

NORTON **EZ Essentials**™

SAINT-GOBAIN

CATALOG #8312

KEY ABRASIVE PRODUCT
SOLUTIONS FOR THE
**MAINTENANCE,
REPAIR, AND
OPERATIONS
MARKET**

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Our Mission

We offer powerful, precise, user-friendly solutions, which enable our customers to cut, shape and finish all materials even in the most complex and challenging applications. By working closely with end-users and our grinding expert partners, we design and provide customized solutions to secure the best option for performance, cost and safety.

Our Expertise

Norton is the leading brand of Saint-Gobain Abrasives, with more than 135 years of experience in manufacturing abrasives.

We are committed to providing access to our expert's knowledge whenever you need it. Whether it is through our [Process Solutions Program \(PSP\)](#), ongoing training programs, or through on-line expert articles and white papers you can stay up-to-date with Norton where and when you need it.

Bring us your grinding challenges, we have solutions!

Our Commitment

You be the final judge in performance! We are so confident of the superior performance of our abrasive products, as recommended for specific applications, that we invite in-plant tests against any other brand of abrasive product on the market. Contact your Norton Representative to find out more about our No Risk test policy or visit www.nortonabrasives.com



Why Tiers Matter

At Norton we believe in delivering right choices that matter. Our abrasives are classified in BEST, BETTER, and GOOD performance/price tiers to help you choose the right product for your specific application every time.

BEST

Our BEST tier products are designed for the customer who is seeking the highest productivity at the lowest total cost.

BETTER

Our BETTER tier products provide an excellent blend of performance and price.

GOOD

And, our GOOD tier products promise the highest quality you expect from the Norton name with a low initial price.

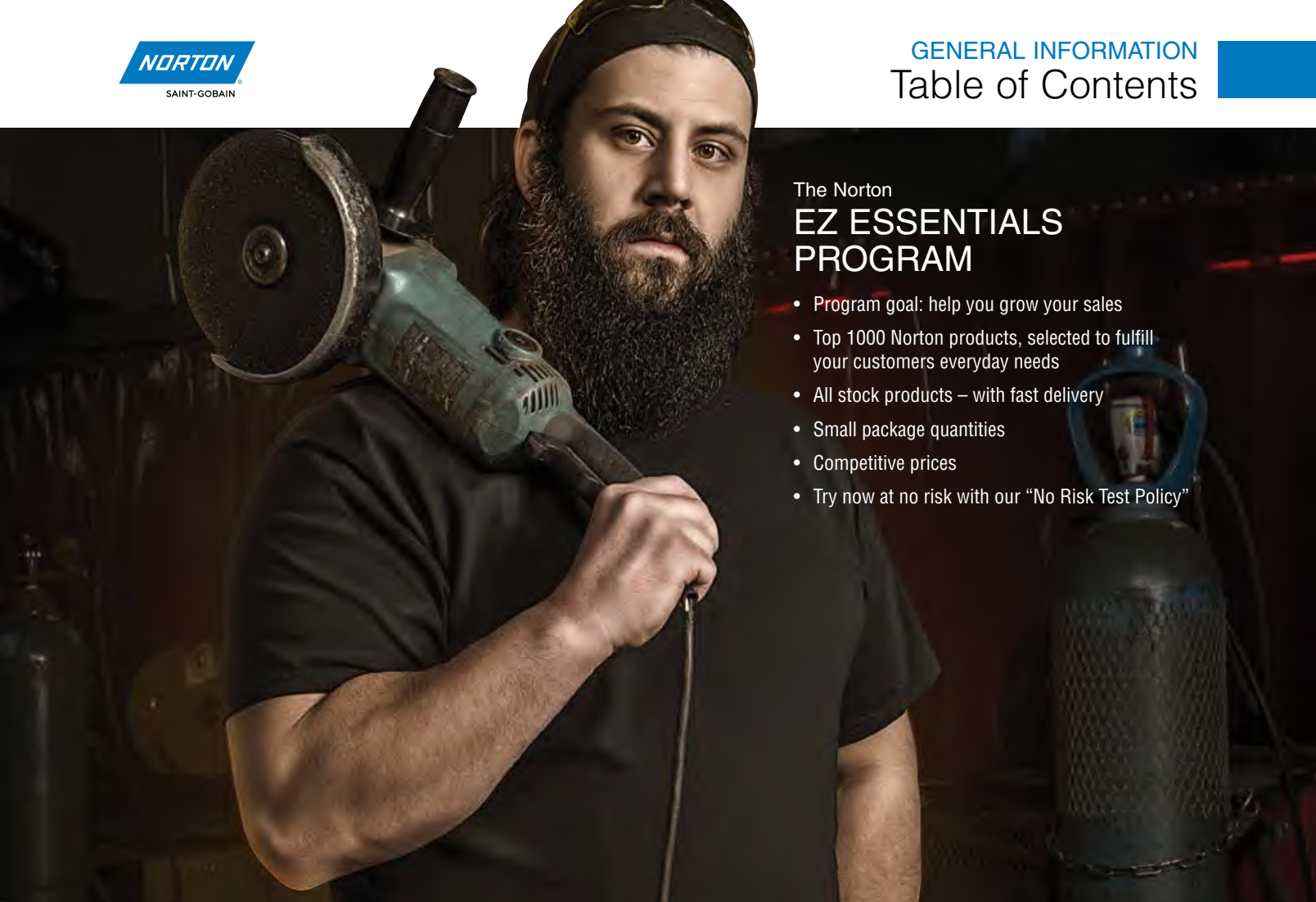
If you need help determining the right tier for your specific needs, don't hesitate to contact us directly or reach out to your Norton sales representative.

Go Further

Visit our website at www.nortonabrasives.com for a more comprehensive outline of products, safety and application information. We continually update it with our most current information.

Connect with us:





The Norton
**EZ ESSENTIALS
PROGRAM**

- Program goal: help you grow your sales
- Top 1000 Norton products, selected to fulfill your customers everyday needs
- All stock products – with fast delivery
- Small package quantities
- Competitive prices
- Try now at no risk with our “No Risk Test Policy”

GENERAL INFORMATION

About Norton **2**
 Table of Contents **3**
 Machine Index **4**
 Safety Basics **5**

METAL FAB GRINDING AND CUTTING

Depressed Center Wheels **7**
 Small Diameter Reinforced Cut-off Wheels **10**
 Chop Saw Cut-off Wheels **13**

COATED AND NON-WOVEN ABRASIVES

Coated Abrasive Basics. **15**
 Non-Woven Basics **18**
 Discs
 Fiber Discs **19**
 Flap Discs **22**
 Mini Flap Discs **27**
 Non-Woven Depressed Center Discs. **28**
 Cloth PSA Discs **30**
 Quick-Change Discs **32**
 Non-Woven Discs **35**
 Non-Woven Quick-Change Discs. **37**
 Paper Discs. **43**
 Back-up Pads. **45**

COATED AND NON-WOVEN ABRASIVES

Wheels
 Flap Wheels **46**
 Non-Woven Flap Wheels **47**
 Non-Woven Wheels **48**
 Non-Woven Convolute Wheels **49**
 Belts
 File Belts **50**
 Narrow Belts **53**
 Non-Woven Belts. **55**
 Sheets
 Paper Sheets **56**
 Cloth Sheets **58**
 Rolls
 Cloth Rolls **59**
 Non-Woven Hand Pads. **60**
 Sponges / Hand Pads
 Abrasive Sponges **62**

BONDED ABRASIVES

Bonded Abrasive Basics **64**
 Portable Snagging Wheels Cones, & Plugs **65**
 Mounted Points **67**
 Bench & Pedestal Wheels **70**
 Toolroom Vitrified Wheels **72**
 Dressing Solutions **73**

DIAMOND & CBN ABRASIVES

Diamond and cBN Wheels **76**
 Stationery Diamond Dressing Tools **78**
 Safety
 Safety Leadership / References **80**
 Safety Icon Meanings **81**
 Coated Abrasive Do's and Don'ts **83**
 Portable Grinding Safety **84**
 Conversion Table **85**
 General Information
 Contact Us **86**
 More from Norton **87**

 1	1. Backstand Belt Grinders Coated Abrasive Backstand Belts 60 - 61 Non-Woven Backstand Belts 62	 10	10. In-Line Drum Sanders Non-Woven Portable Belts 62
 2	2. Bench and Pedestal Grinders Coated Abrasive Flap Wheels 53 Non-Woven Convolute Wheels 57 Vitrified Bench and Pedestal Wheels 77 - 79 Wire Brushes 15 - 21	 11	11. Jitterbug Sanders Coated Abrasive Sheets 63 - 65 Coated Abrasive Rolls 66 Non-Woven Hand Pads 67 - 68
 3	3. Benchstand Grinders Coated Abrasive Benchstand Belts 60 - 61 Non-Woven Benchstand Belts 62	 12	12. Orbital Sanders Coated Abrasive Paper Discs 50 - 51 Coated Abrasive Small Diameter Cloth PSA Discs 38
 4	4. Chop Saw Machines Chop Saw Reinforced Cut-off Wheels 13	 13	13. Portable Belt Sanders Non-Woven Portable Belts 62
 5	5. Circular Saws Small Diameter Circular Saw Reinforced Cut-off Wheels 12	 14	14. Portable Cut-off Tool Small Diameter Reinforced Cut-off Wheels (1-1/2"-4" wheels) 10 - 12
 6	6. Die and Pencil Grinders Coated Abrasive Small Diameter Flap Wheels 54 Non-Woven Small Diameter Flap Wheels 55 Mounted Points 73 - 76 Wire Brushes 15 - 21 Carbide Burrs 81 - 82	 15	15. Portable File Belt Sanders Coated Abrasive File Belts 58 - 59 Non-Woven File Belts 62
 7	7. Drill Small Diameter (2" & 3" X 3/8 Wheels) 10 - 12	 16	16. Right Angle/Vertical Shaft Portable Grinders Depressed Center Grinding Wheels 7 - 9 Right Angle Grinder Reinforced Cut-off Wheels, Type 01/41 and Type 27/42 10 - 12 Coated Abrasive Fiber Discs 27 - 29 Coated Abrasive Flap Discs 30 - 35 Coated Abrasive Paper Discs 50 - 51 Coated Abrasive Quick-Change Discs 40 - 42 Non-Woven Quick-Change Discs 43 - 47 Non-Woven Depressed Center Discs 36 Non-Woven Discs 48 - 49 Wire Brushes 15 - 21
 8	8. Hand Finishing Applications Coated Abrasive Paper Discs 50 - 51 Coated Abrasive Sheets 63 - 65 Coated Abrasive Rolls 66 Non-Woven Hand Pads 67 - 68 Dressing Sticks 80 Wire Brushes 15 - 21	 17	17. Right Angle/Vertical Shaft Portable Cup Grinders Snagging Cup Wheels 72 Wire Brushes 15 - 21
 9	9. Horizontal/Straight Shaft Portable Grinders Small Diameter Reinforced Cut-off Wheels 10 - 12 Coated Abrasive Flap Wheels 53 Non-Woven Small Diameter Flap Wheels 55 Cones and Plugs 71 - 72 Mounted Points 73 - 76	 18	18. Stationary Disc Sanders Coated Abrasive Large Diameter Cloth PSA Discs 39

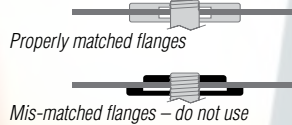
⚠ WARNING

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.



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



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.

Please see pages 80 - 84 for additional safety information





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:	

RIGHT ANGLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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.

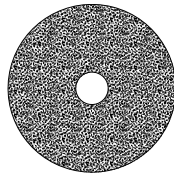
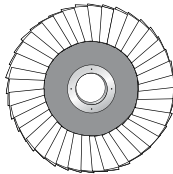
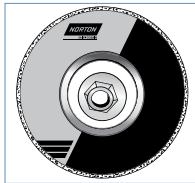


Mini-Mount Hub

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?

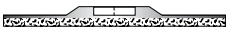


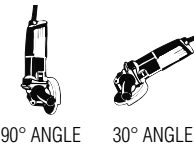
Depressed Center Wheels vs. Flap Discs or Fiber Discs

- 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

Mounting Depressed Center Wheels

Type-To-Application Recommendation Guide

Wheel Type/Thickness	Applications	90° ANGLE	30° ANGLE
TYPE 27 	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.		
.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	◆	◆
1/4" Type 27	For light- to heavy-duty grinding on the bottom/face of the wheel		◆



Material/Application-To-Product Recommendation Guide

	BETTER BlueFire	GOOD Gemini
CUTTING		
Mild Carbon / High Tensile Steel	◆	◆
Stainless Steel / Alloys	◆	◆
Contaminate Free*	◆ FC/INOX/SS	◆ INOX/SS
Cast Iron		◆
Aluminum / Bronze / Brass		◆
NOTCHING		
Mild Carbon / High Tensile Steel	◆	◆
Stainless Steel / Alloys	◆	◆ INOX/SS
Contaminate Free*	◆ FC/INOX/SS	◆ INOX/SS
Cast Iron	◆ Foundry	◆
GRINDING		
Mild Carbon / High Tensile Steel	◆	◆
Stainless Steel / Alloys	◆	◆
Contaminate Free*	◆ FC/INOX/SS	◆ INOX/SS
Cast Iron	◆ Foundry	◆
Gray Iron	◆ Foundry	◆
Aluminum / Bronze / Brass		◆
BLENDING		
Mild Carbon / High Tensile Steel		◆ Flexible
Stainless Steel / Alloys		◆ Flexible
Aluminum / Bronze / Brass		◆ Flexible
Fiberglass / Plastic		◆

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
* For use in nuclear and food industry applications that require contaminant free (<0.1% iron, sulfur or chlorine)

Cross Reference Guides

Type 27 and 28 – 1/8" and 1/4"

NORTON	TOTAL PERFORMANCE		INITIAL PRICE	SPECIALTY
	BETTER BlueFire	GOOD Gemini	GOOD Gemini XXL	
3M	-	-	High Perform., Green Corps	
Arc	-	Predator A24R	-	
Brilliant	-	Brill-Tex A24UHPXL, A30T	-	
Bullard	ZA24R Competitor	A24R	-	
Camel	-	A24R	-	
DeWalt	XP	-	HP	
Flexovit	Metalhog, AXT24S	High Perform. A24/30T	-	
Metabo	ZA24T	A24R & T	-	
Pearl	-	Premium Metal A24S, Redline Max A/WA24S	-	
Pferd	ZA SGP, ZA T SGP	A-PS, A-SG	SG Elastic	
Sait	Z24R Z-Tech	A24R, A24Turbo	-	
Tyrolit	ZA24P-BFX	A30S & Q-BFX	-	
Walter	Allsteel XX	HP	All Steel	
Weiler	Tiger Zirc	Wolverine A24R	Tiger LL	

Better choice for stainless steel, carbon steel, alloys and gray iron



BLUEFIRE ZIRCONIA ALUMINA / AO BLEND

- A blend of the most advanced zirconia alumina and premium aluminum oxide abrasives delivers 2 to 3 times the life of aluminum oxide wheels
- Broad utility; from light-to heavy-pressure applications
- Engineered specifically to deliver fast cut rate; excellent blend of performance and price

SIZE	MAX. RPM	STD. PKG.	PART#
1/8" – Cutting / Notching / Light Grinding – Type 27			
4 x 1/8 x 3/8"	15,280	25	662528 43178
4-1/2 x 1/8 x 5/8-11"	13,580	10	662528 43211
4-1/2 x 1/8 x 7/8"	13,580	25	662528 43212
5 x 1/8 x 5/8-11"	12,225	10	662528 43215
5 x 1/8 x 7/8"	12,225	25	662528 43216
6 x 1/8 x 7/8"	10,185	20	662528 43202
7 x 1/8 x 5/8-11"	8,600	10	662528 43233
7 x 1/8 x 7/8"	8,600	20	662528 43234
9 x 1/8 x 7/8"	6,600	20	662528 43245

SIZE	MAX. RPM	STD. PKG.	PART#
1/4" – Grinding – Type 27			
4 x 1/4 x 3/8"	15,280	25	662528 43179
4 x 1/4 x 5/8"	15,280	25	662528 43177
4-1/2 x 1/4 x 5/8-11"	13,580	10	662528 43213
4-1/2 x 1/4 x 7/8"	13,580	25	662528 43214
5 x 1/4 x 5/8-11"	12,225	10	662528 43217
5 x 1/4 x 7/8"	12,225	25	662528 43218
6 x 1/4 x 5/8-11"	10,185	10	662528 43224
6 x 1/4 x 7/8"	10,185	20	662528 43203
7 x 1/4 x 5/8-11"	8,600	10	662528 43235
7 x 1/4 x 7/8"	8,600	20	662528 43236
1/4" – Grinding – Type 28			
7 x 1/4 x 5/8 - 11"	8,600	10	662528 43229

Good choice for steel and ferrous metals as well as specialty applications in aluminum and foundries



GEMINI ALUMINUM OXIDE

- Quality aluminum oxide for consistent performance at an economical price
- High-performance bond and wheel hardness are designed for fast cut while retaining excellent wheel life
- Versatile, general purpose specification for use on variety of materials including 400 series stainless, hard carbon steels, soft carbon steels
- Gemini XXL - fastest 100% aluminum oxide wheels on the market today with 50% more life and metal removal than standard aluminum oxide wheels

SIZE	MAX. RPM	STD. PKG.	PART#
1/8" – Cutting / Notching / Light Grinding – Type 27			
4 x 1/8 x 3/8"	15,280	25	662528 42016
4-1/2 x 1/8 x 5/8-11"	13,580	10	662528 43590
4-1/2 x 1/8 x 7/8"	13,580	25	662528 43591
5 x 1/8 x 7/8"	12,225	25	662528 43596
6 x 1/8 x 5/8-11"	10,185	10	662528 33965
6 x 1/8 x 7/8"	10,185	20	662528 01864
7 x 1/8 x 5/8-11"	8,600	10	662529 39259
7 x 1/8 x 7/8"	8,600	20	662529 39207
9 x 1/8 x 5/8-11"	6,600	10	662530 48983

SIZE	MAX. RPM	STD. PKG.	PART#
1/4" – Grinding – Type 27			
4 x 1/4 x 3/8"	15,280	25	662528 42018
4 x 1/4 x 5/8"	15,280	25	662528 42019
4-1/2 x 1/4 x 5/8-11"	13,580	10	662528 43593
4-1/2 x 1/4 x 7/8"	13,580	25	662528 43594
5 x 1/4 x 5/8-11"	12,225	10	662528 43597
5 x 1/4 x 7/8"	12,225	25	662528 43598
6 x 1/4 x 5/8-11"	10,185	10	662528 32390
6 x 1/4 x 7/8"	10,185	20	662528 01865

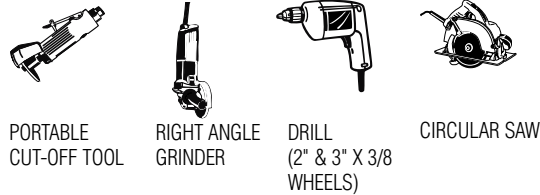
SIZE	MAX. RPM	STD. PKG.	PART#
1/8" – Grinding – Type 27 Gemini XXL			
9 x 1/8 x 5/8 - 11"	6,600	10	662533 70275

Small Diameter Reinforced Cut-off Wheels



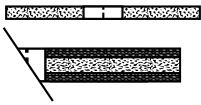



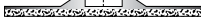

The Norton small diameter cut-off wheel line consists of Type 01/41 straight and Type 27/42 depressed center cut-off wheels from 1-1/2" to 9" diameters. These wheels come in ultra thin .035" for quick burn-free and burr-free cutting to .125" for more durable applications. All are reinforced for the demanding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




The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Type-to-Application Recommendation Guide

Wheel Type/Thickness	Applications	
TYPE 01/41 	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 .125	Where fast cutting and low kerf loss are desired For tough cutting and notching applications where stability is important	◆ ◆
TYPE 01/41 RIGHTCUT 	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 3/32	Where fast cutting and low kerf loss are desired For tough cutting and notching applications where stability is important	◆ ◆
TYPE 27/42 RIGHTCUT 	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 3/32, .125	Where fast cutting and low kerf loss are desired For tough cutting and notching applications where stability is important	◆ ◆

How to Pick the Right Wheel Type

CUT-OFF WHEEL DESCRIPTION CODES	
BLANK = All Purpose	FC = Fast Cut
INOX/SS = Contaminant Free	LL = Long Life
DESCRIPTION CODE DEFINITIONS	
BLANK = All Purpose	Where an excellent blend of cut rate and life is needed
FC = Fast Cut	Where fast stock removal is needed, or the application only allows for low-pressure or under-horsepowered grinders
INOX/SS = Contaminate Free	Contain <0.1% iron, sulfur or chlorine for rust-free and corrosion-free results. Will not contaminate stainless steel
LL = Long Life	Where durability is needed due to severe application, and when horsepower of the grinder allows for heavy pressure
 = Cutting-off Only	RightCut wheels for cutting only, provide noticeably longer life and faster cut rate versus competitive wheels, and less pressure is required for first cut

Small Diameter Reinforced Cut-off Wheels

Cross-Reference Guide

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

NORTON	TOTAL PERFORMANCE ← → INITIAL PRICE		
	BETTER	GOOD	GOOD
	BlueFire	Gemini Fast Cut	Gemini
Brilliant	Brill-Max ZA	—	—
Bullard	ZA46T, ZA60T	TA36T	TA46T, TA60T
Camel	ZA60-TBF	A36 RBF	A60 RBF
Flexovit	—	High Perf Fast Grind A36	High Perf Fast Cut A36, 46, 60
Pearl	SRT, Zirconia	—	Premium
Pferd	—	—	—
Sait	—	A60S	A24R, A36T, A60T
Spedecut	—	—	—
Walter	—	A24 ZIP	A60 ZIP

RightCut Type 27/42 and Type 01/41 – .040" - .125"

NORTON	TOTAL PERFORMANCE ← → INITIAL PRICE	
	BETTER	GOOD
	BlueFire	Gemini
Brilliant	—	Brill-Blade Extra FC
Bullard	ZA60T	SGA60U
Camel	ZA Quickie Cut	A36-S-BF
Flexovit	—	Razorblade A24T, 30V, 36T
Pearl	Redline Max Slimcut	—
Pferd	SGP-ZA-Q-INOX	—
Sait	Z-tech	A60S, Saitech
Walter	—	A-60-ZIP, A-30-ZIP

Small Diameter Reinforced Cut-off Wheels

Better choice for stainless steel, carbon steel, alloys and gray iron



BLUEFIRE ZIRCONIA ALUMINA / Al₂O₃ BLEND

- A blend of the most advanced zirconia alumina and premium aluminum oxide abrasives delivers 2 to 3 times the life of aluminum oxide wheels
- Ultra-thin side reinforcing for maximum cut rate with minimum kerf loss; ideal when precise, thin cut is desired
- Broad utility from light-to heavy-pressure applications

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 Small Diameter Cut-off			
4 x .125 x 3/8"	19,100	25	662528 43172

* Wheels are to be used for cutting only.

SIZE	MAX. RPM	STD. PKG.	PART#
.040, .045, 3/32 Type 27/42 RightCut Cut-off			
4-1/2 x .045 x 5/8-11"	13,580	10	662528 43223
4-1/2 x .045 x 7/8"	13,580	25	662528 43219
5 x .045 x 7/8"	12,225	25	662528 43220
6 x .045 x 7/8"	10,185	25	662528 43221
9 x 3/32 x 5/8-11"	6,600	10	662528 43278

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 RightCut Cut-off			
5 x 1/16 x 7/8"	12,225	25	662528 43209
6 x 1/16 x 7/8"	10,185	25	662528 43210

* Wheels are to be used for cutting only.

Good, versatile choice for steel and ferrous metals



GEMINI ALUMINUM OXIDE

- Quality aluminum oxide for consistent performance at an economical price
- Designed for portable cut-off tool applications where a fast cut and minimum material loss are desired
- Durable bond designed for fast cut while retaining excellent wheel life

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 Small Diameter Cut-off			
3 x .035 x 1/4"	25,465	25	662435 10627 FC
3 x .035 x 3/8"	25,465	25	662435 10628 FC
3 x 1/16 x 1/4"	25,465	25	662435 10645 FC
3 x 1/16 x 3/8"	25,465	25	662435 10647 FC
4 x .035 x 1/4"	19,100	25	662435 10629 FC
4 x .035 x 3/8"	19,100	25	662435 10630 FC
4 x 1/16 x 1/4"	19,100	25	662435 10654 FC
4 x 1/16 x 3/8"	19,100	25	662435 10655 FC

* Wheels are to be used for cutting only. FC = Fast Cut

SIZE	MAX. RPM	STD. PKG.	PART#
.040, .045 Type 27/42 RightCut Cut-off			
4 x .045 x 5/8"	15,280	25	662528 42180
4-1/2 x .045 x 5/8-11"	13,580	10	662528 42025
4-1/2 x .045 x 7/8"	13,580	25	662528 42026
5 x .045 x 5/8-11"	12,225	10	662528 41939
5 x .045 x 7/8"	12,225	25	662528 42036
6 x .045 x 5/8-11"	10,185	10	662528 30587
6 x .045 x 7/8"	10,185	25	662528 42202
7 x .045 x 7/8"	8,600	20	662529 12626

* Wheels are to be used for cutting only.

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 RightCut Cut-off			
4 x .045 x 5/8"	15,280	25	662435 27956
4 x 3/32 x 5/8"	15,280	25	662435 27955
4-1/2 x .045 x 7/8"	13,580	25	662528 23602
4-1/2 x .045 x 7/8"	13,580	250	662528 41213
5 x .045 x 7/8"	12,225	25	662528 23603
5 x 3/32 x 7/8"	12,225	25	662528 23600
6 x .045 x 7/8"	10,185	25	662528 23604
6 x .045 x 7/8"	10,185	250	662528 41215
7 x .045 x 7/8"	8,600	25	662528 32323

* Wheels are to be used for cutting only.

SIZE	MAX. RPM	STD. PKG.	PART#
3/32, .125 Type 27/42 Cut-off			
4-1/2 x 3/32 x 5/8-11"	13,580	10	662528 41903
4-1/2 x .125 x 5/8-11"	13,580	10	662528 43588
4-1/2 x .125 x 7/8"	13,580	25	662528 43589

* Wheels are to be used for cutting only.

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 Circular Saw Cut-off			
6 x .035 x 5/8"	10,185	25	662528 09714

* Wheels are to be used for cutting only.



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
- Machine Used:**



The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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.

How to Pick the Right Bond Type

DESCRIPTION CODE DEFINITIONS

LL = Long Life Where durability is needed due to severe application, and when cutting parts with small cross sections



Better choice for steel, stainless steel and all other ferrous metals

BLUEFIRE ZIRCONIA ALUMINA / A/O BLEND

- Durable, latest generation zirconia alumina and premium aluminum oxide abrasive blend outperforms competitive chop saw zirconia wheels by 20 percent
- Delivers twice the life and cut rate of aluminum oxide wheels on difficult to cut metals
- High performance resin bond is designed for free cut and long life

SIZE	MAX. RPM	STD. PKG.	PART#
Type 01/41 – Straight Cut-off Side Reinforcing			
12 x 7/64 x 1"	5,095	10	662528 43250
14 x 7/64 x 1"	4,365	10	662528 43253 LL
16 x 7/64 x 1"	3,820	10	662528 43257 LL

* Wheels are to be used for cutting only. LL = Long Life



Coated Abrasives

A coated abrasive product is made up of three basic raw materials: an abrasive grain, 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.

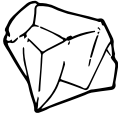
- For polishing and cleaning metal only



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



Engineered Shaped Ceramic (9)

Engineered shaped ceramic grain features a consistent shape from grain to grain along with razor-sharp cutting points. The unique patented geometry and tough micro-structure enable the grain to stay sharp, as new cutting points are exposed when the grain fractures.

- Carbon steel
- Aluminum
- Stainless steel
- Hard-to-grind metals



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, including powertrain applications.

Foam

Primarily used as backing for sponges, finer grit finishing discs, and buffing and polishing pads for cleaning and moist finishing applications.

Mesh

Mesh matrix backing comprised of thousands of tiny holes allowing for maximum dust extraction.

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

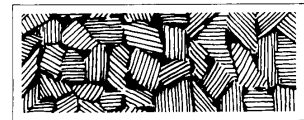
With an open coat, 50% to 75% of the surface is covered by abrasive grain. There are evenly spaced voids between the particles of grain, helping reduce the effect of loading caused by wood dust or metal particles.



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.



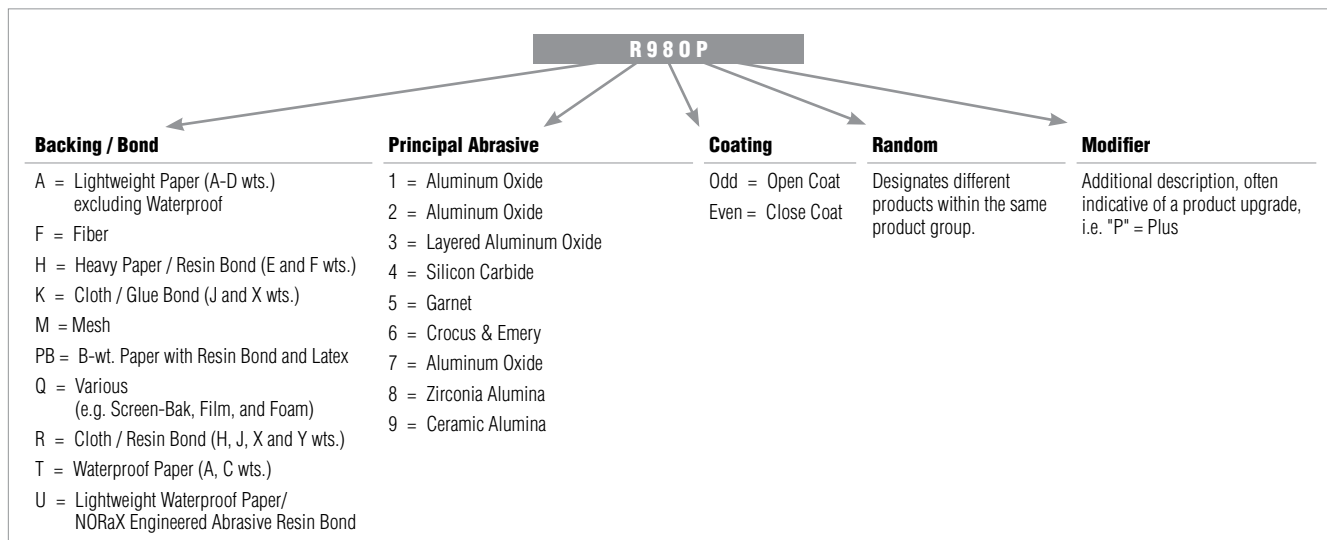
CLOSED COAT

Super Size Coating

The Super Size coat is an optional final coat and grinding aid applied over the size coat to help maintain low grinding temperatures and prevent loading.

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.



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

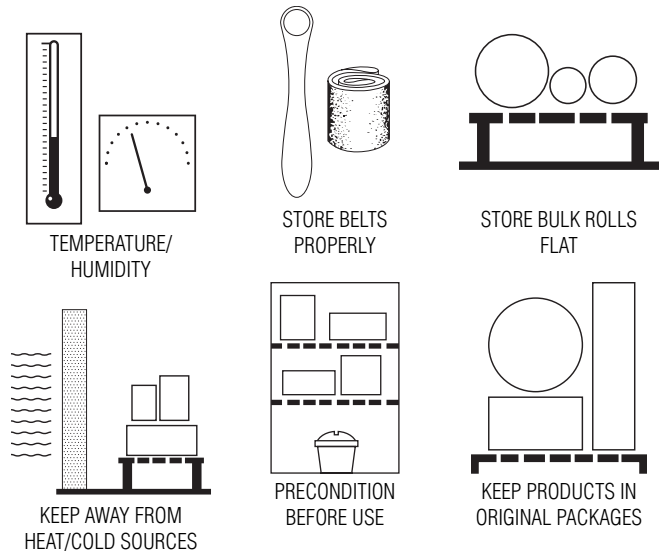
Stored under proper conditions, coated abrasives will retain their efficiency and usefulness over long periods. Improper or inadequate storage can introduce problems of weakened bond, curl, brittleness, and breakage.

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.



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.

Introduction

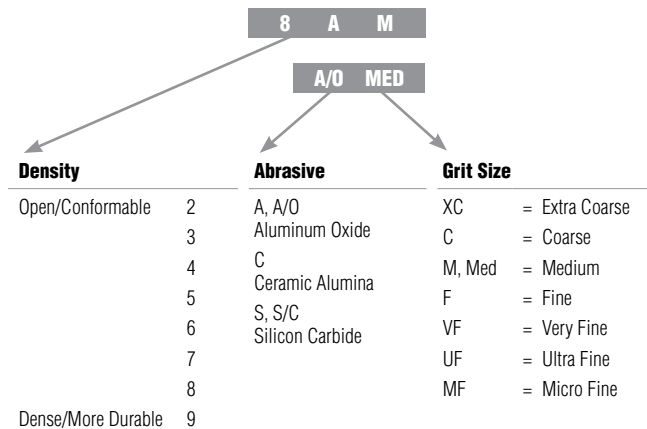
Most Norton Bear-Text products consist of a non-woven web of nylon fibers impregnated throughout with abrasive grain and bonded with synthetic resins. This design produces a cushioned, three-dimensional material that is extremely pliable and long lasting. The uniform dispersion of abrasive throughout the web provides a continuous supply of new grain as the old grain and fibers wear away during use.

Norton Bear-Text 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-Text 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-Text 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)	50
Coarse (C)	60 – 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-Text 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-Text 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-Text Non-Woven Products

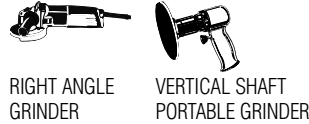
The following chart outlines the advantages achievable when using our products as alternatives to other cleaning, blending, deburring and finishing methods. These products are listed in the sequence of normal preference for the application stated. However, because of the numerous variables, only testing can ensure selection of the most cost-effective product.

CONVENTIONAL FINISHING METHOD	KEY APPLICATION	NORTON PRODUCT ALTERNATIVES	ADVANTAGES OF NORTON PRODUCT VERSUS ALTERNATE FINISHING METHODS
Bristle Brushes	Cleaning	Rapid Strip, Convolute Wheels, and Rapid Prep Discs	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 Rapid Prep Discs	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 XHD Discs Rapid Prep Discs	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



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:**



RIGHT ANGLE GRINDER

VERTICAL SHAFT PORTABLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Material-to-Product Recommendation Guide

	TOTAL PERFORMANCE		INITIAL PRICE
	BEST	BEST	BETTER
	RazorStar F990S	Blaze F980	BlueFire F826P
Stainless Steel / Titanium / Super Alloys*	◆	◆	◆
Mild Carbon Steel / Welds	◆		◆
Ferrous Metals / Cast Iron	◆		◆

*Nickel/Cobalt Based – Hastelloy, Inconel, Waspalloy

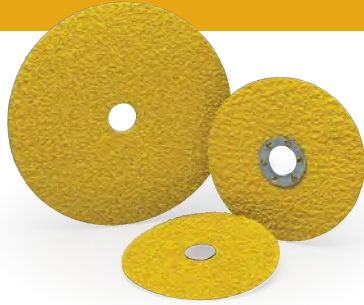
Application/Grit Recommendation Guide

COARSER (GRINDING) ←									FINER (FINISHING) →		
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	BEST	BETTER	
NORTON	RazorStar F990S	Blaze F980	BlueFire F826P	
3M	1187C, 1182C, 987C, 982C	785C, 787C, 985C, 987C	501C	
Camel	—	Ceramic	Zirconia	
Flexovit	—	CG+	ZA	
GemTex	—	PMD Supreme, PMD Supreme Plus	Zee-Type, Zee Supreme, Gem Supreme	
Hermes	—	CR456	RB414X, RB414X Procut	
Klingspor	—	FS966	CS565, CS570	
Metabo	—	CER	ZA	
Mirka	—	—	Blue, Gold	
Pearl	—	—	FZ	
Pferd	—	CO Cool	Z, Z Cool	
United Abrasives/Sait	—	9S, 9-11	3Z, Z, AZX	
SIA	4582, 4581	4515, 4560,	4815, 4819	
Standard	—	Ceramic Pro	Zirconia	
VSM	AF799, AF890	AF890, AF799, XF885, XF870, XF850	ZF713, ZF714, ZF844	
Walter	—	Walter Coolcut XX	Walter Topcut	

Best choice for carbon steel, stainless steel, aluminum and hard-to-grind metals



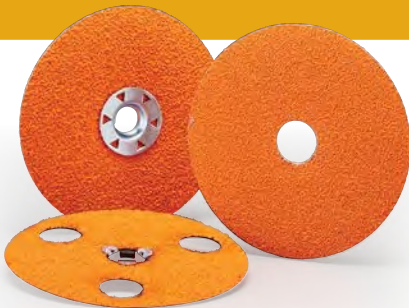
RAZORSTAR ENGINEERED SHAPED CERAMIC GRAIN

- Norton RazorStar discs with engineered shaped ceramic grain are a breakthrough technology specifically designed to deliver unbeatable grinding performance versus all other ceramic discs on the market today
- The unique combination of razor-sharp grains with a supersized grinding aid helps to significantly reduce heat generation for cooler cuts and longer life on all materials
- A single disc design has been optimized for superior performance on all materials including carbon steel, aluminum, stainless steel and hard-to-grind metals

SIZE	GRIT	STD. PKG.	PART #
Norton RazorStar F990S Fiber Discs			
4-1/2 x 7/8"	36 +	25	662544 27990
5 x 7/8"	36 +	25	662544 27991
6 x 7/8"	36 +	25	662544 38198
7 x 7/8"	36 +	25	662544 27992
9-1/8 x 7/8"	36 +	25	662544 27993

SIZE	GRIT	STD. PKG.	PART #
Norton RazorStar F990S Speed-Change Fiber Discs			
4-1/2 x 5/8-11"	36 +	25	662544 30117
5 x 5/8-11"	36 +	25	662544 30118
7 x 5/8-11"	36 +	25	662544 30119
Norton RazorStar F990S AVOS Speed-Lok Fiber Discs			
4-1/2 – 3" Hole	36 +	25	662544 39930
5 – 3" Hole	36 +	25	662544 39931
7 – 3" Hole	36 +	25	662544 39932
7 – 6" Hole	36 +	25	662544 39932

Best choice for stainless steel, titanium, and super alloys



BLAZE F980 CERAMIC ALUMINA SUPERSIZE

- 100% ceramic alumina micro-fracturing grain constantly exposes sharper grain edges to significantly increase cut rate and life over competitive blended/low-ratio ceramic alumina discs
- Self-lubricating grinding aid treatment delivers the coolest cut on stainless steel, high alloy steels, super alloys, titanium, and other difficult to grind materials
- Heavier fiber backing for additional strength and tear resistance
- Speed-Change 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.

SIZE	GRIT	STD. PKG.	PART#
Blaze F980 with 7/8" Center Hole			
4-1/2 x 7/8"	24	25	699573 98000
	36	25	780727 43400
	50	25	699573 98002
	60	25	699573 98003
	80	25	699573 98004
5 x 7/8"	120	25	662544 25332
	24	25	699573 98005
	36	25	780727 43401
	50	25	699573 98007
	60	25	699573 98008
7 x 7/8"	80	25	699573 98009
	120	25	662544 09084
	24	25	699573 98010
	36	25	780727 43402
	50	25	699573 98012
9-1/8 x 7/8"	60	25	699573 98013
	80	25	699573 98014
	120	25	662544 11528
	24	25	699573 98015
9-1/8 x 7/8"	36	25	699573 98016
	50	25	699573 98017

SIZE	GRIT	STD. PKG.	PART#
Blaze F980 with Speed-Change Fastener			
4 1/2 x 5/8-11"	60	25	662610 42247
5 x 5/8-11"	60	25	662611 85803

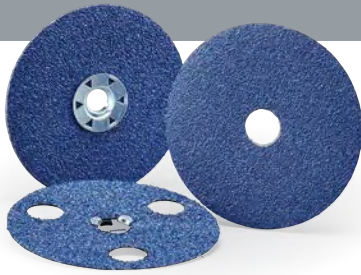
Note: Fiber discs must be used with back-up pads shown on the next page of this section.

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



Learn the best way to mount a fiber disc on a right angle grinder at <https://nortonsga.us/5sdjv>

Better choice for stainless, super alloys, steel, cast iron and high-pressure applications



BLUEFIRE F826P ZIRCONIA ALUMINA

- High-performance zirconia alumina abrasive blend provides 15% faster cut and longer life with less power draw than conventional zirconia discs
- Advanced resin bond technology with enhanced grain adhesion for extended life
- Heavier fiber backing for additional strength and tear resistance

SIZE	GRIT	STD. PKG.	PART#
BlueFire F826P with 7/8" Center Hole			
4-1/2 x 7/8"	24	25	662611 38457
	36	25	662611 38456
	50	25	662611 38454
	60	25	662611 38453
	80	25	662611 38452
5 x 7/8"	24	25	662611 38563
	36	25	662611 38562
	50	25	662611 38561
	60	25	662611 38601
	80	25	662611 38600

SIZE	GRIT	STD. PKG.	PART#
BlueFire F826P with 7/8" Center Hole			
7 x 7/8"	24	25	662611 38594
	36	25	662611 38593
	50	25	662611 38590
	60	25	662611 38591
	80	25	662611 38592
9-1/8 x 7/8"	24	25	662611 38584
	36	25	662611 38583
	50	25	662611 38582

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



VENDIBLE

Designed to draw heat away from the grinding zone to reduce loading and increase life of the disc

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 for shorter-shafted right angle grinders.

SIZE	MAX. RPM	STD. PKG.	PART#
Air Cooled Standard Rubber Back-up Pads			
4" Medium	12,000	5	636425 04918 V
4-1/2" Medium	11,000	5	636425 02122 V
7" Medium	8,600	5	636425 43422 V
No-Nose Air Cooled Standard Rubber Back-up Pads			
4-1/2" Medium	11,000	5	636425 04872 V
Tools			
#103 Retainer Nut	—	10	636425 43463

Note: Retainer nuts are not included with back-up pads. These must be ordered separately.


V = vendible package. Ideal for vending machines and small jobs. 10 Back-up pads/package, 5 packs per carton. Order in multiples of 5.

For additional backup pads see Norton Full Line catalog #7364



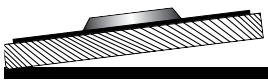


Flap discs are versatile grinding and finishing tools having four main components: abrasive flaps, flap density (how the flaps are stacked), backing plate shape (flat or conical), backing plate material (fiberglass or plastic). All flap discs have flaps that are overlapped and glued to the backing plate. 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, Ceramic/Zirconia Alumina blend, Zirconia Alumina, 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:	 RIGHT ANGLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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

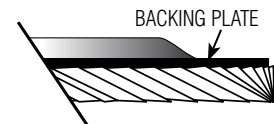


High Density

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

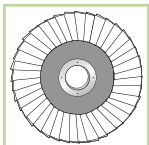
Backing Plate Materials

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.



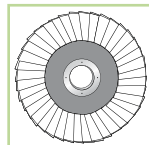
Why Choose Flap Discs?

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



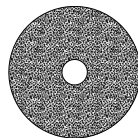
Flap Discs vs. Grinding Wheels

- 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

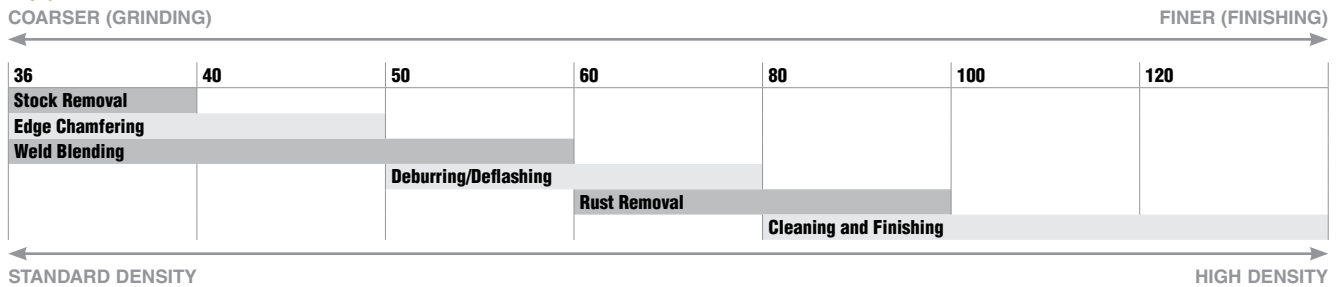
- 20X longer life, reduced abrasive cost
- Fewer disc changes, reduced labor cost
- More consistent finish
- No back-up pad required
- Easier storage, no curling
- Reduced loading
- Use flap discs one grit size coarser than fiber discs, except in 36 grit



Material-to-Product Recommendation Guide

	BEST	BETTER	GOOD
	Blaze R980P	BlueFire R860	Metal R828
TYPE 29 FOR STOCK REMOVAL			
Stainless Steel / Titanium / Super Alloys	◆	◆	◆
Mild Carbon Steel / Welds		◆	◆
Ferrous Metals / Cast Iron		◆	◆
Brass / Bronze / Aluminum		◆	
TYPE 27 FOR BLENDING AND FINISHING			
Stainless Steel / Titanium / Super Alloys	◆	◆	◆
Mild Carbon Steel / Welds		◆	◆
Ferrous Metals / Cast Iron		◆	◆
Brass / Bronze / Aluminum		◆	◆

Application/Grit Recommendation Guide



Cross Reference Guide

	TOTAL PERFORMANCE		INITIAL PRICE
	BEST	BETTER	GOOD
NORTON	Blaze R980P	BlueFire R860	Metal R828
3M	747D, 947D, 967A, 969F	546D, 566A, 577F	—
Camel	Ceramic Pro	ZA Pro	ZA
CGW/Pasco	Ceramic	Zirconia	—
DeWalt	XP Ceramic	HP Zirconia	FlexVolt
Flexovit	Zircotex Ceramic	Zircotex, Zirocomax, Tornado	—
Garryson	CeramIQ	Zirc+	A/O
GemTex	Ceramic Flaptec	Zirconia Flaptec	—
Hermes	—	FL390	Webrax-AN 701
Klingspor	SMT656	SMT624, SMT626, SMT627, SMT630	—
Metabo	Flexiamant Super Ceramic	Flexianmant Zirconia, Novoflex	—
Mirka	—	—	—
Pearl	Redline Maxidics, Stainlessmax Maxidics	Zirconia Maxidisc, Silver Line Zirconia	Silver Line A/O
Pferd	Polifan Z-SG, Polifan SG-CO	Polifan SG Zirkon, Polifan SG ZA, SGP, PSF Zirc	Polifan PSF A/O
United Abrasives/Sait	Encore Ceramic, Ovation Ceramic	Ovation, Saitlam U	Encore
SIA	—	—	—
Standard	Ceramic Pro, Ceramic	Zirconia HP, Zirconia AP	—
Tyrolit	Cerabond Ceramic, Premium Ceramic	Fastcut, Premium Longlife	Basic, Standard
VSM (Lehigh Valley)	Ceramic	Zirconia	—
Walter	Enduro-Flex Turbo	Enduro-Flex, Enduro-Flex Stainless	Flexsteel
Weiler	Tiger Ceramic, Tiger X, Tiger Saber Tooth	Tiger Paw, Wolverine	Tiger

Best/highest productivity for stainless steel, titanium, and super alloys



BLAZE R980P CERAMIC ALUMINA

- Premium ceramic alumina abrasive grain lasts 50% – 200% longer than many 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 allows for trimmability of the plate

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 29 Conical – Supersize – Fiberglass Backing				
4-1/2 x 5/8-11"	36	13,300	10	662611 83490
	40	13,300	10	662611 83491
	60	13,300	10	662611 83492
	80	13,300	10	662611 83493
4-1/2 x 7/8"	36	13,300	10	662611 83486
	40	13,300	10	662611 83487
	60	13,300	10	662611 83488
	80	13,300	10	662611 83489
5 x 7/8"	36	12,000	10	662611 90001
	60	12,000	10	662611 90003
	80	13,300	10	662611 90004
7 x 5/8-11"	36	8,600	10	662611 83498
	40	8,600	10	662611 83499
7 x 7/8"	36	8,600	10	662611 83494
	40	8,600	10	662611 83495

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
High-Density Type 27 Flat – Supersize – Fiberglass Backing				
4-1/2 x 5/8-11"	40	13,300	10	662610 98290
	60	13,300	10	662610 96435
	80	13,300	10	662610 96436
4-1/2 x 7/8"	36	13,300	10	662610 97678
	40	13,300	10	662610 20628
	60	13,300	10	662610 20633
7 x 5/8-11"	80	13,300	10	662610 20634
	40	8,600	10	662611 32148
	60	8,600	10	662611 32168
Type 27 Flat – Supersize – Quick-Trim Plastic Backing				
4-1/2 x 5/8-11"	40	13,300	10	662544 00257
	60	13,300	10	662544 00258
	80	13,300	10	662544 00259
	120	13,300	10	662544 00261
4-1/2 x 7/8"	36	13,300	10	636425 01865
	40	13,300	10	662544 00253
	60	13,300	10	662544 00254
	80	13,300	10	662544 00255
5 x 7/8"	120	13,300	10	662544 00256
	40	12,000	10	662544 00262
	60	12,000	10	662544 00264
6 x 5/8-11"	80	12,000	10	662544 00265
	40	10,200	10	662611 32128
	60	10,200	10	662611 32129
6 x 7/8"	80	10,200	10	662611 32130
	40	10,200	10	662611 32123
	60	10,200	10	662611 32123
7 x 5/8-11"	40	8,600	10	662544 61066
	60	8,600	10	662544 61067
	80	8,600	10	662544 61067
7 x 7/8"	36	8,600	10	636425 01866
	40	8,600	10	662544 61059
	60	8,600	10	662544 61060
	80	8,600	10	662544 61061



Better choice for mild carbon steel, and weld



BLUEFIRE R860 ZIRCONIA ALUMINA

- 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 improve durability and reducing 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 allows for trimmability of the plate

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 29 Conical - Fiberglass Backing				
4-1/2 x 5/8-11"	36	13,300	10	662544 61165
	40	13,300	10	662544 61167
	60	13,300	10	662544 61170
	80	13,300	10	662544 61173
4-1/2 x 7/8"	36	13,300	10	662544 61155
	40	13,300	10	662544 61161
	60	13,300	10	662544 61163
	80	13,300	10	662544 61164
5 x 7/8"	36	12,000	10	662544 61174
	60	12,000	10	662544 61177
	80	12,000	10	662544 61178
7 x 5/8-11"	40	8,600	10	662544 61190
	60	8,600	10	662544 61192
7 x 7/8"	40	8,600	10	662544 61183
High-Density Type 27 Flat - Fiberglass Backing				
4-1/2 x 5/8-11"	40	13,300	10	776960 90086
	60	13,300	10	776960 90087
	80	13,300	10	776960 90088
4-1/2 x 7/8"	36	13,300	10	776960 90081
	40	13,300	10	776960 90082
	60	13,300	10	776960 90083
	80	13,300	10	776960 90084
	120	13,300	10	776960 90085
7 x 7/8"	40	8,600	10	776960 90089

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 27 Flat - Quick Trim Plastic Backing				
4-1/2 x 5/8-11"	36	13,300	10	666233 99136
	40	13,300	10	666233 99137
	60	13,300	10	666233 99138
	80	13,300	10	666233 99139
4-1/2 x 7/8"	36	13,300	10	666233 99140
	40	13,300	10	666233 99141
	60	13,300	10	666233 99142
	80	13,300	10	666233 99143
5 x 5/8-11"	60	12,000	10	666233 99146
	80	12,000	10	666233 99147
5 x 7/8"	60	12,000	10	666233 99150
6 x 7/8"	40	10,200	10	666233 99152
	60	10,200	10	666233 99153
7 x 5/8-11"	40	8,600	10	666233 99156
	60	8,600	10	666233 99157
	80	8,600	10	666233 99158
	36	8,600	10	666233 99159



Good consistent performance with low initial price



METAL R828 ZIRCONIA ALUMINA

- Durable zirconia grain provides good cut rate and life with consistent finish
- Fiberglass/resin backing plates with high strength, light weight, ability to absorb vibration, and operator comfort
- Good choice for coarse grit blending, deburring, and stock removal

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 29 Conical - Fiberglass Backing				
4-1/2 x 5/8-11"	40	13,300	10	662544 19994
	60	13,300	10	662544 19996
	80	13,300	10	662544 19997
4-1/2 x 7/8"	36	13,300	10	662544 19963
	40	13,300	10	662544 19978
	60	13,300	10	662544 19984
	80	13,300	10	662544 19987

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 29 Conical - Fiberglass Backing				
6 x 7/8"	P40	10,200	10	662544 91776
	P60	10,200	10	662544 91777
	P80	10,200	10	662544 91778





Mini-flap discs are ideal for use in tight spaces. They feature layered flaps which wear away evenly during use exposing new abrasive grain. The lightweight plastic backing helps to absorb vibration. They can help eliminate the conventional 2-step process in grinding edges and removing welds and rust.

- Applications:** Grinding, stock removal, edge chamfering/beveling, weld blending, deburring/deflashing, rust removal, blending, cleaning, and finishing in small areas or tight spots.
- Size Range:** 2" and 3" Quick-Change
- Grit Range:** 36 – 120
- Abrasive Grain:** Ceramic Alumina, Zirconia Alumina
- Abrasive Flaps:** Polyester
- Attachment:** TR (Type III) and TS (Type II)
- Backing Plate Material:** Extra Heavy-Duty Plastic
- Machine Used:**



MINI ANGLE SANDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Better choice for blending, deburring, and stock removal in tight places



BLUEFIRE R860 ZIRCONIA ALUMINA PLUS

- High-performance zirconia alumina plus abrasive for aggressive cut and long life
- Flexible, high-strength, plastic backing plates absorb vibration for optimized ergonomics
- Polyester flaps for improved durability and minimal loading on aluminum

SIZE	GRIT	STD. PKG.	PART#
TR (Type III)			
2"	36	10	776960 90165
	40	10	776960 90166
	60	10	776960 90167
	80	10	776960 90168
	120	10	776960 90169

SIZE	GRIT	STD. PKG.	PART#
TR (Type III)			
3"	36	10	776960 90170
	40	10	776960 90171
	60	10	776960 90172
	80	10	776960 90173
	120	10	776960 90174

Non-Woven Depressed Center Discs



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:**



RIGHT ANGLE GRINDER



VERTICAL SHAFT PORTABLE GRINDER

Rapid Strip

Best choice for quick and easy rough cleaning and stripping of all materials



BLAZE RAPID STRIP CERAMIC ALUMINA

- Blaze ceramic grain provides 2X plus faster, consistent rate and life than silicon carbide discs, leaves a thoroughly cleaned surface, ensuring excellent adhesion in subsequent processes such as painting and soldering
- Open web construction for minimal loading; does not shed or snag on rusty pieces; prevents gouging and rework
- Rapid Strip material provides a unique combination of aggressive performance, long life, and improved finish

SIZE	MAX. RPM	STD. PKG.	PART#
Type 27			
4-1/2 x 5/8-11"	12,000	10	662544 98101
5 x 5/8-11"	11,000	10	666233 03915

SIZE	MAX. RPM	STD. PKG.	PART#
Type 27			
7 x 5/8-11"	8,000	10	666233 03919



Better choice for use on a variety of materials, including metal, fiberglass and stone

RAPID STRIP SILICON CARBIDE

- Sharp silicon carbide abrasive provides fast aggressive cutting action
- Advanced resin bond prevents shedding, snagging, gouging, and rework
- Open web construction for minimal loading; great alternative to wire brushes

SIZE	MAX. RPM	STD. PKG.	PART#
Type 27			
4-1/2 x 5/8-11"	12,000	10	662610 09585

SIZE	MAX. RPM	STD. PKG.	PART#
Type 27			
4-1/2 x 7/8"	12,000	10	662610 09649

Rapid Blend

Best choice with revolutionary technology for heavy deburring and finishing



VORTEX RAPID BLEND ALUMINUM OXIDE

- Proprietary engineered Vortex aluminum oxide agglomerated grain performs the medium to fine grit steps of traditional aluminum oxide discs
- Thick nylon web for 2X longer life and faster finishing vs. traditional aluminum oxide discs, with minimal shedding
- Special resin chemistry resists shedding when used on sharp edges, making it ideal for deburring; no smearing

SIZE	DENSITY	GRIT	MAX. RPM	STD. PKG.	PART#
Type 27					
4-1/2 x 5/8-11"	5	Medium	12,000	10	662544 29243
	5	Coarse	12,000	10	662611 32881
	8	Coarse	12,000	10	662611 32929

SIZE	DENSITY	GRIT	MAX. RPM	STD. PKG.	PART#
Type 27					
4-1/2 x 7/8"	3	Medium	12,000	10	662544 29268
	5	Coarse	12,000	10	662611 32880
	8	Coarse	12,000	10	662611 32928

Best choice with revolutionary technology for heavy deburring and finishing



HIGH-STRENGTH ALUMINUM OXIDE

- Strongest non-woven buffing and polishing disc
- Tough conformable high-strength disc resists tearing on burrs and sharp edges
- Premium aluminium oxide grain; engineered for more demanding applications

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 27				
4-1/2 x 5/8-11"	Medium	12,000	10	662610 23949

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Type 27				
4-1/2 x 7/8"	Medium	12,000	10	662610 20549





Norton PSA (pressure sensitive adhesive) individual cloth discs 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:



ORBITAL SANDER

STATIONARY DISC SANDERS

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.



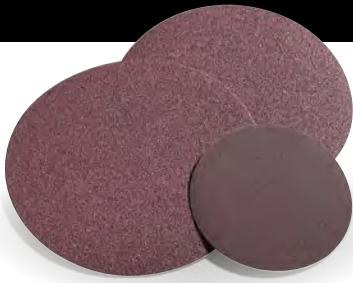
Best choice for all hard-to-grind high alloy steels

BLAZE R980P CERAMIC ALUMINA

- 100% ceramic alumina micro-fracturing grain constantly exposes sharper grain edges to provide fastest cut rate and longest life over competitive blended/low-ratio ceramic alumina discs
- Strong resin bond and heavy-duty Y-weight polyester backing for consistent cut, better grain adhesion, edge-tear resistance, and durability
- Self-lubricating grinding aid treatment delivers the coolest cut on stainless steel, high alloy steels, super alloys, titanium, and other difficult to grind materials

SIZE	GRIT	STD. PKG.	PART#
Cloth PSA Discs for Random Orbital Sanders			
5"	36	50/250	662544 61506
	40	50/250	662544 61507
	50	50/250	662544 61508
	60	50/250	662544 61509
	80	50/250	662544 61510
	120	50/250	662544 61512

SIZE	GRIT	STD. PKG.	PART#
Large Diameter Cloth PSA Discs			
12"	36	25/50	662544 16171
	40	25/50	662544 16172
	50	25/50	662544 16173
	60	25/50	662544 16174
	80	25/50	662544 16175
20"	120	25/50	662544 16176
	36	25/50	662544 16165
	50	25/50	662544 16167
	60	25/50	662544 16168
	80	25/50	662544 16169



Good choice for aggressive stock removal applications

GEMINI R228 ALUMINUM OXIDE

- Premium aluminum oxide abrasive gives an excellent initial cut rate
- Durable X-weight cotton backing makes these discs a good blend of flexibility and life
- The cotton backing provides good resistance to heat

SIZE	GRIT	STD. PKG.	PART#
Cloth PSA Discs for Random Orbital Sanders			
5"	36	50/250	662611 36589
	40	50/250	662611 36588
	50	50/250	662611 36587
	60	50/250	662611 36586
	80	50/250	662611 36585
	120	50/250	662611 36583
6"	60	50/250	662611 36596
	80	50/250	662611 36595
	120	50/250	662611 36593

SIZE	GRIT	STD. PKG.	PART#
Large Diameter Cloth PSA Discs			
12"	36	25/50	662611 36635
	40	25/50	662611 36630
	50	25/50	662611 36625
	60	25/50	662611 36620
	80	25/50	662611 36615
	120	25/50	662611 36613
20"	36	25/50	662611 36710
	40	25/50	662611 36709
	50	25/50	662611 36711
	60	25/50	662611 36712
	80	25/50	662611 36706





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
Diamond: Grinding ceramic, glass, composites, carbide and ceramic coatings, fiberglass, and reinforced plastics
- Size Range:** 9/16" – 4" diameter
- Grit Range:** 24 – 320
- Abrasive Grain:** Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide, Diamond
- Backing:** Fiber, cloth, or polymer
- Cloth Flex:** 3-ply (more aggressive), 2-ply (standard)
- Attachment:** Type TS (II), Type TR (III), and Type TP (I)
- Back-up Pads:** Rubber with hardness variations for different applications
- Machine Used:**



MINI ANGLE SANDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Quick-Change Attachment Systems And Cross Reference Guide

Each system enables quick, safe disc changes, reducing downtime and operating expenses.

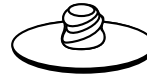
Type TS (Type II)

- 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



NORTON MERIT	TS (Type II)	TR (Type III)
3M	Roloc TS/TSM	Roloc TR
Standard	TS (SocAtt)	TR (Lockit)
Superior	Type S	Type R
Arc	Type S	Type R
Pferd	Type CD	Type CDR
Sait	SAIT-LOK	SAIT-LOK-R
Camel	Turn On	Roll On
Klingspor	QMC	QRC
Garryson	Type S	Type R

Quick-Change Disc Availability



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

Cross-Reference Guide

	TOTAL PERFORMANCE ←		→ INITIAL PRICE	
	BEST	BEST	BETTER	GOOD
Abrasive	Engineered Shaped Ceramic Grain	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide
Backing	Cloth	Cloth	Cloth	Cloth
NORTON	RazorStar R990S	Blaze R980P	BlueFire R860	
3M	1187C, 1182C, 987C, 982C	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	561D	361F, 363F
Standard	—	Ceramic Pro, Ceramic	Zirconia	A/O Extra, A/O Pro
Superior	—	Ceramic G.A.	Premium Zirc	A/O with Grinding Aid
Arc	—	—	Zirconia/Y Standard	A/O/X Plus Coolant
Pferd	—	Ceramic	ZA Z	Aluminum Oxide A-Plus, Aluminum Oxide A-INOX-FORTE
Sait	—	—	Z	3A
Camel	—	—	Zirconia AO	—
Klingspor	—	CS610	Alumina Zirconia	—
Garryson	—	Ceramic	—	—

Material/Application-to-Product Recommendation Guide

	BEST	BEST	BETTER	GOOD
	RazorStar R990S Ceramic Alumina	Blaze R980P Ceramic Alumina	BlueFire R860 Zirconia Alumina	Aluminum Oxide
Stainless Steel / Titanium / Super Alloys	◆	◆	◆	◆
Mild Carbon Steel / Welds	◆		◆	◆
Ferrous Metals / Cast Iron	◆		◆	◆
Brass / Bronze / Aluminum	◆		◆	◆



Best choice for tough applications and stainless steel

RAZORSTAR R990S / F990S ENGINEERED SHAPED CERAMIC GRAIN

- Norton RazorStar discs with engineered shaped ceramic grain are a breakthrough technology specifically designed to deliver unbeatable grinding performance versus all other ceramic discs
- The unique combination of razor-sharp grains with a supersized grinding aid helps to significantly reduce heat generation for cooler cuts and longer life on all materials
- A single disc design has been optimized for superior performance on all materials including carbon steel, aluminum, stainless steel and hard-to-grind metals
- 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

SIZE	PLY	GRIT	STD. PKG.	PART#	
Cloth Quick-Change Discs TS (Type II)					
2"	3	36 +	25	662544 27835	
	2	36 +	25	662544 27847	
3"	3	36 +	25	662544 27833	
	2	36 +	25	662544 27845	

SIZE	GRIT	STD. PKG.	PART #	
Fiber Quick-Change Discs TR (Type III)				
2"	36 +	25	662544 39590	
3"	36 +	25	662544 39591	

SIZE	PLY	GRIT	STD. PKG.	PART#	
Cloth Quick-Change Discs TR (Type III)					
2"	3	36 +	25	662544 27834	
	2	36 +	25	662544 27846	
3"	3	36 +	25	662544 27832	
	2	36 +	25	662544 27848	

Best choice for tough applications and stainless steel



BLAZE R980P CERAMIC ALUMINA CLOTH

- 100% ceramic grain constantly exposes sharper edges to deliver highest productivity at lowest overall costs versus competitive lower-ratio ceramic discs
- Improved resin bond system maximizes grain retention for longer product life
- Advanced self-lubricating grain treatment provides coolest cut with significantly faster cut rates while minimizing loading on hard-to-grind materials
- 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

SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TS (Type II)				
1-1/2"	36	100	662611 62307	
	50	100	662611 62309	
	60	100	662611 62311	
	80	100	662611 62313	
2"	36	25	662611 62317	
	50	25	662611 62319	
	60	25	662611 62321	
	80	25	662611 62323	
3"	36	25	662611 62327	
	50	25	662611 62329	
	60	25	662611 62331	
	80	25	662611 62333	


SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TR (Type III)				
1-1/2"	36	100	662611 62308	
	60	100	662611 62312	
	80	100	662611 62314	
2"	36	25	662611 62318	
	50	25	662611 62320	
	60	25	662611 62322	
	80	25	662611 62324	
3"	36	25	662611 62328	
	50	25	662611 62330	
	60	25	662611 62332	
	80	25	662611 62334	


Better choice for soft metals, wood, stainless steel, and carbon



BLUEFIRE R860 ZIRCONIA ALUMINA CLOTH

- Premium, versatile, self-sharpening zirconia plus grain provides aggressive cut and up to 30% longer life versus competitive zirconia discs
- Polyester backing for improved durability and reducing loading on aluminum
- Durable, Y-weight, 2-ply polyester backing stands up to demanding applications: high-pressure and hard-to-grind exotic alloys

SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TS (Type II)				
1-1/2"	36	100	662611 38624	
	60	100	662611 38621	
	80	100	662611 38620	
2"	24	25	662611 38638	
	36	25	662611 38637	
	50	25	662611 38635	
	60	25	662611 38634	
	80	25	662611 38633	
3"	24	36	662611 38665	
	36	25	662611 38664	
	50	25	662611 38662	
	60	25	662611 38661	
	80	25	662611 38660	


SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TR (Type III)				
1-1/2"	36	100	662611 121041	
	60	100	662611 121043	
	80	100	662611 121044	
2"	24	25	662611 38638	
	36	25	662611 38671	
	50	25	662611 38670	
	60	25	662611 121048	
	80	25	662611 121049	
3"	24	36	662611 38675	
	36	25	662611 38674	
	50	25	662611 38673	
	60	25	662611 121053	
	80	25	662611 121054	


Good choice when initial price is the primary consideration



ALUMINUM OXIDE

- Versatile aluminum oxide abrasive for aggressive cut and longer life than competitive aluminum oxide discs
- Durable Y-weight 2-ply polyester backing and coating for additional life and faster cut rate on moderately-demanding applications
- Good choice when initial price is the primary purchasing consideration

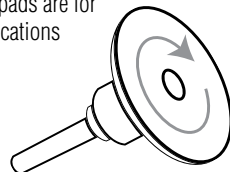
SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TS (Type II)				
1-1/2"	P36	100	699573 99626	
	P60	100	699573 99629	
	P80	100	699573 99630	
2"	P36	100	699573 99638	
	P40	100	699573 99639	
	P60	100	699573 99641	
	P80	100	699573 99642	
3"	P36	50	699573 99650	
	P50	40	699573 99651	
	P50	50	699573 99652	
	P60	50	699573 99653	
	P80	50	699573 99654	

SIZE	GRIT	STD. PKG.	PART#	
Quick-Change Discs - TR (Type III)				
1-1/2"	P36	100	699573 99694	
	P60	100	699573 99697	
	P50	100	699573 99696	
	P80	100	699573 99698	
2"	P36	100	699573 99706	
	P40	100	699573 99707	
	P50	100	699573 99708	
	P60	100	699573 99709	
3"	P80	100	699573 99710	
	P36	50	699573 99718	
	P40	50	699573 99719	
	P50	50	699573 99720	
	P60	50	699573 99721	
	P80	50	699573 99722	

Quick-Change Back-Up Pads



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



SIZE	MAX. RPM	DENSITY	STD. PKG.	TS (TYPE II)	TR (TYPE III)
Quick-Change Back-up Pads					
1-1/2"	30,000	Medium	1	088341 164146	088341 161174
2"	30,000	Hard	1	—	088341 164643
	30,000	Medium	1	088341 164198	088341 164922
3"	20,000	Hard	1	—	088341 164036
	20,000	Medium	1	088341 164113	088341 164949

All Quick-Change back-up pads have a 1/4" solid steel shank.
Vendible 1 pad/pack, 5 packs per carton. Order in multiples of 5.



Made from non-woven synthetic fiber mesh, which is impregnated with abrasives and bound with resins, non-woven discs 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.

Size Range:

4-1/2" – 7" diameter

Grit Range:

Extra Coarse (XC), Coarse (C), Medium (M), Fine (F), Very Fine (VF)

Abrasive Grain:

Engineered Aluminum Oxide, Aluminum Oxide

Machine Used:



RIGHT ANGLE
GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Non-Woven Hook and Loop Discs

Hook and loop fastening for neat, clean application and removal from back-up pad. Can be re-used.

Better choice for finishing and blending applications



RAPID PREP

- Quality aluminum oxide abrasive grain coating provides up to 20% higher cut rate and 50% better performance than competitive products
- Premium high-loft nylon fiber bonded to a strong nylon scrim backing allows a thick layer of resin bond and grain for extended life, added durability and stiffness
- Proprietary Clean Bond resin technology guarantees smear-free finishes even on high nickel content alloys and reduces loading on aluminum and other soft metals

Color Coding:

	EXTRA COARSE	COARSE	MEDIUM	FINE	VERY FINE
SIZE					
4-1/2"	Coarse	25	662610 17806		
	Medium	25	662610 04444		
5"	Coarse	25	662610 04435		
	Medium	25	662610 55022		
	Very Fine	25	666233 25941		
7"	Coarse	25	662610 55027		
	Medium	25	662610 17813		

Non-Woven High Strength Discs

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. For use on larger portable and fixed-base tools where the wheel must fit on an existing arbor.

Best choice for light deburring and finishing



HIGH-STRENGTH

- Premium aluminum oxide grain; engineered for more demanding applications
- Tough but flexible web resists tearing on burrs and sharp edges; and conforms to intricate shapes and contours without changing the workpiece dimension; can be ganged together and used as a wheel
- Smear-free bond excels at producing light satin finishes

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
6 x 1/2"	Medium	4,000	70	662610 05073
	Very Fine	4,000	70	662610 04980
8 x 1/2"	Medium	3,000	50	662610 05491
	Very Fine	3,000	50	662610 04506





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)
- Back-up Pads:** Rubber with hardness variations for different applications
- Machine Used:**



The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Quick-Change Attachment Systems and Cross Reference Guide **Why Choose Non-Woven Discs?**

Each system enables quick, safe disc changes, reducing downtime and operating expenses.

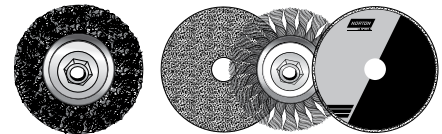
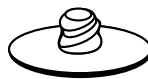
Type TS (Type II)

- 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



Non-Woven Discs versus. Fiber Discs, Wire Wheels, and Conventional 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 a safe alternative to wire brushes

Norton Merit	TS (Type II)	TR (Type III)
3M	Roloc TS/TSM	Roloc TR
Standard	TS (SocAtt)	TR (Lockit)
Superior	Type S	Type R
Arc	Type S	Type R
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

COARSER (GRINDING)		FINER(FINISHING)	
Norton Blaze Rapid Strip	Norton Vortex Rapid Blend A/O Medium Rapid Prep A/O Coarse	Norton Vortex Rapid Blend A/O Medium Norton Rapid Prep A/O Medium Merit Surface Prep Deburring & Blending	Norton Rapid Prep A/O Fine Merit Surface Prep A/O Fine
Scale Removal	Stock Removal Heavy Deburring	Light Deburring	Light Finishing Blending Cleaning
			Finishing

Cross Reference Guide

	STRIPPING	HEAVY/LIGHT DEBURRING		LIGHT DEBURRING/BLENDING/CLEANING/FINISHING	
	BEST	BEST	BETTER	BEST	BETTER
NORTON	Blaze Rapid Strip	Vortex Rapid Blend	Rapid Blend, Deburring & Blending	Vortex Rapid Prep	Rapid Prep
3M	Clean and Strip XT PRO, Clean and Strip XT PRO Extra Cut	Deburr and Finish PRO	EXL Unitized	SE	Surf Cond, SL
Standard	-	-	500-900 Series Unitized	-	FE, GP, RC
Fiberal/SIA	-	-	-	-	Meteor, Type B & C
Superior	-	-	XL Unitized	-	FD, GD, CC
Arc	-	-	-	-	Surface Cond
Pferd	-	-	-	-	Finishing Disc - Hard & Soft
Sait	-	-	-	-	HD, GP
Garryson	-	-	-	-	Surface Cond
Bibielle	-	-	BUR Unitized	-	DCR

Application/Grit/Density Key

	SILICON CARBIDE	ALUMINUM OXIDE			CERAMIC ALUMINA
Abrasive	Sharper, Finer/Brighter Scratch Pattern			More Durable, Longer Lasting, Polished Finish	
Grit Size	XC (50)	C (60-80)	M (100-150)	F (180-220)	VF (240-360) SF (400-600)
Density	Faster, Aggressive Cut, Rougher Finish			Reduced Cut Rate, Finer Finish	
	2				9
	Soft, Open, Conformable, Less Burning/Loading			Harder, More Durable, Faster Cutting, Better Finish	



Rapid Strip

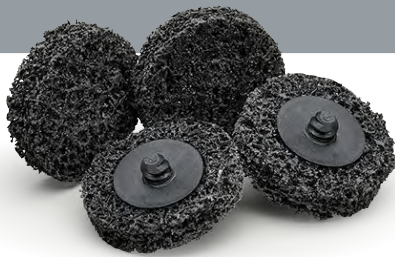


Ideal for removing coatings on a variety of substrates, such as wood, metal and plastics

BLAZE RAPID STRIP CERAMIC ALUMINA

- Blaze ceramic grain cuts 2X faster than competitive discs; leaves a thoroughly cleaned surface, ensuring excellent adhesion in subsequent processes such as coating, painting and soldering
- Open web construction for minimal loading; great alternative to wire brushes
- Rapid Strip material provides a unique combination of aggressive performance, long life, and improved finish

SIZE (D x T)	MAX. RPM	STD. PKG.	PART#
TR (Type III)			
2"	15,500	25	666233 03912
3 x 1/2"	12,000	25	662610 96557



Better choice for removing coatings on a variety of substrates, such as wood, metal and plastics

RAPID STRIP SILICON CARBIDE

- Sharp silicon carbide abrasive provides fast aggressive cutting action
- Open web construction for minimal loading; great alternative to wire brushes
- Advanced resin bond prevents shedding, snagging, gouging, and rework

SIZE (D x T)	MAX. RPM	STD. PKG.	PART#
TR (Type III)			
2"	15,500	10	662610 13402
3"	12,000	10	662610 13403
4" TR+	8,000	5	662610 16580

Rapid Blend

Best choice for weld blending, polishing and deburring



VORTEX RAPID BLEND ALUMINUM OXIDE

- Patented Vortex agglomerated aluminum oxide grain provides the cutting power of a coarser grit with the finish of finer grits
- Special resin bond for consistent performance with no smearing
- Abrasive is distributed throughout the entire disc (top, bottom and side) so all three faces can be used versus competitive discs with one bottom layer of abrasive

SIZE (D x T)	ABR.	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART#
TR (Type III)						
2 x 1/4"	A/O	M	4-6	22,000	60	662544 13660
	A/O	M	7-9	22,000	60	662544 33510
3 x 1/4"	A/O	M	4-6	15,000	40	662544 13661
	A/O	M	7-9	15,000	40	662544 06395

Better choice for light deburring, blending, and cleaning



RAPID BLEND ALUMINUM OXIDE

- Extra coarse grit recommended for removing coatings on a variety of substrates such as wood, metal, and plastics
- Open web construction for minimal loading
- Provides a unique combination of aggressive performance, long life, and improved finish
- Non-rusting; no work-piece contamination

SIZE (D x T)	ABR.	GRIT	DENSITY	MAX. RPM	STD. PKG.	PART#
TR (Type III)						
2 x 1/4"	A/O	M	2-3	22,000	60	662610 54183
	A/O	M	4-6	22,000	60	662610 54185

Rapid Prep

Best choice for finishing and blending applications



VORTEX RAPID PREP

- 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
- Premium high-loft nylon fiber bonded to a strong nylon scrim backing allows a thick layer of resin bond and grain for extended life and provides added durability and stiffness
- Proprietary Clean Bond resin technology guarantees smear-free finishes even on high nickel content alloys and reduces loading on aluminum and other soft metals

Color Coding:

EXTRA COARSE					COARSE					MEDIUM					FINE					VERY FINE									
SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#					
Vortex Rapid Prep TR (Type III) Discs																													
1"	Coarse	25,000	25	666233 25015	1"	Coarse	25,000	50	666233 35537	2"	Coarse	20,000	50	666233 35326	2"	Coarse	20,000	50	666233 35413	3"	Coarse	18,000	25	666233 35327	3"	Coarse	18,000	25	666233 35417
	Medium	25,000	50	666233 35422		Medium	25,000	50	666233 35421		Extra Coarse	20,000	50	666233 35325		Extra Coarse	18,000	25	666233 35010		Extra Coarse	18,000	25	666233 35416					
2"	Extra Coarse	20,000	50	666233 35326	2"	Coarse	20,000	50	666233 35413	2"	Medium	20,000	50	666233 35426	2"	Fine	20,000	50	666233 25034	3"	Coarse	18,000	25	666233 35416	3"	Medium	18,000	25	666233 35429
	Coarse	20,000	50	666233 35414		Medium	20,000	50	666233 35427		Very Fine	20,000	50	666233 25034		Coarse	18,000	25	666233 35416		Coarse	18,000	25	666233 35416					
	Medium	20,000	50	666233 35427		Very Fine	20,000	50	666233 25034		Very Fine	20,000	50	666233 25034		Medium	18,000	25	666233 35416		Medium	18,000	25	666233 35416					
3"	Very Fine	20,000	50	666233 35433	3"	Very Fine	20,000	50	666233 25035	3"	Extra Coarse	18,000	25	666233 35327	3"	Very Fine	20,000	50	666233 25034	3"	Very Fine	18,000	25	666233 25038	3"	Very Fine	18,000	25	666233 35437
	Very Fine	20,000	50	666233 25035		Extra Coarse	18,000	25	666233 35327		Very Fine	18,000	25	666233 25038		Very Fine	18,000	25	666233 35437										
	Extra Coarse	18,000	25	666233 35327		Coarse	18,000	25	666233 35417		Very Fine	18,000	25	666233 35437															
	Coarse	18,000	25	666233 35417		Medium	18,000	25	666233 35430																				

Better choice for finishing and blending applications



RAPID PREP ALUMINUM OXIDE

- Quality aluminum oxide abrasive grain coating provides up to 20% higher cut rate and 50% better performance than competitive products
- Thick layer of grain throughout the product extends life; grain does not sit on top of fibers as it does with other competitive products
- Proprietary Clean Bond resin technology guarantees smear-free finishes even on high nickel content alloys and reduces loading on aluminum and other soft metals

Color Coding:

EXTRA COARSE					COARSE					MEDIUM					FINE					VERY FINE									
SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#	SIZE	GRIT	MAX. RPM	STD. PKG.	PART#					
Rapid Prep TR (Type III) Discs																													
1"	Medium	25,000	50	662544 82331	1"	Medium	25,000	50	662544 82331	1-1/2"	Coarse	20,000	50	666233 40026	2"	Coarse	20,000	50	662610 09183	2"	Coarse	20,000	50	662610 09183	3"	Coarse	18,000	25	662610 09184
	2"	Extra Coarse	20,000	25		662610 16373	2"	Coarse	20,000		50	662610 09183	2"	Medium		20,000	50	662610 09182	2"		Medium	20,000	50	662610 09182		3"	Very Fine	20,000	50
2"	Coarse	20,000	50	662610 09191*	2"	Medium	20,000	50	662610 09191*	2"	Very Fine	20,000	50	662544 82337	2"	Very Fine	20,000	50	662610 09189*	2"	Very Fine	20,000	50	662610 09189*	3"	Very Fine	18,000	25	662610 09184
	Medium	20,000	50	662610 09190*		Very Fine	20,000	50	662610 09190*		Very Fine	20,000	50	662610 09189*		Very Fine	18,000	25	662610 09184										
	Fine	20,000	50	666233 40077		Fine	20,000	50	666233 40077		Fine	20,000	50	666233 40077		Coarse	18,000	25	662610 09186										
3"	Very Fine	20,000	50	662610 09189*	3"	Very Fine	20,000	50	662610 09189*	3"	Coarse	18,000	25	662610 09186	3"	Coarse	18,000	25	662610 09186	3"	Coarse	18,000	25	662610 09186	3"	Coarse	18,000	25	662610 09186
	Extra Coarse	18,000	25	662610 16994		Extra Coarse	18,000	25	662610 16994		Extra Coarse	18,000	25	662610 16994		Medium	18,000	25	662610 09185										
	Coarse	18,000	25	662610 09194		Coarse	18,000	25	662610 09194		Coarse	18,000	25	662610 09194		Medium	18,000	25	662610 09185										
	Medium	18,000	25	662610 17522		Medium	18,000	25	662610 17522		Medium	18,000	25	662610 17522		Medium	18,000	25	662610 09185										
3"	Fine	18,000	25	666233 40085	3"	Fine	18,000	25	666233 40085	3"	Very Fine	18,000	25	662610 09192	3"	Very Fine	18,000	25	662610 09192	3"	Very Fine	18,000	25	662610 09192					
	Very Fine	18,000	25	662610 09192		Very Fine	18,000	25	662610 09192		Very Fine	18,000	25	662610 09192															

* Standard package = 25



Good choice for finishing and blending applications

SURFACE PREP ALUMINUM OXIDE

- Quality aluminum oxide abrasive grain coating provides up to 20% higher cut rate and 50% better performance than competitive products
- Premium high-loft nylon fiber bonded to a strong nylon scrim backing allows a thick layer of resin bond and grain for extended life, added durability and stiffness
- Proprietary Clean Bond resin technology guarantees smear-free finishes even on high nickel content alloys and reduces loading on aluminum and other soft metals

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Surface Prep TR (Type III) Discs				
2"	Extra Coarse	20,000	50	088341 67825
	Coarse	20,000	50	666233 40028
	Medium	20,000	50	088341 66290
	Very Fine	20,000	50	666233 40049
3"	Coarse	18,000	25	088341 66322
	Medium	18,000	25	088341 66291
	Very Fine	18,000	25	662544 41300

SIZE	GRIT	MAX. RPM	STD. PKG.	PART#
Surface Prep TS (Type II) Discs				
2"	Coarse	20,000	50	088341 66287
	Medium	20,000	50	666233 40037
	Very Fine	20,000	50	088341 66317





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, C, and D
- Vacuum Holes:** See product availability charts
- Machine Used:**



ORBITAL SANDER



VERTICAL SHAFT PORTABLE GRINDER



HAND SANDING

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Application/Grit Recommendation Guide

COARSER (GRINDING)						FINER (FINISHING)					
80	100	120	150	180	220	240	280	320	360	400	
Intermediate to Finishing							Fine Finishing				

Cross Reference Guide

NORTON	BETTER B-Weight A275 OP	BETTER B-Weight Durite A475
3M	216U, 255L, 236U, 260L, 334U	405N, 414N, 415U, 426U, 435U
Hermes	VC154-LL	SF168
Indasa	PlusLine	—
Klingspor	PS33, PS73W	PL35, PS14
Mirka	Q-Silver, Royal Micro	CaratFlex, PolarStar
SIA	1940, 1944, 1950	1748
VSM	—	CP131A



Better choice for hard-to-sand surfaces and wood applications



DURITE A475 NO-FIL SILICON CARBIDE

- Sharp and hard, P-graded, silicon carbide abrasive easily penetrates the hardest material and veneers to create finer finishes where finish is critical
- Flexible, B-weight fiber reinforced, latex paper backing provides flexibility and resistance to tearing
- Water-based, non-pigmented stearate No-Fil coating and open coat provide maximum load resistance and no color transfer to work

SIZE	GRIT	ROLLS/STD. PKG.	DISCS/ROLL	PART #
Stick and Sand (PSA) Disc Rolls - Non-Vacuum				
5"	P80	4	100	662544 87415
	P180	4	100	662544 87441
	P120	4	100	662544 87418
	P220	4	100	662544 87442

SIZE	GRIT	ROLLS/STD. PKG.	DISCS/ROLL	PART #
Stick and Sand (PSA) Disc Rolls - Non-Vacuum				
6"	P80	4	100	662544 87446
	P120	4	100	662544 87447
	P180	4	100	662544 87448
	P320	4	100	662544 87450

Better choice for high-performance dry finishing on all materials



A2750P NO-FIL ALUMINUM OXIDE

- Premium P-graded, heat treated, toughened aluminum oxide abrasive delivers superior life, fast cut rate, consistent finish
- Unique fiber reinforced, flexible B-weight latex saturated backing provides 50% - 60% improvement in tear strength while retaining flexibility
- Water-based, non-pigmented stearate No-Fil coating and open coat provide maximum load resistance and no color transfer to work
- 5" and 6" individual PSA discs in fine grits have a tabbed, white translucent liner to protect the PSA adhesive from airborne contaminants; the tab allows easier removal of the paper liner

SIZE	GRIT	ROLLS/STD. PKG.	DISCS/ROLL	PART #
Stick and Sand (PSA) Disc Rolls - Non-Vacuum				
5"	P80	6	100	662611 31464
	P100	6	100	662611 31463
	P120	6	100	662611 31462
	P150	6	100	662611 31461
	P180	6	100	662611 31460
	P220	6	100	662611 31459
	P240	6	100	662611 31458
	P320	6	100	662611 31456
	P400	6	100	662611 31454
	6"	P80	6	100
P120		6	100	662611 31479
P150		6	100	662611 31478
P180		6	100	662611 31477
P220		6	100	662611 31476
P240		6	100	662611 31475
P280		6	100	662611 31474
P320		6	100	662611 31473
P400		6	100	662611 31471

SIZE	GRIT	MIN./STD. PKG.	PART #
Hook and Loop Individual Discs - Non-Vacuum			
5"	P80	100/400	662611 31549
	P100	100/400	662611 31548
	P120	100/400	662611 31547
	P150	100/400	662611 31546
	P180	100/400	662611 31545
6"	P80	100/400	662611 31566
	P150	100/400	662611 31563
	P320	100/400	662611 31558

Multiple options to provide the finish that you need



LOW-PROFILE PADS

- 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 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.

SIZE	DESCRIPTION	MAX. RPM	STD. PKG.	PART #
Low Profile Pads for DA/Random Orbital Sanders – Individual Clamshell Package				
5"	PSA Medium Low-Profile	15,000	5	636425 06131
	PSA Soft Low-Profile	15,000	5	636425 06126
6"	PSA Medium Low-Profile	15,000	5	636425 06133

Designed to be comfortable and tough



TAPERED PADS

- 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) 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.

SIZE	DESCRIPTION	MAX. RPM	STD. PKG.	PART #
Tapered Pads for DA/Random Orbital Sanders – Individual Clamshell Package				
5"	PSA Medium Tapered	15,000	5	636425 06139
	Hook & Loop Medium Tapered	15,000	5	636425 06143
6"	PSA Medium Tapered	15,000	5	636425 06141
	Hook & Loop Medium Tapered	15,000	5	636425 06145





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

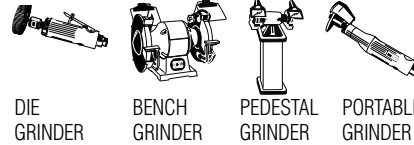
Grit Range:

40 - 320

Abrasive Grain:

Ceramic Alumina, Aluminum Oxide Blend, Aluminum Oxide

Machine Used:



DIE GRINDER

BENCH GRINDER

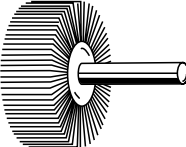
PEDESTAL GRINDER

PORTABLE GRINDER


The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Shape Recommendation Guide

SHAPE	DESCRIPTION/APPLICATIONS
Mounted Steel Shanks	Wheels are designed with a 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.



SHAPE	DESCRIPTION/APPLICATIONS
Arbor Holes	For use on larger portable and fixed-base tools where the wheel must fit on an existing arbor.

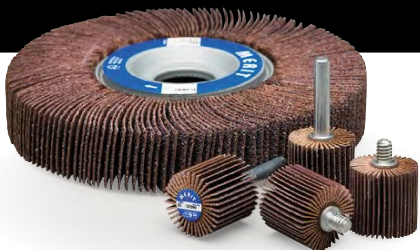


Application/Grit Recommendation Guide

← COARSER (GRINDING)		FINER (FINISHING) →
60	80	120
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		

See Non-Woven Flap Wheel section for Interleaf Flap Wheels

Good choice for a more durable flap wheel where aggressive cut and superior life are required



R369 HIGH-PERFORMANCE ALUMINUM OXIDE BLEND

- Long-lasting premium aluminum oxide blend with 2 to 3 times longer lifelonger life
- Delivers an excellent cut rate on finishing operations
- Heavy cotton/polyester blended flaps provide extended durability, conformability, and superior wear resistance

SIZE (D x W x SK.)	MAX. RPM	GRIT	STD. PKG.	PART #
Mini Flap Wheels with 1/4" Mounted Steel Shanks				
1 x 1 x 1/4"	30,000	60	10	088341 37310
	30,000	80	10	088341 37311
	30,000	120	10	088341 37312
2 x 1 x 1/4"	25,000	60	10	088341 37370
	25,000	80	10	088341 37371
	25,000	120	10	088341 37372
3 x 1 x 1/4"	20,000	60	10	088341 37450
	20,000	80	10	088341 37451
	20,000	120	10	088341 37252

SIZE (D x W x H)	MAX. RPM	GRIT	STD. PKG.	PART #
6" Flap Wheels with Arbor Holes				
6 x 2 x 1"	6,000	60	5	088341 23033
	6,000	80	5	088341 23034
	6,000	120	5	088341 23036



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

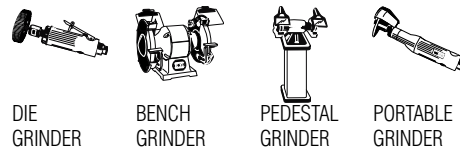
Grit Range:

60 – 320

Abrasive Grain:

Aluminum Oxide

Machine Used:



DIE GRINDER

BENCH GRINDER

PEDESTAL GRINDER

PORTABLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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

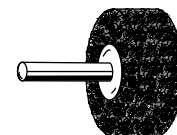
Good choice for finishing and blending applications



INTERLEAF

- Alternating cloth and non-woven flaps make interleaf wheels less conforming and more aggressive than non-woven flap wheels, but less aggressive than all-cloth flap wheels
- Premium aluminum oxide grain with durable resin bond and web that wears away continually exposing fresh abrasives
- Tough yet conformable to intricate shapes and contours without changing the workpiece dimension

SIZE (D x W x SK.)	MAX. RPM	ABRASIVE	CA GRIT	NON-WOVEN GRIT	STD. PKG.	PART #
1/4" Mounted Steels Shank Interleaf Wheels						
2 x 1 x 1/4"	12,000	A/O	60	Very Fine	10	088341 38122
	12,000	A/O	120	Very Fine	10	088341 44457



Shank-Mounted Flap Wheel



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.

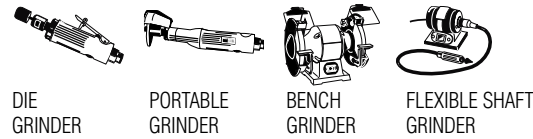
Abrasive Grain:

Ceramic Alumina, Engineered Aluminum Oxide, Aluminum Oxide, Silicon Carbide

Grit Range:

Extra Coarse (XC), Coarse (C), Medium (M), Fine (F)

Machine Used:



The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Non-Woven Marking System

ABRASIVE	SILICON CARBIDE		ALUMINUM OXIDE	
	← SHARPER, FINER/BRIGHTER SCRATCH PATTERN		→ MORE DURABLE, LONGER LASTING, POLISHED FINISH	
GRIT SIZE	XC (50)	C (60-80)	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	

TECH 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.

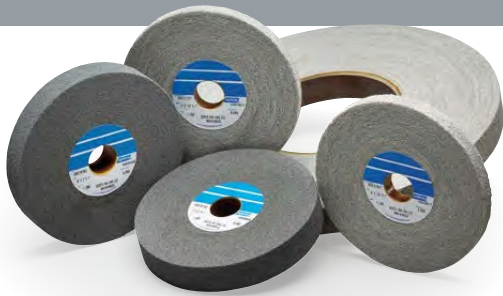


It is the user's responsibility to refer to and comply with ANSI B7.1



General-Purpose

Better choice for general deburring, blending, and final finishing



SERIES 1000 LONG LIFE A/O & S/C

- Offered in variety of web densities: more open, cool-cutting 7 density for light deburring, 8 to 9 density a good starting point for deburring, blending, polishing, and finishing
- Smear- and heat-free resin bond guarantees consistent, high-quality results; uniform grain dispersion and coating clean and condition without gouging or changing dimensions of workpiece
- Conformable and flexible for less operator fatigue

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	8 DENSITY PART #	9 DENSITY PART #
Series 1000 Long Life Rapid Finish Convolute Wheels						
6 x 1 x 1"	A/O	M	6,000	3	662610 18636	
8 x 1 x 3"	S/C	F	4,500	3	662610 18640	

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

SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	8 DENSITY PART #	9 DENSITY PART #
Series 1000 Long Life Rapid Finish Convolute Wheels						
6 x 1 x 3"	A/O	M	6,000	3	662610 80531	
10 and 12 x 1 x 5"	S/C	F	4,500	3	662610 80533	

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.

Best choice for light weld bead and weld spatter removal, heavy deburring and finishing applications



VORTEX RAPID BLEND ALUMINUM OXIDE

- Proprietary engineered Vortex aluminum oxide aggregate grain stays sharper longer for increased cut rate while still offering a fine finish
- Special resin chemistry resists shedding when used on sharp edges, making it ideal for deburring; no smearing
- 3D wheel construction enables multi-dimensional grinding which saves time on multiple wheel changes
- Aggressive, fast stock removal cut rate while providing a fine finish

SIZE (D x T)	DENSITY	MAX. RPM	STD. PKG.	PART #
2 x 1/4 x 1/4"	5	22,000	60	662544 33504
3 x 1/4 x 1/4"	5	18,000	40	662544 14832



Portable file belt sanders have replaced tedious hand filing and sanding. First introduced in pneumatic, they are now available in electric. Increasingly, tool manufacturers are introducing additional fixtures for an increasing number of 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:** Portable File Belt Sanders



The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Cross-Reference Guide

NORTON	BEST Blaze R980P	BETTER BlueFire R887D/R823P
3M	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	577F, 551E
Hermes	CR456	RB48624YX, RB48644Z
Klingspor	CS610	CS411X, CS416, CS409
SIA	2515, 2503	2800, 2803, 2815, 2829, 2824
VSM	XK875X, XK885Y, XK880Y	ZK713X, ZK713T, KK715X
Sait	—	AZ-X

Material-to-Product Recommendation Guide

	BEST Blaze R980P	BETTER BlueFire R887D	BlueFire R823P
Carbon Steel	◆	◆	◆
Stainless Steel / Alloys	◆	◆	◆
Cast Iron	◆	◆	◆
Brass / Bronze		◆	◆
Aluminum		◆	◆



Best for stainless, cobalt, chrome, inconel, titanium, mild and carbon steel



BLAZE R980P CERAMIC ALUMINA

- Next-generation cooler cutting Norton SG ceramic alumina grain lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, inconel and titanium with better metal integrity
- Durable Y-weight polyester, waterproof cloth backing for improved grain adhesion, reduced edge-fray, and better body retention, resulting in longer life and product consistency
- Lubricating grinding aid coating means cooler cut, burn-free grinding of heat-sensitive materials, minimized loading, and improved part finish and integrity

SIZE (W x L)	GRIT	STD. PKG.	PART#
12" Belts			
1/2 x 12"	40	50	699573 98018
	60	50	699573 98019
	80	50	699573 98020
	120	50	662610 42909
13" Belts			
3/8 x 13"	60	50	699573 45359
	80	50	699573 92150
18" Belts			
1/4 x 18"	40	50	662610 27923
	60	50	699573 47249
	80	50	699573 46155
	120	50	662610 85071
	40	50	699573 98021
1/2 x 18"	60	50	699573 98022
	80	50	699573 98023
	120	50	662610 41384
	40	50	699573 98027
3/4 x 18"	60	50	699573 98028
	80	50	699573 98029

SIZE (W x L)	GRIT	STD. PKG.	PART#
20-1/2" Belts			
3/4 x 20-1/2"	40	50	699573 98030
	50	50	699573 44982
	60	50	699573 98031
	80	50	699573 98032
	100	50	662610 55516
	120	50	662610 44755
24" Belts			
1/4 x 24"	40	50	662610 198631
	60	50	699573 45451
	80	50	636425 96940
	120	50	662610 80367
1/2 x 24"	40	50	699573 98024
	60	50	699573 98025
	80	50	699573 98026
	100	50	662610 42203
	120	50	662610 42565
1 x 24"	40	50	699573 50019
30" Belts			
1 x 30"	40	50	662610 53470
	60	50	699573 45985
	80	50	699573 46105
	120	50	662611 93676

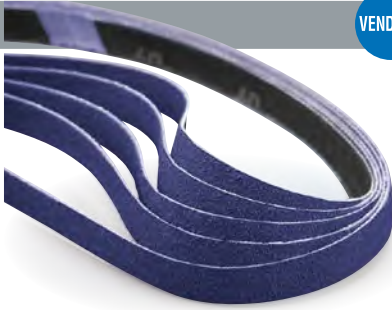
Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Please contact your local Norton Distributor to check availability.

Joints – All belts are PG jointed; a butt joint joined with flexible tape for contour grinding.



VENDIBLE

Better choice for stainless and carbon steel



BLUEFIRE R887D/R823P ZIRCONIA ALUMINA

- Strong, self-sharpening zirconia alumina abrasive for fast, aggressive cut and 30% longer life than competitive zirconia belts
- Durable resin bond for excellent grain retention and product life
- Strong Y-weight polyester backing - R887D for heavy-duty stock removal applications; flexible X-weight polyester backing - R823P for moderate- to light-pressure applications

SIZE (W x L)	GRIT	STD. PKG.	PART#
12" Belts			
1/2 x 12"	60	5	666233 73753
	60	50	780727 28745
	80	50	780727 28744
	100	50	662544 91534
	120	50	780727 28742
13" Belts			
3/8 x 13"	60	50	780727 40295
	80	50	780727 36062
18" Belts			
1/4 x 18"	60	50	780727 43583
	80	50	780727 53075
	120	50	780727 73764
1/2 x 18"	60	5	666233 73756
	60	50	780727 28569
	80	5	666233 73757
	80	50	780727 28568
	120	5	666233 73758
	120	50	780727 28567
3/4 x 18"	40	50	662544 92526
	60	50	780727 09590
	80	5	666233 73763
	80	50	780727 58953
	120	5	666233 73764

SIZE (W x L)	GRIT	STD. PKG.	PART#
20-1/2" Belts			
3/4 x 20-1/2"	60	50	780727 28560
	80	50	780727 28559
	100	50	662610 38911
	120	50	780727 28557
24" Belts			
1/4 x 24"	60	50	780727 28552
	80	50	780727 67713
	100	50	662610 38911
	120	50	780727 28550
1/2 x 24"	60	50	780727 28564
	80	50	780727 28566
	100	50	780727 53076
	120	50	780727 28565
30" Belts			
1 x 30"	60	50	780727 28583
	80	50	780727 28582
	120	50	780727 66992

Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Please contact your local Norton Distributor to check availability. 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.





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:



BACKSTAND
BELT GRINDER



BENCHSTAND
GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Cross Reference Guide

	BEST	BETTER	BETTER
NORTON	Blaze R980P	BlueFire R821P	BlueFire R884P
3M	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	—	561D
Hermes	CR454, CR456	—	RB48024YX, RB48444Z, RB485Z
Klingspor	CS610	CS411X	CS411
SIA	2515, 2503	—	2820
VSM	XK875X, XK885Y, XK880Y	—	KK716, ZK713T

Material-to-Product Recommendation Guide

	BEST	BETTER	BETTER
	Blaze R980P	BlueFire R884P	BlueFire 821P
Aluminum		◆	
Cast Iron	◆		
Brass / Bronze		◆	
Die Castings	◆		
Carbon Steel	◆		
Glass / Ceramics	◆		◆
Stainless Steel and Alloys	◆	◆	
Wood		◆	

Application/Grit Recommendation Guide

	← COARSER → FINER →											
	24	36	40	50	60	80	100	120	150	180	220	320
Stock Removal												
Intermediate												
Finishing												

TECH TIP

TROUBLESHOOTING GUIDE

Problem

Loading
Shedding

Correction

- Decrease infeed pressure or belt speed
- Reduce applied pressure
Use a less aggressive contact wheel
Dress contact wheel if worn or damaged
Use entire surface of belt

Belt breakage

- Reduce belt tension
Use less aggressive contact wheel
Check tracking mechanism for belts tracking erratically



Best for mild and carbon steel, stainless, cobalt, chrome, inconel, titanium

BLAZE R980P CERAMIC ALUMINA

- Cooler cutting Norton SG ceramic abrasive grain lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, Inconel and titanium, cuts 20% faster than the current generation of grinding belts, has a longer belt life, and better metal integrity for greater productivity; lowest total grinding costs
- Y-weight polyester waterproof cloth backing provides edge-fray resistance and improved 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 provides cooler cutting during the life of the belt for improved part finish and integrity

SIZE (W x L)	GRIT	STD. PKG.	PART#
3 x 132"	36	25	699573 44710
	80	50	699573 44764



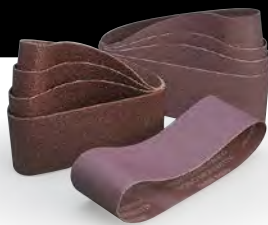
Better choice for nonferrous metals, glass, and ceramics

BLUEFIRE R821P, R884P AND R823P ZIRCONIA ALUMINA

- Premium, self-sharpening zirconia alumina abrasive grain provide aggressive, rapid cut rate for a broad utility: from light- to heavy-pressure applications, on a wide range of materials
- Durable grain coating provides excellent grain adhesion for longer life
- R821P Y-weight cotton backing provides durability and even wear on coarser grit stock removal applications;
- R884P has a durable Y-weight polyester waterproof cloth backing that excels on medium- to high-pressure applications

SIZE (W x L)	GRIT	STD. PKG.	PART#
R821P Y-wt. Cotton Belts			
2 x 48"	36	10	780727 27103
	60	10	780727 27100
	80	10	780727 27099
2 x 72"	36	10	780727 27147
	60	10	780727 27144
	80	10	780727 27142
2 x 60"	60	10	780727 27122
	80	10	780727 27121
2-1/2 x 60"	36	10	780727 27235
	60	10	780727 27232

SIZE (W x L)	GRIT	STD. PKG.	PART#
6 x 48"	36	10	780727 27698
	50	10	780727 27696
	80	20	780727 27694
R884P Y-wt. Polyester Belts			
2 x 132"	36	10	780727 50016
	60	10	780727 50011
3 x 132"	36	25	780727 50138
R823P Y-wt. Polyester Belts			
3 x 132"	60	10	780727 28794
	80	10	780727 28792



Good choice to minimize loading on wood and soft metals - where initial price is the main concern

METALITE R255 ALUMINUM OXIDE

- Premium aluminum oxide abrasive for fast initial cut rate
- Heavy, durable X-weight cotton backing is ideal for heat sensitive applications
- Strong butt joint that allows the belt to be run in either direction

SIZE (W x L)	GRIT	STD. PKG.	PART#
3 x 21"	80	10	780727 27924
3 x 24"	80	10	780727 27934
	120	10	780727 27932

TECH 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 non-ferrous materials such as aluminum, brass, bronze and copper.



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.

Watch for new and improved narrow belt and file belt joints.

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:



PORTABLE FILE
BELT SANDER

BELT
SANDER

IN-LINE DRUM
SANDER

BENCHSTAND
GRINDER

BACKSTAND
BELT GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Application/Grit Recommendation Guide

MORE AGGRESSIVE, ROUGHER FINISH

LESS AGGRESSIVE, FINER FINISH

Coarse	Medium	Very Fine
Stock Removal & Heavy Deburring	Light Deburring & light Finishing	Finishing



Better choice for finishing and blending applications

RAPID PREP ALUMINUM OXIDE

- Premium aluminum oxide abrasive grain coating provides up to 20% higher cut rate versus other surface conditioning belts
- Durable nylon fiber bonded to a strong Y-weight polyester backing with extremely low stretch is ideal for applications where low-stretch and durability are necessary
- Proprietary Clean Bond resin technology and open coat guarantee smear-free finishes even on high nickel content alloys and minimize loading on aluminum and other soft metals

Color Coding:

COARSE				MEDIUM				VERY FINE			
SIZE (W x L)	GRIT	STD. PKG.	PART#	SIZE (W x L)	GRIT	STD. PKG.	PART#	SIZE (W x L)	GRIT	STD. PKG.	PART#
1/2 x 12"	Coarse	24	662610 03177	3/4 x 18"	Coarse	12	662610 02111	3/4 x 20"	Coarse	12	662610 03260
	Medium	24	662610 06465		Medium	12	662610 15808		Medium	12	662610 03622
1/2 x 18"	Coarse	24	662610 55309		2 x 48"	Medium	10		662610 06648	3-1/2 x 15-1/2"	Coarse
	Medium	24	662610 55310	6 x 48"	Medium	8	662544 44576	Medium	8		662610 55326
1/2 x 24"	Coarse	24	662610 55312		3 x 132"	Medium	4	662610 55322	6 x 48"	Medium	4
	Medium	24	662610 08972								
	Very Fine	24	662610 19876								



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:

Applications:

Size Range:

Grit Range:

Abrasive Grain:

Paper Weights:

Machine Used:

All purpose, wood sanding, stearated (non-loading), waterproof, and heavyweight
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
Full Sheets, Cut Sheets, File Strips and Rolls
36 – 2500
Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide, and Garnet
Heavyweight – E; Lightweight – A through D



HAND
SANDING



JITTERBUG
SANDER



SANDING
BOARD

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Material-to-Product Recommendation Guide

	BEST	BETTER	GOOD
	A2750P	Durite A475	TufBak T461
Unfinished Metal	◆		
Primed / Painted Surfaces /Between Coats	◆	◆	
Fiberglass / Composites	◆	◆	
Bare Wood	◆		
Clear Coat Sanding			◆
Sealer Sanding	◆	◆	
Lacquer Sanding			◆
Wet Sanding			◆
Paint Stripping	◆	◆	
All Purpose	◆		

Application/Grit Recommendation Guide

COARSER (STOCK REMOVAL)										FINER (FINISHING)									
30	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									

Recommended Backing Weight

STIFFEST/STRONGEST MOST AGGRESSIVE APPLICATIONS								MOST FLEXIBLE/LIGHTEST APPLICATIONS							
H-WT	F-WT	E-WT	D-WT	C-WT	B-WT	A-WT		H-WT	F-WT	E-WT	D-WT	C-WT	B-WT	A-WT	

Cross Reference Guide

NORTON	3M	Hermes	Klingspor	Mirka	SIA	VSM
Stearated (Non-Loading)						
A2750P	216U, 255L, 236U, 260L, 334U	VC154-LL	PS33, PS73W	Q-Silver, Royal Micro	1940, 1944, 1950	—
Durite A475	405N, 414N, 415U, 426U, 435U	SF168	PL35, PS14	CaratFlex, PolarStar	1748	CP131A
Waterproof						
TufBak T461	431Q	WSFlex 18	PS14	—	1727	CP918A/C

The best choice for painted surfaces, composites, plastics or any material that tends to load



A2750P NO-FIL ALUMINUM OXIDE

- Premium, P-graded, heat-treated aluminum oxide abrasive for consistent surface finish, exceptional performance on all surfaces and coatings
- Unique fiber-reinforced, B-weight latex-saturated backing for 50 - 60 percent improvement in tear strength, exceptional flexibility, can be folded without cracking
- Non-pigmented, water based stearate (anti-clog) coating, open coat for best resistance to clogging and loading during sanding

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	P80	50/250	662611 31634
	P100	100/500	662611 31633
	P120	100/500	662611 31632
	P150	100/500	662611 31631
	P180	100/500	662611 31630
	P220	100/500	662611 31629
	P240	100/500	662611 31628
	P280	100/500	662611 31627

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	P320	100/500	662611 31626
	P400	100/500	662611 31624
	P500	100/500	662611 31623
	P600	100/500	662611 31622
	P800	100/500	662611 31621
	P1000	100/500	662611 31620
	P1500	100/500	662611 31618

The better choice for gel coats, hard composite substrates, abrasion-resistant coatings, and wood



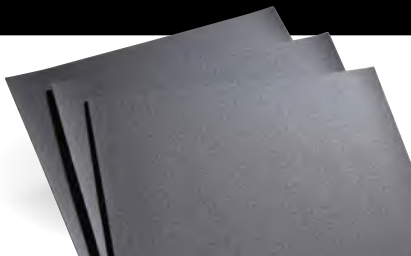
DURITE A475 NO-FIL SILICON CARBIDE

- P-graded, silicon carbide abrasive for easy penetration of the hardest surfaces
- Water based stearate, non-pigmented, No-Fil coating resists loading for the longest usable product life; no color transfer to work
- Fiber-reinforced, latex paper backing provides flexibility and resistance to tearing

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	P80	50/250	662544 87393
	P120	100/500	662544 87395
	P150	100/500	662544 87396
	P180	100/500	662544 87397

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	P220	100/500	662544 87398
	P240	100/500	662544 87399
	P320	100/500	662544 87400

Good choice for more aggressive applications



TUFBAK T461 SILICON CARBIDE

- ANSI graded silicon carbide abrasive for fast cutting with excellent finish in wet applications
- Advanced resin bond system for excellent flexibility and abrasive adhesion
- Strong, waterproof C-weight backing is ideal for more aggressive applications while being environmentally stable, resists product curl in humidity

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	60	50/250	662611 01175
	80	50/250	662611 01170
	100	100/500	662611 01165
	120	100/500	662611 01160
	150	50/250	662611 01155

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	180	100/500	662611 01150
	240	50/250	662611 30331
	320	100/500	662611 30332
	400	100/500	662611 30333
	600	50/250	662611 30334



Engineered for flexibility and fast cutting, cloth sheets 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"

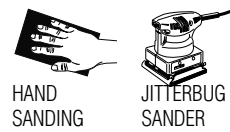
Grit Range:

40 – 600, extra coarse, coarse, medium, fine

Abrasive Grain:

Aluminum Oxide, Silicon Carbide, Emery

Machine Used:



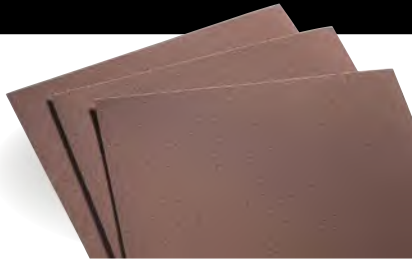
The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Cross-Reference Guide

	GOOD
Norton	Gemini K225
3M	011K
Hermes	RB317
Klingspor	LS309
Sait	DA-F
SIA	2915
VSM	KK114F

Cloth Sheets

Good choice for general-purpose metalworking applications



GEMINI K225 ALUMINUM OXIDE

- Premium P-graded aluminum oxide abrasive for greater cut rate on general purpose metalworking application
- Flexible J-weight backing for superior conformability to complex surfaces and better finishes
- Advanced full resin bond system for exceptional grain adhesion for longer life

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	40	25/125	662610 58713
	50	25/125	662611 01862
	60	25/125	662611 01861
	80	25/125	662611 26340
	100	50/250	662611 26339
	120	50/250	662611 26338
	150	50/250	662611 26337

SIZE	GRIT	STD. PKG.	PART#
9 x 11"	180	50/250	662611 26336
	220	50/250	662611 26335
	240	50/250	662611 26334
	280	50/250	662611 26333
	320	50/250	662611 26332
	400	50/250	662611 26331
	600	50/250	662611 26330

+ 40 - 60 grit are supplied in durable, but flexible X-weight cotton backing



Engineered for flexibility and fast cutting, cloth 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:

Applications:

Size Range:

Grit Range:

Abrasive Grain:

Machine Used:

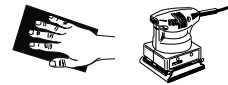
All purpose, fine finishing, and screen-back

Scouring and light deburring, scale and rust removal, blending and fine sanding, polishing lathe turnings, rolls and cylinders, and blending machine tool marks

Rolls: 1" x 10 yds., 1-1/2" - 2" x 25 yds., 1" - 4" x 50 yds.

40 - 600, extra coarse, coarse, medium, fine

Aluminum Oxide, Silicon Carbide, Emery



HAND
SANDING

JITTERBUG
SANDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Cross-Reference Guide

GOOD	
Norton	Gemini K224/K225
3M	011K
Hermes	RB317
Klingspor	LS309
Sait	DA-F
SIA	2915
VSM	KK114F



Good choice for general-purpose metalworking applications

GEMINI K225 ALUMINUM OXIDE

- Premium P-graded aluminum oxide abrasive for greater cut rate on general purpose metalworking application
- Flexible J-weight backing for superior conformability to complex surfaces and better finishes
- Advanced full resin bond system for exceptional grain adhesion for longer life

WIDTH	GRIT	STD. PKG.	PART#
50 Yard Rolls			
1"	40	1	662610 58716
	50	1	662611 27728
	60	1	662611 27729
	80	1	662611 26276
	100	1	662611 26275
	120	1	662611 26274
	150	1	662611 26273
	180	1	662611 26272
	220	1	662611 26271
	240	1	662611 26270
	280	1	662611 26269
	320	1	662611 26268
	400	1	662611 26267
	600	1	662611 26266
1-1/2"	50	1	662611 27730
	60	1	662611 27731
	80	1	662611 26288
	100	1	662611 26287
	120	1	662611 26286
	150	1	662611 26285
	180	1	662611 26284

WIDTH	GRIT	STD. PKG.	PART#
1-1/2" continued	220	1	662611 26283
	240	1	662611 26282
	280	1	662611 26281
	320	1	662611 26280
	400	1	662611 26279
	600	1	662611 26278
2"	40	1	662610 58714
	50	1	662611 27732
	60	1	662611 27733
	80	1	662611 26299
	100	1	662611 26298
	120	1	662611 26297
	150	1	662611 26296
	180	1	662611 26295
	220	1	662611 26294
	240	1	662611 26293
	280	1	662611 26292
	320	1	662611 26291
400	1	662611 26290	
600	1	662611 26289	

+ 40 - 60 grit, are supplied in durable, but flexible X-weight cotton backing



Surface finishing hand pads 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
- Resilient construction; long life, increased productivity; solvent resistant; waterproof

Machine Used:



HAND
SANDING



JITTERBUG
SANDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Application/Grit Recommendation Guide

MORE AGGRESSIVE, ROUGHER FINISH

LESS AGGRESSIVE, FINER FINISH

Medium 100-150 #740	Very Fine 240-360 #747	Ultra Fine 400-600 #635	Non-Abrasive Cleaning
Heavy Deburring	Merit Rapid Prep A/O Coarse		Merit Surface Prep A/O Fine
	Light Deburring	Light Cleaning	
			Scratch-Free Cleaning

Cross Reference Guide

COARSER

FINER

NORTON	#740	#747	#635	#456
3M	7440	7447/8447 Production Hand Pad	64660	7445
Camel	Tan	Maroon	—	White
Mirka	—	Maroon/Red VF	—	—
Sait	Brown	Maroon	—	—
SIA	6912 Brown	6912 Maroon	—	—
Standard	HD-Tan AO	GP-Maroon VF	HP-VF	Cleaning White

Better choice for light to heavy-duty deburring, blending, polishing and finishing

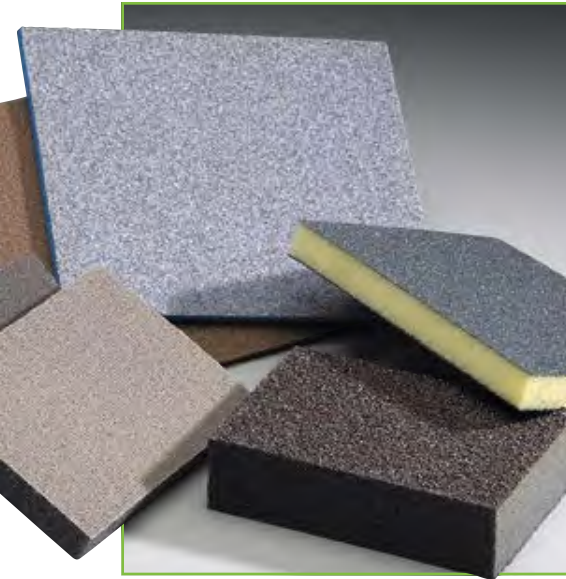


HAND PADS

- Flexible and conforms to work surface
- Non-loading for constant supply of new cutting edges
- Non-rusting for no workpiece contamination
- Resilient construction providing long life, increased productivity; solvent resistant; waterproof

SIZE (W x L)	COLOR	DESCRIPTION	ABRASIVE	GRIT SIZE	STD. PKG	PART #
Hand Pads						
6 x 9"	Dark Tan	740 Heavy-Duty Pad	A/O	Med	40	662610 74000
	Maroon	747 General Purpose Plus Pad	A/O	VF	60	662610 74700
	Gray	635 Clean & Finish Pad	S/C	UF	60	662610 63500
	White	456 Cleaning Pad	None	—	60	662610 45600





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:

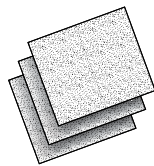
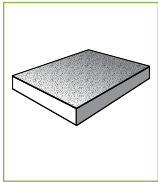
- Can be used wet or dry
- Clog resistant, washable, reusable
- Easy to use, can be folded without cracking
- Conformable
- Generate a consistent surface finish

Machine Used:



HAND
SANDING

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

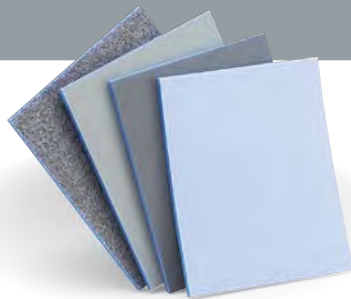
Adapt to Contours

- 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												
SHEETS SPONGES	P150	P180	P220	P280	P320	P400	P500	P600	P800	P1000	P1200	P1500	P2000
Medium 60													
		Fine 100											
				Extra Fine 150									

For hand-sanding or finishing flat, curved, contoured and hard-to-reach areas on wood, metal, composites, paint and solid surfaces



SOFTTOUCH CONTOUR SPONGES – COATED 1 SIDE

- Superior flexibility
- 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	076607 03074
	100 Fine	80	076607 03075
	180 Super Fine	80	076607 03076
	220 Ultra Fine	80	076607 03077
	280 Micro Fine	80	076607 03078

Good for a wide variety of materials and sanding applications where moderate flexibility is needed

SMALL AREA GENERAL PURPOSE SPONGES – COATED 4 SIDES

- 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 #
4 x 2-3/4 x 1"	80/80 Med/Med	24	076607 49507
	120/120 Fine/Fine	24	076607 49506



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 ALUMINUM	SILICON CARBIDE	ZIRCONIA ALUMINA	COARSE	MEDIUM	FINE	SOFT	MEDIUM	HARD	RELATIVE GRAIN	SPACING	Resin = B	Shellac = E	Plastic = P	Rubber = R	Vitrified = V	Designates a variation or modification to bond.
23A	OXIDE	37C	4NZ	12	30	80	D	I	Q								
25A	3SGP	39C	4ZF	16	46	100	F	K	S								
32A	3SGR	Crystolon	5ZF	20	54	120	G	L	T								
32AC (blend)	5SG	Masonry	AZ (blend)	24	60	150	H	M	U								
38A	BRG		BlueFire		70	220		N	V								
48A	SG		Charger					O	Y								
53A	SXG		(blend)					P	Z								
55A	NorZon Plus		NZ														
57A	(blend)		NZC (blend)														
U57A	NQ Quantum		NZIII														
64A	Targa		NZIV														
86A	NQN		NorZon														
90A			ZI														
Alundum																	
FabCut																	
India																	
Gemini																	
Metal																	
Vortex																	

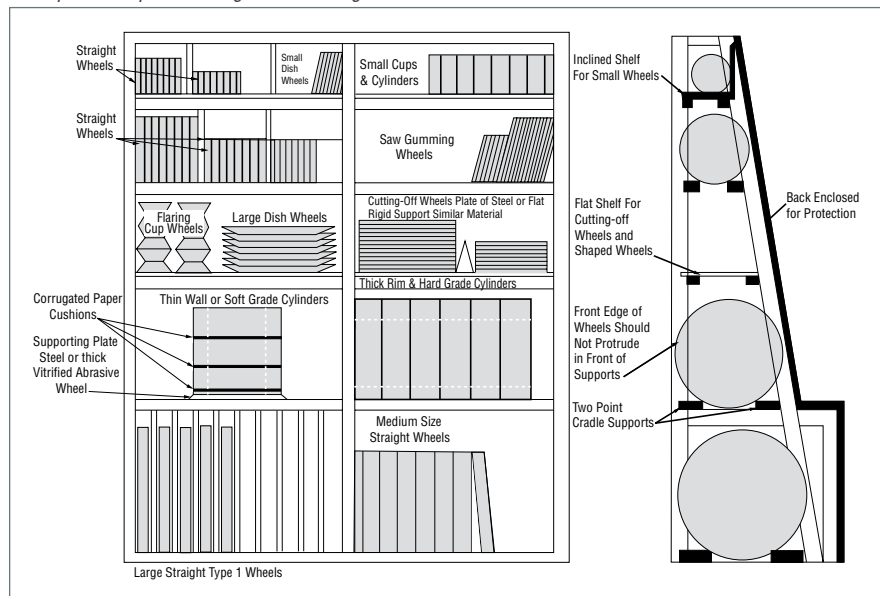
Shelf Life and Proper Storage of Grinding Wheels

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.

Example of Proper Grinding Wheel Storage



Portable Snagging Wheels Cones, & Plugs



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:



PORTABLE CUT-OFF TOOL

RIGHT ANGLE GRINDER

PORTABLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Material-To-Product Recommendation Guide

		GOOD
		Gemini
IRON	Gray	◆ 57A16-Q
	Ductile/Malleable	◆ 57A16-Q
	Dirty/Scale-covered	◆ 57AC16-Q
STEEL	Carbon and Low Alloy	◆ 57A16-Q
	Stainless and High Alloy	◆ 57A16-Q
ALUMINUM, COPPER, BRASS, & BRONZE ALLOYS		◆ 57AC16-Q

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

Cross Reference Guide for Type 11 Wheels

GOOD			
NORTON	Gemini 57A	Gemini 57AC	Gemini 37C
Brilliant	A16QB	—	C16QB
Bullard	A16R	AC16	C16P
Camel	A	CA	C
Flexovit	A16QB	AC16QB	C16PB
Gulf States	A16	—	C16
Pacific	A	CA	—
Pearl	A16Q	—	C16-Q
Pferd	A 16 Q SG	—	C 16 Q SG
Sait	A16, 20	CA16	C16
Tyrolit	A16PB	—	C16PB
Walter	A	—	C



Portable Snagging Wheels, Cones, & Plugs





Good choice for steel and ferrous metals as well as specialty applications in aluminum and foundries



GEMINI ALUMINUM OXIDE

- Tough, durable aluminum oxide abrasive for heavy-duty work including foundry snagging, tool sharpening, and stock removal
- Work well with a variety of machines, horsepower, and operations
- Good general-purpose choice for numerous small jobs

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
Type 11 Flaring Cup 				
4/3 x 2 x 5/8-11"	9,070	10	57A16-Q	662435 10512
Rim 3/4" Back 3/4"				
5/3-3/4 x 2 x 5/8-11"	7,260	5	57A16-Q	662528 09598
Rim 1" Back 3/4"				
6/4-3/4 x 2 x 5/8-11"	6,000	5	57A16-Q	662528 25201
Rim 1" Back 3/4"				
6/4-3/4 x 2 x 5/8-11"	6,000	5	37C16-P	662528 09609
Rim 1-1/2" Back 3/4"	6,000	5	57A16-Q	662528 09618
	6,000	5	57AC16-Q	662528 09608
Type 11 Flaring Cup with Steel Back 				
6/4-13/16 x 2 x 5/8-11"	6,000	5	57A16-Q	662528 09599
Rim 1-1/2" Back 3/4"	6,000	5	57AC16-Q	662528 09600

SIZE	MAX. RPM	STD. PKG.	SPEC.	PART#
Type 16 Cone 				
1-1/2 x 2-1/2 x 3/8-24"	24,190	10	57A24-R	614636 22349
1-1/2 x 3 x 5/8-11"	24,190	10	57A24-R	614636 22190
2 x 3 x 5/8-11"	18,145	10	57A24-R	614636 22218
Type 17 Cone, Square Tip 				
2 / 1/2 x 3 x 5/8-11"	18,145	10	57A24-R	614636 15722
Type 18R, Round Tip 				
2 x 3 x 5/8-11"	18,145	10	NV20-S	662533 44387
2 x 3 x 5/8-11"	18,145	10	57A24-R	614636 22220
Type 18 Plugs, Square Tip 				
1-1/2 x 2-1/2 x 5/8-11"	24,190	10	57A24-R	614636 22351
1-1/2 x 3 x 5/8-11"	24,190	10	57A24-R	614636 22191
2 x 3 x 5/8-11"	18,145	10	57A24-R	614636 22219





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:**



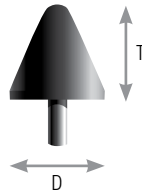
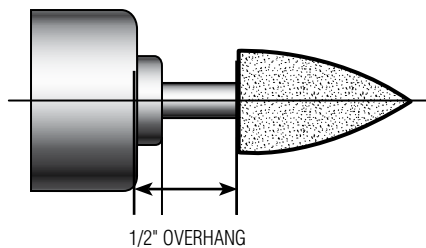
DIE AND
PENCIL
GRINDER



HORIZONTAL/
STRAIGHT SHAFT
PORTABLE GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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)

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



Resin Bond

Best choice for fast stock removal



NORZON ZIRCONIA ALUMINA – RESIN BOND

- Zirconia alumina abrasive blend for 2X faster cut rate than standard aluminum oxide
- Strong grain and specially formulated organic bond provide 4X greater life than aluminum oxide points, while reducing vibration and wheel chatter
- Ideal for removing parting lines, fins and small risers from castings, and smoothing and blending of welded areas

Better choice for fast stock removal and long life



CHARGER Z/A & A/O BLEND – RESIN BOND

- Durable zirconia alumina and aluminum oxide abrasive blend delivers 35% faster cut rate than standard aluminum oxide; an aggressive, free cut, and more parts cleaned in less time to substantially increase productivity
- Specially formulated organic bond provides 2X greater life than standard resin bonds while reducing vibration and wheel chatter
- Better choice for removing parting lines, fins and small risers from castings, and smoothing and blending welded areas
- Charger mounted point pre-packed in small packages are ideal for vending machines, pegboards, small jobs, and carrying to job site

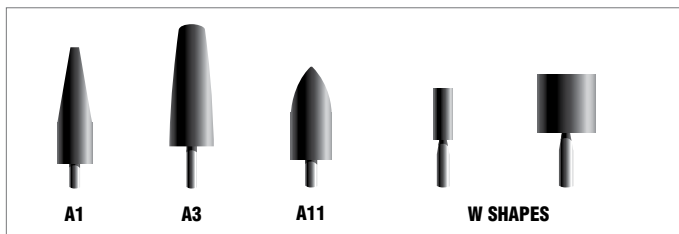
TIER:	BEST	BETTER
TRADENAME:	NORZON	CHARGER
ABRASIVE:	Zirconia Alumina	Zirconia Alumina/Aluminum Oxide

SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
Resin Bond Mounted Points								
A1	3/4 x 2-1/2"	1/4"	19,800	5/25	NZ24-UBXR1	614636 16457	Charger	614636 16458
A3	1 x 2-3/4"	1/4"	16,100	5/25	NZ24-UBXR1	614636 16459	Charger	614636 16460
A11	7/8 x 2"	1/4"	19,860	5/25	NZ24-UBXR1	614636 16463	Charger	614636 16464
W189	1/2 x 2"	1/4"	24,000	5/25	NZ24-UBXR1	614636 16465	Charger	614636 16466
W197	5/8 x 2"	1/4"	21,000	5/25	NZ24-UBXR1	614636 16467	—	—
W208	3/4 x 2"	1/4"	18,750	5/25	NZ24-UBXR1	614636 16471	—	—
W220	1 x 1"	1/4"	25,500	5/25	NZ24-UBXR1	614636 17520	Charger	614636 17521
W221	1 x 1-1/2"	1/4"	19,120	5/25	NZ24-UBXR1	614636 16473	Charger	614636 16474
W222	1 x 2"	1/4"	15,900	5/25	NZ24-UBXR1	614636 16475	Charger	614636 16476

† Spindle length is 1-1/2"

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

NS Non-stock; contact your Norton representative for current order quantities and lead times.



Vitrified Bond

Good value for general-purpose, small job shop applications



GEMINI ALUMINUM OXIDE - VITRIFIED BOND

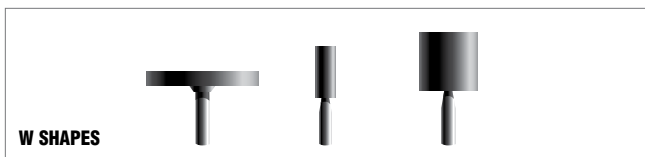
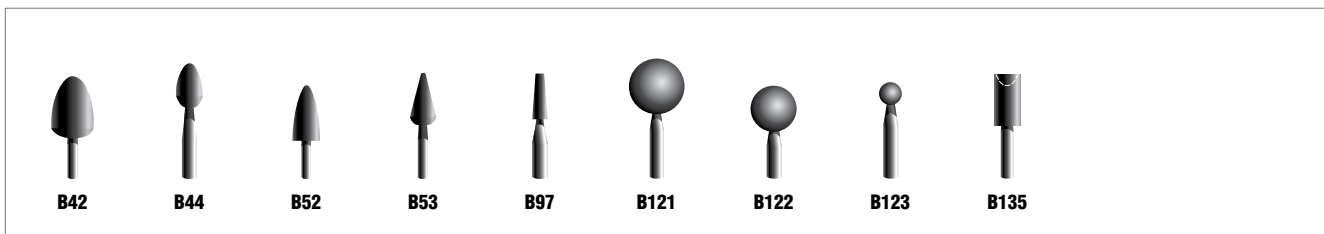
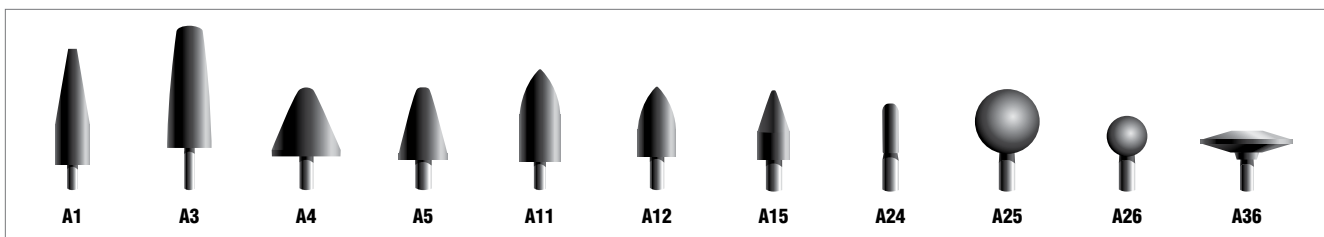
- 38A abrasive is designed to be cool cutting to minimize burn
- High temperature vitrified bond maximizes form holding and life
- Wide grit range for stock removal, blending/deburring, and finishing/polishing

SHAPE	SIZE (D x T)	SPINDLE DIA. †	MAX. RPM*	MIN./STD. PKG.	SPEC.	PART #
Vitrified Bond Mounted Points – A Shapes						
A1	3/4 x 2-1/2"	1/4"	19,800	5/25	38A36-T	614636 24374
	3/4 x 2-1/2"	1/4"	19,800	5/25	38A60-P	614636 24375
A3	1 x 2-3/4"	1/4"	16,100	5/25	38A36-T	614636 24377
	1 x 2-3/4"	1/4"	16,100	5/25	38A60-P	614636 24378
A4	1-1/4 x 1-1/4"	1/4"	30,560	5/25	38A60-P	614636 24380
A5	3/4 x 1-1/8"	1/4"	45,000	5/25	38A36-T	614636 24381
	3/4 x 1-1/8"	1/4"	45,000	5/25	38A60-P	614636 24382
A11	7/8 x 2"	1/4"	19,860	5/25	38A36-T	614636 24384
	7/8 x 2"	1/4"	19,860	5/25	38A60-P	614636 24385
A12	11/16 x 1-1/4"	1/4"	48,000	5/25	38A60-P	614636 24388
A15	1/4 x 1-1/16"	1/4"	72,750	5/25	38A60-P	614636 24391
A24	1/4 x 3/4"	1/4"	76,500	5/25	38A60-P	614636 24395
A25	1" Ball	1/4"	35,620	5/25	38A60-P	614636 24396
A26	5/8" Ball	1/4"	61,120	5/25	38A60-P	614636 24397
A36	1-5/8 x 3/8"	1/4"	23,520	5/25	38A60-P	614636 24404
Vitrified Bond Mounted Points – B Shapes						
B42	1/2 x 3/4"	1/8"	33,570	5/25	38A60-P	614636 24412
B44	7/32 x 3/8"	1/8"	68,400	5/25	38A60-P	614636 24414
B52	3/8 x 3/4"	1/4"	81,000	5/25	38A60-P	614636 24419
	3/8 x 3/4"	1/8"	45,370	5/25	38A60-P	614636 24420
	3/8 x 3/4"	1/8"	45,370	5/25	38A90-Q	614636 24422
B53	5/16 x 5/8"	1/8"	60,000	5/25	38A60-P	614636 24423
B97	1/8 x 3/8"	1/8"	105,000	5/25	38A60-P	614636 24451
B121	1/2" Ball	1/4"	45,370	5/25	38A60-P	614636 24466
B122	3/8" Ball	1/8"	61,650	5/25	38A60-P	614636 24470
B123	3/16" Ball	1/8"	104,250	5/25	38A60-P	614636 24472
B135	1/4 x 1/2"	1/8"	60,000	5/25	38A60-P	614636 24484

SHAPE	SIZE (D x T)	SPINDLE DIA. †	MAX. RPM*	MIN./STD. PKG.	SPEC.	PART #
Vitrified Bond Mounted Points – W Shapes						
W154	3/16 x 1/2"	1/8"	70,500	5/25	38A60-P	614636 24497
W163	1/4 x 1/2"	1/8"	60,000	5/25	38A60-P	614636 24504
W164	1/4 x 3/4"	1/8"	45,900	5/25	38A60-P	614636 24505
W176	3/8 x 1/2"	1/8"	45,370	5/25	38A60-P	614636 24517
W177	3/8 x 3/4"	1/8"	33,750	5/25	38A60-P	614636 24518
W185	1/2 x 1/2"	1/8"	34,500	5/25	38A60-P	614636 24525
W188	1/2 x 1-1/2"	1/4"	30,370	5/25	38A60-P	614636 24530
W189	1/2 x 2"	1/4"	24,000	5/25	38A60-P	614636 24531
W200	3/4 x 1/8"	1/8"	50,930	5/25	38A60-P	614636 24543
W205	3/4 x 1"	1/4"	34,500	5/25	38A60-P	614636 24550
W215	1 x 1/8"	1/8"	38,200	5/25	38A60-P	614636 24560
W218	1 x 1/2"	1/4"	38,200	5/25	38A60-P	614636 24564
W220	1 x 1"	1/4"	25,500	5/25	38A60-P	614636 24566
W222	1 x 2"	1/4"	15,900	5/25	38A60-P	614636 24569
W235	1-1/2 x 1/4"	1/4"	25,470	5/25	38A60-P	614636 24583
W236	1-1/2 x 1/2"	1/4"	25,470	5/25	38A60-P	614636 24585
W237	1-1/2 x 1"	1/4"	22,500	5/25	38A60-P	614636 24587
W238	1-1/2 x 1-1/2"	1/4"	15,600	5/25	38A60-P	614636 24588
W242	2 x 1"	1/4"	19,100	5/25	38A60-P	614636 24592

† Spindle length is 1-1/2"

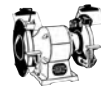
* Max. RPM valid to 1/2" overhang. See package insert for other overhangs.





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:** Premium Ceramic Alumina, Aluminum Oxide, Silicon Carbide
- Bushings:** Telescopic arbor bushings to fit all popular grinders are packaged with the wheel
- Machine Used:**



BENCH GRINDER



PEDESTAL GRINDER

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Application/Grit Recommendation Guide

COARSER (GRINDING) ←				→ FINER (FINISHING)		
24	36	46	60	80	100	120
Heavy Stock Removal						
Medium Stock Removal						
Light Stock Removal						
Deburring/Shaping						
Sharpening						
					Final Finishing	

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 No. 614636**10462**.



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

Better choice for light metal removal and sharpening of high-speed tool steels (55 RC and higher)



PREMIUM WHITE ALUMINUM OXIDE

- Type O1 straight wheel with premium white aluminum oxide for maximum cut rate and cool grinding action on hardened or high-speed tool steels
- Vitrified bonded for superb shape holding and resistance to wear
- Better choice for deburring and tool sharpening on bench and pedestal grinders; telescoping bushings to fit popular arbor hole sizes

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
6 x 3/4 x 1"	4,140	1/5	Medium 60	076607 88246
	4,140	1/5	Fine 100	076607 88247
6 x 1 x 1"	4,140	1/5	Fine 100	076607 88262
8 x 1 x 1"	3,600	1/5	Medium 60	076607 88281
	3,600	1/5	Very Fine 150	076607 88283

Good choice for all general-purpose bench and pedestal applications



GEMINI ALUMINUM OXIDE

- Type O1 straight wheel with quality, aluminum oxide for general purpose bench and pedestal grinder applications on steel
- Vitrified bond for superb shape holding and resistance to wear
- Good choice for deburring and tool sharpening on bench and pedestal grinders; telescoping bushings to fit popular arbor hole sizes

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
6 x 1/2 x 1"	4,140	1/5	Coarse 36/46	662528 36132
6 x 3/4 x 1"	4,140	1/5	Medium 60/80	076607 88240
	4,140	1/5	Fine 100/120	076607 88235
6 x 1 x 1"	4,140	1/5	Coarse 36/46	076607 88260
	4,140	1/5	Medium 60/80	076607 88255
	4,140	1/5	Fine 100/120	076607 88250
7 x 1 x 1"	3,600	1/5	Coarse 36/46	076607 88275
	3,600	1/5	Medium 60/80	076607 88270 V
	3,600	1/5	Fine 100/120	076607 88265
8 x 3/4 x 1"	3,600	1/5	Coarse 36/46	076607 88278
	3,600	1/5	Medium 60/80	076607 88277
	3,600	1/5	Fine 100/120	662530 42317
8 x 1 x 1"	3,600	1/5	Very Coarse 24	662530 44454
	3,600	1/5	Coarse 36/46	076607 88286
	3,600	1/5	Medium 60/80	076607 88285 V
	3,600	1/5	Fine 100/120	076607 88280

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
10 x 1-1/4 x 1-1/4"	2,485	1/2	Coarse 36/46	662531 61250
10 x 1-1/2 x 1-1/4"	2,485	1/2	Coarse 36/46	662531 161393
	2,485	1/2	Medium 60/80	662531 161395
10 x 1 x 1-1/4"	2,485	1/2	Very Coarse 24	662531 160788
	2,485	1/2	Coarse 36/46	076607 88295
12 x 1-1/2 x 1-1/2"	2,485	1/2	Medium 60/80	076607 88290
	2,485	1/2	Fine 100/120	662531 160350
12 x 1-1/2 x 1-1/2"	2,070	1/2	Medium 60/80	662532 63053
12 x 2 x 1-1/2"	2,070	1/2	Coarse 36/46	662532 63055
	2,070	1/2	Medium 60/80	662532 63056

V = Vendible. Because all bench and pedestal wheels are packaged in single boxes, all may be used in vending machines. These six specific part # are packed in boxes that adhere to strict vending machine standards.

Good choice for all general-purpose bench and pedestal applications on nonferrous materials and carbide tooling



GEMINI SILICON CARBIDE

- Type O1 straight wheel with sharp, green silicon carbide for general-purpose applications on carbide tooling and non-ferrous materials
- Vitrified bond for superb shape holding and resistance to wear
- Available in many sizes and coarse to fine grits; for sharpening to fine shaping applications

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
6 x 3/4 x 1"	4,140	1/5	Medium 60	662528 37190
	4,140	1/5	Fine 80	662528 37191
	4,140	1/5	Extra Fine 120	662528 37192
6 x 1 x 1"	4,140	1/5	Medium 60	662528 37187
	4,140	1/5	Fine 80	662528 37193 V
	4,140	1/5	Extra Fine 120	662528 37194
7 x 1 x 1"	3,600	1/5	Medium 60	662529 42300
	3,600	1/5	Fine 80	662529 42301 V
	3,600	1/5	Extra Fine 120	662529 42302

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
8 x 1 x 1"	3,600	1/5	Medium 60	662530 44087
	3,600	1/5	Fine 80	662530 44534 V
	3,600	1/5	Extra Fine 120	662530 44535
10 x 1 x 1-1/4"	2,485	1/2	Medium 60	662531 144536
	2,485	1/2	Fine 80	662531 160366
12 x 2 x 1-1/4"	2,070	1/2	Medium 60	662532 63359
	2,070	1/2	Fine 80	662532 63360

V = Vendible. Because all bench and pedestal wheels are packaged in single boxes, all may be used in vending machines. These six specific part # are packed in boxes that adhere to strict vending machine standards.

Bench and Pedestal Wheel Arbor Bushings

WHEEL DIA.	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"	1-1/2"					•	•

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



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 non-ferrous MRO, small job shop, and production operation.

- Applications:** Surface grinding, tool and cutter grinding, and sharpening
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

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"

Cross Reference Guide

NORTON	CAMEL	CINCINNATI	RADIAC	TYROLIT	WINTERTHUR
32A	AZ	4A, 12A, 29A, 32A	32A, WRA	90A	67A, 68A



Better choice for medium-to-heavy stock removal

32A ALUMINUM OXIDE

- Strong, sharp monocrystalline aluminum oxide grain, ideal for precision production medium-to-heavy stock removal applications
- The most versatile vitrified bond, especially recommended for CNC cutting tool machines, and cylindrical and surface grinding
- Grinds with an exceptional cool, fast cutting action, requires minimum dressing

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
7 x 1/4 x 1-1/4"	3,600	1	32A60-IVBE	662529 39548
	3,600	1	32A60-KVBE	662529 39552
	3,600	1	32A80-IVBE	662529 39658
	3,600	1	32A80-KVBE	662529 39662
	3,600	1	32A100-IVBE	662529 39670
	3,600	1	32A100-KVBE	662529 39673
7 x 1/2 x 1-1/4"	3,600	1	32A46-HVBE	662529 40863
	3,600	1	32A46-IVBE	662529 40864
	3,600	1	32A46-JVBE	662529 40865
	3,600	1	32A60-IVBE	662529 40880
	3,600	1	32A60-KVBE	662529 40885
	3,600	1	32A80-IVBE	662529 40895
	3,600	1	32A80-KVBE	662529 40899
	3,600	1	32A120-LVBE	662529 41018

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART#
8 x 1/4 x 1-1/4"	3,600	1	32A60-IVBE	662530 43416
	3,600	1	32A80-KVBE	662530 43458
8 x 1/2 x 1-1/4"	3,600	1	32A46-HVBE	662530 43712
	3,600	1	32A46-JVBE	662530 43715
	3,600	1	32A60-IVBE	662530 43725
	3,600	1	32A60-KVBE	662530 43729



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 wheels
- Grit Range:** 16 – 400
- Abrasive Grain:** Aluminum Oxide, Boron Nitride, Silicon Carbide
- Shape:** Square, rectangle, and round
- Machine Used:**



The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

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.

	REQUIREMENT	FINISH
Superabrasive Wheels - Resin and Vitrified Bond		
- 80, 100 and 120 Grits	Dressing Stick	38A150-HVBE
- 150, 180 and 220 Grits	Dressing Stick	38A220-HVBE
Conventional Vitrified Wheels - Vitrified Bond		
- 46 grit and finer and M grade and softer	Conventional Dressing Stick	37C24-SVK



Regular use of properly selected dressing sticks will help you achieve maximum performance from your grinding wheels



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.

SIZE	STD. PKG.	SPEC.	PART#
Vitrified Dressing Sticks – Aluminum Oxide			
1/2 x 1/2 x 6"	5	38A220-HVBE	614636 10103
	5	38A150-IVBE	614636 10303
3/4 x 3/4 x 4"	5	38A150-HVBE	614636 10291
1 x 1 x 6"	5	38A150-HVBE	614636 10405
	5	38A220-HVBE	614636 10406

SIZE	STD. PKG.	SPEC.	PART#
1 x 1 x 8"	5	38A120-IVBE	614636 10290
	5	38A150-IVBE	614636 10455
Vitrified Dressing Sticks – Silicon Carbide			
1 x 1 x 6"	5	37C24-SVK	614636 10462

TECH TIP

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).



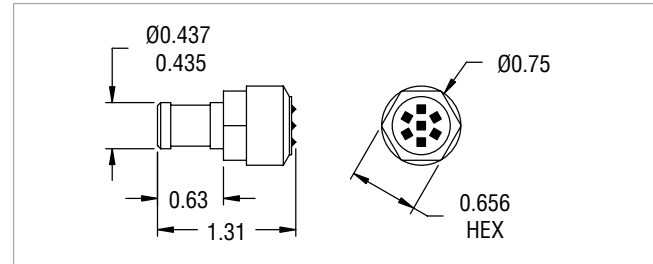
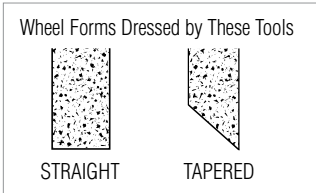
It is the user's responsibility to refer to and comply with ANSI B7.1

Better choice for dressing performance on conventional abrasives



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



DIAMONDS ON FACE	SHANK DIAMETER	TOOL LENGTH	PRODUCT #	NON-RESETTABLE PART #
Stock Multi-Point Cluster Tools				
7	7/16"	1-5/16"	NC7K7	662601 95206

Standard Package = 1 Tool

Good choice for dressing performance on conventional abrasives



SINGLE POINT TOOLS FOR CONVENTIONAL ABRASIVES

- Consistent diamond structure and shape for repeatable dressing performance on conventional abrasives
- Well defined, sharp, durable diamond point offers maximum cost effectiveness
- Steeper 60 degree angle head design allows for greater machine and part clearance to produce forms with tighter tolerances

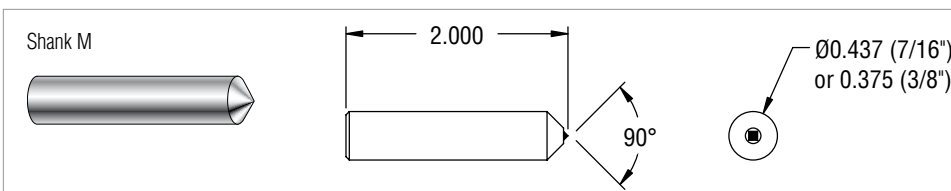
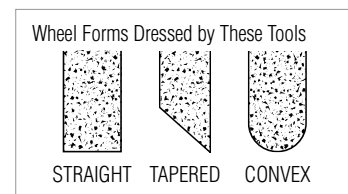
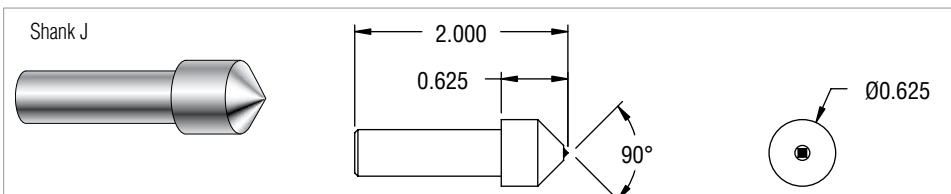
Non-resettable BC Single Point Tools

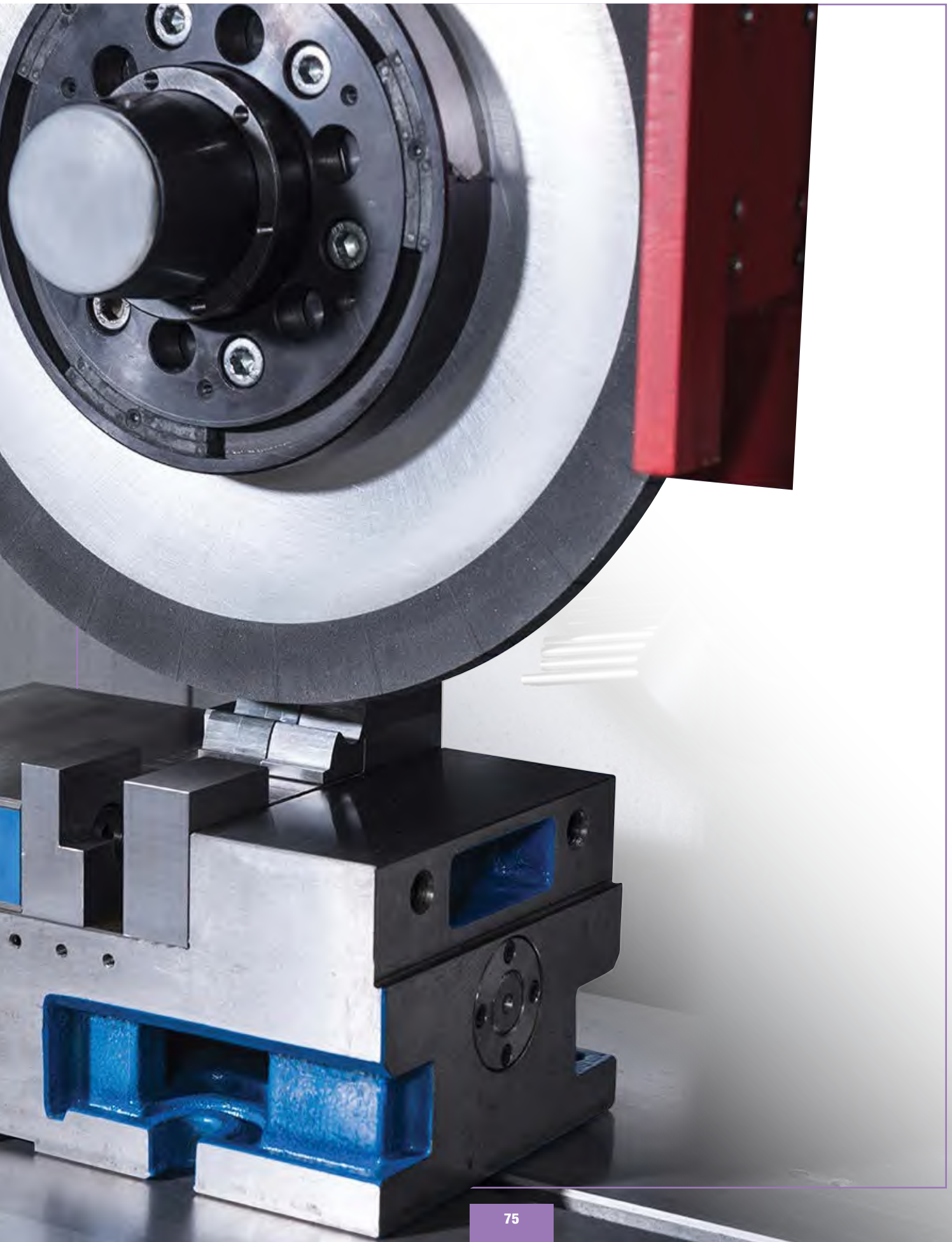
- The best selection for conventional abrasives when a resetting program is not feasible or low initial cost is the primary purchasing consideration

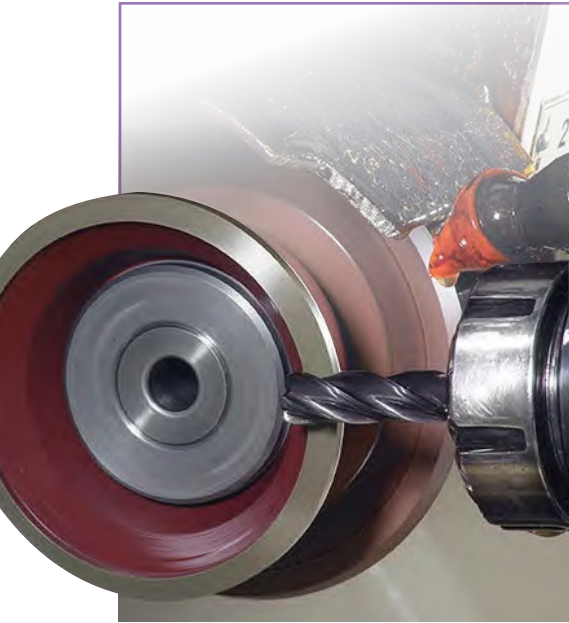
WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIAMETER	PRODUCT #	NON-RESETTABLE PART #
Stock Single Point Tools for Truing/Dressing Conventional Abrasives				
Up to 7"	1/4 (.25)	7/16"	BC2M7	662601 95001
8 to 10"	1/3 (.33)	3/8"	BC3M6	662601 95002
	1/3 (.33)	7/16"	BCSG3M7	662601 56906
15 to 20"	3/4 (.75)	3/8"	BC7M6	662601 95006
	3/4 (.75)	7/16"	BC7M7	662601 95007
21" +	1 (1.00)	3/8"	BC10M6	662601 95008
	1 (1.00)	7/16"	BC10M7	662601 95009

* J-shank tools are available in 7/16" diameter with 5/8" head. Standard Package = one tool

NS Non-Stock: Please contact your Norton representative for current lead-times.







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

Stock Shapes:

DW Mounted Points, HH1 and HH2 Hand Hones, and 1A1, 1A1R, 1V1P, 4A2P, 6A2C, 6A2H, 11V9, 12A2, 12V9, and 15V9 Wheels

Abrasive Grain:

Diamond and cBN (cubic Boron Nitride)

Abrasive Bonds:

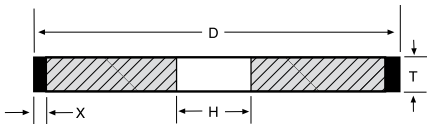
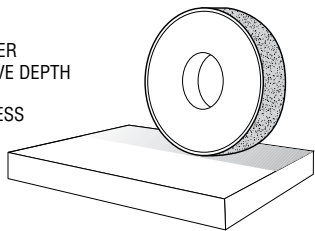
Resin, Metal, Metal Single Layer, and Vitrified

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

TO MAXIMIZE THE PERFORMANCE AND LIFE OF THESE WHEELS, USE NORTON DRESSING STICKS FOUND ON PAGE 77.

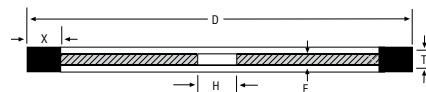
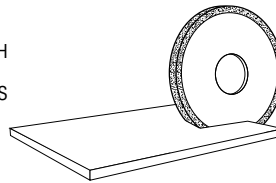
Type 1A1

- D - DIAMETER
- X - ABRASIVE DEPTH
- H - HOLE
- T - THICKNESS



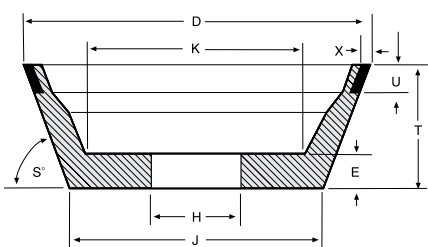
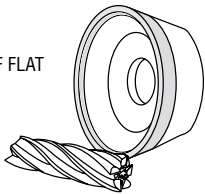
Type 1A1R

- D - DIAMETER
- X - ABRASIVE DEPTH
- H - HOLE
- E - BACK THICKNESS
- T - THICKNESS



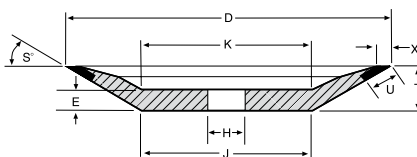
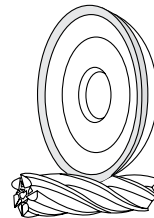
Type 11V9

- 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



Type 12V9

- D - DIAMETER
- K - INSIDE DIAMETER
- H - HOLE
- E - BACK THICKNESS
- J - HUB DIAMETER
- S - FACE ANGLE
- T - THICKNESS
- U - INSERT LENGTH
- X - ABRASIVE DEPTH



Ideal wheels for wet or dry toolroom reconditioning applications



DIAMOND STOCK WHEELS

- High quality synthetic diamond provides high material removal rates; longer wheel life vs. conventional green silicon carbide wheels
- Pre-engineered resin bond – B99 for free cutting; superior form holding; efficient wet or dry

SIZE	STD. PKG.	SPECIFICATION	PART#
Type 1A1 Straight – Diamond			
6 x 1/4 x 1-1/4"	1	SD120-R100B99-1/4	690141 91691
6 x 1/2 x 1-1/4"	1	SD150-R100B99-1/4	662602 73561
Type 1A1R Cut-Off – Diamond			
4 x 1/32 x 3/4"	1	SD100S-R100B99-1/4	690141 92151
6 x .035 x 1-1/4" (ME43572)	1	ASD120-R100B99-1/4	690141 92159

Wear resistant and thermally stable wheels that are great for resharpener



cBN STOCK WHEELS

- cBN (cubic Boron Nitride) abrasive material is second in hardness to diamond which easily cuts difficult-to-grind steel parts Rc 50 or harder and is highly wear resistant and thermally stable
- Pre-engineered resin bond – B99 for free cutting, superior form holding
- Premium Aztec III lubricating resin bond is most efficient for dry tool resharpener

SIZE	STD. PKG.	SPECIFICATION	PART#
Type 1A1R Cut-off – cBN			
6 x .035 x 1-1/4" (ME43572)	1	CB100-WB99-1/4	690141 92160
Type 12V9 Dish – cBN			
6 x 3/4 x 1-1/4" Insert Length 3/8" (ME48666)	1	CB120-TB99-1/8	690141 92020

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.



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

DIAMOND GRINDS:

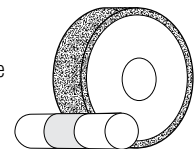
- Cemented carbide
- Glass
- Ceramics
- Fiberglass
- Plastics
- Stone
- Abrasives
- Electronic components and materials

cBN GRINDS:

- High-speed tool steels
- Die steels
- Hardened carbon steels
- Alloy steels
- Aerospace alloys
- Hard stainless steel
- Abrasion-resistant ferrous materials

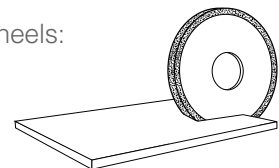
Cylindrical grinding applications – 1A1 wheels:

- 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.



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



Stationery Diamond Dressing Tools



Our Norton Winter 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, the Norton Winter full line includes custom stationary tools, rotary diamond dressers and truing/dressing devices to meet all your specific application needs. Contact us at 1-800-438-4773.

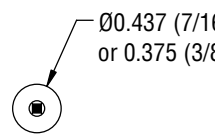
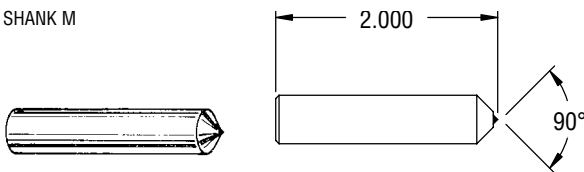
- Applications:** Truing and dressing conventional and superabrasive wheels, straight, step, radius, and form dressing
- Tool Types:** Stationary: Single Point, Multi-Point, Blade, Form, Toolroom, and Cluster Tools, and Truing Devices
- Rotary: Reverse Plated and Infiltrated Form Plunge Diamond Rolls, Diamond CNC Traversing Discs, and Dressing Spindles

The complete product category is described above. See Norton Full Line Catalog #7362 for entire offering.

Single Point Tools

Our Norton Winter line of single point tools is used in straight and simple form dressing applications. These non-resettable tools dress all abrasive types (conventional and advanced ceramic grains). Non-resettable tools are the best option when a resetting program is not feasible or low initial cost is the primary purchasing consideration.

SHANK M



WHEEL FORMS DRESSED BY THESE TOOLS



STRAIGHT



TAPERED



CONVEX



Good choice for truing/dressing ceramic abrasives

SG CERAMIC SINGLE POINT TOOLS

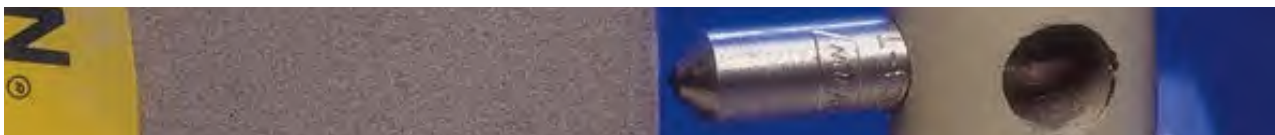
- Specially selected broad-shaped, diamond withstands the increased grinding pressures of ceramic abrasives
- Each diamond is hand selected for stone shape, quality and structural integrity for a consistent tool performance
- Multi-purpose to accommodate most straight dressing and simple form dressing applications and also stand up to ceramic (Norton SG, NQ, TG, etc.) abrasive sharpness; can also be used to dress conventional abrasives

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIA.	LENGTH	PRODUCT #	NON-RESETTABLE PART #
Stock Single Point Tools for Truing/Dressing Ceramic Abrasives					
Up to 7"	1/4 (.25)	7/16"	2"	BCSG2M7	662601 56905
8 to 10"	1/3 (.33)	3/8"	2"	BCSG3M6	662601 57008
11 to 14"	1/2 (.50)	3/8"	2"	BCSG5M6	662601 57009
		7/16"	2"	BCSG5M7	662601 56907
21"+	1 (1.00)	7/16"	2"	BCSG10M7	662601 57010

Standard Package = 1 tool

TECH TIP

Rotate a single point tool 1/4 turn periodically to maintain a sharp point





Good choice for truing/dressing conventional abrasives

BC SINGLE POINT TOOLS

- Consistent diamond structure and shape for a repeatable dressing performance
- Well defined, sharp diamond point is durable; maximum cost effectiveness for dressing conventional abrasives
- Steeper 60 degree included angle head design for greater machine and part clearance produce forms with tighter tolerances

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIA.	LENGTH	PRODUCT #	NON-RESETTABLE PART #
Stock Single Point Tools for Truing/Dressing Conventional Abrasives					
Up to 7"	1/4 (.25)	3/8"	2"	BC2M6	662601 95000
8 to 10"	1/3 (.33)	7/16"	2"	BC3M7	662601 95003
11 to 14"	1/2 (.50)	3/8"	2"	BC5M6	662601 95004
		7/16"	2"	BC5M7	662601 95005
15 to 20"	3/4 (.75)	7/16"	2"	BC7M7	662601 95007
21" +	1 (1.00)	7/16"	2"	BC10M7	662601 95009

Standard Package = 1 tool

Multi-Point Tools

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.

Conventional Toolroom Multi-Point Tool Shape and Shank Availability

SHAPE 1A



BC-61

SHAPE 2A



BC-62

SHAPE 2A



BC-63

SHAPE 1R



BC-64

SHAPE 1R



BC-65

WHEEL FORMS DRESSED BY THESE TOOLS



Good choice for truing and straight dressing conventional abrasives

BC MULTI-POINT TOOLS

- Uniformly distributed diamonds in a tough, durable matrix provide consistent performance throughout tool life
- Fresh, multiple diamond points exposed in truing operation; no turning or resetting required for faster, more consistent straight face dressing with maximum efficiency and longer tool life than single point tools
- Overall diamond weight exceeds equivalent single point tool achieving the most economical way to dress straight and tapered forms

WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL DIA.	LENGTH	PRODUCT #	NON-RESETTABLE PART #
Multi-Point Tools for Straight Dressing					
11 to 14"	54 to 100	0"	7/16"	2R6K7	662601 95096

Standard Package = 1 tool

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 the 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,
nortonliterature@saint-gobain.com

Abrasive Safety References



Safety Information on the Web

Norton website nortonsga.us/safety

UAMA (United Abrasives Manufacturers Association) website at
<http://www.safety.uama.org>





Safety Videos

Watch our videos on: [YouTube.com/NortonAbrasives](https://www.youtube.com/NortonAbrasives)

- Safety, It's The Smart Thing To Do (Safety information for portable grinding and cutting wheels)
- Foundry Safety
- First in Precision Grinding Safety
- Proper Grinding Wheel Mounting
- Railroad Abrasive Safety
- Coated Abrasive Belt and Disc Safety












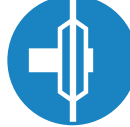

UAMA Approved Safety Icons

The UAMA has approved a new set of standardized icons to be used throughout the Abrasive industry to convey safety information to the users. Below are the approved icon types and their definitions.

ICON TYPES	EXAMPLE
Safety Icon: A pictorial whose purpose is to relay safety related information to the user.	
Hazard Alert Icon: This type of safety icon conveys information primarily related to the nature of a hazard. It contains a graphical depiction of the hazard drawn within a yellow equilateral triangle.	
Prohibition Icon: This type of safety icon conveys actions that should not be taken. It consists of a red circular band with a 45° diagonal red band from upper left to lower right. The icon contains a black depiction of what should not be done within the red band on a white background.	
Mandatory Action Icon: This type of safety icon conveys actions that should be taken to avoid hazards. It consists of a white image within a solid blue or black circular surround shape.	
Proper Machine Use Icon: This type of icon is designed to show the use of the wheel on a proper machine. The icon can be a bit more realistic to show components such as a safety guard and an auxiliary handle. The recommended angle of use may also be depicted.	

ICON	MEANING	ICON	MEANING
	Improper use may break wheel and cause serious injury or death.		Always use wheel guard for angle grinder.
	No side grinding. Cutting only.		Always use wheel guard for non-portable machine.
	No side grinding. Cutting only		Protect your eyes.
	No cutting. Side grinding only.		Protect your face.
	No cutting. Side grinding only, grouped icon.		Protect your lungs against dust.

UAMA Approved Safety Icons *continued*

ICON	MEANING	ICON	MEANING
	Do not use a damaged wheel.		Protect your hearing.
	Do not use on High Speed Gas Saws.		Protect your eyes and face.
	Do not use on Angle Grinders.		Protect your eyes and hearing. Combined icon.
	Do not use on die grinders		Protect your eyes, ears and lungs.
	Warning alert symbol.		Protect your hands.
	Read OSHA and ANSI B7.1.		Use matched diameter, relieved flanges.
	Read OSHA and ANSI B7.1. Visit the industry safety page: http://www.safety.uama.org		



Coated Abrasive Do's and Don'ts



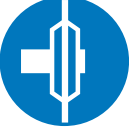




Coated Abrasive Disc and Wheel Safety Do's and Don'ts

Warning

Improper use may cause wheel breakage and serious injury. Comply with ANSI B7.7, OSHA and safety guide provided with the package. Always follow all manufacturer's recommended procedures and safety instructions. Never exceed tool manufacturer's maximum operating speed.

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.

Lead Poisoning can develop as a result of inhalation and/or ingestion of the dust generated from sanding any product containing lead, including lead based paint. Lead Poisoning is an illness which can permanently damage the body's physical, neurological and/or reproductive systems. Care must be taken to avoid the inhalation and/or ingestion of dust containing lead

	DO'S	DON'TS
INSPECT / STORAGE / SPEED  	<ul style="list-style-type: none"> • DO read all manuals, operating instructions and warnings • DO read SDS for the disc/wheel and the work-piece material. • DO check all products for damage before mounting. • DO make sure the machine speed does not exceed the speed marked on the package or back up pad. • DO store products prior to use at 35 – 50% relative humidity and 60 – 80°F. 	<ul style="list-style-type: none"> • DON'T use products that have been dropped or damaged. • DON'T use on machines that do not show a MAX RPM speed.
MOUNT / GUARD  	<ul style="list-style-type: none"> • DO use the wheel guard provided with machine. Position it so it protects the operator and covers the wheel. • DO use recommended back up pad or mandrel for the product. • DO run wheels ONLY in direction of directional arrow stenciled on wheel and in core (except Unified Wheels, which can be run in either direction). • DO run discs/wheels in a protected area for one minute before grinding. 	<ul style="list-style-type: none"> • DON'T remove or modify any guard. ALWAYS use a proper guard. • DON'T use excessive pressure when mounting a wheel. Tighten enough only to hold wheel firmly.
PROTECT  	<ul style="list-style-type: none"> • DO wear ANSI Z87+ safety glasses and face protection, if required. • DO wear safety shoes, arm guards, leather gloves and aprons. • DO employ dust controls and/or protective measures appropriate to the material being ground. 	<ul style="list-style-type: none"> • DON'T use products near bystanders if they are not wearing protective equipment.
OPERATE 	<ul style="list-style-type: none"> • DO support work-piece firmly. • DO hold machine firmly in two hands. • DO stop the equipment at once if chattering or vibration occurs during use. Determine cause of the problem and correct before remounting. • DO ease the disc into the work piece at a 5-10o angle to the work piece surface. 	<ul style="list-style-type: none"> • DON'T allow untrained people to handle, store, mount or use discs/wheels. • DON'T twist, jam or bend any wheel. • DON'T force or bump wheel so that the tool motor stalls. • DON'T use discs/wheels in the presence of combustible materials. • DON'T use disc/wheel for applications other than for which they were designed. Refer to ANSI B7.7.

Portable Grinding Safety Do's and Don'ts

	DO'S	DON'TS
INSPECT / SPEED 	<ul style="list-style-type: none"> • DO read all manuals, operating instructions and warnings. • DO read SDS for the wheel and workpiece material. • DO check all wheels for cracks or other damage before mounting. • DO make sure the machine does not exceed the maximum operating speed marked on the wheel. • DO store according to ANSI B7.1. 	<ul style="list-style-type: none"> • DON'T use wheels that have been dropped or damaged. • DON'T use on grinders that do not show a MAX RPM.
MOUNT / GUARD 	<ul style="list-style-type: none"> • DO use an ANSI B7.1 wheel guard. Position it so it protects the operator. • DO be sure wheel hole or threads fit machine properly and that the flanges are clean, flat, undamaged and the proper type. • DO run wheel in a protected area for one minute before grinding. 	<ul style="list-style-type: none"> • DON'T remove or modify any guard. ALWAYS use a proper guard. • DON'T alter a wheel or force it on to the spindle. • DON'T mount more than one wheel on an arbor. • DON'T use excessive pressure when mounting a wheel. Tighten enough only to hold wheel firmly.
PROTECT 	<ul style="list-style-type: none"> • DO wear ANSI Z87+ safety glasses and face protection, if required. • DO wear gloves, hearing and body protection. • DO employ dust controls and/or protective measures appropriate to the material being ground. • DO comply with OSHA regulations 29 CFR 1926.1153 when working on materials containing crystalline silica such as concrete. 	<ul style="list-style-type: none"> • DON'T use wheels near bystanders if they are not wearing protective equipment.
OPERATE 	<ul style="list-style-type: none"> • DO support work-piece firmly. • DO hold grinder firmly with two hands. 	<ul style="list-style-type: none"> • DON'T allow untrained people to handle, store, mount or use wheels. • DON'T use grinding wheels or cutting wheels on pistol grip air Sanders. • DON'T use any cutting wheel for grinding nor apply side pressure on a cutting wheel. Use for CUTTING ONLY. • DON'T use a cutting wheel to cut curves. Cut in straight lines only. • DON'T twist, bend or jam any wheel. • DON'T force or bump wheel so that the tool motor slows or stalls. • DON'T use wheels in the presence of combustible materials. • DON'T use wheels for applications other than for which they were designed.

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.

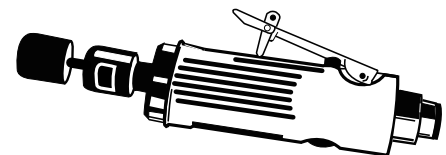
Die grinders often operate above 25,000 rpm and therefore are too fast for abrasive wheels. The speed hazard is increased by the absence of a guard. Portable cut-off tools, however, rotate at speeds compatible with the abrasive wheels for which they are designed. And, their guards prevent use of an oversize wheel.

MOUNTING

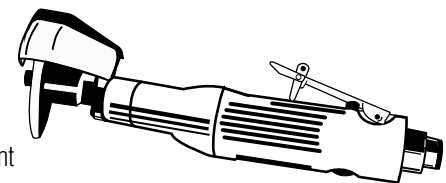
Cut-off wheels must be mounted between proper flanges, as described in the national safety standard for abrasive wheels, ANSI B7.1. Die grinders make use of a collet for mounting

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

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)

Diameter of Wheel in Inches	Surface Speed in Feet Per Minute (SFPM)																				
	4,000	4,500	5,000	5,500	6,000	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
1	15,279	17,189	19,098	21,008	22,918	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	7,639	8,594	9,549	10,504	11,459	12,414	13,368	14,323	15,278	16,233	17,188	18,143	19,098	22,918	23,875	27,120	30,558	31,510	32,465	37,595	38,195
3	5,093	5,729	6,366	7,003	7,639	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	3,820	4,297	4,775	5,252	5,729	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	3,056	3,438	3,820	4,202	4,584	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	2,546	2,865	3,183	3,501	3,820	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	2,183	2,455	2,728	3,001	3,274	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	1,910	2,148	2,387	2,626	2,865	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	1,698	1,910	2,122	2,334	2,546	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	1,528	1,719	1,910	2,101	2,292	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	1,273	1,432	1,591	1,751	1,910	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	1,091	1,228	1,364	1,500	1,637	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	955	1,074	1,194	1,313	1,432	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	849	955	1,061	1,167	1,273	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	764	859	955	1,050	1,146	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	694	781	868	955	1,042	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	637	716	796	875	955	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	588	661	734	808	881	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	546	614	682	750	818	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	509	573	637	700	764	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	477	537	597	656	716	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	449	505	562	618	674	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	424	477	530	583	637	690	742	795	848	902	954	1,007	1,061	1,273	1,330	1,510	1,698	1,750	1,805	2,090	2,120
38	402	452	503	553	603	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	382	430	478	525	573	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	366	409	454	500	545	591	636	682	732	775	818	863	908	1,090	1,140	1,295	1,464	1,500	1,545	1,790	1,820
44	347	390	434	478	521	564	608	651	694	737	780	824	868	1,042	1,085	1,235	1,388	1,432	1,475	1,710	1,735
46	333	375	416	458	500	541	582	624	666	708	750	791	832	1,000	1,040	1,180	1,332	1,370	1,410	1,635	1,660
48	318	358	398	438	478	517	558	597	636	676	716	756	796	956	995	1,130	1,272	1,315	1,350	1,565	1,590
53	288	324	360	395	432	468	503	539	576	612	648	683	720	864	900	1,025	1,152	1,189	1,225	1,420	1,440
60	255	287	319	350	387	414	446	478	510	542	574	606	638	774	795	905	1,020	1,050	1,080	1,255	1,275
72	212	239	265	291	318	345	371	398	424	451	477	504	530	637	665	755	849	875	905	1,045	1,060

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 x 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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