds of mounted points are a function of the length of overhang and size of the product. Refer to "Safe Operating Speeds" in form #2872, provided with your product.

**Recommended Operating Speeds**

The preceding speed is the maximum safe speed and not necessarily the most efficient. Superabrasive products operate most effectively at speeds lower than the maximum. The following are general recommendations. cBN products, in many cases, are used effectively at higher speeds.

Electroplated Diamond Products: 5,000 to 10,000 SFPM

Electroplated cBN Products: 8,000 to 10,000 SFPM

**Calculating Operating Speed**

The following formula may be used to quickly calculate wheel speed:

- RPM = Revolutions Per Minute
- SFPM = Surface Feet Per Minute

To convert SFPM to RPM: (Multiply SFPM x 3.82) divided by wheel diameter in inches

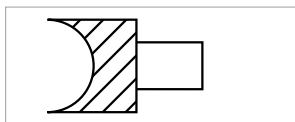
## Made-to-Order Electroplated Product Guide

The stock electroplated products offered on the following pages have been engineered to meet the diversity of demands typical in today's manufacturing environment. When special forms, shapes, and configurations are required, Norton electroplated diamond and cBN products can be fabricated in almost any geometry.

## Customer-Supplied Preforms and Blanks

Customers may prefer to manufacture their own preforms/blanks for custom products and in many cases this can reduce cost and lead-times.

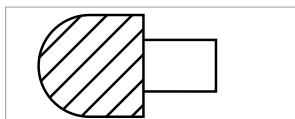
The instructions below detail the necessary allowances for each grit size. Please refer to these whenever manufacturing blanks.



### Area to be plated (female radius)

Female radius must be larger than the finished size required.

Example – If a .500 female radius is required with 60/80 grit, then the blank should be manufactured .011 larger = .511



### Area to be plated (male radius)

A male radius must be smaller than the finished size required.

Example – If a .500 male radius is required with 60/80 grit, then the blank should be manufactured .011 smaller = .489

## Grit Size Allowance for Plated Products

ALLOWANCE/GRIT SIZE	PARTICLE SIZE
20/30	.035
30/40	.025
40/50	.018
60/80	.011
80/100	.008
100/120	.007
120/140	.006
140/170	.005
170/200	.004
200/230	.0035
270/325	.003
4.5 Micron – 400	.0025
30 Micron – 600	.0016
15 Micron – 1200	.001

*This should be used as a guide when manufacturing blanks to be plated with diamond or cBN.*

## Surface Finish

Use this chart only as a guide. Surface finish is affected by a number of variables: machine type and condition, type of material, coolant, wheel speed, bond system, etc.

## Expected RMS Finish

GRIT SIZE	ELECTROPLATED
80	90-125
100	64-90
120	48-64
150	32-48
180	24-32
220	20-24
240	16-20
320	16-20
400	14-20
500	12-13
600	12

## Strip and Replate Services

Ask Customer Service for information and quotations on our complete strip and replating services on many electroplated products.

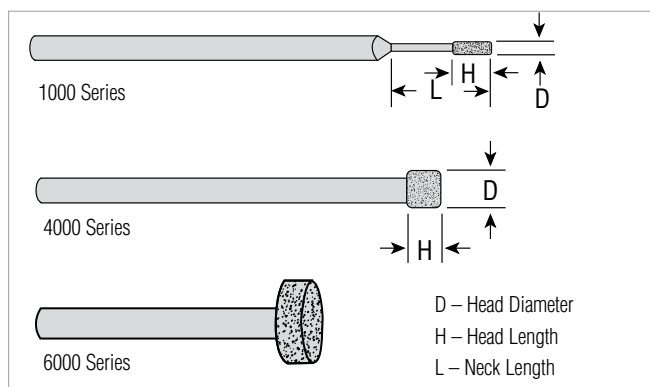
## Electroplated Mounted Points

Diamond and cBN Mounted Points ● ▲

FEATURES	BENEFITS
• Nickel alloy matrix	• Tough, durable bond
• Single layer of abrasive	• Economical
• Exposed particles	• Aggressive cutting action
• Variety of tools and grit sizes available as stock	• Satisfy most tool and die and deburring requirements
• Mandrels are made of high-speed tool steel	• Withstand operating pressure

Use Norton diamond mounted points for precise, small hole, jig and internal grinding of carbide, ceramics, sapphire, glass, and a variety of tough, super alloys.

For grinding tough, high carbon, high chrome steel, use cBN mounted points.



PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	NECK LENGTH	GRIT SIZE
<b>1000 Series – Diamond</b>					
<b>1/8" Shank x 2-1/4" Overall Length</b>					
66260392429	1016FD	.016	.079	1/8	200
66260392432	1020MD	.020	.079	1/8	150
66260392431	1020FD	.020	.079	1/8	200
66260392436	1025MD	.025	.079	1/8	150
66260392435	1025FD	.025	.079	1/8	200
66260392440	1030MD	.030	.079	1/4	150
66260392439	1030FD	.030	.079	1/4	200
66260392445	1035CD	.035	.118	1/4	100
66260392444	1035MD	.035	.118	1/4	150
66260392443	1035FD	.035	.118	1/4	200
66260392451	1040CD	.040	.118	1/4	100
66260392450	1040MD	.040	.118	1/4	150
66260392449	1040FD	.040	.118	1/4	200
66260392457	1045CD	.045	.118	1/4	100
66260392456	1045MD	.045	.118	1/4	150
66260392455	1045FD	.045	.118	1/4	200
66260392463	1050CD	.050	.118	1/2	100
66260392462	1050MD	.050	.118	1/2	150
66260392461	1050FD	.050	.118	1/2	200
66260392469	1050LCD	.050	.118	1	100
66260392468	1050LMD	.050	.118	1	150
66260392467	1050LFD	.050	.118	1	200
66260392475	1055CD	.055	.118	1/2	100
66260392474	1055MD	.055	.118	1/2	150
66260392473	1055FD	.055	.118	1/2	200
66260392481	1060CD	.060	.157	1/2	100
66260392480	1060MD	.060	.157	1/2	150
66260392479	1060FD	.060	.157	1/2	200
66260392487	1060LCD	.060	.157	1	100

Continued

PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	NECK LENGTH	GRIT SIZE
<b>1000 Series – Diamond (continued)</b>					
<b>1/8" Shank x 2-1/4" Overall Length</b>					
66260392492	1065MD	.065	.157	1/2	150
66260392491	1065FD	.065	.157	1/2	200
66260392499	1070CD	.070	.157	1/2	100
66260392498	1070MD	.070	.157	1/2	150
66260392497	1070FD	.070	.157	1/2	200
66260392511	1075CD	.075	.157	1/2	100
66260392510	1075MD	.075	.157	1/2	150
66260392509	1075FD	.075	.157	1/2	200
66260392517	1080CD	.080	.157	1/2	100
66260392516	1080MD	.080	.157	1/2	150
66260392515	1080FD	.080	.157	1/2	200
66260392523	1080LCD	.080	.157	1	100
66260392521	1080LFD	.080	.157	1	200
66260392529	1085CD	.085	.157	1/2	100
66260392528	1085MD	.085	.157	1/2	150
66260392535	1090CD	.090	.157	1/2	100
66260392534	1090MD	.090	.157	1/2	150
66260392533	1090FD	.090	.157	1/2	200
66260392541	1090LCD	.090	.157	1	100
66260392540	1090LMD	.090	.157	1	150
66260392547	1095CD	.095	.157	1/2	100
66260392546	1095MD	.095	.157	1/2	150
66260392553	1100CD	.100	.157	1/2	100
66260392552	1100MD	.100	.157	1/2	150
66260392551	1100FD	.100	.157	1/2	200
66260392565	1105CD	.105	.157	1/2	100
66260392563	1105FD	.105	.157	1/2	200
66260392577	1110CD	.110	.157	1/2	100
66260392576	1110MD	.110	.157	1/2	150
66260392583	1110LCD	.110	.157	1	100
66260392589	1115CD	.115	.157	1/2	100
66260392588	1115MD	.115	.157	1/2	150
66260392595	1120CD	.120	.157	1/2	100
66260392594	1120MD	.120	.157	1/2	150
66260392593	1120FD	.120	.157	1/2	200
66260392601	1125CD	.125	.157	1/2	100
66260392600	1125MD	.125	.157	1/2	150
66260392599	1125FD	.125	.157	1/2	200
66260392607	1130CD	.130	.197	1	100
66260392606	1130MD	.130	.197	1	150
66260392613	1135CD	.135	.236	N/A	100
66260392612	1135MD	.135	.236	N/A	150
66260392611	1135FD	.135	.236	N/A	200
66260392619	1140CD	.140	.236	N/A	100
66260392625	1156CD	.156	.236	N/A	100
66260392624	1156MD	.156	.236	N/A	150
66260392623	1156FD	.156	.236	N/A	200
66260392730	1171MD	.171	.236	N/A	150

Continued

### TARGET MARKET SYMBOLS

● = Ceramics    ▲ = Tool & Die    ■ = Composites

## Electroplated Mounted Points

Diamond and cBN Mounted Points ● ▲

PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	NECK LENGTH	GRIT SIZE
<b>1000 Series – Diamond (continued)</b>					
<b>1/8" Shank x 2-1/4" Overall Length</b>					
66260392730	1171MD	.171	.236	N/A	150
66260392737	1187CD	.187	.312	N/A	100
66260392735	1187FD	.187	.312	N/A	200
66260392742	1203MD	.203	.312	N/A	150
66260392741	1203FD	.203	.312	N/A	200
66260392748	1218MD	.218	.312	N/A	150
66260392747	1218FD	.218	.312	N/A	200
66260392755	1250CD	.250	.312	N/A	100
66260392754	1250MD	.250	.312	N/A	150
66260392753	1250FD	.250	.312	N/A	200
66260363450	1750MD	.750	.035	N/A	150
<b>1000 Series – cBN</b>					
<b>1/8" Shank x 2-1/4" Overall Length</b>					
66260392434	1020MC	.020	.079	1/8	150
66260392442	1030MC	.030	.079	1/4	150
66260392453	1040MC	.040	.118	1/4	150
66260392460	1045CC	.045	.118	1/4	100
66260392466	1050CC	.050	.118	1/2	100
66260392465	1050MC	.050	.118	1/2	150
66260392464	1050FC	.050	.118	1/2	200
66260392484	1060CC	.060	.157	1/2	100
66260392483	1060MC	.060	.157	1/2	150
66260392482	1060FC	.060	.157	1/2	200
66260392496	1065CC	.065	.157	1/2	100
66260392502	1070CC	.070	.157	1/2	100
66260392501	1070MC	.070	.157	1/2	150
66260392500	1070FC	.070	.157	1/2	200
66260392514	1075CC	.075	.157	1/2	100
66260392512	1075FC	.075	.157	1/2	200
66260392520	1080CC	.080	.157	1/2	100
66260392532	1085CC	.085	.157	1/2	100
66260392531	1085MC	.085	.157	1/2	150
66260392538	1090CC	.090	.157	1/2	100
66260392537	1090MC	.090	.157	1/2	150
66260392536	1090FC	.090	.157	1/2	200
66260392544	1090LCC	.090	.157	1	100
66260392543	1090LMC	.090	.157	1	150
66260392556	1100CC	.100	.157	1/2	100
66260392554	1100FC	.100	.157	1/2	200
66260392561	1100LMC	.100	.157	1	150
66260392568	1105CC	.105	.157	1/2	100
66260392567	1105MC	.105	.157	1/2	150
66260392580	1110CC	.110	.157	1/2	100
66260392578	1110FC	.110	.157	1/2	200
66260392598	1120CC	.120	.157	1/2	100
66260392604	1125CC	.125	.157	1/2	100
66260392603	1125MC	.125	.157	1/2	150
66260392602	1125FC	.125	.157	1/2	200
66260392610	1130CC	.130	.197	1	100
66260392608	1130FC	.130	.197	1	200
66260392616	1135CC	.135	.236	N/A	100
66260392615	1135MC	.135	.236	N/A	150
66260392622	1140CC	.140	.236	N/A	100
66260392628	1156CC	.156	.236	N/A	100
66260392627	1156MC	.156	.236	N/A	150
66260392626	1156FC	.156	.236	N/A	200
66260392734	1171CC	.171	.236	N/A	100
66260392733	1171MC	.171	.236	N/A	150
66260392740	1187CC	.187	.312	N/A	100
66260392739	1187MC	.187	.312	N/A	150
66260392738	1187FC	.187	.312	N/A	200
66260392745	1203MC	.203	.312	N/A	150
66260392752	1218CC	.218	.312	N/A	100
66260392751	1218MC	.218	.312	N/A	150
66260392758	1250CC	.250	.312	N/A	100
66260392757	1250MC	.250	.312	N/A	150

PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	NECK LENGTH	GRIT SIZE
<b>4000 Series – Diamond</b>					
<b>1/4" Shank x 3" Overall Length</b>					
66260392630	4156CD	.156	.250	1	100
66260392629	4156FD	.156	.250	1	200
66260392634	4187CD	.187	.250	1	100
66260392633	4187FD	.187	.250	1	200
66260392638	4203CD	.203	.250	1	100
66260392642	4218CD	.218	.250	1	100
66260392641	4218FD	.218	.250	1	200
66260392646	4236CD	.236	.250	1	100
66260392645	4236FD	.236	.250	1	200
66260392650	4250CD	.250	.250	1	100
66260392649	4250FD	.250	.250	1	200
66260392654	4282CD	.282	.250	N/A	100
66260392653	4282FD	.282	.250	N/A	200
66260392658	4312CD	.312	.375	N/A	100
66260392657	4312FD	.312	.375	N/A	200
66260392662	4375CD	.375	.375	N/A	100
66260392661	4375FD	.375	.375	N/A	200
66260392666	4390CD	.390	.375	N/A	100
66260392670	4406CD	.406	.375	N/A	100
66260392674	4437CD	.437	.375	N/A	100
66260392678	4500CD	.500	.375	N/A	100
66260392677	4500FD	.500	.375	N/A	200
66260392682	4730CD	.730	.375	N/A	100
66260392690	41000CD	1.000	.375	N/A	100
66260392689	41000FD	1.000	.375	N/A	200
<b>4000 Series – cBN</b>					
<b>1/4" Shank x 3" Overall Length</b>					
66260392632	4156CC	.156	.250	1	100
66260392631	4156FC	.156	.250	1	200
66260392636	4187CC	.187	.250	1	100
66260392635	4187FC	.187	.250	1	200
66260392640	4203CC	.203	.250	1	100
66260392639	4203FC	.203	.250	1	200
66260392644	4218CC	.218	.250	1	100
66260392643	4218FC	.218	.250	1	200
66260392648	4236CC	.236	.250	1	100
66260392647	4236FC	.236	.250	1	200
66260392652	4250CC	.250	.250	1	100
66260392651	4250FC	.250	.250	1	200
66260392656	4282CC	.282	.250	N/A	100
66260392655	4282FC	.282	.250	N/A	200
66260392660	4312CC	.312	.375	N/A	100
66260392659	4312FC	.312	.375	N/A	200
66260392664	4375CC	.375	.375	N/A	100
66260392663	4375FC	.375	.375	N/A	200
66260392668	4390CC	.390	.375	N/A	100
66260392672	4406CC	.406	.375	N/A	100
66260392676	4437CC	.437	.375	N/A	100
66260392675	4437FC	.437	.375	N/A	200
66260392680	4500CC	.500	.375	N/A	100
66260392679	4500FC	.500	.375	N/A	200
66260392684	4730CC	.730	.375	N/A	100
66260392683	4730FC	.730	.375	N/A	200
66260392692	41000CC	1.000	.375	N/A	100

### TARGET MARKET SYMBOLS

● = Ceramics    ▲ = Tool & Die    ■ = Composites



## Electroplated Mounted Points, Mandrels and Tapered Hones

Diamond and cBN Mounted Points ● ▲

PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	GRIT SIZE
<b>6000 Series – Diamond</b>				
<b>3/8" Shank x 3-3/4" Overall Length</b>				
66260392694	6406CD	.406	.375	80
66260392693	6406MD	.406	.375	150
66260392698	6437CD	.437	.375	80
66260392697	6437MD	.437	.375	150
66260392702	6500CD	.500	.375	80
66260392701	6500MD	.500	.375	150
66260392706	6562CD	.562	.375	80
66260392710	6625CD	.625	.375	80
66260392709	6625MD	.625	.375	150
66260392718	6750CD	.750	.375	80
66260392717	6750MD	.750	.375	150
66260392721	6875MD	.875	.400	150
66260392726	61000CD	1.000	.500	80
66260392725	61000MD	1.000	.500	150

PART #	PRODUCT #	HEAD DIAMETER INCHES	HEAD LENGTH	GRIT SIZE
<b>6000 Series – cBN</b>				
<b>3/8" Shank x 3-3/4" Overall Length</b>				
66260392696	6406CC	.406	.375	80
66260392695	6406MC	.406	.375	150
66260392700	6437CC	.437	.375	80
66260392699	6437MC	.437	.375	150
66260392704	6500CC	.500	.375	80
66260392703	6500MC	.500	.375	150
66260392708	6562CC	.562	.375	80
66260392712	6625CC	.625	.375	80
66260392711	6625MC	.625	.375	150
66260392716	6687CC	.687	.375	80
66260392715	6687MC	.687	.375	150
66260392720	6750CC	.750	.375	80
66260392719	6750MC	.750	.375	150
66260392724	6875CC	.875	.400	80
66260392728	61000CC	1.000	.500	80
66260392727	61000MC	1.000	.500	150
<b>9000 Series – Diamond</b>				
<b>3/4" Shank x 3-3/4" Overall Length</b>				
66260308354	91000CD	1.000	.500	80

### cBN Heavy Stock Removal Mandrels ▲

#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles
- Super coarse abrasive grit

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action
- Long tool life

For heavy stock removal on jig, internal, and offhand operations on tool steels and hardened aerospace alloys.



PART #	PRODUCT #	HEAD DIAMETER	HEAD LENGTH	SHANK DIAMETER	OVERALL LENGTH	GRIT SIZE
<b>HSR Series – cBN</b>						
66260395426	HSR-1/4	1/4	1/4	3/8	3	60
66260395428	HSR-3/8	3/8	3/8	3/8	3	60
66260395429	HSR-1/2	1/2	3/8	3/8	3-1/2	60
66260395431	HSR-3/4	3/4	3/8	3/8	3-1/2	60
66260395432	HSR-1	1	3/8	3/8	3-1/2	60

### Diamond Tapered Hones for Drawing Dies ● ▲ ■

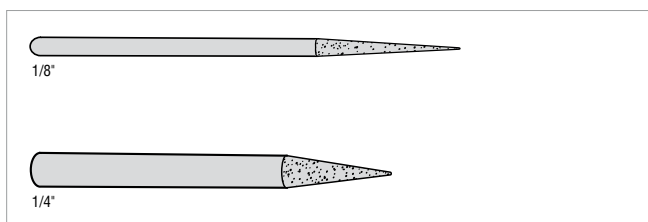
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

Used primarily for forming carbide drawing dies, but also can be used for small hole honing in ceramics, fiberglass, plastics, and composite materials.



PART #	PRODUCT #	INCLUDED ANGLE	SHANK DIAMETER	GRIT SIZE
<b>Tapered Hones for Drawing Dies – Diamond</b>				
<b>3" Overall Length</b>				
66260395540	TH12-6MD	6°	1/8	150
66260395541	TH12-8MD	8°	1/8	150
66260363371	TH25-12CD	12°	1/4	100
66260395542	TH12-12MD	12°	1/8	150
66260395543	TH25-12MD	12°	1/4	150
66260395544	TH25-14MD	14°	1/4	150
66260395545	TH25-16MD	16°	1/4	150

#### TARGET MARKET SYMBOLS

- = Ceramics    ▲ = Tool & Die    ■ = Composites

## Electroplated Micro Drills and Routers

### Diamond Micro Drills ● ▲ ■

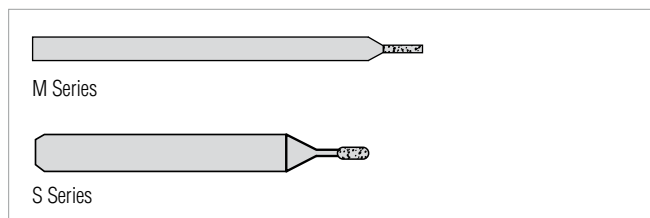
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles
- M-Series

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action
- Carefully-sized, uniformly-shaped diamond particles are used on all M-Series drills
- Recommended for adapting to ultrasonic drill heads

A modification of Norton mounted points, these tools are specifically designed for drilling holes in the .007" to .065" diameter range. Perfect for drilling sapphire and high density alumina ceramics for hybrid micro-circuit substrates.



PART #	PRODUCT #	DIAMETER INCHES	HEAD LENGTH	OVERALL LENGTH	GRIT SIZE
<b>M-Series Micro Drills – Diamond</b>					
<b>Shank Diameter .040" (1mm)</b>					
66260395516	M7	.007	.028	11/16	600
66260395517	M10	.010	.049	11/16	400
66260395518	M12	.012	.056	13/16	325
66260395519	M15	.015	.077	13/16	325

PART #	PRODUCT #	DIAMETER INCHES	HEAD LENGTH	OVERALL LENGTH	GRIT SIZE
<b>S-Series Micro Drills – Diamond</b>					
<b>1/8" Shank x 1" Overall Length</b>					
66260395520	S16FD	.016	.062	.093	200
66260392841	S18FD	.018	.062	.125	200
66260395521	S20FD	.020	.062	.125	200
66260395522	S25FD	.025	.093	.156	200
66260395523	S30MD	.030	.093	.156	150
66260395524	S35MD	.035	.093	.187	150
66260395525	S40MD	.040	.125	.218	150
66260395526	S45CD	.045	.125	.218	100
66260395527	S50CD	.050	.125	.250	100
66260395528	S60CD	.060	.125	.312	100
66260395529	S65CD	.065	.125	.312	100

### Diamond Routers ● ■

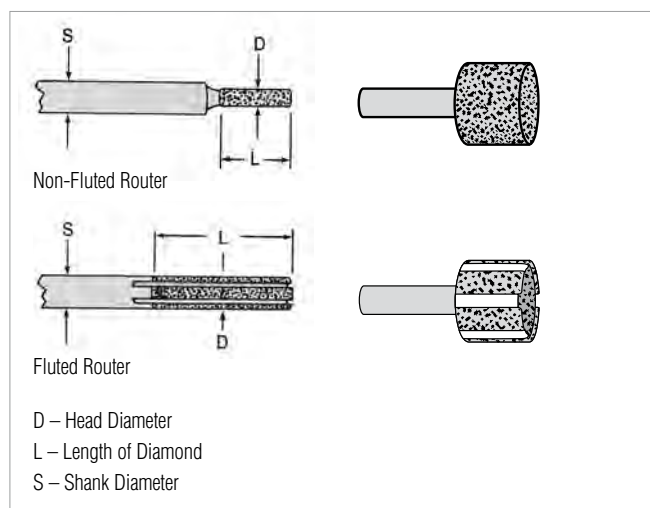
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

Used with hand operated tools, drill presses, and milling machines. Ideal for routing and reaming the highly-abrasive materials of alumina, fiberglass, plastics, and other nonmetallic composite materials.



PART #	PRODUCT #	HEAD DIAMETER	LENGTH OF DIAMOND	SHANK DIAMETER	OVERALL LENGTH	GRIT SIZE
<b>Non-Fluted Routers – Diamond</b>						
66260364302	RNF1410CD	1/4	1	1/4	2-1/2	40
<b>Fluted Routers – Diamond</b>						
66260364310	RSF1812CD	1/8	1/2	1/4	2-1/2	60
66260364309	RSF1810CD	1/8	1	1/4	2-1/2	60
66260364308	RSF1412CD	1/4	1/2	1/4	2-1/2	40
66260364307	RSF1410CD	1/4	1	1/4	2-1/2	40
66260302715	RSF3412CD	3/4	1/2	1/2	2-1/2	40

#### TARGET MARKET SYMBOLS

- = Ceramics    ▲ = Tool & Die    ■ = Composites

## Electroplated Mounted Contour Tools

Diamond and cBN Mounted Contour Tools ● ▲ ■

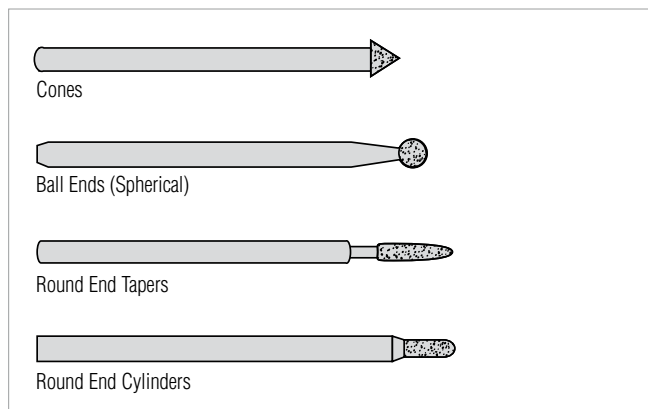
### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles
- Variety of tool shapes available as stock

### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action
- Satisfy most tool and die and deburring requirements

For contour grinding applications on carbide, ceramics, glass, ferrites, and many tough alloys and cements. Best suited for blending radii and deburring operations. Operating speeds: 15,000-20,000 RPM range.



PART #	PRODUCT #	CONE BASE DIAMETER	INCLUDED ANGLE	CONE LENGTH	GRIT SIZE
<b>Cones – Diamond</b>					
<b>1/8" Shank x 2" Overall Length</b>					
66260395484	C14CD	1/8	14°	1/2	100
66260395488	C35CD	5/32	35°	1/4	100
66260395490	C60CD	11/64	60°	5/32	100
66260395492	C90CD	3/16	90°	3/32	100
<b>Cones – cBN</b>					
<b>1/8" Shank x 2" Overall Length</b>					
66260395483	C14CC	1/8	14°	1/2	100
66260395485	C26CC	3/16	26°	13/32	100
66260395487	C35CC	5/32	35°	1/4	100
66260395489	C60CC	11/64	60°	5/32	100
66260395491	C90CC	3/16	90°	3/32	100

PART #	PRODUCT #	BALL DIAMETER	GRIT SIZE
<b>Ball Ends (Spherical) – Diamond</b>			
<b>1/8" Shank x 2" Overall Length</b>			
66260395434	BE1CD	3/64	100
66260395436	BE2CD	1/16	100
66260395438	BE3CD	5/64	100
66260395440	BE4CD	3/32	100
66260395442	BE5CD	1/8	100
66260395444	BE6CD	3/16	100
66260395448	BE8CD	3/8	100
66260395450	BE9CD	1/2	100
<b>Ball Ends (Spherical) – cBN</b>			
<b>1/8" Shank x 2" Overall Length</b>			
66260395437	BE3CC	5/64	100
66260395439	BE4CC	3/32	100
66260395441	BE5CC	1/8	100
66260395443	BE6CC	3/16	100
66260395445	BE7CC	1/4	100

PART #	PRODUCT #	SMALL HEAD DIAMETER	LARGE HEAD DIAMETER	HEAD LENGTH	INC. ANGLE	GRIT SIZE
<b>Round End Tapers – Diamond</b>						
<b>1/8" Shank x 2" Overall Length</b>						
66260395506	RT44CD	.044	.066	5/16	4°	100
66260395510	RT78CD	.078	.110	5/16	6°	100
<b>Round End Tapers – cBN</b>						
<b>1/8" Shank x 2" Overall Length</b>						
66260395509	RT78CC	.078	.110	5/16	6°	100

PART #	PRODUCT #	HEAD DIAMETER	HEAD LENGTH	GRIT SIZE
<b>Round End Cylinders – Diamond</b>				
<b>1/8" Shank x 2" Overall Length</b>				
66260395494	RE1CD	1/16	1/4	100
66260395496	RE2CD	5/64	1/4	100
66260395498	RE3CD	3/32	1/4	100
66260395500	RE4CD	1/8	1/4	100
66260395502	RE5CD	3/16	5/16	100
66260395504	RE6CD	1/4	5/16	100
<b>Round End Cylinders – cBN</b>				
<b>1/8" Shank x 2" Overall Length</b>				
66260395495	RE2CC	5/64	1/4	100

Type 6A2C cup and Type 01 straight bench and pedestal electroplated wheels are available as made-to order products. Contact your Norton representative for availability and quotation.

## Electroplated Files

### Diamond Machine Files ● ▲

#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

For use in reciprocating hand profiling machines. Ideal for reworking and finishing carbide dies and molds, blending radii, and deburring and cleaning slots and grooves.



### Diamond Hand Files ● ▲

#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

Indispensable aid for the toolroom. All purpose hand-held tool useful for deburring, notching, dressing, and honing hard, brittle materials.



PART #	PRODUCT #	DIMENSIONS	ABRASIVE LOCATION	GRIT SIZE
<b>Machine Files – Diamond</b>				
<b>5/8" Diamond Length, 1/8" Shank, 2" Overall Length</b>				
66260395585	1ECD	.020 x .125		100
66260395586	2ECD	.030 x .125		100
66260395587	3ECD	.040 x .125		100
66260395589	3FCD	.120 x .040		100
66260395590	4FCD	.157 x .040		100
66260395591	5FCD	.203 x .078		100
66260395592	6FCD	.120 x .040		100
66260395593	1CCD	.098 x .196		100
66260395594	2CCD	.120 x .250		100
66260395596	3TCD	.127 side		100
66260395598	1RCD	.042 diam.		100
66260395599	2RCD	.080 diam.		100
66260395600	3RCD	.127 diam.		100

PART #	PRODUCT #	DIMENSIONS	ABRASIVE LOCATION	GRIT SIZE
<b>Hand Files – Diamond</b>				
<b>6" Overall Length, 1-1/2" Diamond Length</b>				
66260395605	DF1CD	1/8 x 1/8		100
66260395606	DF2CD	1/8 x 1/4		100
66260392843	DF2FD	1/8 x 1/4		200
66260395607	DF2WCD	1/8 x 1/4		100
66260395608	DF3CD	1/8 x 3/8		100
66260392844	DF3FD	1/8 x 3/8		200
66260395609	DF3WCD	1/8 x 3/8		100
66260364241	DF3SCD	1/8 x 1/2		100
66260395611	DF4CD	1/8		100
66260300134	DF4WCD	1/4		100
66260395613	DF5CD	1/8		100
66260392846	DF5FD	1/8		200
66260395614	DF5WCD	1/4		100
66260395615	DF6CD	1/8		100

#### TARGET MARKET SYMBOLS

- = Ceramics    ▲ = Tool & Die    ■ = Composites

## Electroplated Files

### Diamond Needle Files ● ▲

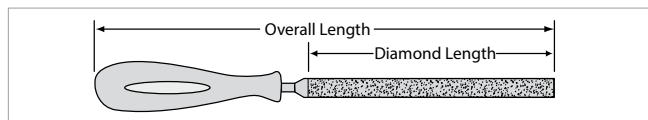
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

















Indispensable aid for the toolroom. An all-purpose hand-held tool, useful for deburring, notching, dressing, and honing hard, brittle materials.



PART #	PRODUCT #	GRIT SIZE
<b>NFK-6 Needle File Kit – Diamond</b>		
66260364008	NFK-6	
<b>Contains one each of the following:</b>		
	NF1FD	200
	NF2FD	200
	NF3FD	200
	NF4FD	200
	NF5FD	200
	NF6FD	200
<b>DFS-6 Die File Kit – Diamond</b>		
66260391830	DFS-6	
<b>Contains one each of the following:</b>		
	1571	100
	1572	100
	1573	100
	1574	100
	1575	100
	1576	100

#### TARGET MARKET SYMBOLS

● = Ceramics      ▲ = Tool & Die      ■ = Composites

PART #	PRODUCT #	DIMENSIONS	ABRASIVE LOCATION	SHAPE	GRIT SIZE
<b>Needle Files – Diamond</b>					
<b>4-1/4" Diamond Length, 8-1/2" Overall Length</b>					
66260302432	LNF2CD	.400 x .100		Equaling	100
66260305611	LNF2FD	.400 x .100		Equaling	200
66260302898	LNF3CD	.450 x .150		Half Round	100
66260305612	LNF3FD	.485 x .150		Half Round	200
<b>2-3/4" Diamond Length, 5-3/4" Overall Length, With Handle</b>					
66260391729	1571	.055 x .190		Flat	100
66260391730	1572	.075 x .210		Half Round	100
66260391731	1573	.145 x .145		Triangle	100
66260391732	1574	.100 x .100		Square	100
66260391733	1575	.120		Round	100
66260391734	1576	.055 x .190		Pointed Flat	100
<b>3" Diamond Length, 5-1/2" Overall Length, With Handle</b>					
66260395575	NF1FD	.150 x .105		Oval	200
66260395576	NF2FD	.218 x .072		Half Round	200
66260395577	NF3FD	.205 x .058		Equaling	200
66260395578	NF4FD	.096 x .096		Square	200
66260395579	NF5FD	.138 x .138		Triangle	200
66260395580	NF6FD	.118		Round	200

#### Needle File Shape and Application Key:

Barrette:	A triangle with diamond on the bottom side only
Crossing:	Elongated oval, with more pointed ends than an oval file; has diamonds all around
Equaling:	A rectangle with diamond on all four sides; ideal for filing both sides of an ID simultaneously
Pointed Flat:	A cone with a flat top with diamond on the sides of the cone



## Electroplated Drills

### Diamond Core Drills ● ■

FEATURES	BENEFITS
• Nickel alloy matrix	• Tough, durable bond
• Single layer of abrasive	• Economical
• Exposed particles	• Aggressive cutting action

High performance on glass and ceramic applications while providing fast, reliable cutting. Submersed drilling is highly recommended for optimum operating performance.



### Diamond Mounted Core Drills ● ■

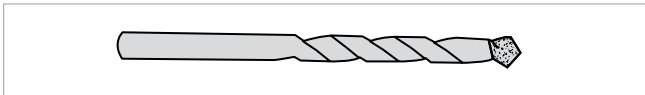
FEATURES	BENEFITS
• Nickel alloy matrix	• Tough, durable bond
• Single layer of abrasive	• Economical
• Exposed particles	• Aggressive cutting action
• Removable pilot (bulb-like extension)	• Provides added stability
	• Ensures smooth drilling with less wobbling
• 1/8" wrap: additional 1/8" of electroplated diamond on the blade core	• Increases life of blade on deep cuts, reduces binding and grinding on the core

High performance results on glass and ceramic applications.

### Diamond Twist Drills ● ■

FEATURES	BENEFITS
• Nickel alloy matrix	• Tough, durable bond
• Single layer of abrasive	• Economical
• Exposed particles	• Aggressive cutting action

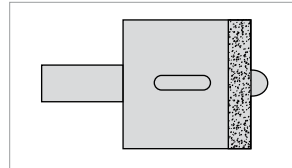
Recommended for precision drilling on circuit boards containing fiberglass, nylon, and similar tough, abrasive materials. Diamond twist drills are also useful for drilling plastics and resin composites and have been successful in drilling soft ductile materials as well as "green" carbide. Operating procedures are similar to those of standard twist drills.



PART #	PRODUCT #	OUTER DIAMETER	INNER DIAMETER	GRIT SIZE
<b>Core Drills – Diamond</b>				
<b>Straight Tube Type, 2" Overall Length</b>				
66260395530	A1MD	1/16	.023	150
66260395531	A2MD	3/32	.048	150
66260395532	A3MD	1/8	.075	150
66260395533	A4MD	5/32	.110	150
66260395534	A5CD	3/16	.140	100
66260395535	A6CD	1/4	.195	100
66260395536	A7CD	5/16	.255	100
66260395537	A8CD	3/8	.325	100

PART #	PRODUCT #	OUTER DIAMETER	INNER DIAMETER	GRIT SIZE
<b>Mounted Core Drills – Diamond</b>				
<b>1/8" Wrap, 3/8" Shank Diameter, 3.45" Overall Length</b>				
66260392850	CD.750	3/4	1/4	40

*Pilots are removable.*



PART #	PRODUCT #	DRILL DIAMETER	DRILL LENGTH	GRIT SIZE
<b>Twist Drills – Diamond</b>				
66260395549	TW-1/16	1/16	1-3/4	100
66260395550	TW-1/8	1/8	2-3/4	100
66260395551	TW-1/4	1/4	4	100
66260395552	TW-3/8	3/8	5	100

*Diameter tolerance equals + or - 1/64.*

#### TARGET MARKET SYMBOLS

● = Ceramics      ▲ = Tool & Die      ■ = Composites

## Electroplated Saw Blades

### Diamond Continuous Rim Cut-off Saw Blades ■

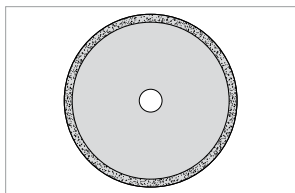
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

Ideal for cutting-off highly-abrasive materials such as alumina, fiberglass, plastics, and other nonmetallic composite materials.



Additional diamond continuous rim and slotted cut-off saw blades, with extended wraps to avoid binding, are available as made-to-order products. Please contact your Norton representative.

### Diamond Slotted Cut-off Saw Blades ■

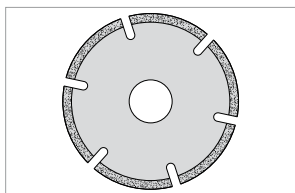
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles
- 3/4" wrap: additional 3/4" of electroplated diamond on the blade core

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action
- Increases life of blade on deep cuts, reduces binding and grinding on the core

Ideal for cutting-off highly-abrasive materials such as alumina, fiberglass, plastics, and other nonmetallic composite materials.



Additional diamond continuous rim and slotted cut-off saw blades, with extended wraps to avoid binding, are available as made-to-order products. Please contact your Norton representative.

### Diamond Mounted Saw Blades ■

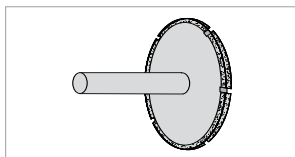
#### FEATURES

- Nickel alloy matrix
- Single layer of abrasive
- Exposed particles

#### BENEFITS

- Tough, durable bond
- Economical
- Aggressive cutting action

Ideal for cutting-off highly-abrasive materials such as alumina, fiberglass, plastics, and other nonmetallic composite materials.



PART #	PRODUCT #	DIAM.	OVERALL THICKNESS	HOLE SIZE	GRIT SIZE
<b>Continuous Rim Cut-off Saw Blades – Diamond</b>					
66260301990	DS2062-250	2	1/16	1/4	40
66260391474	DS2094-250	2	3/32	1/4	40
66260391473	DS3094-250	3	3/32	1/4	40
66260363036	DS3094-375	3	3/32	3/8	40
66260395554	DS4094-500	4	3/32	1/2	40
66260300197	DS4094-750	4	3/32	3/4	40
66260395557	DS8094-625	8	3/32	5/8	40

PART #	PRODUCT #	DIAM.	OVERALL THICKNESS	HOLE SIZE	GRIT SIZE
<b>Slotted Cut-off Saw Blades – Diamond</b>					
66260301989	DSS2062-250	2	1/16	1/4	40
66260364258	DSS3094-250	3	3/32	1/4	40
66260363015	DSS4094-375	4	3/32	3/8	40
66260395559	DSS4094-500	4	3/32	1/2	40
66260395560	DSS6094-500	6	3/32	1/2	40
66260362981	DSS10125-625	10	1/8	5/8	40
66260395563	DSS12125-500	12	1/8	1/2	40
66260364253	DSS14156-500	14	5/32	1/2	40
66260362989	DSS14156-1	14	5/32	1	40
66260395565	DSS16156-1	16	5/32	1	40
66260395566	DSS18156-1	18	5/32	1	40
<b>Slotted Cut-off Saw Blades with 3/4" Wrap – Diamond</b>					
66260313423	DSSW4094-750	4	3/32	3/4	40

PART #	PRODUCT #	DIAM.	OVERALL THICKNESS	HOLE SIZE	GRIT SIZE
<b>Mounted Saw Blades – Diamond</b>					
<b>2" Overall Length</b>					
66260395422	MDS1CD	1	3/32	1/4	40
66260395423	MDS1-1/2CD	1-1/2	3/32	1/4	40
66260395424	MDS2CD	2	3/32	3/8	40

#### TARGET MARKET SYMBOLS

● = Ceramics

▲ = Tool & Die

■ = Composites

# DIAMOND LAPPING COMPOUND



Norton diamond lapping compound polishes all materials – hard and soft. Diamond powders are uniformly distributed in a liquid vehicle for aggressive polishing and consistent part quality. Easy-to-use plastic syringe for quick clean-up.

#### Applications:

For mold, die, and tool polishing, polishing to final tolerance of ceramic parts, initial charging of lapping plates and discs, and other processes that require mirror finish and close tolerance performance.

#### Syringe Size: Type:

5 and 18 gram syringes  
Water soluble – when soap/water is used for clean-up  
Oil soluble – when solvent is used for clean-up

PRODUCT #	MICRON GRADE	COLOR	PART #
<b>Diamond Compound – Water Soluble</b>			
<b>5 Gram Syringes</b>			
5PS1/4WSSTD	1/4 Ultra Fine	Gray	66260300362
5PS1/2WSSTD	1/2 Ultra Fine	Lt. Gray	66260300417
5PS1WSSTD	1 Ultra Fine	Ivory	66260300368
5PS3WSSTD	3 Super Fine	Yellow	66260300667
5PS6WSSTD	6 Super Fine	Orange	66260300372
5PS9WSSTD	9 Super Fine	Green	66260300375
5PS12WSSTD	12 Super Fine	Aqua	66260300376
5PS15WSSTD	15 Fine	Blue	66260300379
5PS20WSSTD	20 Fine	Auburn	66260300381 *
5PS30WSSTD	30 Fine	Red	66260300383
5PS45WSSTD	45 Fine	Brown	66260300384
5PS60WSSTD	60 Fine	Purple	66260300388
5PS90WSSTD	90 Fine	Black	66260300389
<b>18 Gram Syringes</b>			
18PS1/4WSSTD	1/4 Ultra Fine	Gray	66260300392
18PS1/2WSSTD	1/2 Ultra Fine	Lt. Gray	66260300394
18PS1WSSTD	1 Ultra Fine	Ivory	66260300396
18PS3WSSTD	3 Super Fine	Yellow	66260300398
18PS6WSSTD	6 Super Fine	Orange	66260300400
18PS9WSSTD	9 Super Fine	Green	66260300402
18PS12WSSTD	12 Super Fine	Aqua	66260300404 *
18PS15WSSTD	15 Fine	Blue	66260300406
18PS20WSSTD	20 Fine	Auburn	66260300408
18PS30WSSTD	30 Fine	Red	66260300410 *
18PS45WSSTD	45 Fine	Brown	66260300412 *
18PS60WSSTD	60 Fine	Purple	66260300414 *
18PS90WSSTD	90 Fine	Black	66260300416 *

PRODUCT #	MICRON GRADE	COLOR	PART #
<b>Diamond Compound – Oil Soluble</b>			
<b>5 Gram Syringes</b>			
5PS1/4OSSSTD	1/4 UltraFine	Gray	61463691123 *
5PS1/2OSSSTD	1/2 UltraFine	Lt. Gray	66260300363
5PS1OSSSTD	1 UltraFine	Ivory	61463691133
5PS3OSSSTD	3 Super Fine	Yellow	61463691138
5PS6OSSSTD	6 Super Fine	Orange	61463691143
5PS9OSSSTD	9 Super Fine	Green	61463691148
5PS12OSSSTD	12 Super Fine	Aqua	66260300377 *
5PS15OSSSTD	15 Fine	Blue	61463691153
5PS20OSSSTD	20 Fine	Auburn	66260300380 *
5PS30OSSSTD	30 Fine	Red	61463691158
5PS45OSSSTD	45 Fine	Brown	61463691163
5PS60OSSSTD	60 Fine	Purple	66260300386
5PS90OSSSTD	90 Fine	Black	66260300390
<b>18 Gram Syringes</b>			
18PS1/4OSSSTD	1/4 UltraFine	Gray	66260300391
18PS1/2OSSSTD	1/2 UltraFine	Lt. Gray	66260300393 *
18PS1OSSSTD	1 UltraFine	Ivory	61463691134 *
18PS3OSSSTD	3 Super Fine	Yellow	61463691139
18PS6OSSSTD	6 Super Fine	Orange	66260300399
18PS9OSSSTD	9 Super Fine	Green	61463691149 *
18PS12OSSSTD	12 Super Fine	Aqua	66260300403 *
18PS15OSSSTD	15 Fine	Blue	61463691154
18PS20OSSSTD	20 Fine	Auburn	66260300407
18PS30OSSSTD	30 Fine	Red	66260300409
18PS45OSSSTD	45 Fine	Brown	61463691164 *
18PS60OSSSTD	60 Fine	Purple	66260300413
18PS90OSSSTD	90 Fine	Black	66260300415

\* Non-stock; contact your Norton representative for current lead-times.

## Marking System

SYRINGE SIZE	CARTRIDGE TYPE	MICRON GRADE	VEHICLE TYPE	CONCENTRATION
5 Gram	PS	1/4 – Gray	OS	Standard
18 gram	(Plastic Syringe)	1/2 – Light Gray	(Oil Soluble)	
		1 – Ivory	WS	
		3 – Yellow	(Water Soluble)	
		6 – Orange		
		9 – Green		
		12 – Aqua		
		15 – Blue		
		20 – Auburn		
		30 – Red		
		45 – Brown		
		60 – Purple		
		90 – Black		

## TECH TIP

### Diamond Compound Application Guide

APPLICATION	MICRON GRADE	MICRON RANGE	MESH SIZE EQUIV.	COLOR	CONC.
<b>ULTRA FINE</b> Applying finest finishes on metals and ceramics	1/4	(0-1/2)	100,000	Gray	Std.
	1/2	(0-1)	60,000	Lt. Gray	Std.
	1	(0-2)	14,000	Ivory	Std.
<b>SUPER FINE</b> Final finishing of dies, molds, seals, most applications (RMS 4-12)	3	(2-4)	8,000	Yellow	Std.
	6	(4-8)	3,000	Orange	Std.
	9	(8-12)	1,800	Green	Std.
	12	(9-15)	1,500	Aqua	Std.
<b>FINE FINISH</b> Preparatory lapping (RMS 12-20)	15	(12-22)	1,200	Blue	Std.
	20	(15-25)	800	Auburn	Std.
	30	(22-36)	600	Red	Std.
	45	(36-45)	325	Brown	Std.
	60	(54-80)	230	Purple	Std.
	90	(80-100)	170	Black	Std.

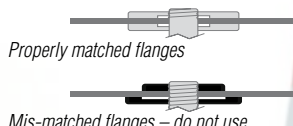
**⚠ WARNING**

**Improper use of abrasive products might cause grinding wheel breakage and serious injury. Comply with ANSI B7.1, OSHA and Safety Guide furnished with package. Don't overspeed, abuse, or drop wheel. Always use a guard, personal protective equipment and proper mounting procedures.**



**Speeds**

Check machine spindle speed and speed listed on machine against safe maximum operating speed marked on the grinding wheel. Do not overspeed the wheel. Refer to the "Proper Grinding Wheel Operating Speeds and Safety" article on page 336 for more information.



**Flanges**

When mounting most grinding wheels, use flanges of equal diameter and bearing surface. For exceptions, see ANSI B7.1.



**Safety Gloves**

Grinding applications are conducted in harsh environments. The use of proper fitting gloves is recommended.



**Wheel Guard**

Always use the wheel guard as supplied by the machine manufacturer, in the proper position.



**Do Not Use  
Damaged Wheel**

Always check each wheel for cracks or damage before use. Never use a damaged wheel.



**Eye/Face Protection**

Always wear government-approved face and eye protection when using abrasive products.



**Hearing Protection**

Use of abrasive products can create elevated sound levels. Hearing protection must be worn where required.



**Safety Guides, SDS and Wheel Warning Messages**

Before using any abrasive materials, READ:

- The Safety Guides
- Wheel Warning Messages
- Safety Data Sheets (SDS)

All Norton products provide information pertaining to safe use. Please take the time to read it carefully. Contact suppliers of the workpiece and abrasive materials for copies of the SDS if one is not readily available. Norton abrasives SDS can be obtained on [www.nortonabrasives.com](http://www.nortonabrasives.com)



**Dust Protection**

Exposure to dust generated from workpiece and/or abrasive materials can result in lung damage and/or other physical injury.

Use dust capture or local exhaust as stated in the SDS. Wear government-approved respiratory protection and eye and skin protection. Failure to follow this warning can result in serious lung damage and/or physical injury.

This is a general dust warning and does not cover specific situations. For more information, refer to the SDS dust warning provided with your products, and workpiece.



## 100 Years of Safety Leadership

The year 2016 marked the 100-year anniversary of the leadership of the former Norton Company in the creation of the first ever safety code for abrasives.

In 1916, following more than a decade of safety research, advocacy, and leadership by the Norton Company (now Norton | Saint-Gobain Abrasives), "The Safety Code for the Use and Care of Abrasive Wheels" was published. This 13-page booklet, containing an unprecedented set of safety device recommendations and procedures, was a spark that changed the entire future of the abrasives industry.

In the 1970s, this code received the ultimate endorsement when selected by OSHA as the basis of new federal regulations concerning abrasive wheel machinery. Today, the ever-evolving "Safety Requirements for the Use, Care and Protection of Abrasive Wheels" (commonly known as the ANSI B7.1 standard) continues to mirror the latest technologies and remains the global authoritative abrasives safety standard.



## Breakages/Personal Injury

In the event of on-machine breakage of Norton abrasive products, call your local Norton distributor immediately. Whether involving personal injury or not, the abrasive user should leave the equipment and other evidence undisturbed until a Norton sales representative has been notified and conducts an investigation. Prompt action on the part of abrasive users, distributor, and Norton sales personnel is important to ensure swift determination of the breakage cause and to guard against recurrence.



It is the user's responsibility to refer to and comply with ANSI B7.1 and B7.7 – Contact us for a free copy.



### Safety Poster

(Form # 7868-English, 7868-French, 7868-Spanish)

To order this poster for your shop,  
<mailto:nortonliterature@saint-gobain.com>

## Abrasive Safety References



### Safety Information on the Web

Norton website <http://www.nortonabrasives.com/en-us/norton-product-safety>

UAMA (United Abrasives Manufacturers Association) website at  
<http://www.safety.uama.org>



### Safety Video

Watch our videos on: [YouTube.com/NortonAbrasives](https://www.youtube.com/NortonAbrasives)

- Norton Abrasives: Safety, It's The Smart Thing To Do (Safety information for portable grinding and cutting wheels)
- Norton Abrasives: Foundry Safety
- Norton Abrasives: First in Precision Grinding Safety
- Norton Abrasives: Proper Grinding Wheel Mounting
- Norton Abrasives: Railroad Abrasive Safety
- Norton Abrasives: Coated Abrasive Belt and Disc Safety



## Safe Operating Practices

Safe operating practices must be part of every grinding wheel user's operation. The greatest efficiency and lowest overall abrasive cost can be realized only if proven care and use techniques become standard practice.

- Be sure to read any safety material/guidelines provided with the abrasive product.
- Always check the wheel for cracks or damage before use.
- Always properly maintain your machine; especially governors on pneumatic machines and linkage on floorstand machines.
- Never use the incorrect air, hydraulic or electric power supply.
- Never mount grinding wheels directly on electric motors.
- Never mount grinding wheels on the wrong size machine for the grinding wheel.
- Before mounting the wheel, use a tachometer to measure the spindle speed.
- Ensure the mounting flanges, backplate or adapter supplied by the machine manufacturer are used and kept in good condition. ANSI Safety Requirement B7.1 provides wheel mounting requirements. Check mounting flanges for equal and correct diameter and use blotters when supplied.
- Always mount, true and dress the wheel in conformance with the guidelines published in the ANSI Safety Requirements B7.1.
- Ensure the correct wheel guard is in place before starting the wheel. Allow the wheel to come up to full operating speed before starting to grind for a minimum of one minute, and stand out of the plane of rotation.
- NEVER use a high speed air sander as a portable grinder.
- NEVER use grinding wheel with a rated speed less than that of the grinder.
- NEVER exceed the maximum operating speed marked on the wheel being used. The following formula may be used to calculate wheel speed:  
SFPM = Spindle Speed in RPM x Wheel Dia. in inches x .262
- Avoid dropping or bumping the wheel.
- When not using the wheel, store the wheel in its original packing materials. This protects the wheel from chips and cracking, as well as provides easy identification of the wheel.
- Refer to proper safe storage schematic on page 266.



Pistol Grip Air Sander

### A Deadly Equation

**Pistol Grip Air Sander + Grinding Wheel = Certain Injury!**

- Never use a high-speed air sander as a portable grinder
- Use only sanding discs specifically designed for sanders
- Because the speed of these sanders far exceeds the maximum rated speeds for grinding wheels, a potentially lethal wheel breakage might occur

## Dangerous Pairing: Die grinders and Cut-off Wheels

While die grinders and portable cut-off tools may look similar, they are by no means interchangeable. Several crucial differences exist between the two handheld machines.

### GUARD

Cut-off wheels must be used on guarded machines for the safety of the operator and bystanders.

### SPEED

Cut-off wheels must be used at or below their maximum operating speed, marked clearly on the side of the wheel. Excessive speed can result in breakage and serious personal injury.

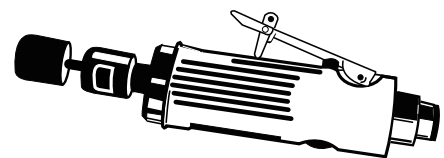
Die grinders often operate above 25,000 rpm and therefore are too fast for abrasive wheels. The speed hazard is increased by the absence of a guard. Portable cut-off tools, however, rotate at speeds compatible with the abrasive wheels for which they are designed. And, their guards prevent use of an oversize wheel.

### MOUNTING

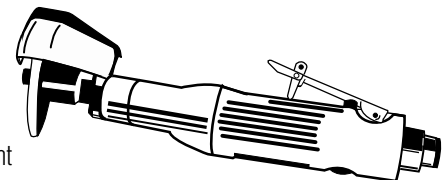
Cut-off wheels must be mounted between proper flanges, as described in the national safety standard for abrasive wheels, ANSI B7.1. Die grinders make use of a collet for mounting

Portable cut-off tools use flanges for mounting, flanges designed according to the ANSI B7.1 safety standard.

Now that you have learned the three crucial differences between die grinders and portable cut-off tools – GUARD, SPEED and MOUNTING – be on watch for the dangerous pairing of cut-off wheels and die grinders, and warn your friends and colleagues of the same.



Die Grinder



Portable Cut-off Tool

## Starting a Grinding Wheel

### ANSI's Procedure for Starting an Abrasive Wheel

In the past several years wheel breakages and accidents have been reported involving abrasive wheels breaking on start-up. This article is designed to remind users of the proper procedure when starting a machine with a new abrasive wheel mounted on it, or starting a machine after the machine and wheel have been stored for a period of time, or remounting a wheel. ANSI B7.1-2000 requires the following procedure when starting a newly mounted grinding wheel.

#### 9.8 Starting the Wheel (Requirements)

All abrasive wheels shall be run at operating speeds with the safety guard in place or in a protected enclosure for at least one minute before applying work. During this time no one shall stand in front of or in line with the wheel. (See section 4, for safety guard requirements.) This provision shall apply each time one of the following conditions occur: a) a new wheel has been mounted; or b) a used wheel has been remounted.

#### E 9.8 Starting the Wheel (Explanatory Information)

An abrasive wheel may be damaged in shipment or storage, or the wheel may be subjected to improper, excessive stresses during mounting. Wheels which have been damaged or are under excessive stress, are likely to fracture within the first minute of rotation at operating speed. While this procedure is most important at the time when an abrasive wheel is mounted or remounted, damage may also occur to a wheel during a shut down of the machine on which it is mounted. The user should evaluate the circumstances and length of machine shut down to determine additional times that the operating rule should be followed.

Improper wheel mounting is a major cause of wheel breakages. Always use proper mounting procedures as outlined in ANSI B7.1, machine manufacturer's instructions and those supplied with the abrasive wheel. Be safe, know and follow the rules!

## What are the Major Causes of Grinding Wheel Breakages?

- Using a grinding wheel damaged during transportation, storage or as a result of careless or improper handling. Inspect all grinding wheels before mounting them on a machine. **NEVER MOUNT A DAMAGED GRINDING WHEEL.**
- Selecting the wrong grinding wheel for the job. **DON'T GRIND MATERIAL FOR WHICH THE WHEEL IS NOT DESIGNED.**
- Incorrect machine. **NEVER MOUNT A GRINDING WHEEL ON A MACHINE NOT DESIGNED AND GUARDED FOR THAT GRINDING WHEEL.**
- Machine speed higher than the grinding wheel speed. **NEVER OVER-SPEED A GRINDING WHEEL.**
- Poor machine maintenance. **FAILURE TO PROPERLY MAINTAIN A GRINDING MACHINE CAN CAUSE GRINDING WHEEL BREAKAGES RESULTING IN SERIOUS INJURY OR DEATH.**
- The improper mounting of grinding wheels. See ANSI B7.1 and literature provided for proper mounting procedures.
- Operator carelessness. **ALL GRINDING WHEELS CAN BE BROKEN IF NOT USED PROPERLY.**
- Lack of knowledge or training. **IF YOU DO NOT KNOW HOW TO USE A GRINDING WHEEL OR THE GRINDER, GET HELP!**
- Poor wheel balance caused by the failure to turn off coolant before stopping the grinding wheel. Always spin coolant out of a grinding wheel before shutting the operation down.
- Jamming the work into the grinding wheel.
- Force grinding, so that the motor slows noticeably or the work gets hot.
- Grinding on the wrong surface of a grinding wheel, i.e. grinding on the side of a Type 1 straight grinding wheel.





## Shelf Life of Grinding Wheels

The best rule of thumb is to have any wheel that is two years old or older re-speed tested and re-inspected to ensure it is fit for use.

### Organic-Bonded Abrasive Products

It has always been Norton | Saint-Gobain Abrasives recommendation that resinoid bonded grinding wheels be used within 2 years from the date of manufacture. This recommendation assumes that resinoid bonded grinding wheels have been stored under ideal storage conditions.

It might be true that under ideal storage conditions resinoid bonded grinding wheels can survive without any degradation in strength for well over two years. However, it is always wise to suspect any wheels over two years old and have them re-inspected or re-speed tested to determine if there has been any degradation in strength. If the wheels are stored under less than ideal conditions, they might have a much shorter shelf life depending upon the severity of storage conditions. These same comments also apply to rubber and shellac bonded grinding wheels.

See “Proper Storage of Grinding Wheels” schematic on page 266.

### Vitrified-Bonded Abrasive Products

The shelf life of these product is less influenced by humidity and adverse storage conditions as compared to organic products (resinoid, rubber, and shellac), but even vitrified grinding wheels do not have an infinite shelf life.

The best procedure and the best rule of thumb is to have any wheel that is two years old or older re-speed tested and re-inspected to ensure it is fit for use. The procedure for having this done and the charges will be explained by our Customer Service Department. The cost of shipping as well as the cost of re-inspection is the customer's responsibility. Also, any wheels rejected or otherwise lost in the re-inspection process will also be the responsibility of the customer.

Keep in mind, however, that this procedure is good to verify the reliability of a product but must not be performed until you are ready to consume the wheel. If wheels are sent back after the two-year time frame for re-inspection and re-testing, and then put back on the shelf, there is no telling how long they will be fit for use after that last inspection. Therefore, these wheels must be consumed as soon as is practical.



## How to Perform a Ring Test on a Grinding Wheel

One method of grinding wheel inspection is called ring testing. OSHA, ANSI and the grinding wheel manufacturers require this method of grinding wheel inspection. It must be performed BEFORE the wheel is mounted on a grinding machine. Ring testing depends on the damping characteristics of a cracked wheel to alter the sound emitted when the wheel is tapped lightly. It is subject to interpretation by the inspector and is primarily applicable to vitrified bonded wheels. To perform the ring test, wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screw driver for light wheels, or a wooden mallet for heavier wheels.

- Tap wheels about 45 degrees each side of the vertical line and about 1" or 2" from the periphery. Rotate the wheel 45 degrees and repeat the test.
- Large and thick wheels may be given the ring test by striking the wheel on the periphery rather than the side of the wheel.
- A sound and undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring and the wheel should not be used.
- Wheels must be dry and free of sawdust when applying the ring test, otherwise the sound may be deadened. The ring test is not applicable to certain wheels because of their size, shape or composition.

## Proper Grinding Wheel Operating Speeds and Safety!

As abrasive wheel producers have known for many years, most grinding wheel breakages and injuries are caused by one major oversight. That oversight is operating a grinding wheel in an over-speed condition. A grinding wheel should never be operated at speeds greater than the wheel's rated speed.

- Never use a grinding wheel with a rated speed less than that of the grinder
- Never mount grinding wheels on sanders (Pistol Grip Air Sanders)
- Never mount grinding wheels directly on electric motors
- Never mount grinding wheels on the wrong size machine for the grinding wheel
- Always properly maintain your machine: especially governors on pneumatic machines and linkage on floorstand machines
- Never use the incorrect air, hydraulic or electric power supply
- Never use the improper speed setting on a machine

What you might not be cognizant of is that slight over-speed can cause damage to a wheel. If an operator continues to use this damaged wheel, it might break. In a reinforced wheel for example, cracks might form, be forced open and jam or catch the wheel on the workpiece resulting in a wheel breakage. The use of a 9" Type 27 Wheel on a 7" angle grinder is very dangerous! Normal stresses that occur during grinding along

with the additional stress caused by over-speed are additive. The act of operating a wheel in a slight over-speed condition is very dangerous. We must understand and communicate this danger.

One of the major forces at work on a grinding wheel is called "centrifugal force." To demonstrate this force take a piece of string and tie a small weight to one end. Hold the other end of the string so the weight will travel in a circle. Rotate the weight and you will feel a pull on the string. The weight tries to fly off in a straight line, but the string holds it and compels it to travel in a circle. This pull on the string is called "centrifugal force." Warning: If you attempt this experiment take all the proper precautions related to the object used to avoid injury to yourself or others.

If you swing the weight at a speed of 50 revolutions per minute (RPM) and could measure the pull on the string at this speed, then increase the swing to 100 revolutions per minute and again measure the pull, you would find the pull was not merely two times greater, but was actually four times greater than it was at one half the speed. Therefore, the force increases exponentially with the speed or RPM.

Centrifugal force increases in proportion to the square of the velocity. Think again of the weight and the string. We find that the square of 50 is 2,500, ( $50 \times 50 = 2,500$ ); and the square of 100 is 10,000, ( $100 \times 100 = 10,000$ ). As 10,000 is four times as great as 2,500, so is the pull on the string at 100 revolutions per minute four times as great as it was at 50 revolutions per minute.

Centrifugal force applies to grinding wheels in the same manner as the weight to the string. Increasing the RPM or speed beyond the maximum safe operating speed (MOS) might be more dangerous than might be expected. Placing and operating a 9" Type 27 grinding wheel with a maximum operating speed of 6,600 RPM on a 5" right angle grinder with a rated speed of 10,000 RPM represents an over-speed of approximately 1.515 times the wheel's designated speed. The resulting rotational stress caused by the centrifugal force would be approximately 2.3 times greater than the maximum allowed. Add this additional stress to the stresses that occur during normal grinding and even the strongest wheel might break.

In short, NEVER over-speed a grinding wheel. Always compare the speed marked on the wheel or package to make sure the machine's speed is at, or below, the speed or MOS of the grinding wheel. Speed can kill. NEVER over-speed a grinding wheel.





## Conversion Table – Wheel Speeds

REVOLUTIONS PER MINUTE FOR VARIOUS DIAMETERS OF GRINDING WHEELS TO GIVE SURFACE SPEED IN FEET PER MINUTE AS INDICATED  
(FOR WHEEL MARKING PURPOSES THE CALCULATED RPM FIGURES LISTED BELOW ARE ROUNDED OFF TO THE NEXT 5)

Surface Speed in Feet Per Minute (SFPM)

Diameter of Wheel in Inches	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000	12,000	12,500	14,200	16,000	16,500	17,000	19,685	20,000
Revolutions Per Minute (RPM)																
1	24,828	26,737	28,647	30,558	32,467	34,377	36,287	38,196	45,836	47,745	54,240	61,116	63,025	64,935	75,190	76,395
2	12,414	13,368	14,328	15,278	16,238	17,188	18,143	19,098	22,918	23,875	27,120	30,558	31,510	32,465	37,595	38,195
3	8,276	8,913	9,549	10,186	10,822	11,459	12,096	12,732	15,278	15,915	18,080	20,372	21,010	21,645	25,065	25,465
4	6,207	6,685	7,162	7,640	8,116	8,595	9,072	9,549	11,459	11,940	13,560	15,278	15,755	16,235	18,800	19,100
5	4,966	5,348	5,730	6,112	6,494	6,876	7,258	7,640	9,168	9,550	10,850	12,224	12,605	12,985	15,040	15,280
6	4,138	4,456	4,775	5,092	5,411	5,729	6,048	6,366	7,639	7,960	9,040	10,186	10,505	10,820	12,530	12,730
7	3,547	3,820	4,092	4,366	4,638	4,911	5,183	5,456	6,548	6,820	7,750	8,732	9,005	9,275	10,740	10,915
8	3,103	3,342	3,580	3,820	4,058	4,297	4,535	4,775	5,729	5,970	6,780	7,640	7,880	8,115	9,400	9,550
9	2,758	2,970	3,182	3,396	3,606	3,820	4,032	4,244	5,092	5,305	6,030	6,792	7,000	7,215	8,355	8,490
10	2,483	2,674	2,865	3,056	3,247	3,438	3,629	3,820	4,584	4,775	5,425	6,112	6,300	6,495	7,520	7,640
12	2,069	2,228	2,386	2,546	2,705	2,864	3,023	3,183	3,820	3,980	4,520	5,092	5,250	5,410	6,265	6,365
14	1,773	1,910	2,046	2,182	2,319	2,455	2,592	2,728	3,274	3,410	3,875	4,366	4,500	4,640	5,370	5,455
16	1,552	1,672	1,791	1,910	2,029	2,149	2,268	2,387	2,865	2,985	3,390	3,820	3,940	4,060	4,700	4,775
18	1,379	1,485	1,591	1,698	1,803	1,910	2,016	2,122	2,546	2,655	3,015	3,396	3,500	3,605	4,175	4,245
20	1,241	1,337	1,432	1,528	1,623	1,719	1,814	1,910	2,292	2,390	2,715	3,056	3,150	3,245	3,760	3,820
22	1,128	1,215	1,302	1,388	1,476	1,562	1,649	1,736	2,084	2,170	2,465	2,776	2,865	2,950	3,420	3,470
24	1,034	1,115	1,194	1,274	1,353	1,433	1,512	1,591	1,910	1,990	2,260	2,546	2,625	2,705	3,135	3,185
26	955	1,028	1,101	1,176	1,248	1,322	1,395	1,468	1,762	1,840	2,090	2,352	2,425	2,495	2,890	2,940
28	887	955	1,023	1,092	1,159	1,228	1,296	1,364	1,637	1,705	1,940	2,182	2,250	2,320	2,685	2,730
30	828	891	955	1,018	1,082	1,146	1,210	1,274	1,528	1,595	1,810	2,056	2,100	2,165	2,505	2,545
32	776	836	895	954	1,014	1,074	1,134	1,194	1,432	1,495	1,695	1,910	1,970	2,030	2,350	2,385
34	730	786	843	898	955	1,011	1,067	1,124	1,348	1,405	1,595	1,796	1,855	1,910	2,210	2,245
36	690	742	795	848	902	954	1,007	1,061	1,273	1,330	1,510	1,698	1,750	1,855	2,090	2,120
38	653	704	754	804	854	904	955	1,006	1,206	1,260	1,430	1,608	1,660	1,710	1,980	2,010
40	620	669	716	764	812	860	908	956	1,146	1,195	1,355	1,528	1,575	1,625	1,880	1,910
42	591	636	682	732	775	818	863	908	1,090	1,140	1,295	1,464	1,500	1,545	1,790	1,820

For intermediate diameters not listed use the formula listed in Section 1.2.10 of ANSI B7.1

SFPM = .262 x wheel diameter in inches x RPM.

To convert meters per second (m/s) to SFPM:  $m/s \times 196.85 = SFPM$

To convert SFPM to m/s:  $SFPM/196.85 = m/s$ .

To convert RPM to SFPM: Wheel Diameter x RPM x 0.262 = SFPM



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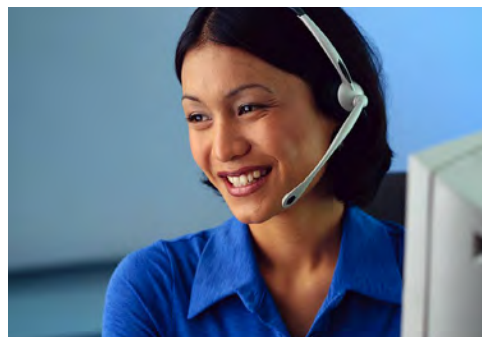
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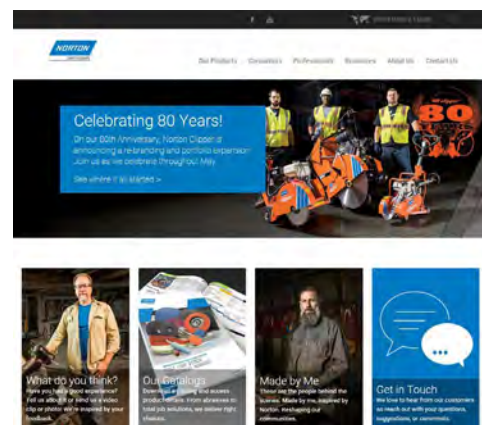
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