



GENERAL INFORMATION About Norton

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.

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:











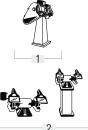




PORTABLE TOOLS AND METAL FAB CUTTING AND WIRE BRUSHES **GRINDING SPECIALTIES** Wire Brush Basics 215 Mini Angle Sander 124 Wire Cup Brushes 217 Rough Grinding Wire Wheel Brushes 219 Mini Flap Discs 125 Quick-Change Discs 126 **Cut-off Wheels** Non-Woven Quick-Change Discs. 134 Small Diameter Reinforced Cut-off 17 Hand Brushes 227 Quick-Change Disc Accessories 142 Circular Saw Reinforced Cut-off 24 Chop Saw Reinforced Cut-off 25 MASKING PRODUCTS High-Speed Reinforced Cut-off. 28 Walk-Behind Reinforced Cut-off 30 Square/Cross Pads, Overlap Slotted Discs 150 Stationary Saw Reinforced Cut-off 31 Masking Film, Paper, and Sheeting. . . . 232 Micro-Fiber Cloths 233 Tapered Cone Points 157 SAFETY Foundry Non-Woven Specialties. 160 Safety Leadership / References 234 Flap Wheels 162 Safety Icon Meanings 235 COATED & NON-WOVEN Non-Woven Flap Wheels 174 Coated Abrasive Do's and Don'ts 237 **ABRASIVES** Arbor Hole (Gangable) Discs 176 Portable Grinding Safety 238 Bore Polishers 177 Coated Abrasive Basics. 42 Starting a Grinding Wheel / Ring Test . . 239 Non-Woven Unified Wheels 179 Wheel Speed Conversion Table. 240 Silica Precautions 241 **GENERAL INFORMATION** PRECISION OFFHAND/ **PORTABLE** Non-Woven Depressed Center Discs. . . . 60 Bonded Abrasives Basics. 189 Non-Woven Standard Back-up Pad Discs . 62 Machine Index and Catalog Navigation. . . . 4 Bench and Pedestal Wheels 190 Non-Woven Speed-Change Discs 64 Product Warranty / Trademarks 242 Mounted Points 194 Non-Woven Hook and Loop Discs 65 Abrasive Solutions 243 Sharpening Stones 200 Retail Sharpening Stones. 202 Film and Foam Finishing Discs 79 **CONSTRUCTION PRODUCTS** Sanding Accessories 81 Diamond Blades 205 Wheels Non-Woven Convolute Wheels 84 Diamond Cup Grinders 210 Diamond Core Bits 211 Belts Equipment 212 FastTrack Service Made-to-Order Belts. . 102 Rolls / Sheets Cloth Rolls and Sheets 105 Paper Rolls and Sheets. 108 Non-Woven Rolls. 117 Sponges / Hand Pads Non-Woven Hand Pads and Sponges . . 120

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Small Diameter Reinforced Cut-off Wheels













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Easy-to-Follow Page Guide

8. Drills

Key Questions to Simplify Product Selection

Am I in the right section?

- **A** Product
- **B** Category overview
- **C** General attributes
- D Correct machine use

How do I narrow choices?

E Product design variations

How do I match my end-user needs?

- F Application recommendations
- G Best/Better/Good performance color coding
- H Full application / grit guide

How do I match or upgrade from a competitive product?

I Cross reference guide







GENERAL INFORMATION

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16. Masonry Saws Large, Compact, and Portable Masonry Saws
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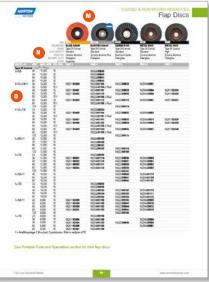
22.	Right Angle/Vertical Shaft Portable
	Cup Grinders

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Wire Brushes





What are the Leading Products by Tier?

- J Tiers by color-coding: Best, Better, Good
- K Features and benefits
- L New, improved, and/or expanded offering

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

- M Visual identification
- N Key product attributes
- Full specification and product number





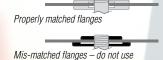
A WARNING

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 governmentapproved 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 234 - 241 for additional safety information





Depressed Center Wheels



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"

Shape:

Machine Used:

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)

That 10 To 10 The 100 The 100

Type 27, Type 28, Type 29



RIGHT ANGLE GRINDER

How to Pick the Right Wheel

DEPRESSED CENTER W	VHEEL DESCRIPTION	I CODES				
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	HD = Heavy Duty	INOX/SS = Contaminant Free	LL = Long Life	XXL = Extra Long Life
■ = Aluminum	= Foundry	= Masonry	= Stainless	Steel / Metal		
DESCRIPTION CODE DE	EFINITIONS					
BLANK = All Purpose				e and life is needed.		
ALU = Aluminum		Specially formula	ated bond for redu	ced loading and surface cont	amination while cutt	ing aluminum and soft materials.
FC = Fast Cut		Where fast stock	removal is needed	l, or the application only allo	ws for low-pressure	or under-horsepowered grinders.
HD = Heavy Duty		Triple reinforced	for the most aggre	ssive foundry applications		
INOX/SS = Contamin	ate Free	Contain <0.1% in	on, sulfur or chlor	ine for rust-free and corrosio	n-free results. Will r	not contaminate stainless steel.
LL = Long Life		Where durability	is needed due to s	evere application, and when	horsepower of the g	rinder allows for heavy pressure.
XXL = Extra Long Life		Offers 50% more	e life and metal ren	noval than standard aluminur	n oxide wheels.	

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



See how to correctly mount a depressed center wheel on our youtube page at https://nortonsga.us/7hc5m



1/8" Type 29 Flexible, AVOS

ROUGH GRINDING Depressed Center Wheels

Type-To-Application Recommendation Guide

Wheel Type/Thickness Applications

whice Type/Thickness	Αμμιτοατίστο			
		90° ANGLE	30° ANGLE	15° ANGLE
TYPE 27	Type 27 wheels are essentially straight wheels that have a "depressed center/ raised			
noscanos canos canos canos canos canos	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	•	•	
1/8" Pipe Notcher Type 27	2-1/2 pieces of reinforcement; durable face grinding; root pass grinding without removing pipe material	•	•	
1/8" Type 27 Flexible	For light stock/blending/finishing/polishing		*	
.140" and 1/8" Type 27 Foundry Notchers	Triple-reinforced for grinding steel and dirty/scale-covered castings; removing and cleaning gates and risers	•	•	
1/4" Type 27	For light- to heavy-duty grinding on the bottom/face of the wheel		*	
1/4" Type 27 Foundry Snaggers	Designed for cleaning parting lines, pads and slag		•	
1/4" Type 27 Heavy-Duty Foundry	Triple-reinforced for the most aggressive foundry applications		•	
TYPE 28	Type 28 wheels are constructed with a downward angle built into the grinding section to facilitate a flatter grinding angle. These wheels can only be used on the face and			
	never on the periphery for cutting-off.			
1/4" Type 28 Saucers	Smooth, gouge-free grinding at shallow angles			•
TYPE 29	Type 29 wheels are constructed with an upward angle built into the grinding section			
	to provide full face contact for light stock removal and blending operations. These wheels can only be used on the face and never on the periphery for cutting-off.			
4 (OIL T OO EL. 'ILL. AV (OO	B. P. D. Commission of the Com			

Material/Application-To-Product Recommendation Guide

Polishing and blending applications

	BEST		BETTER	GOOD		
	Quantum3	NorZon Plus	BlueFire	Gemini	Metal	Masonry
CUTTING						
Mild Carbon / High Tensile Steel	*	•	*	*	•	
Stainless Steel / Alloys	*	•	♦	•	•	
Contaminate Free*			◆ FC/INOX/SS	◆ INOX/SS		
Cast Iron	*	•		*		
Gray Iron						
Aluminum / Bronze / Brass				◆ ALU		
Asphalt / Brick / Concrete						•
Fiberglass / Plastic						•
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				◆ ALU		
Asphalt / Brick / Concrete						•
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)

ROUGH GRINDING Depressed Center Wheels

Cross Reference Guides

Type 27 and 28 - 1/8" and 1/4"

	TOTAL PERFORMANCE								INITIAL PRICE			SPECIALTY	
	BEST			BETTER	_	GOOD			BETTER			GOOD	
NORTON	Quantum3	NorZon Plus LL	NorZon Plus	BlueFire	BlueFire FC/INOX/SS	Gemini XXL	Gemini	Gemini Fast Cut	Gemini SS	Metal	BlueFire Foundry		Masonry
3M	Cubitron II	-	-	-	-	High Perform., Green Corps	-	-	-	-	-	-	-
Arc	-	-	-	-	-	-	Predator A24R	-	-	-	-	-	-
Brilliant	-	-	-	-	Brill-Max Z24R	-	Brill-Tex A24UHPXL, A30T	Brill-Tex A24R Super-G	Brill-Tex A30P	Hornet Metal	_	Brill-Tex 30ALU	Brill-Tex C30P, Horne Concrete
Bullard	-	-	TA24S	ZA24R Competitor	ZA24R	_	A24R	A24N	A46Q	A24R Competitor	-	AL36N	C24R
Camel	-	-		-	ZA24T	-	A24R	Ultra A24- N-BF, A24T Super Quickie Cut	WA24S	A24N, R&T Fast Cut	-	A30N, Fast Cut	C24R
DeWalt	-	XP Ceramic		XP	-	HP	-	-	HP SS	Metal	-	-	-
Flexovit	-	Flexon ZA24P ZA30T	Flexon ZA20Q	Metalhog, AXT24S	_	-	High Perform. A24/30T	High Performance A30S, Specialist A30Q & R	Free Grind A30Q	-	Flexon ZA16U	Specialist A24ALU	High Perform. C24/30P
Metabo	M-Calibur	_	_	ZA24T	-	_	A24R & T	A24N	A360	_	_	A36M	C24N
Pearl	_	-	-	-	Z24T	-	Premium Metal A24S, Redline Max A/WA24S	Premium Metal A24R, Redline Max A/WA24R	WA24R, SRT24	Silver Line A24R & S	-	D.A. Series AL24M	Silver Line C24S
Pferd	SG-Elastic Ceramic CO24Q	-	-	ZA SGP, ZA T SGP	ZA R SGP, Z-SG	SG-Elastic	A-PS, A-SG	_	A-SG INOX, A-PS INOX	-	-	A-SG ALU	S-SG, Masonry
Sait	The Ultimate Grind	Saitech Ultimate Perform.	Saitech Attacker, Pipeline	Z24R Z-Tech	Stainless	-	A24R, A24Turbo	A24N	XA24Q	A24T	CA24R - Foundry	A46N- ALU	C24N
Tyrolit	-	_	-	ZA24P- BFX	ZA24N-BFX	_	A30S & Q-BFX	A30R-BFX	A30-BF INOX	A30-BF	ZZA24R- BFX	A36N- BFX WA46-BF	C30-BF
Walter	-	-	_	Allsteel XX		Allsteel	HP	-	Stainless	_	-	-	-
Weiler	Tiger Ceramic	-	-	Tiger Zirc	Tiger Inox	Tiger LL	Wolverine A24R	_	-	Wolverine A24N	-	-	-

NORTO	GOOD N Gemini Flexible		30	300	
Brilliant	Brill-Flex			13 C	
Bullard	Flexlite AC		110	10 mm 10 fee	
Camel	FGF, Special Wheel	'	TAIL COMMENT		
Flexovit	Flexcel		B A B A B A B A B A B A B A B A B A B A	THE PARTY NAMED IN	
Metabo	Z-Plus				
Pearl	Flexible AC		Many -		
Pferd	SG-Flex		Per la company		
Sait	Challenger II			A PART OF THE PART	
Walter	Flexcut		N V N		
7	1				
					R

Depressed Center Wheels



Best choice for stainless and carbon steel applications; efficiently grinds and cuts a variety of materials from alloys to gray iron

QUANTUM3 CERAMIC ALUMINA

- 100% next-generation, uniquely-shaped, ceramic alumina abrasive grain and tough new bond system result in 5-6 times the life of aluminum oxide wheels and up to 100% increase in performance and life over competitive ceramic wheels
- Significantly increase production, for the lowest total grinding cost of any wheel in the market place today
- Better operator control, improved comfort, and exceptional finished part quality with a more robust, sharper, yet smoother cutting action; wheels don't grab or dig



Best for metal plate, pipe, tubing, cast iron, carbon and mild steel, foundry and welding applications, and ceramics

DIALAST DIAMOND WHEELS

- A combination of high-quality diamond and advanced brazed single-layer bonding technology for extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for
 exceptional wheel life; less blade changes reduce downtime and labor costs
- Environmentally friendly design generates minimal dust for less clean-up and safer working conditions



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

BLUEFIRE ZIRCONIA ALUMINA / A/O 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



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



Good choice for steel/ferrous metal applications with low initial price

METAL ALUMINUM OXIDE

- Durable bond and wheel hardness are designed to provide an good mix of cut rate and life
- · Good choice when low initial price is needed for small jobs or newer operators
- · Metal (Aluminum Oxide) engineered for all steel/ferrous materials



Good choice for masonry applications with low initial price

MASONRY SILICON CARBIDE

- Durable bond and wheel hardness are designed to provide a good mix of cut rate and life
- Good choice when low initial price is needed for small jobs or newer operators
- Masonry (Silicon Carbide) for masonry materials such as concrete, brick and asphalt

ROUGH GRINDING Depressed Center Wheels



9 x 1/8 (5/32) x 7/8 6,600 20 Pipe Notchers are to be used for cutting/notching only.

4-1/2 x 1/8 (5/32) x 7/8

5 x 1/8 (5/32) x 5/8-11

6 x 1/8 (5/32) x 5/8-11

7 x 1/8 (5/32) x 5/8-11

9 x 1/8 (5/32) x 5/8-11

5 x 1/8 (5/32) x 7/8

6 x 1/8 (5/32) x 7/8

7 x 1/8 (5/32) x 7/8

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

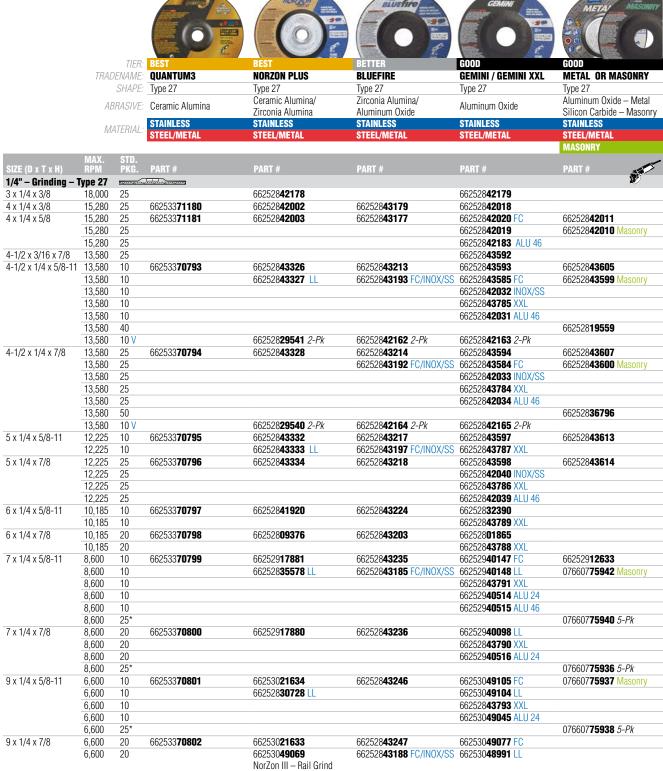


662533**70276** XXL

DEPRESSED CENTER WHEEL DESCRIPTION CODES								
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	HD = Heavy Duty	INOX/SS = Contaminant Free	LL = Long Life	XXL = Extra Long Life		
= Aluminum	= Foundry	= Masonry	= Stainless	= Steel / Metal				

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

Depressed Center Wheels



^{* 5-}wheel Job Packs; wheels are packed 5 wheels/Pack. with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25. Vendible 2-wheel Package. Ideal for vending machings and small jobs. 5 packs/carton. Order in multiples of 10.

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

DEPRESSED CENTER WHEEL DESCRIPTION CODES								
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	HD = Heavy Duty	INOX/SS = Contaminant Free	LL = Long Life	XXL = Extra Long Life		
= Aluminum	= Foundry	= Masonry	= Stainless	= Steel / Metal				

Depressed Center Wheels





ROUGH GRINDING Depressed Center Wheels

GEMINI







			011405	T 07	T 00	T 00
			SHAPE:	Type 27	Type 29	Type 29
		A	BRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
		Λ.	IATERIAL:	ALUMINUM	ALUMINUM	ALUMINUM
		IV	IATENIAL.	STEEL/METAL	STEEL/METAL	STEEL/METAL
SIZE (D x T x H)	MAX. RPM	STD. PKG.	GRIT	PART #	PART #	PART #
1/8", 1/4" - Blendir	ıg – Type 27	and 29		Control of the Contro		PART #
2 x 1/8 x 3/8	30,560	25	60	662528 35632 *		
	30,560	25	80	662528 35633 *		
4 x 1/8 x 5/8	15,280	20	36	662435 29721 #		
	15,280	20	60	662435 29722 #		
4-1/2 x 1/8 x 5/8-11	12,000	10	36		662528 42208	662528 42203
4-1/2 x 1/8 x 7/8	12,000	25	36	662528 30424 #	662528 42209	662528 42204
	12,000	25	60	662528 30425 #	662528 42211	
5 x 1/8 x 7/8	12,225	25	36		662528 42212	662528 42205
7 x 1/8 x 5/8-11	8,600	10	36	662529 39024		662529 17052
7 x 1/8 x 7/8	8,600	20	36	662529 39028 #		662529 17051
7 x 1/8 x 5/8-11	8,600	10	36			662529 17052

^{*5} wheels per display pack; 5 display packs per standard package.

TRADENAME: GEMINI FLEXIBLE



Depressed Center Adapter Kit

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

KIT NO.	WHEEL DIAMETER	WHEEL THICKNESS	PART #	STD. PKG.	
114	6" thru 9"	1/16" thru 1/4"	076607 89275	1	

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









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 $\dot{\text{thin}}$.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

Shape: **Machine Used:**

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

Type 01/41 Straight and Type 27/42 Depressed Center







PORTABLE

RIGHT ANGLE GRINDER

CUT-OFF TOOL

How to Pick the Right Wheel Type

CUT-OFF WHEEL DESCRIPTION CODES								
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	INOX/SS = Contaminant Free	LL = Long Life	1-2-3 = Cutting/Notching/Grinding			
= Masonry	= Stainless	= Steel / Metal						

DESCRIPTION CODE DEFINITIONS	
BLANK = All Purpose	Where an excellent blend of cut rate and life is needed
ALU = Aluminum	Specially formulated bond for reduced loading and surface contamination while cutting aluminum and soft materials
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
Right = 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
1-2-3 = Cutting/Notching/Grinding	Can be used in cutting, notching and grinding applications

Wheel Type/Thickness	Applications	
Vheel Type/Thickness TYPE 01/41	Applications Type 01/41 straight cut-off wheels are designed for portable cut-off tool applications. All are supplied with full fiberglass reinforcing.	
035, .040, .060, and 1/16	Where fast cutting and low kerf loss are desired	•
125	For tough cutting and notching applications where stability is important	•
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.	90° angle
035. 040045050. 1/16	Where fast cutting and low kerf loss are desired	Jo anglo
3/32	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.	90° angle
040, .045, 1/16	Where fast cutting and low kerf loss are desired	

3/32, .125

For tough cutting and notching applications where stability is important

INITIAL PRICE

A46, 60 TBXX

SPECIALTY



Spedecut Walter

Small Diameter Reinforced Cut-off

Material-To-Product Recommendation Guide

	BEST		BETTER	GOOD		
	Quantum3	NorZon Plus	BlueFire	Gemini	Metal	Masonry
Mild Carbon / High Tensile Steel	*	•	*		•	
Stainless Steel / Alloys	*	•	*	*		
Contaminate Free*				◆ INOX/SS		
Cast Iron	*	•	*	•		
Aluminum / Bronze / Brass				◆ ALU		
Asphalt / Brick / Concrete						•

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

Cross Reference Guides

TOTAL PERFORMANCE

TOTAL PERFORMANCE

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



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

A24 ZIP

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



INITIAL PRICE

A60 ZIP

	▼ TOTAL PERFORM	AITOL				INITIAL PRICE	▼)
	BEST		BETTER	GOOD			GOOD	
NORTON	Quantum3 .045"	Quantum3 1/16"	BlueFire	Gemini Free Cut	Gemini	Metal	Gemini ALU	Gemini INOX/SS
3M	_	Cubitron II .045	_	_	_	_	_	_
Brilliant	_	_		Brill-Blade Extra FC	Brill-Blade Heavy Duty	Hornet Stinger	_	_
Bullard	_	_	ZA60T	SGA60U	TA46T, TA60T, TA60U	A46T, A60T Comp.	AL46N	_
Camel	_	_	ZA Quickie Cut	A36-S-BF	Super Quickie Cut	Quickie Cut	A46 Quickie Cut	A60-T-BF, WA60R, Quickie Cut
DeWalt	XP Ceramic 0.040	XP Ceramic 1/16", XP Ceramic 0.045	XP	_	HP	Metal	_	_
Flexovit	_	_	_	Razorblade A60SST	Razorblade A24T, 30V, 36T		Razorblade A30Q	_
Metabo	Slicer Limited Edition .040	M-Calibur 1/16	Super Slicer	_	Slicer-Plus, Original Slicer LL	Original Slicer	_	
Pearl	_	_	Redline Max Slimcut	_	Slimcut	Slimcut Pro-V, Silverline	_	_
Pferd	SG Elastic, SG Plus 1mm	SG Plus 1.6, SG Elastic 1.6	_	_	_	PS-Forte	SG-ALU	_
Sait	_	The Ultimate Ceramic Cutoff .045, Saitech	Z-tech	SAIT.M.X	Sait .045, The Ultimate Cutoff	_	A46N	XA46R
SpedeCut	_	_	_	_	_	A46, 60 TBXX	_	_
Walter	Zip One	_	Zip+ Xtra	A-30-ZIP	A-60-ZIP	_	A-60-ZIP-ALU	A60-SS-ZIP
Weiler	Tiger Zirc Ultra Cut 1mm, Tiger INOX UltraCut 1mm	Tiger Ceramic .045, Tiger Zirc .045, Tiger INOX .045	_	_	Tiger	Wolverine	_	_



Dangerous Pairing: Die Grinders and Cut-off Wheels

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

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



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

Measure Your Wheel's Thickness

Why should you measure your wheel thickness? Many competitors market their wheels as .045", but they are truly thicker. New Norton Quantum3 RightCut wheels are true to size so you can pick the right wheel for the job whether you need precision cutting or rugged durability. Compare our 1/16" Quantum3 with competitive 0.045" ceramic cut-off wheels and you will see the longest life and fastest cut on the market.



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

Norton Quantum3 RightCut Wheels

The Norton Quantum3 RightCut is our top tier cut-off wheel, available in 0.045" and 1/16" thickness. If you want speed of cut and work on thin or hollow materials, the 0.045" will get you there with comfort. If you are cutting thicker materials and life of the wheel is important, then the 1/16" is ideal. Whatever your pick is, experience the extra-smooth cutting action, thanks to our premium ceramic grain.







	15.	
PRODUCT	0.045" (FAST CUTTING)	1/16" (LONGEST LIFE)
Abrasive:	Ceramic	Ceramic
Target application:	Thin metals and/or light-style cutting	Thick metals and/or aggressive-style cutting
Strengths:	Fast cutting, smooth easy feel, precise and	Long lasting, durable, aggressive easy feel, versatile
	maneuverable, reduced burrs	across applications and metals





Best choice for stainless steel and carbon steel applications

QUANTUM3 CFRAMIC ALUMINA

- 100% advanced ceramic alumina grain with a special shape for comfort and performance guaranteeing 7X the life of aluminum oxide wheels and 3X the life of zirconia alumina wheels
- · Unique bond system prevents premature grain release maximizing wheel life
- Available in type 01 straight and type 27 depressed center cut-off wheels from 4-1/2 inch to 6 inch diameters



Best for metal plate, pipe, tubing, cast iron, carbon and mild steel, foundry and welding applications, and ceramics

DIALAST DIAMOND WHEELS

- A combination of high-quality diamond and advanced brazed single-layer bonding technology for extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for
 exceptional wheel life; less blade changes reduces downtime and labor costs
- Environmentally-friendly grinding for minimal dust, less clean-up and safer working conditions



Best choice for highest productivity for steel, stainless steel and all ferrous metals

NORZON PLUS CERAMIC / ZIRCONIA BLEND

- Patented Norton SG ceramic alumina and zirconia alumina grain blend delivers the fastest cutting wheel available
 on the market, up to 10X faster cutting versus aluminum oxide wheels on 400 series stainless and soft and hard
 carbon steels
- Ultra-thin side reinforcing creates maximum cut rate and minimum kerf loss; ideal when precise thin cut is desired
- High-performance resin bond adds a freer cut and longest life



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

BLUEFIRE ZIRCONIA ALUMINA / A/O 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





GFMINI 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



Good choice for grinding alloys, metals, steels, and ferrous metals

METAL ALUMINUM OXIDE

- · Quality aluminum oxide abrasive for quick cutting action
- · Resin bond provides free cutting action with long life
- Good choice when low initial price is needed for small jobs or newer operators















		TIER:	BEST	BETTER	BETTER	GOOD	GOOD	GOOD
		TRADENAME:		BLUEFIRE	A60-OBNA2	GEMINI	GEMINI LONG LIFE	METAL
		SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
		ABRASIVE:	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
		MATERIAL:	STAINLESS	STAINLESS	STAINLESS	STAINLESS	STAINLESS	STAINLESS
			STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
_ `				FAILL W	ΓANI π	ΓAUL #	ΓANI π	TAIL II
1-1/2 x .035 x 1/16	40,745	25	C 01/41 Out-on		662434 27764			
1-1/2 x .035 x 1/8	40,745	25			662434 27831			
1-1/2 x .035 x 1/4	40,745	25			662434 27875			
2 x .035 x 1/8	30.560	25			002 10 121010	662434 11392 FC		
2 x .035 x 1/4	30.560	25			662434 28014	662434 11393 FC		
2 x .035 x 3/8	30.560	25			00210120011	662434 11394 FC		
2 x .060 x 1/8	30,560	25			662434 28041	0021011100110		
2 x 1/16 x 1/4	30,560	25			002 10 1200 11	662434 11395 FC		
2 x 1/16 x 3/8	30,560	25				662434 11396 FC		
2 x .125 x 1/4	30,560	25				662434 11402 FC		
2 x .125 x 3/8	30.560	25				662434 11403 FC		
2-1/2 x .035 x 1/8	30.560	25			662435 28476	0021011110010		
2-1/2 x .035 x 1/4	30.560	25			662435 28425			
2-1/2 x 1/16 x 1/4	30,560	25			002 10020120	662435 10640 FC		
2-1/2 x 1/16 x 3/8	30,560	25				662435 10641 FC		
3 x .035 x 1/4	25,465	25	662435 10668		662435 28573	662435 10627 FC		
0 X .000 X 1/ 1	25,465	25*	662435 31753 <i>5-Pk</i>		002 10020010	0021001002110		
3 x .035 x 3/8	25,465	25	662435 10669	662528 43174	662435 28574	662435 10628 FC	662435 37271 LL	076607 89451
0 X 1000 X 0, 0	25,465	25*	002 100 1000	662435 34821 <i>5-Pk</i>	002.0020011	002 100 10020 10	0021000121122	0.000.001
3 x 1/16 x 1/4	25,465	25	662435 10670	002 1000 1021 0 7 11	662435 28471	662435 10645 FC	662435 10649 LL	
3 x 1/16 x 3/8	25,465	25	662435 10671	662528 43175	662435 28552	662435 10647 FC	662435 10648 LL	662528 35553
0 x 1, 10 x 0, 0	25,465	25	662435 10835 LL	00202010110	002.002002	00210010011	302 100 100 10 22	0020200000
	25,465	25*	00210010002					076607 47767 <i>5-Pk</i>
	25,465	100						076607 89012
	25,465	10-Pk -:-						662528 43624 5 Whls & 1 Mandrel/ Pack
3 x .125 x 1/4	25,465	25				662435 10650 FC		
3 x .125 x 3/8	25,465	25	662435 10673			662435 10651 FC	662435 10653 LL	
4 x .035 x 1/4	15,300	25			662435 29606			
	19,100	25				662435 10629 FC		
4 x .035 x 3/8	19,100	25	662435 10675	662528 43173	662435 29621	662435 10630 FC	662435 37273 LL	076607 89453
4 x .035 x 1/2	19,100	25			662435 29622			
4 x .035 x 3/4	19,100	25			662435 29609			
4 x .040 x 3/8	19,100	25			662435 29516			
4 x 1/16 x 1/4	19,100	25	662435 10676			662435 10654 FC		
4 x 1/16 x 3/8	19,100	25	662435 10677	662528 43171		662435 10655 FC		662528 43848
4 x 1/16 x 5/8	19,100	100			662435 27827 FabCut	-		
4 x .125 x 1/4	19,100	25				662435 10658 FC		
4 x .125 x 3/8	19,100	25	662435 10841	662528 43172		662435 10659 FC	662435 10661 LL	
	40.400	0.5	0004054000011					

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

25

19,100



Drill-Mount Mandrel

662435**10680** LL

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

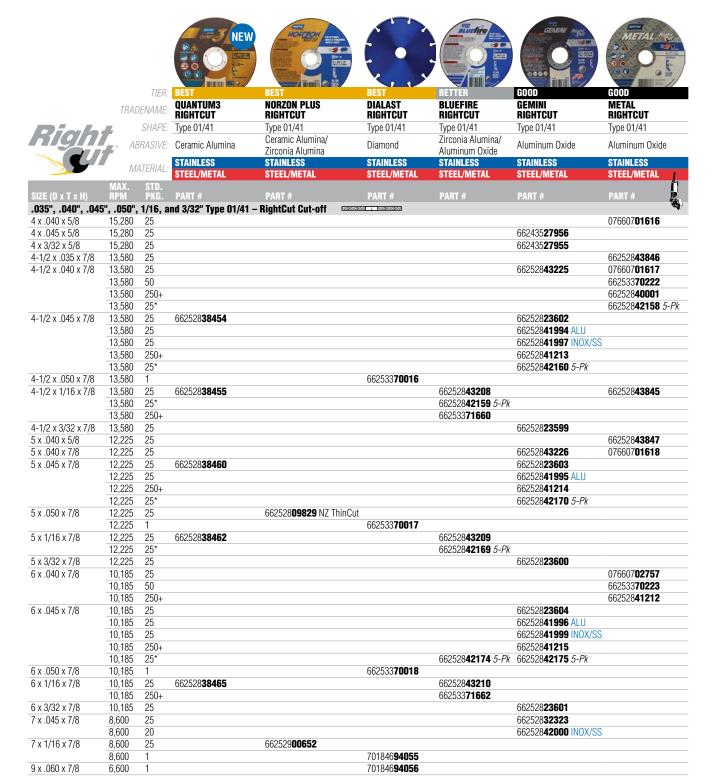
DESCRIPTION	SID. PKG.	PARI #
Drill_Mount Mandrel	1	076607 47769



CUT-OFF WHEEL DESCR	RIPTION CODES				
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	INOX/SS = Contaminant Free	LL = Long Life	1-2-3 = Cutting/Notching/Grinding
= Masonry	= Stainless	= Steel / Metal			

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





RightCut wheels are to be used for cutting only

CUT-OFF WHEEL DESCR	RIPTION CODES				
BLANK = All Purpose	ALU = Aluminum	FC = Fast Cut	INOX/SS = Contaminant Free	LL = Long Life	1-2-3 = Cutting/Notching/Grinding
= Masonry	= Stainless	= Steel / Metal			

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

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















			RE RE		
TIER:	BEST	BEST	BETTER	GOOD	GOOD
TRADENAME:	QUANTUM3	NORZON PLUS	BLUEFIRE	GEMINI	METAL
SHAPE:	Type 27/42	Type 27/42	Type 27/42	Type 27/42	Type 27/42
ABRASIVE:	Ceramic Alumina	Ceramic Alumina/ Zirconia Alumina	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
MATERIAL:		STAINLESS	STAINLESS	STAINLESS	STAINLESS
		STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL

						ALUMINUM		
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	L
.040, .045, 1/16" - R	ightCut Cut-of	f – Type 27/42	and the same of th					
4 x .045 x 5/8	15,280	25				662528 42180	076607 05249	
4-1/2 x .040 x 5/8-11	13,580	10				662528 43227		
4-1/2 x .045 x 5/8-11	13,580	10				662528 42025		
	13,580	10				662528 41913 INOX/SS		
4-1/2 x .045 x 7/8	13,580	25				662528 42026	662528 43604	
	13,580	25				662528 41912 INOX/SS		
	13,580	25				662528 41909 ALU 36		
	13,580	25*				662528 42161 <i>5-Pk</i>		
	13,580	250				662533 70065 <i>250-Pk</i>		
4-1/2 x 1/16 x 5/8-11	13,580	10	662528 38457		662528 43223			
4-1/2 x 1/16 x 7/8	13,580	10			662528 43219			
	13,580	25	662528 38456					
5 x .040 x 5/8-11	12,225	10				662528 43228		
5 x .045 x 5/8-11	12,225	10				662528 41939	00050040040	
5 x .045 x 7/8	12,225	25				662528 42036	662528 43849	
	12,225	25				662528 41914 INOX/SS		
	12,225	25				662528 41910 ALU 36		
	12,225	25*				662528 42171 <i>5-Pk</i>		
F 4 /4 0 7 /0	12,225	250	00050000404		00050040000	662533 70066 <i>250-Pk</i>		
5 x 1/16 x 7/8	12,225	25	662528 38464	00000040007	662528 43220	CC050000507		
6 x .045 x 5/8-11	10,185	10		662528 42007		662528 30587 662528 42202	662528 42015	
6 x .045 x 7/8	10,185 10,185	25 25				662528 41916 INOX/SS	00232842013	
	10,185	25 25				662528 41911 ALU 36		
	10,165	25*				662528 42176 <i>5-Pk</i>		
	10,185	250				662533 70067 <i>250-Pk</i>		
6 x 1/16 x 7/8	10,185	25	662528 38466		662528 43221	002333 70007 230-FK		
7 x .045 x 5/8-11	8,600	10	002020 30400		002320 43221	662528 41919 INOX/SS		
7 x .045 x 7/8	8,600	20				662529 12626		
7 X .0 10 X 170	8,600	20				662528 41918 INOX/SS		
7 x 1/16 x 7/8	8,600	10				002020-1010-11074-00	076607 05251	
9 x 1/16 x 5/8-11	6.600	10				662530 19115	01000100201	
9 x 1/16 x 7/8	6,600	10				662530 17734		
RightCut wheels are to b						00200011101		- 1
3/32", .125" – Cut-of			and the same					
4 x .125 x 3/8	15,280	25		662528 42001				4
4-1/2 x 3/32 x 5/8-11	13,580	10				662528 41903		-23
	13,580	10				662528 42027 INOX/SS		
4-1/2 x 3/32 x 7/8	13,580	25				662528 41940		
	13,580	25				662528 42028 INOX/SS		
	13,580	25				662528 43582 1-2-3		
4-1/2 x .125 x 5/8-11	13,580	10		662528 43321		662528 43588		
4-1/2 x .125 x 7/8	13,580	25		662528 43322		662528 43589		
5 x 3/32 x 5/8-11	12,225	10				662528 41904		
5 x 3/32 x 7/8	12,225	25				662528 42037 INOX/SS		
	12,225	25				662528 43587 LL		
5 x .125 x 7/8	12,225	25				662528 43595		
6 x 3/32 x 5/8-11	10,185	10				662528 41905		
6 x 3/32 x 7/8	10,185	25				662528 41906		
	10,185	25				662528 32487 INOX/SS		
6 x .125 x 5/8-11	10,185	10				662528 41192		
6 x .125 x 7/8	10,185	25				662528 42021		
7 x 3/32 x 5/8-11	8,600	10				662528 41907		
7 2 /22 7 /0	0.000	00				00000044000		

9 x 3/32 x 7/8 6,600 20 662528**42343**These wheels are to be used for cutting only. *5-wheel Job Packs; wheels are packed 5 wheels/Pack, with 5 Job Packs/carton. Order per each wheel in standard package quantities of 25. Order in multiples of 25.

662528**42378**

662529**12625**

662529**12624**

8,600

8,600

8,600

8,600

6,600

20

20

10

20

10

7 x 3/32 x 7/8

7 x .125 x 7/8

7 x .125 x 5/8-11

9 x 3/32 x 5/8-11

662528**41908**

66252900619

662529**14638** INOX/SS



Circular Saw Reinforced Cut-off



A circular saw uses an abrasive wheel to cut different materials using a rotary motion spinning around an arbor. Norton Circular Saw abrasive cut-off wheels are ideal for use in deburring, cleaning, slotting and cutting all types of metal and masonry.

Applications: Deburring, cleaning, slotting and cutting

Size Range: 6" - 9" diameter

Machine Used:

Thickness Range: .035", .060", 1/16", .1/8", and .125"

Abrasive Grain: Zirconia Alumina / Aluminum Oxide, Aluminum Oxide, Silicon Carbide, Diamond Shape:

Type 01/41 Straight

CIRCULAR SAW

				CARPER. DAMAGE AND AT OF OFF	GEMINI	METAL	MASONRY CONTROL OF THE PROPERTY OF THE PROPERT
				We have the second of the seco	S Bain	(GOC) 2000	
	TDADE	TIER:	BEST	BETTER	GOOD	GOOD	GOOD
		NAME:		CHARGER	GEMINI	METAL	MASONRY
	(SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
	ABR	RASIVE:	Diamond	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
	MA7	TERIAL:	STAINLESS	STEEL/METAL	STEEL/METAL	STEEL/METAL	MASONRY
	MAX.	STD.					
SIZE (D x T x H)	RPM	PKG.	PART #	PART #	PART #	PART #	PART #
Type 01/41 – Circula	r Saw 🏻		i				
6 x .035 x 5/8	10,185	25			662528 09714		
6 x 1/16 x 5/8	10,185	25			662528 09718		
6-1/2 x .125 x DM-5/8	9,405	10				076607 89098	076607 89089
7 x 1/16 x 5/8	8,730	25			662529 05957		
7 x .060 x 7/8	8,600	1	701846 94055				
7 x 1/8 x DM-5/8	8,730	25				076607 89097	076607 89088
8 x 1/16 x 5/8	7,640	25		662530 17771 LL	662530 07025		
	7,640	10			662530 17795		
8 x 1/8 x DM-5/8	7,640	10				076607 89096	076607 89086
9 x .060 x 7/8	6,600	1	701846 94056				
DM Denotes Diamond N	1ount; 5/8	" hole b	oushings included				

CUT-OFF WHEEL DESCRI	PTION CODES				
BLANK = All Purpose	FC = Free Cut	LL = Long Life	= Masonry	= Stainless	Steel / Metal



Chop Saw Reinforced Cut-off



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

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

studs, and metal plate dimensioning

Size Range: 10" - 16" diameter 3/32" and 7/64" **Thickness Range:**

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

Type 01/41 Straight

Reinforcement Type: Side reinforced, centrally reinforced

Machine Used:



Cross Reference Guide

TOTAL PERFORMANCE

INITIAL PRICE SPECIALTY

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

Application-to-Product Recommendation Guide

Wheel Type/Reinforcement

CUT-OFF WHEEL

TYPE 01/41 STRAIGHT SIDE-REINFORCED Side-reinforced wheels have two full layers of reinforcing and are designed for a fast cut and the most aggressive applications. All Purpose, Free Cut, and Long Life are side reinforced.



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

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



How to Pick the Right Bond Type

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



Chop Saw Reinforced Cut-off



Designed for cutting steel, metal studs, stainless steel, non-ferrous materials, tile, brick, plastic and much more

DIALAST DIAMOND

- A combination of high-quality diamond and advanced brazed single-layer bonding technology for extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for
 exceptional wheel life; less blade changes reduce downtime and labor costs
- Environmentally-friendly grinding for minimal dust, less clean-up and safer working conditions



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



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

GEMINI ALUMINUM OXIDE

- Durable, versatile aluminum oxide abrasive engineered for consistent performance and economical price on chop saw cut-off machine applications
- · Abrasive and bond combination designed for smooth clean cut on low HP machines
- · Good choice for consistent performance at an economical price



Good choice for drywall studs

METAL ALUMINUM OXIDE

- Quality aluminum oxide abrasive designed for cutting alloys, steels and ferrous metals including 400 series stainless, soft and hard carbon steels
- Designed with finer grit and softer grades, specifically for chop saw machines that typically have lower horsepower
- · Constructed with full fiberglass reinforcing; Stud Cutter version designed specifically for cutting steel studs



Chop Saw Reinforced Cut-off















			. (0)						
			6						
			BEST	BETTER	BETTER	GOOD	GOOD	GOOD	GOOD
	TRADEI	VAME:	DIALAST	BLUEFIRE	BLUEFIRE	GEMINI	GEMINI	METAL	METAL
	S	HAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41	Type 01/41
	ABR	ASIVE:	Diamond	Zirconia Alumina/ Aluminum Oxide	Zirconia Alumina/ Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
	REINFOR	RCING:		Side	Central	Side	Central	Side	Central
	1117	TDIAI.	STAINLESS	STAINLESS	STAINLESS	STAINLESS	STAINLESS	STAINLESS	STAINLESS
	IVIAI	ERIAL:		STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL	STEEL/METAL
SIZE	MAX.	STD.							A
(D x T x H)	RPM	PKG.	PART #	PART #	PART #	PART #	PART #	PART #	
Type 01/41 S	traight (Cut-off	i						
10 x 7/64 x 1	6,110	10				662531 06109 LL			
12 x 7/64 x 1	5,095	10		662528 43250		662532 07554 LL	662532 14561 RC		
	5,095	5						076607 89400	
14 x 3/32 x 1	4,365	10				662533 06627 FC	662533 13588 RC	662528 35554	
	4,365	10				662533 06626 LL		076607 89405 STUD	
	4,365	5 V							076607 89399
14 x 7/64 x 1	4,365	10		662528 43252 FC	662528 43254 RC	662533 14816 ALU			
	4,365	10		662528 43253 LL					
	4,365	25							076607 03970 <i>5-Pk</i>
14 x .155 x 1	5,400	1	701846 94053						
16 x 3/32 x 1	3,820	10				662534 10198 LL			
16 x 7/64 x 1	3,820	10		662528 43256 FC					
. ,	3,820	10		662528 43257 LL					

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

CUT-OFF WHEEL DESCRI	PTION CODES				
BLANK = All Purpose	ALU = Aluminum	FC = Free Cut	LL = Long Life	RC = Rapid Cut	STUD = Stud Cutter
= Masonry	= Stainless	= Steel / Metal			





High-Speed Reinforced Cut-off



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

Applications: Metalworking: steel, stainless, ductile, cast iron, rail steel and metal decking

Non-Metal Building Materials: concrete, brick, masonry, asphalt aggregate, stone and

schedule 40 and 80 PVC pipe

Rescue and Demolition: steel, acrylic, fiberglass, rubber, glass, wood, concrete, brick

and asphalt

Size Range: 12" – 16" diameter Thickness Range: 1/8" and 5/32"

Abrasive Grain: Aluminum Oxide, Silicon Carbide, Silicon Carbide / Aluminum Oxide Blend
Shape: Type 01/41 Straight

Reinforcement: Wheels are offered in standard two-layer reinforcement as well as three-layer reinforcement

for higher-speed saws and heavy-duty applications.

Arbor: Wheels are offered with patented universal arbor that accommodates both 20mm and all

other machines with 1" arbors.

Machine Used:



HIGH-SPEED GAS OR ELECTRIC SAW

Material / Application-to-Product Recommendation Guide

lcon		Application
31/1/2	Metal	High-performance aluminum oxide grain wheels designed for general purpose cutting of all steel and stainless parts including rebar, steel pipe, structural steel, sheet metal, cable and small to medium diameter solid pieces.
	Metal Decking	High-performance aluminum oxide abrasive combined with a thicker wheel (5/32") that stands up to the sharp edges of sheet metal and roof decking.
	Ductile/Cast Iron	A special blend of silicon carbide abrasive for cutting and aluminum oxide abrasive for life, designed to cut ductile and cast iron pipe, concrete-lined water pipes, sewer construction and heavy duty PVC.
	Rescue	For ventilation, forcible entry, rescue and demolition. A versatile abrasive formula that can be used on a wide range of materials including all types of metals and masonry.
	Concrete	Coarse grit silicon carbide abrasive provides a low initial cost solution for cutting brick, block, concrete or other masonry materials. For higher-production applications that require optimum speed of cut and product life, please see our complete selection of high-speed diamond wheels in our Norton Construction diamond product line.
	Asphalt	A special blend of extra coarse silicon carbide abrasive grains provides a low initial cost solution for cutting asphalt, green concrete, asphalt over concrete, a wide range of aggregates and abrasive materials. For higher-production applications that require optimum speed of cut and product life, please see our Norton Construction diamond blade product offering in the Construction Product section of this catalog -and the complete offering in our "Diamond, Abrasives and Equipment for the Construction Market Catalog" #7719 found on www.nortonabrasives.com

Cross Reference Guide

SPECIALTY

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



High-Speed Reinforced Cut-off

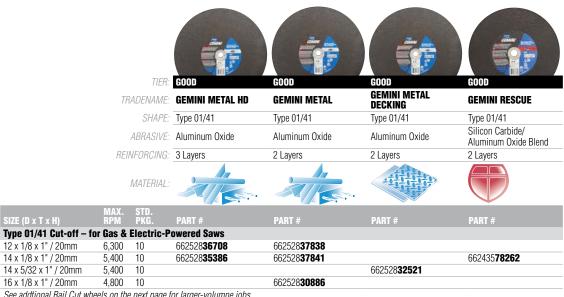
How to Pick the Right Reinforcement



Two full layers of reinforcing are offered for lower power machines, and light-to-medium applications where speed of cut is the primary selection criterion.



Three full layers of reinforcing are recommended for high-speed, high-power machines where the application is heavy-duty, and durability is the primary selection criterion.



See addtional Rail Cut wheels on the next page for larger-volumne jobs.



SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #				
Type 01/41 Cut-off	– for Gas &	Electric-F	Powered Saws				
12 x 1/8 x 1" / 20mm	6,300	10		662528 37840		662528 37839	701846 70243
14 x 1/8 x 1" / 20mm	5,400	10	662528 35388	662528 37843	662528 35387	662528 37842	701846 72877
16 x 1/8 x 1" / 20mm	4,800	10				701846 23029	



Universal Arbor

Two Blade Sizes in One

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



Walk-Behind Reinforced Cut-off



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

Applications: Cutting straight sections of concrete surfaces

Size Range: 14" and 18" diameter
Thickness Range: 3/16" - 3/8"
Abrasive Grain: Silicon Carbide

Shape:

Arbor:

Machine Used:

Bond: Hot Pressed (HP) – for higher-horsepower machine applications where additional durability

is needed, may be used wet or dry

Cold Pressed (CP) - for lower-horsepower machines, which need a free-cutting wheel

Type 01/41 Straight All are 1" with a drive pin



FLAT SAW / WALK-BEHIND SAW

Cross Reference Guide

SPECIALTY

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







TRADENAME: SHAPE: ABRASIVE: BOND:

?.	BETTER
-	GEMINI ASPHALT - HP
-	Type 01/41
	Silicon Carbide
);	Hot Pressed - Long Life

GUUD	นบบบ
GEMINI ASPHALT - CP	GEMINI CONCRETE - CP
Type 01/41	Type 01/41
Silicon Carbide	Silicon Carbide
Cold Pressed - Free Cut	Cold Pressed - Free Cut

MATERIAL:







SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	
Type 01/41 Cut-off - Fo	or Walk-Behind	Saws				
14 x 3/16 x 1 Pin Hole	4,365	10		701846 80324	701846 80323	
14 x 1/4 x 1 Pin Hole	4,365	5			701846 70533	
18 x 1/4 x 1 Pin Hole	4,250	5	701846 70103			

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



Stationary Saw Reinforced Cut-off



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

Applications:

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

Size Range: Thickness Range: Abrasive Grain: Shape: Machine Used: 10" - 20" diameter 3/32", 1/8", 5/32", 3/16"

Zirconia Alumina / Aluminium Oxide Blend, Aluminum Oxide, Silicon Carbide Type 01/41 Straight



Cross Reference Guide

TOTAL PERFORMANCE

INITIAL PRICE SPECIALITY

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

^{*} For Burr-Free applications, please see centrally-reinforced BlueFire Rapid Cut and Gemini Rapid Cut wheels in Chop Saw cut-off wheel section or at www.nortonabrasives.com

^{**} For Foundry and other cut-off wheels, please refer to that section of this Norton Full Line Catalog #7362 or at www.nortonabrasives.com







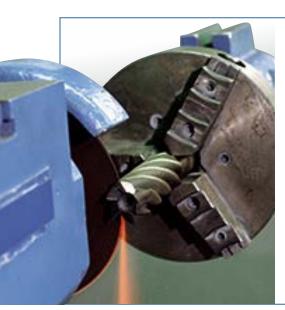


					23	
		TIER:	BETTER	GOOD	GOOD	GOOD
		TRADENAME:	BLUEFIRE	GEMINI FREE CUT	GEMINI LONG LIFE	MASONRY
		SHAPE:	Type 01/41	Type 01/41	Type 01/41	Type 01/41
		ABRASIVE:	Zirconia Alumina/	Aluminum Oxide	Aluminum Oxide	Silicon Carbide
		ADNASIVL.	Aluminum Oxide			
		MATERIAL:	STAINLESS	STAINLESS	STAINLESS	MASONRY
		WATENIAL.	STEEL/METAL	STEEL/METAL	STEEL/METAL	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
Type 01/41 Straight	t Cut-Off					
10 x 3/32 x 5/8	6,110	10	662528 43248	662531 06101 FC	662531 06102 LL	
	6,110	5				076607 89391
12 x 1/8 x 1	5,095	10	662528 43249		662532 07548 LL	
	E 00E	-				

OILL (DAIAII)		O I D I I I I I				
Type 01/41 Straight	t Cut-Off					
10 x 3/32 x 5/8	6,110	10	662528 43248	662531 06101 FC	662531 06102 LL	
	6,110	5				076607 89391
12 x 1/8 x 1	5,095	10	662528 43249		662532 07548 LL	
	5,095	5				
14 x 1/8 x 1	4,365	10	662528 43251	662533 06609 FC	662533 06611 LL	
	4,365	5				
16 x 5/32 x 1	3,820	10	662528 43255	662534 10183 FC	662534 10184 LL	
18 x 5/32 x 1	3,015	10		662534 10185 FC		
20 x 5/32 x 1	2,710	5	662528 43258 FC	690786 09031 FC	690786 09032 LL	
	2,710	5	662528 43259 LL			
20 x 3/16 x 1	2,710	5		690786 09033 FC	690786 09034 LL	
CUT-OFF WHEEL DES	CRIPTION CODES					
DI AND AND	E0 E 0					



CUT-OFF WHEELS Toolroom Cut-off



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

Applications: Reinforced cut-off wheels are designed to resist breakage caused by severe cross-bending

and are required on any operation where the work is not securely clamped.

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

cutting plane.

Size range: 6" – 12" diameter Grit range: 36 – 90 grit Abrasive grain: Aluminum Oxide

Bond: Resinoid, Rubber, and Shellac

Shape: Type 01/41 Straight

Cross Reference Guide

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

TECH TIP

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

Troubleshooting Guide

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

TECH TIP

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





Better choice for cutting tool steel on fixed-based machines when work is not securely clamped

TOOLROOM REINFORCED ALUMINUM OXIDE

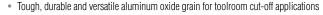
- · Tough, versatile aluminum oxide grain for toolroom cut-off applications
- Constructed with full diameter fiberglass reinforcement on each side of wheel, to provide greatest possible resistance to side pressure and bending
- OBNA2 full side reinforced, resin bond; yields maximum cut rate and minimum kerf loss; ideal when thin cut is desired
- B25N full side reinforced, resin bond; versatile; durable, free cutting; offer greatest stiffness

		TIER:	BETTER	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART #
Type 01/41 Straig	ht Cut-off –	Reinforced		
6 x .035 x 1/2	10,190	25	A60-OBNA2	662528 35053
6 x .035 x 1-1/4	10,190	25	A60-OBNA2	662528 35055
6 x .060 x 1/2	10,190	25	A60-OBNA2	662528 35164
6 x .060 x 1/2	10,190	25	57A364-TB25N	662528 22969
6 x .060 x 1-1/4	10,190	25	A60-OBNA2	662528 35165
7 x .035 x 1/2	8,730	25	A60-OBNA2	662529 38786
7 x .035 x 1-1/4	8,730	25	A60-OBNA2	662529 38788
7 x .060 x 1/2	8,730	25	A60-OBNA2	662529 38816
7 x .060 x 1-1/4	8,730	25	A60-OBNA2	662529 38796
7 x .060 x 1-1/4	8,730	25	57A364-TB25N	662529 22676

		TIER:	BETTER	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART #
Type 01/41 Straig	jht Cut-off –	Reinforced		
8 x .035 x 1/2	7,640	25	A60-OBNA2	662530 43014
8 x .035 x 1-1/4	7,640	25	A60-OBNA2	662530 42980
8 x .060 x 1/2	7,640	25	A60-OBNA2	662530 43009
8 x .060 x 1-1/4	7,640	25	A60-OBNA2	662530 42983
8 x .060 x 1-1/4	7,640	25	57A364-TB25N	662530 22705
10 x .060 x 5/8	6,110	25	A60-OBNA2	662531 49317
10 x .060 x 1-1/4	6,110	25	A60-OBNA2	662531 49186
12 x .060 x 1	5,095	10	A60-OBNA2	662532 61811
12 x .075 x 1	5,095	10	A60-OBNA2	662532 61910
12 x .075 x 1-1/4	5,095	10	A60-OBNA2	662532 61858







- Non-reinforced, use on fixed-based machines where the work is securely clamped
- B bond (smooth sides); a mild acting resin bond for light cut-off applications
- B25 bond (smooth sides); a versatile, free-cutting, more durable resin bond; ideal for dry cutting metal in high production runs
- E7 bond (smooth sides); a shellac bond with very mild cutting action, recommended for highly critical applications
 where no burr, heat checks, or discoloration is permitted
- R30 bond (smooth sides); mild acting rubber bond primarily for wet, ultra-thin cutting



		TIER:	BETTER					
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC.	PART #				
Type 01/41 Straight Cut-off – Non-Reinforced								
6 x .015 x 1-1/4	6,370	25	57A90-R0R30	662528 22953				
6 x .020 x 1-1/4	6,370	25	57A90-R0R30	662528 22954				
6 x .035 x 1-1/4	6,370	25	57A60-M8B	662528 22958				
6 x .060 x 1/2	7,640	25	57A541-RB25	662528 22970				
6 x .060 x 1-1/4	7,640	25	57A60-M8B	662528 22975				
7 x .035 x 1-1/4	5,460	25	57A60-M8B	662529 22983				
	5,460	25	57A60-08B	662529 22986				
	5,460	25	57A60-Q8B	662529 22987				
7 x .035 x 1-1/4	5,460	25	57A601-PB25	662529 22988				
	5,460	25	57A601-RB25	662529 22989				
7 x .035 x 1-1/4	5,185	25	57A60-0E7	662529 22985				
7 x .035 x 1-1/4	5,460	25	23A601-PB25	662529 38701				
7 x .050 x 1-1/4	5,460	25	23A601-PB25	662529 38724 *				
7 x .060 x 1/2	6,550	25	57A60-08B	662529 22672				
*Evention, rough	nidoo							

SIZE (D x T x H)	MAX. RPM	STD. PKG.	BETTER SPEC.	PART #
				PANI#
Type 01/41 Strai	ght Cut-off –	Non-Reintoi	rced	
7 x .060 x 1-1/4	6,550	25	57A46-M8B	662529 22677
	6,550	25	57A60-M8B	662529 22681
	6,550	25	57A60-08B	662529 22684
	5,185	25	57A60-0E7	662529 22683
7 x .090 x 1-1/4	6,550	25	57A60-M8B	662529 22690
7 x .125 x 1-1/4	6,550	25	57A60-M8B	662529 22692
8 x .035 x 1-1/4	4,775	25	57A60-N8B	662530 22694
8 x .060 x 1/2	5,730	25	57A60-M8B	662530 22702
8 x .060 x 1-1/4	5,730	25	57A60-M8B	662530 22708
8 x .060 x 1-1/4	4,540	25	57A60-0E7	662530 22709
10 x .060 x 5/8	4,585	25	57A46-Q8BW	662531 22816
	4,585	25	57A60-M8BW	662531 22818
10 x .090 x 5/8	4.585	25	57A60-M8BW	662531 22824

^{*}Exception: rough sides



Rail Reinforced Cut-off



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

Applications: Fixed rail track cutting 14" and 16" diameter Size range:

1/8" Thickness range: **Grit range:** 14 - 16

Abrasive grain: Zirconia Alumina / Aluminum Oxide Blend, Zirconia Alumina, and Aluminum Oxide Shape:

Type 01/41 Straight

Reinforcement: Side reinforced with R (rough) sides **Speed rating:**

All wheels are rated for 20,000 SFPM applications



Cross Reference Guide and Machine-to-Product Recommendation Guide

Machines Used:

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

BEST	BETTER		GOOD	
RailCut X	RailCut NorZon III	RailCut NorZon III FastCut	RailCut A30X	RailCut Metal
•			•	•
•	•		•	•
*	*	*	*	•
	RailCut X	RailCut X RailCut NorZon III	RailCut X RailCut RailCut NorZon III NorZon III FastCut	RailCut X RailCut RailCut RailCut A30X FastCut



Best choice for high-performance cutting of rails on applications where the hydraulic or gas saw is fixtured and has adequate power

RAILCUT X ZIRCONIA ALUMINA / A/O BLEND

- Highest-performance zirconia alumina and engineered aluminum oxide abrasive blend expertly cuts a broad range of rail material
- · Rough sides enable fastest cutting and longest lasting wheels
- · Achieve highest productivity with lowest total abrasive costs





RAILCUT METAL ALUMINUM OXIDE

- Quality aluminum oxide abrasive wheels designed for jobs where low initial price is a key purchasing criterion
- Side reinforced with rough sides; rated for 20,000 SFPM applications
- Designed for multi-purpose use; great versatility on a variety of rail materials



Foundry WHEELS Foundry Cut-off



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

Size Range: Grit Range: Abrasive Grain: Reinforcement: Reinforced: 14" - 30" diameter; Non-reinforced: 12" - 20" diameter

24 – 46 arit

Ceramic Alumina (Norton Quantum; non-stock only), Zirconia Alumina, Aluminum Oxide Reinforced: Engineered with strengthening fabric or filaments, which make wheels resistant to cross-bending breakage. All portable cut-off, swingframe, locked-head push-through and foundry chop stroke operations require reinforced cut-off wheels.

B: One or more full diameter pieces of filament molded inside each wheel. This construction leaves the abrasive exposed on the side of the wheel, improving freeness of cut. Used for fixed work operations with low probability of side pressure.

N: Full diameter pieces of reinforcement on the side of the wheel. Offers greatest possible resistance to side pressure and bending.

Non-Reinforced: Designed for use on fixed-base types of machines where the work is securely clamped and guarded, and where the wheel operates on a controlled cutting plane.

W: Reinforcement around the center hole only. These wheels are not considered to be

truly reinforced.

Side Patterns: Smooth sides: Used for precision cutting applications

Rough (R) sides: Abrasive particles protrude from sides of wheel

Used wet or dry on most metals

Material-to-Product Recommendation Guide

	BEST	BETTER	GOOD	GOOD
	Foundry X Quantum*	Foundry X BlueFire	Foundry X	Foundry Metal
INVESTMENT CAST ALLOYS			•	
Stainless Steel	♦	•	•	•
Titanium	♦	•	•	•
CAST IRON	♦	•	•	•
CAST STEEL			•	
Carbon and Low Alloy	♦	•	•	•
Stainless Steel and High Alloy	♦	•	•	•
Aluminum Alloy	*	•	*	•
Copper Alloys, Brass, Bronze	*	•	*	•

^{*}Foundry X Quantum wheels are non-stock, custom-made to your requirements

Cross Reference Guide

TOTAL PERFORMANCE INITIAL PRICE

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



Better choice on stainless steel, aerospace alloys, cast iron, and steel

FOUNDRY X BLUEFIRE REINFORCED

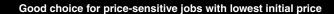
- Next generation self-sharpening zirconia alumina abrasive provides fast cuts on foundry cut-off applications
- Improved durability and heat resistance result in longer abrasive life
- · More aggressive; can withstand very demanding applications



Good choice on general purpose applications

FOUNDRY X ALUMINUM OXIDE

- Durable, versatile aluminum oxide abrasive engineered for consistent performance and economical price on foundry cut-off applications
- Advanced bond technology with improved thermal stability and mechanical strength
- · Excellent value on stainless steel and exotic aerospace alloys





FOUNDRY METAL ALUMINUM OXIDE

- Great versatility from multi-purpose aluminum oxide abrasive formulated specifically for typical foundry applications
- Bond and reinforcement engineered to foundry market machine parameters and materials
- Good choice for small jobs and quick applications where performance is not measured

Reinforced







		IIEK:	RELIEK		เดียบก		เสบบบ	
		TRADENAME:	FOUNDRY X BLU	JEFIRE	FOUNDRY X		FOUNDRY METAL	
		ABRASIVE:	Zirconia Alumina	/ Aluminum Oxide	Aluminum Oxide		Aluminum Oxide	
SIZE	MAX.	STD.						
(D x T x H)	RPM	PKG.	SPEC.	PART #	SPEC.	PART #	SPEC.	PART #
Type 01/41 Straight Cut-off – Foundry Reinforced								
14 x 1/8 x 1	4,365	10	NV24-TB75N	662533 47674	U57A30-TB75N	662533 45779	Side Reinforced	662434 85918
	4,365	10	NV24-VB75N	662531 79193	U57A30-VB75N	662531 79191		
	4,365	10	NV24-YB97N	662533 47698				
16 x 5/32 x 1	3,820	10	NV24-TB75N	662533 47676	U57A30-TB75N	662533 45781	Side Reinforced	662434 85919
	3,820	10	NV24-VB75N	662531 79147	U57A30-VB75N	662531 79148		
	3,820	10	NV24-YB97N	662533 47693				
20 x 5/32 x 1	2,710	10	NV24-TB75N	662533 47683	U57A30-TB75N	662533 47546	Side Reinforced	662434 85920
	2,710	10	NV24-VB75N	662531 79363	U57A30-VB75N	662531 79364		
	2,710	10	NV24-YB97N	662533 47694	U57A30-YB97N	662533 47701		
20 x 3/16 x 1	2,710	10	NV24-TB75B	662533 47684	U57A30-TB75B	662533 47547	Centrally Reinforced	662434 85921
	2,710	10	NV24-VB75B	662531 79366	U57A30-VB75B	662531 79367		
	2,710	10	NV24-YB97B	662533 47699	U57A30-YB97B	662533 47702		
24 x 7/32 x 1-3/4	2,260	10	NV24-TB75B	662533 47685				
	2,260	10	NV24-VB75B	662531 79374	U57A30-VB75B	662531 79375		
	2,260	10	NV24-YB97B	662533 47697				
30 x 1/4 x 1-3/4	1,810	10	NV24-TB75B	662533 47722	U57A30-TB75B	662533 47720		
	1,810	10	NV24-YB97B	662533 47723	U57A30-YB97B	662533 47721		

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

Non-Reinforced





 TIER:
 BETTER
 GOOD

 TRADENAME:
 U57A
 GEMINI

 ABRASIVE:
 Aluminum Oxide
 Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC	PART #	SPEC	PART #
Type 01/41 Str	raight Cut-c	off – Foun	dry Non-Reinforced R	-Sides		
12 x 3/32 x 1	5,095	10	U57A461-PB25	662532 61887		
16 x 1/8 x 1	3,820	10			AP	662534 22942
20 x 1/8 x 1	2,710	10	U57A304-VB25W	690786 65497		

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

CUT-OFF WHEEL DESCRIPTION CODES

AP = All Purpose

Where a good blend of cut rate and life is needed



Portable Snagging



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

Type 01 Straight Wheels: 2-1/2" - 8" diameter **Size Range:**

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

Material-To-Product Recommendation Guide

BEST	BETTER	GOOD	
NorZon Plus	BlueFire	Gemini	Metal
◆ NZ14-R	◆ NV16-Q	◆ 57A16-Q	•
◆ NZ14-R	◆ NV16-Q	◆ 57A16-Q	•
	◆ NVC16-Q	◆ 57AC16-Q	
◆ NZ14-Q	*	◆ 57A16-Q	•
◆ NZ14-P	*	◆ 57A16-Q	•
	◆ NVC16-Q	◆ 57AC16-Q	
	NorZon Plus ◆ NZ14-R ◆ NZ14-R ◆ NZ14-Q	NorZon Plus BlueFire ♦ NZ14-R ♦ NV16-Q ♦ NZ14-R ♦ NV16-Q ♦ NVC16-Q ♦ NZ14-Q ♦ ♦ NZ14-P ♦	NorZon Plus BlueFire Gemini ♦ NZ14-R ♦ NV16-Q ♦ 57A16-Q ♦ NZ14-R ♦ NV16-Q ♦ 57A16-Q ♦ NVC16-Q ♦ 57AC16-Q ♦ NZ14-Q ♦ 57A16-Q ♦ NZ14-P ♦ 57A16-Q

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

Cross Reference Guide for Type 01, 06 and 11 Wheels

TOTAL PERFORMANCE **INITIAL PRICE**

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

FOUNDRY WHEELS Portable Snagging



Best choice for heavy-duty stock removal on medium- and high-horsepower grinders

NORZON PLUS ZIRCONIA ALUMINA

- Tough, durable, premium zirconia alumina grain provides 10X life and 50% faster grinding versus aluminum oxide products
- · Engineered to excel on the toughest foundry snagging applications
- Best performance on a wide variety of materials; 300 and 400 series stainless, soft and hard carbon steels, tool
 steels, titanium, super alloys, soft metals, and cast, ductile and gray iron



Better choice for stock removal on high- and medium-horsepower grinders

BI UFFIRE ZIRCONIA AI UMINA

- Friable zirconia alumina grain and durable resin bond technologies deliver sharper grain longer, for extended wheel life, higher metal removal rates, and faster, freer cutting action than standard zirconia alumina blends
- Ideal for foundry snagging, tool sharpening, portable grinding and stock removal applications on high- and medium-horsepower grinders
- Strong operator preference for these smooth-acting wheels that require less pressure and exertion, while improving productivity
- NVC zirconia alumina / silicon carbide blend is highly effective on dirty, scale-covered castings
- Available with low odor bond to help reduce odors associated with portable grinding when used in confined spaces



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, horsepowers, and operations
- · Good general-purpose choice for numerous small jobs
- Available with low odor bond to help reduce odors associated with portable grinding when used in confined spaces



Good choice for steel/ferrous metal applications with low initial price

MFTAL 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, horsepowers, and operations
- Good general-purpose choice for numerous small jobs on 300 and 400 series stainless, soft and hard carbon steels, tool steels, titanium, super alloys, soft metals, and cast, ductile and gray iron



Good choice for masonry applications with low initial price

MASONRY ALUMINUM OXIDE

- · Sharp silicon carbide abrasive for small-volume snagging jobs
- Delivers rapid stock removal in small areas on a portable cup grinder
- Versatile; good starting specification where initial price is a primary purchasing consideration, especially nonferrous and masonry



FOUNDRY WHEELS Portable Snagging









HER:	В
TRADENAME:	N
SHAPF.	Т

NORZON PLUS Type 01 and 11

ABRASIVE: Premium Zirconia Alumina

Type 01, 06, and 11
Zirconia Alumina NV
Zirconia Alumina/
Silicon Carbide NVC

BLUEFIRE

GEMINI
Type 01 and 11
Aluminum Oxide 57A,
Silicon Carbide 37C,
Aluminum Oxide/
Silicon Carbide 57AC

Metal – Aluminum Oxide Masonry – Silicon Carbide

METAL/MASONRY

Type 11

					Silicon Carbide	NVC	Silicon Carbide 5	7AC	,	
SIZE (D x T x H)	MAX. RPM	STD. PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #	SPEC	PART #
Type 01 Straight										
2-1/2 x 1/2 x 3/8	21,700	20					57A24-R	662435 22381		
3 x 1/4 x 3/8	20,370	25			NV20-T	662533 43872 *	57A24-T	662435 28831		
3 x 3/8 x 3/8	18,080	10					57A24-R	662435 22415		
3 x 1/2 x 3/8	18,080	10					57A24-P	662435 22417		
4 x 1/4 x 3/8	15,280	10			NV20-T	662533 44098	57A24-R	662435 22221		
6 x 1 x 5/8	8,000	5			NV14-R	662531 98589	57A16-QS	662528 09563		
S Webs	8,000	5			NZ III 14-Q	662528 38075				
	8,000	5			NZ III 14-R	662528 37961				
8 x 3/4 x 5/8 S Webs	6,000	10			NV14-S	662533 44347				
8 x 1 x 5/8	6,000	5	NZ IV 16-0	662530 30778	NV16-Q	662531 98590				
S Webs	6,000	5	NZ IV 16-Q	662530 44532						
	6,000	10			NV14-R	662533 44355				
	6,000	10			NV14-T	662533 44365				
	6,000	10			NVC16-Q	662531 98592				
Type 06 Straight Cup										
6 x 2 x 5/8-11 Rim 2" Back 3/4"	6,000	5			NZ III 16-R	662528 38577				
Type 11 Flaring Cup		1								
4/3 x 2 x 5/8-11 Rim 3/4" Back 3/4"	9,070	10	NZ IV 16-Q	662435 30761	NV16-Q	662531 98583	57A16-Q	662435 10512	Masonry C16-Q	076607 89431
5/3-3/4 x 2 x 5/8-11	7,260	5			NV16-Q	662531 46918	57A16-Q	662528 09598	Metal 16-Q	076607 89430
Rim 1" Back 3/4"	7,260	5			4NZ16-Q RB	690786 40233	57AC16-Q RB	690786 40234		
6/4-3/4 x 2 x 5/8-11	6,000	5			NV16-Q	662531 46925	57A16-Q	662528 25201		
Rim 1" Back 3/4"	6,000	5			NZ III 16-Q	662528 38568				
6/4-3/4 x 2 x 5/8-11	6,000	5	NZ IV 16-P	662528 30765	NV14-R	662533 44371	37C16-P	662528 09609		
Rim 1-1/2" Back 3/4"	6,000	5			NV16-Q	662531 98584	57A16-Q	662528 09618		
	6,000	5			NVC16-Q	662531 46922	57AC16-Q	662528 09608		
	6,000	5			4NZ16-Q RB	690786 40484	9CA16-Q RB Ti	690786 40488		
							57AC16-Q RB	690786 40485		
Type 11 Flaring Cup wi	ith Steel B	ack								
4/3 x 2 x 5/8-11 Rim 3/4" Back 3/4"	9,070	10			NV16-Q	662531 46917				
5/3-13/16 x 2 x 5/8-11	7,260	10			NV16-Q	662531 46920				
Rim 1" Back 3/4"	6,000	5			NV14-R	662533 44373	57A16-Q	662528 09599		
Rim 1" Back 3/4" 6/4-13/16 x 2 x 5/8-11		5			NV14-R NV16-Q	662533 44373 662531 98586	57A16-Q 57AC16-Q	662528 09599 662528 09600		
Rim 1" Back 3/4" 6/4-13/16 x 2 x 5/8-11 Rim 1-1/2" Back 3/4"	6,000 6,000 6,000									

^{*} Std.Pkg. = 50

TECH TIP

Norton BlueFire and Gemini Type 11 cup wheels now available in new RB low odor bond to help reduce odors associated with portable grinding when used in confined spaces.

RB = Low odor bond. Note: Ti formulation optimized for grinding Titanium



FOUNDRY WHEELS Portable Snagging



	TDADE		NODZON DI UC		BELLER		GEMINI		GUUD NACETAL	
			NORZON PLUS		BLUEFIRE 7:	/Al O. : da		J _a	METAL	J ₄
	MAX.	PASIVE: STD.	Zirconia Alumina	1	Zircoma Alumi	na/Aluminum Oxide	Aluminum Oxio	1e	Aluminum Oxid	je
SIZE (D x T x H)	RPM		SPEC	PART #	SPEC	PART #	SPEC	PART #	SPEC	PART #
Type 16 Cones										
1 x 3 x 3/8-24 (ME 107019)	36,290	10			NV20-S	662533 44376	57A24-R	614636 22342	Metal 24	662533 49752
1-1/2 x 2-1/2 x 3/8-24 (ME 44436)	24,190	10					57A24-R	614636 22349	Metal 24	662533 49754
1-1/2 x 2-1/2 x 5/8-11	24,190	10					57A24-R	690786 40166	Metal 20	690786 40046
ME 171651	21,100						07712111	000.0010100	motar 20	00010010010
1-1/2 x 3 x 3/8-24	24,190	10			NV20-S	662533 44377				
(ME 139029)										
1-1/2 x 3 x 3/8-24 (ME 171652)	24,190	10							Metal 20	690786 40215
1-1/2 x 3 x 5/8-11 (ME 70535)	24,190	10	NZ IV 20-R	614636 44231	NV20-S	662533 44379	57A24-R	614636 22190	Metal 24	662533 49757
1-3/4 x 3 x 3/8-24 (ME49226)	20,735	10					57A24-R	614636 14503	Metal 24	662533 49840
1-3/4 x 3 x 5/8-11 (ME 33432)	20,740	10					57A24-R	614636 22195	Metal 24	662533 49841
2 x 3 x 3/8-24 ME 157287	18,145	10							Metal 24	662534 76413
2 x 3 x 5/8-11 (ME 28229)	18,145	10	NZ IV 20-R	614636 44232	NV20-S	662533 44381	57A24-R	614636 22218	Metal 24	662533 49846
2-3/4 x 3-1/2 x 5/8-11 (ME 18265)	13,195	10			NV20-S	662533 44383	57A24-R	614636 22387	Metal 24	662533 49855
3 x 3 x 5/8-11 (ME70537)	12,100	10							Metal 24	662434 96885
Type 17 Cones, Squar	e Tip 🏿	\Rightarrow								
1-1/2 / 1/2 x 3 x 3/8-24	24,190	10					57A24-R	614636 22194	Metal 24	662533 49753
1-1/2 / 1/2 x 3 x 5/8-11	24,190	10					57A24-R	690786 40225	Metal 20	690786 40224
2 / 1/2 x 3 x 5/8-11	18,145	10					57A24-R	614636 15722	Metal 24	662533 49845
Type 17R Cones, Rour	nd Tip 🍺	\supset								
2 / 3/4 x 3 x 5/8-11	18,145	10			NV20-S	662533 44384				
(ME 151373)		_								
Type 18 Plugs, Square										
1-1/2 x 2-1/2 x 3/8-24	24,190	10					57A24-R	614636 22217	Metal 24	662533 49755
	24,190	1 V					57A24-R	662533 25902		
1-1/2 x 2-1/2 x 5/8-11	24,190	10	NZ IV 20-R	614636 44224	NV20-S	662533 44385	57A24-R	614636 22351	Metal 20	690786 40226
1 1/0 0 5/0 11	24,190	1 V			NIVOO C	00000044000	57A24-R	662533 25905	Matal 04	00000040000
1-1/2 x 3 x 5/8-11	24,190	10			NV20-S	662533 44386	57A24-R	614636 22191	Metal 24	662533 49838
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3 x 3 x 5/8-11	12,095	10							Metal 20	690786 40231

V = Vendible Package. Ideal for vending machines and small jobs .

Core Files

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



		TIER:	GOOD			
	A	BRASIVE:	Silicon Carb	ide		
SIZE (T x W x L)	STD. PKG.		SPEC.	PART #		
Stock Resinoid Core Files – Silicon Carbide						
1/2 x 1 x 10	5		37C24-SB	614636 10314		





Coated & non-woven abrasives Coated Abrasive Basics

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. If offers enormous penetrating strength, even at high speeds.



- Aluminum
- Hardwood

Heat-treated Aluminum Oxide (2)

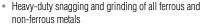
Heat-treated aluminum oxide is a tough but cool cutting abrasive which gives both long life and freeness of cut on a wide range of materials.



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.



- · 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















Coated Abrasive Basics

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.



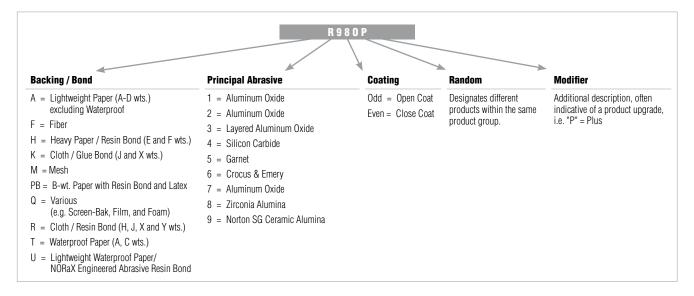
CLOSED COAT

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 Basics

Coated Abrasive Grit Comparison Chart

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8.5 - - 2000 - 9.2 1000 - - 3/0 10.3 - P2000 - - 10.5 - - 1500 - 12.2 800 - 1200 - 12.6 - P1500 - - 15.0 - - - - 15.0 - - - - 15.0 - - - - 15.0 - - - - 15.0 - - - - 15.0 - - - - 15.0 - - - - 15.0 - - - - - 15.0 - - - - - - - - - - - - - - - - - <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
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Coated Abrasive Storage

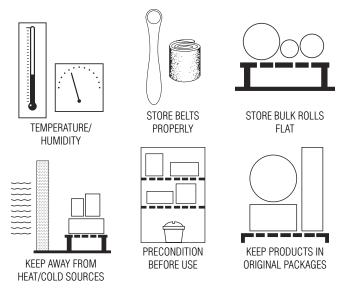
Stored under proper conditions, coated abrasives will retain their efficiency and usefulness over long periods. Improper or inadequate storage can introduce problems of weakened bond, curl, brittleness, and breakage.

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.

Non-Woven Basics

Introduction

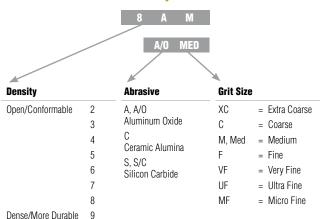
Most Norton Bear-Tex products consist of a non-woven web of nylon fibers impregnated throughout with abrasive grain and bonded with synthetic resins. This design produces a cushioned, three-dimensional material that is extremely pliable and long lasting. The uniform dispersion of abrasive throughout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

Norton Bear-Tex products, with their open mesh construction, are waterproof, washable, resilient, conformable, non-loading, non-conductive, non-metallic and non-rusting. Non-woven wheels are easily pre-formed to conform to special-shaped work pieces.

Since non-woven products are designed for use where stock removal is not required, they begin where other abrasives leave off. The relatively non-aggressive nature of nylon and grit inherent in the material makes it ideal as a finishing tool. While 60 to 80 grits are considered intermediate sizes in other products, they are considered coarse for non-woven items

Used wet or dry, Norton Bear-Tex non-woven products offer the following advantages: controlled cut (with little or no stock removal) allows for increased productivity, consistent, uniform finish, ability to automate operations, minimized smearing and reduced operator training. These advantages make our non-woven products an excellent alternative to bristle brushes, set-up wheels, greaseless compounds and steel wool.

Product Identification System



Abrasives

Ceramic alumina, silicon carbide and aluminum oxide abrasives are offered. Ceramic alumina cuts the fastest and is the most cost effective on large-volume applications. Silicon carbide is sharper, cuts faster than aluminum oxide, and produces finer scratch patterns on most surfaces. Aluminum oxide is more durable and tends to last longer. It causes less discoloration on aluminum, and is more aggressive on certain applications such as hardened steel parts. Norton Bear-Tex hand pads are also available in a non-abrasive material.

Grits

Grit refers to the size of the abrasive grain impregnated into the nylon web. The coarser the grit, the more aggressive the cut, the rougher the finish. The finer the grit, the less aggressive the cut and the resulting surface finish will be finer, if all other conditions are equal.

GRIT DESIGNATIONS	GRIT SIZE
Extra Coarse (XC)	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-Tex and Merit web material because the fiber size is a significant factor in the coating process, as each produces distinct cutting characteristics.

Bonding Agents

Waterproof resins are used in the manufacture of Norton Bear-Tex and Merit web material to bond the nylon fibers together and to firmly anchor the abrasive grains throughout the web.

Conventional Finishing Methods Versus Norton Bear-Tex Non-Woven Products

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

CONVENTIONAL FINISHING METHOD	KEY Application	NORTON/MERIT Product Alternatives	ADVANTAGES OF NORTON/MERIT PRODUCT Versus alternate finishing methods
Bristle Brushes	Cleaning	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



Non-Woven Basics

Getting the Most Out of Norton Bear-Tex Wheels

Maximum wheel life and best surface conditioning results can be achieved by closely adhering to the following recommendations.

1) Wheel Direction

Convolute, interleaf flap wheels, and conventional flap wheels must always run in the direction indicated by the arrow printed on the side of each wheel. Unified wheels can be run in either direction.

2) Wheel Speed

Wheel speed is an important factor in that it affects product finish, rate of cut, and wheel life. In general, fast wheel speeds give harder action and a finer finish; whereas, slower speeds give a softer action and a coarser finish for the same wheel density.

The following are recommended operating speeds for the most common applications.

APPLICATION	RECOMMENDED SPEED
Cleaning and upgrading of surface conditions	2200 to 6000 SFPM
Cut-buffing on metal surfaces	6500 to 8000 SFPM
Deburring	5500 to 8000 SFPM
Decorative finishing	500 to 3000 SFPM
Imparting decorative finishes	900 to 3000 SFPM
Oxide removal	3500 to 6500 SFPM
Oxide removal	3500 to 6500 SFPM

Testing might show that a slower or faster speed is desirable for specific operations. Never exceed the maximum RPM rating of the wheel.

3) Pressure

Light to medium pressure is recommended for most operations. Flap wheels require much lighter pressure to perform properly than other non-woven wheels; unified wheels can withstand much higher pressures in order to perform deburring jobs. In all cases, avoid excessive pressure which might result in wheel deformation and damage to the work surface.

4) Feed Speed

Low feed speed reduces the number of workpieces completed, while producing a shorter scratch pattern. Slow feed speed allows for longer dwell time and permits more work to be done on each piece. Conversely, a fast feed speed increases the number of workpieces completed, while producing a longer scratch pattern.

5) Oscillation

Oscillation may be used to break up scratch lines and produce a more uniform finish. Additionally, an increase in cut might be experienced.

A general starting point for oscillation is 3/8" amplitude at 200 cycles per minute.

6) Lubricants

Lubricants, such as water, water soluble oil, and straight oil, will decrease the heat generated while running, improve the luster, and reduce the surface finish. The higher the viscosity of the lubricant, the lower the surface finish (RMS value) produced.

Factors in Wheel Choice

This chart provides a relative comparison of other Norton Bear-Tex wheel variables. It can serve as a useful guide in choosing the most suitable product for a given application. However, as many other factors affect wheel performance, this chart can only be general in nature. The most cost-effective results can always be obtained by wheel testing on the application.

1	Wheel Conformability	MOST CONFORMABLE (SOFT) LEAST CONFORMABLE (HAF						
		Flap Wheels	Clean & Finish	Metal Finishing	Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000	
2	Wheel Openness	OPEN MESH					CLOSED MESH	
			· · · · · · · · · · · · · · · · · · ·	Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000		
3	Wheel	MOST AGRESS	SIVE				LEAST AGGRESSIVE	
	Aggressiveness		Metal Finishing		Clean & Finish	Rapid Finish GP	Flap Wheels	
4	Finishing Action	COARSER					FINER	
			Metal Finishing	Clean & Finish	Series 4000	Rapid Finish GP Series 4000	Flap Wheels	
5	Pressure for	LIGHTER					HIGHER	
	Best Results		Flap Wheels	Clean & Finish	Metal Finishing Rapid Finish GP 7 Density	Rapid Finish GP 8 & 9 Density	Series 4000	

^{*} On steel surfaces, silicon carbide wheels will produce a brighter finish than aluminum oxide wheels.

Surface Finish Variables

Changes in any one of many factors can affect the surface finish on the work piece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.

Variable Factor	Rough Finish High RMS Reading	Smooth Surface Lower RMS Reading
1 Grit Size	Coarse <	➤ Very Fine
2 Wheel Grade	Soft ◀	→ Hard
3 Wheel Speed	Slow <	→ Fast
4 Feed Speed	Faster (Long Scratch)	➤ Slower (Short Scratch)
5 Oscillation	No Oscillation ◀	→ Oscillation
6 Lubricants	Dry	➤ Soluble Oil ← ➤ Straight Oil
and Compounds		Compounds





Fiber Discs



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:
Size Range:

 $Stock\ removal,\ edge\ chamfering,\ weld\ blending,\ deburring/deflashing,\ rust\ removal,$

cleaning and finishing

4" x 5/8" hole, 4-1/2" - 9-1/8" x 7/8" and 5/8"-11 hole

16 - 120

Grit Range:
Abrasive Grain:
Product Options:
Accessories:
Machines Used:

Ceramic Alumina, Zirconia Alumina Blend, and Aluminum Oxide Conventional, Speed-Change hubs (5/8"-11), and AVOS technology

Air-cooled, smooth-faced, and AVOS back-up pads



RIGHT ANGLE GRINDER



Material-to-Product Recommendation Guide

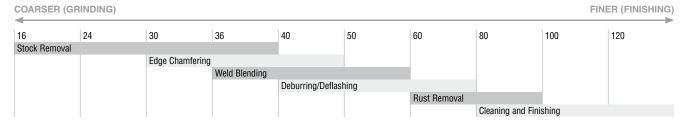
	BEST		BETTER	GOOD	
	BlazeX F970	Blaze F980	BlueFire F826P	Gemini F726	Metal F240
Stainless Steel / Titanium / Super Alloys*		•	♦	•	•
Mild Carbon Steel / Welds	*		•	•	•
Ferrous Metals / Cast Iron	*		•	•	•
Brass / Bronze / Aluminum				•	•

^{*}Nickel/Cobalt Based - Hastelloy, Inconel, Waspalloy





Application/Grit Recommendation Guide



Cross Reference Guide

TOTAL PERFORMANCE INITIAL PRICE

	BEST		BETTER	GOOD	
NORTON	BlazeX F970	Blaze F980	BlueFire F826P	Gemini F726	Metal F240
3M	782C, 982C, 988C	785C, 787C, 985C, 987C	501C	381C	_
Camel	_	Ceramic	Zirconia	A/0	_
Flexovit	CG	CG+	ZA	A	_
GemTex	PMD, Gem Supreme	PMD Supreme,	Zee-Type, Zee Supreme,	C-Type	A-Type
		PMD Supreme Plus	Gem Supreme		
Hermes	_	CR456	RB414X, RB414X Procut	RB514J	RB314
Klingspor	FS964 ACT	FS966	CS565, CS570	FS764 ACT	CS561
Metabo	CER	CER	ZA	_	A/0
Mirka	_	_	Blue, Gold	_	Red
Pearl	Red Line	_	FZ	Premium A/O	Silver Line
Pferd	CO-PMD	CO Cool	Z, Z Cool	A Cool	A
United Abrasives/Sait	7S, 7A-S, 7-11	9S, 9-11	3Z, Z, AZX	3A	A/0, 2A
SIA	4515, 4580	4515, 4560,	4815, 4819	4924	4919, 4961
Standard	Ceramic	Ceramic Pro	Zirconia	_	A/0
VSM	XF760	AF890, AF799, XF885, XF870, XF850	ZF713, ZF714, ZF844	KF808	KF708
Walter	Walter Coolcut XX	Walter Coolcut XX	Walter Topcut	Walter Coolcut	_
Weiler	_	Tiger Ceramic	Tiger Zirc, Wolverine Zirc	Tiger A/O	Wolverine A/O





Best choice for carbon steel and other soft-to-grind materials

BI A7FX F970 CFRAMIC ALUMINA

- Improved 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
- · Heavier fiber backing for additional strength and tear resistance
- Non-supersized design for cool cutting and long life on carbon steel and other soft-to-grind materials



Best choice for stainless steel, titanium, and super alloys

BLAZE F980 CERAMIC ALUMINA

- 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



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



Good choice for carbon steel and aluminum applications

GFMINI F726 ALUMINUM OXIDE

- Premium aluminum oxide blend for aggressive cut and longer life than competitive aluminum oxide discs
- · Full resin bond for strength and durability
- · Heavier fiber backing for additional strength and tear resistance



Good choice for small jobs, applications where performance is not measured, and price-sensitive operations

METAL F240 ALUMINUM OXIDE

- Versatile, multi-purpose aluminum oxide abrasive provides consistent performance on numerous materials and small jobs
- · Full resin bond for strength and durability
- · Heavier fiber backing for additional strength and tear resistance; low initial price



Fiber Discs





TIER: BEST TRADENAME: BLAZEX F970 **BLAZE F980 BLUEFIRE F826P** ABRASIVE: Ceramic Alumina Ceramic Alumina Zirconia Alumina Blend Aluminum Oxide OTHER: Supersize

GEMINI F726 Aluminum Oxide

		UTHER	<u>1.'</u>	Supersize				
	ADIT	STD.	D.D.T. //	DADE !	D. D	DADE II	STD.	D. D
SIZE (D x H)	GRIT	PKG.	PART #	PART #	PART #	PART #	PKG.	PART #
x 5/8	24	25				055395 10595	10	666233 95000
	36	25				055395 10594	10	666233 95001
	50	25					10	666233 95002
	60	25				055395 10592		
	80						10	666233 95004
1-1/2 x 7/8	24	25		699573 98000	662611 38457	666233 53309	10	666233 95007
	36	25	699573 70193	699573 98001	662611 38456	666233 53306	10	666233 95008
	36	50 V			666233 77276			
	50	25	699573 70194	699573 98002	662611 38454	666233 53310	10	666233 95009
	60	25	699573 70195	699573 98003	662611 38453	666233 53311	10	666233 95010
	60	50 V			666233 77278			
	80	25	699573 70196	699573 98004	662611 38452	666233 53312	10	666233 95011
	80	50 V			666233 77279			
	100	25				666233 53313	10	666233 95012
	120	25		662544 25332		666233 53314	10	666233 95013
5 x 7/8	16	25				055395 10684	-	
,	24	25		699573 98005	662611 38563	666233 57276	10	666233 95016
	36	25	699573 70197	699573 98006	662611 38562	666233 57277	10	666233 95017
	36	50 V			666233 77283			
	50	25	699573 70198	699573 98007	662611 38561	666233 57278	10	666233 95018
	60	25	699573 70199	699573 98008	662611 38601	666233 57279	10	666233 95019
	80	25	699573 70200	699573 98009	662611 38600	666233 57280	10	666233 95020
	100	25	00001010200	0000100000	0020110000	666233 57281	10	666233 95021
	120	25		662544 09084		666233 57282	10	666233 95022
6 x 7/8	24	25		662611 60033		00020001202	10	00020030022
7 X 170	36	25		662611 60034				
	50	25		662611 60035				
	80	25		662611 60037				
′ x 7/8	16	25		0020110001		055395 10693		
X 1/0	24	25		699573 98010	662611 38594	666233 57283	10	666233 95029
	36	25	699573 70201	699573 98011	662611 38593	666233 57284	10	666233 95030
	36	50 V	09937370201	099373 90011	666233 77287	00023337204	10	00023393030
	50	25	699573 70202	699573 98012	662611 38592	666233 57285	10	666233 95031
	60	25	699573 70202	699573 98013	662611 38591	666233 57286	10	666233 95032
	80 100	25 25	699573 70204	699573 98014	662611 38590	666233 57287	10	666233 95033
				00054444500		666233 57288	10	666233 95034
1/0 7/0	120	25		662544 11528	0000440050	666233 57289	10	666233 95035
)-1/8 x 7/8	24	25		699573 98015	662611 38584	055395 10702	10	666233 95036
	36	25		699573 98016	662611 38583	055395 10701	10	666233 95037
	50	25		699573 98017	662611 38582	055005:	10	666233 95038
	60	25				055395 10699	10	666233 95039
	80						10	666233 95040
	100						10	666233 95041
	120						10	666233 95042

Note: Fiber discs must be used with back-up pads shown on the last page of this section. V = Vendible Package. Ideal for vending machines and small jobs. 10 discs/package,



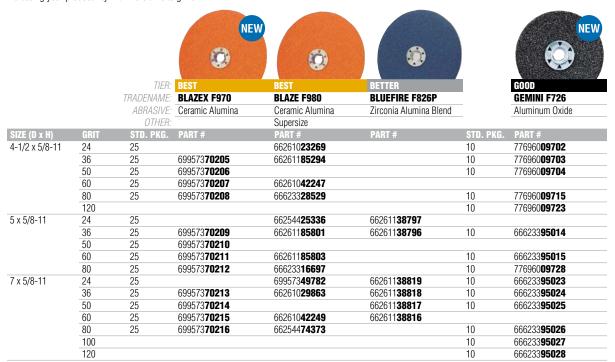
YouTube

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



Speed-Change Fiber Discs

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



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



TIER: BEST TRADENAME: BLAZEX F970 & BLAZE F980 TEST KITS ABRASIVE: Ceramic Alumina

Blaze Fiber Disc Test Kits



 Each kit contains one box of 25 BlazeX F970 (36 grit) fiber discs and one box of 25 Blaze F980 (36 grit) fiber discs. Test them for yourself!

SIZE	GRIT	STD. PKG.	PART #
4-1/2	36	1	776960 95018
5	36	1	776960 95019
7	36	1	776960 95020

AVOS Fiber Discs

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



		TIER:	BEST	BETTER
		BRAND:	Norton	Norton
		TRADENAME:	BLAZE F980	BLUEFIRE F826P
		ABRASIVE:	Ceramic Alumina	Zirconia Alumina Blend
SIZE	GRIT	STD. PKG.	PART #	PART #
4-1/2 Speed-Lok	24	10	662544 68389	662611 29718
(3 hole)	36	10	662544 68390	662611 29719
	50	10	662544 68391	662611 29720
	60	10	662544 68392	662611 29721
	80	10	662544 68393	662611 29722
5 Speed-Lok	24	10	662544 68385	662611 26556
(3 hole)	36	10	662544 68386	662611 26557
	50	10	662544 68387	662611 26558
	60	10	662544 68388	662611 26559
	80	10		662611 26560
7 Speed-Lok	24	10	662544 68381	662611 37454
(6 hole)	36	10	662544 68382	662611 37455
	50	10	662544 68383	662611 37456
	60	10	662544 68384	
	80	10		662611 37458
Note: AVOS fiber a	iscs mus	st be used with A	VOS Speed-Lok back-up i	pads, see next page for details.

Fiber Disc Accessories

Fiber Disc Accessories



Fiber Disc Baling Unit

- Places 100 discs on a spindle between two plates
- · Locks down with a pinch screw
- Maintains the shape of the discs by maintaining pressure to minimize curl
- · User-friendly and reusable



Air-Cooled Standard Back-up Pad

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



Smooth Face Speed-Change Back-up Pad Molded rubber back-up pads with a

smooth face.

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



AVOS Fiber Disc Back-up Pad

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

			Opeca Lon lasteriors
DESCRIPTION	MAX. RPM	STD. PKG.	PART #
Fiber Disc Baling Unit			
5"	_	1	776960 01065
7"	_	1	776960 01066
Rubber Back-up Pads			
Air-Cooled Standard for 7/8 Hole Fibe	r and Non-Woven Discs		
4" Medium	12,000	5	636425 04918
4-1/2" Medium	11,000	5	636425 02122
5" Medium	10,000	5	636425 43421
7" Hard	8,600	5	636425 43425
7" Medium	8,600	5	636425 43422
9" Hard	6,600	5	636425 43426
9" Medium	6,600	5	636425 43423
Note: Retainer nuts are not included with ba	ck-up pads. These must be ordered separately.		
Air-Cooled No-Nose			
4-1/2" Medium	11,000	5	636425 04872
5" Medium	10,000	5	636425 03000
Smooth Face for Fiber and Non-Wove	n Speed-Change Discs		
4-1/2" Medium	20,000	5	662544 92277
5" Medium	12,000	5	636425 43235
7" Hard	8,600	5	636425 43240
7" Medium	8,600	5	636425 43245
7" Soft	8,600	5	636425 43250
9" Medium	7,000	5	636425 43270
AVOS Speed-Lok Back-up Pads			
AVOS Triangular Speed-Lok Back-up F	Pads		
4-1/2" x 5/8-11	13,000	5	636425 02985
5" x 3/8-24 Pistol Grip*	20,000	5	636425 03029
5" x 5/8-11	13,000	5	636425 02517
5" x 5/8-11 Thicker	13,000	5	636425 03663
5" x 7/16-20 Pistol Grip*	20,000	5	636425 03030
*Use on air pneumatic and high-speed pisto	ol grip sanders		
AVOS Round Speed-Lok Back-up Pads			
7" x 5/8-11 Hard	8,600	5	636425 04873
Tools			
#103 Retainer Nut	_	10	636425 43463
Spanner Wrench	_	5	636425 43005
66NS Short Retainer Nut	_	10	636425 43461

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



Corner Store Convenience – Right on the Floor

Industry's best selection of vendible abrasive solutions

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

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

Flap Discs



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.

Grinding, stock removal, edge chamfering/beveling, weld blending, deburring/deflashing, **Applications:**

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" guick-change

24 - 120**Grit Range:**

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

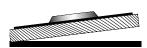
Abrasive Flans: Polyester, Cotton/Poly Blend Flap Disc Shape: Type 27 Flat and Type 29 Conical

Abrasive Flap Density: Standard or high

Backing Plate Material: Fiberglass and plastic **Machine Used:**

 RIGHT ANGLE **GRINDER**

Flap Disc Shapes



GRIND AT FLATTER ANGLES:

 $0^{\circ} - 15^{\circ}$

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

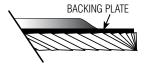


High Density

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





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



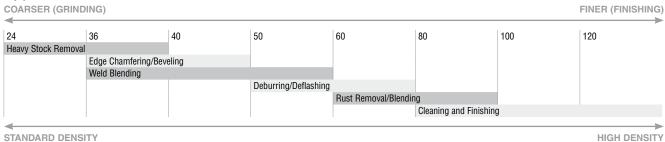




Material-to-Product Recommendation Guide

	BEST	BETTER	GOOD	
	Blaze R980P	BlueFire R884P	Gemini R766	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	G			
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 R884P	Gemini R766	Metal R828				
3M	747D, 947D, 967A, 969F	546D, 566A, 577F	_	_				
Camel	Ceramic Pro	ZA Pro	A Pro	ZA				
CGW/Pasco	Ceramic	Zirconia	A/0	_				
DeWalt	XP Ceramic	HP Zirconia	Zirconia	FlexVolt				
Flexovit	Zircotex Ceramic	Zircotex, Zirocomax, Tornado	_	_				
Garryson	CeramIQ	Zirc+	Zirconium	A/0				
GemTex	Ceramic Flaptec	Zirconia Flaptec	A/O Flaptec					
Hermes	_	FL390	RB48024YX, RB48624YX	Webrax-AN 701				
Klingspor	SMT656	SMT624, SMT626, SMT627, SMT630	SMT627	_				
Metabo	Flexiamant Super Ceramic	Flexianmant Zirconia, Novoflex	_	_				
Mirka	_	_	Blue	_				
Pearl	Redline Maxidics, Stainlessmax Maxidics	Zirconia Maxidisc, Silver Line Zirconia	A/O Maxidisc	Silver Line A/O				
Pferd	Polifan Z-SG, Polifan SG-CO	Polifan SG Zirkon, Polifan SG ZA, SGP, PSF Zirc	Polifan SG A, A-Cool	Polifan PSF A/O				
United Abrasives/Sait	Encore Ceramic, Ovation Ceramic	Ovation, Saitlam U	Ovation Attacker	Encore				
SIA	_	_	2824 SIAFlap	_				
Standard	Ceramic Pro, Ceramic	Zirconia HP, Zirconia AP	Zirconia GP	_				
Tyrolit	Cerabond Ceramic, Premium Ceramic	Fastcut, Premium Longlife	Premium A/0	Basic, Standard				
VSM (Lehigh Valley)	Ceramic	Zirconia	A/0	_				
Walter	Enduro-Flex Turbo	Enduro-Flex, Enduro-Flex Stainless	Enduro-Flex Alu.	Flexsteel				
Weiler	Tiger Ceramic, Tiger X, Tiger Saber Tooth	Tiger Paw, Wolverine	Tiger Premium	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



Better choice for mild carbon steel, and welds

BLUEFIRE R884P 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/cotton flaps with semi-open coat provide improved durability and reduces 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
- Vendible 2-disc package is ideal for vending machines, small jobs, or carrying to a job site



Good choice for carbon steel and aluminum applications

GEMINI R766 ALUMINUM OXIDE

- · Alternating zirconia alumina and aluminum oxide flaps provide higher performance than aluminum oxide while retaining an economical price
- Polyester/cotton flaps are the best choice when speed of job completion and stock removal are primary considerations
- Type 27 Flat with quick trim, flexible plastic backing plate or high-density fiberglass back; Type 29 conical with durable, fiberglass back



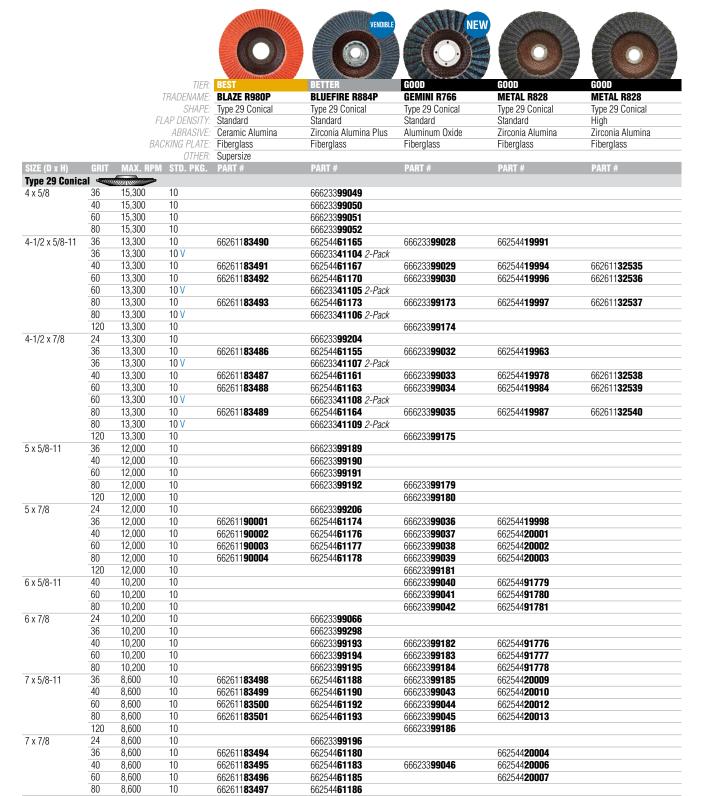
Good consistent performance with low initial price

METAL R828 7IRCONIA ALUMINA

- · Durable zirconia grain provide 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



Flap Discs



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

See Portable Tools and Specialties section for mini flap discs.



Flap Discs









666233**99023**





									William III	
			TIER.	BEST	BEST	BETTER	BETTER	GOOD	GOOD	GOOD
		TRADE			BLAZE R980P	BLUEFIRE R884P	BLUEFIRE R884P		GEMINI R766	METAL R828
			SHAPE:		Type 27 Flat					
		FLAP DE	NSITY		High	Standard	High	Standard	Standard	Standard
		ABR.	ASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina Plus	Zirconia Alumina Plus	Aluminum Oxide	Aluminum Oxide	Zirconia Alumina
	I	BACKING I	PLATE:	Quick Trim Plastic	Fiberglass	Quick Trim Plastic	Fiberglass	Quick Trim Plastic	Fiberglass	Fiberglass
		C	THER:	Supersize	Supersize					
SIZE (D x H)	CDIT	MAX. RPM	STD. PKG.	PART #						
Type 27 Flat		NEW	rku.	PANI#	FANI#	PANI#	PANI#	PANI#	FANI#	PARI#
4-1/2 x 5/8-11	36	13.300	10		662544 99894	666233 99136		666233 99125	666233 99205	662544 72655
4-1/2 X J/U-11	36	13,300	10 V		00234433034	666233 41086 <i>2-Pk</i>		00023333123	00023393203	00234472033
	40	13,300	10	662544 00257	662610 98290	666233 99137	776960 90086	666233 99000	666233 99059	662544 37013
	60	13,300	10	662544 00258	662610 96435	666233 99138	776960 90087	666233 99001	666233 99060	662544 72656
	60	13,300	10 V			666233 41087 <i>2-Pk</i>				
	80	13,300	10	662544 00259	662610 96436	666233 99139	776960 90088	666233 99002	666233 99061	662544 72657
	120	13,300	10	662544 00261				666233 99003		
4-1/2 x 7/8	36	13,300	10	636425 01865	662610 97678	666233 99140	776960 90081	666233 99126	666233 99062	662544 72653
	40	13,300	10	662544 00253	662610 20628	666233 99141	776960 90082	666233 99004	666233 99063	662544 37004
	60	13,300	10	662544 00254	662610 20633	666233 99142	776960 90083	666233 99005	666233 99064	662544 48989
	80	13,300	10	662544 00255	662610 20634	666233 99143	776960 90084	666233 99006	666233 99065	662544 48990
	120	13,300	10	662544 00256			776960 90085	666233 99007		
5 x 5/8-11	36	12,000	10			666233 99144		666233 99127		
	40	12,000	10	776960 90141		666233 99145		666233 99128	666233 99208	
	60	12,000	10	776960 90142		666233 99146		666233 99130	666233 99209	
	80 120	12,000 12,000	10	776960 90143		666233 99147		666233 99131 666233 99132	666233 99210	
5 x 7/8	36	12,000	10			666233 99148		666233 99133	666233 99211	
J X 1/0	40	12,000	10	662544 00262		666233 99149		66623399008	666233 99212	662544 72660
	60	12,000	10	662544 00264		666233 99150		666233 99009	666233 99213	662544 72661
	80	12,000	10	662544 00265		666233 99151		666233 99010	666233 99214	662544 72662
	120	12,000	10	662544 00519		00020000101		666233 99011	000200 002 11	00201112002
6 x 5/8-11	40	10,200	10	662611 32128	662611 32145				666233 99219	662544 91773
•	60	10,200	10	662611 32129	662611 32146				666233 99220	662544 91774
	80	10,200	10	662611 32130	662611 32147				666233 99221	662544 91775
6 x 7/8	36	10,200	10						666233 99215	
	40	10,200	10	662611 32123		666233 99152		666233 99012	666233 99216	662544 91770
	60	10,200	10	662611 32124	662611 32136	666233 99153		666233 99013	666233 99217	662544 91771
	80	10,200	10	662611 32125		666233 99154		666233 99014	666233 99218	
7 50 11	120	10,200	10			00000000		666233 99015	000000000000000000000000000000000000000	000544
7 x 5/8-11	36	8,600	10	00054404000	00004400440	666233 99155	7700000000	666233 99134	666233 99222	662544 72669
	40 60	8,600 8,600	10	662544 61066 662544 61067	662611 32148 662611 32168	666233 99156 666233 99157	776960 90092 776960 90093	666233 99016 666233 99017	666233 99067 666233 99068	662544 72670 662544 72671
	80	8,600	10	662544 61068	002011 32108	666233 99158	776960 90094	66623399017	66623399069	662544 72672
	120	8,600	10	662544 61069		00023333130	11030030034	66623399019	000233 33003	00204412012
7 x 7/8	36	8,600	10	636425 01866		666233 99159		666233 99135	666233 99070	
1 1/10	40	8,600	10	662544 61059	662611 32138	666233 99160	776960 90089	66623399020	666233 99071	662544 72665
	60	8,600	10	662544 61060	662611 32139	666233 99161	776960 90090	666233 99021	55020033071	662544 72666
	80	8.600	10	662544 61061	55E011 5E100	666233 99162	776960 90091	666233 99022		662544 72667
	120	9 600	10	66254461062				66622200022		

^{120 8,600 10 662544}**61063**V = Vendible package. Ideal for vending machines & small jobs. 2 Flap Discs/pack, 5 packs/carton. Order in multiples of 10.

See Portable Tools and Specialties section for mini flap discs.







Packaged for retail / walk-in selling / small jobs

BLUEFIRE R884P ZIRCONIA ALUMINA

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



			TIER:	BETTER
			TRADENAME:	BLUEFIRE R884P
			SHAPE:	Type 29
			FLAP DENSITY:	Standard
			ABRASIVE:	Zirconia Alumina Plus
			BACKING PLATE:	Fiberglass
SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #
4 x M-10	40	15,300	5	076607 03214
	60	15,300	5	076607 03215
	80	15,300	5	076607 03216
4-1/2 x 5/8-11	40	13,300	5	076607 03211
	60	13,300	5	076607 03212
	80	13,300	5	076607 03213
7 x 5/8-11	40	8,600	5	076607 03205
	60	8,600	5	076607 03206
	80	8,600	5	076607 03207
Wire Rack			2	076607 04157

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



See Portable Tools and Specialties section for mini flap discs.



Non-Woven 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 4-1/2" - 7"

Size Range: Grit Range: Abrasive Grain: Machine Used:

X-Coarse, Coarse, Medium, Fine, Very Fine

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



RIGHT ANGLE GRINDER VERTICAL SHAFT PORTABLE GRINDER

Material/Application-To-Product Recommendation Guide – For All Discs Used on Right Angle Grinders

Stripping Discs	BEST Blaze Rapid Strip Ceramic	BETTER Rapid Strip Silicon Carbide
Removing scale and coarse welding marks	◆ XC	◆ XC
Removing coatings, epoxy/glue, paint and other clogging material	◆ XC	◆ XC
Removing rust, oxidation, corrosion and residue	◆ XC	◆ XC
Removing parting lines and seams on fiberglass parts	◆ XC	◆ XC
Removing paint/graffiti from concrete/stone	◆ XC	◆ XC

Deburring, Blending,	BEST	Venter	BETTER	Danid
Finishing Discs	Vortex Rapid Blend	Vortex Rapid Prep	Rapid Blend	Rapid Prep
Removing weld marks and weld spatter	◆ C		◆ C	
Stainless steel deburring and cleaning	◆ C		◆ C	
Removing small flashings and parting lines	◆ C		◆ C	
Surface preparation before coatings/plating		◆ C		◆ C
Light cleaning		♦ F		♦ F
Cleaning and prepping welds		♦ M		♦ M
Removing blemishes after welding stainless		♦ M		◆ M
Blending and finishing all metal parts	◆ VF		◆ VF	
Creating decorative finishes on stainless steel	◆ VF		◆ VF	
Final finishing and polishing	◆ VF		◆ VF	
Final finishing/polishing where high conformability is needed				◆ VF

XC - Extra Course, C - Coarse, M - Medium, F - Fine, VF - Very Fine

Application/Product Recommendation Guide – For All Discs Used on Right Angle Grinders

MOST AGGRESSIVE / LEAST CONFORMABLE

LEAST AGGRESSIVE / MOST CONFORMABLE

Depressed Center Discs	Blaze Rapid Strip	Vortex Rapid Blend A/O Med. Rapid Blend A/O Coarse	Rapid Blend A/O Medium	Rapid Blend S/C Fine	
Discs With Back-Up Pad		Vortex Rapid Prep Rapid Prep A/O Coarse	Rapid Prep A/O Medium	Rapid Prep A/O Fine	Rapid Prep Very Fine
Scale Removal	Best Choice				
Stock Removal	Best Choice	Second Choice			
Heavy Deburring	Second Choice	Best Choice			
Light Deburring		Best Choice	Second Choice		
Light Finishing		Second Choice	Best Choice		
Blending			Best Choice	Second Choice	
Finishing			Second Choice	Best Choice	
Polishing				Best Choice	Second Choice



Non-Woven Discs

Cross Reference Guide - For All Discs Used on Right Angle Grinders

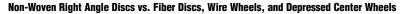
STRIPPING (EXTRA COARSE) SURFACE FINISHING (COARSE – MEDIUM – FINE) SURFACE PREP (VERY FINE)

						· · · · · · · · · · · · · · · · · · ·
	BEST	BETTER	BEST	BETTER	BEST	BETTER
NORTON	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	Rapid Blend	Vortex Rapid Prep	Rapid Prep
3M	Clean & Strip XT PRO, Clean & Strip XT PRO Extra Cut	Clean & Strip X	Debur and Finish PRO, Cut and Polish	EXL	SE, Duraflex	SC, PD, AI, LS
Bibielle	_	SDR Strip-It/Red	_	BUR Unitized	SCHD	SCLS, SCD, SCSB
Camel	_	EZ Strip Black/Red	_	_	_	_
Flexovit	_	Clean & Strip	_	_	_	_
Hermes	Strip Discs	Webrax	_	_	_	_
Pearl	_	S/C Stripping	_	_	_	Surface Preparation
Pferd	_	Policlean	_	Poliflex PUR	_	_
Sait	_	Sait-Strip	_	Unitized	7S, 8S	3Z
SIA	SiaStrip	_	_	_	6260	6250
Standard	_	Cleaning	700/800/900 Series	700/800/900 Series	FE, GP	FE, GP, RC
Superior	_	Stripping		XL Unitized		FD, GD, CC
Walter	_	FX Cleaning	_	_	_	Blendex Surface Conditioning

Why Choose Non-Woven Depressed Center Discs?



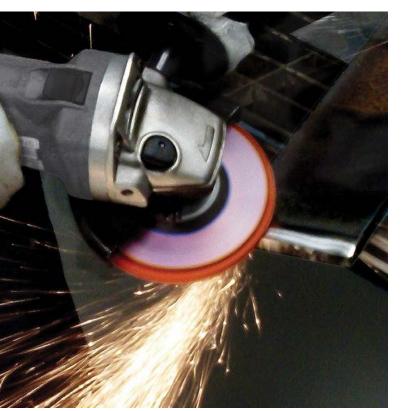




- Deburring, blending and finishing done with one product to reduce the number of steps
- · To provide a controlled, sustained finish
- To prevent undercutting and gouging
- To provide a cooler grinding action to lessen the chance of warping or discoloration
- When loading is an issue with fiberglass, adhesives and soft metals
- For stripping coatings and paint off of hard materials like concrete, cement and stone
- · Less vibration and quieter for high operator acceptance
- . To provide an alternative to wire brushes









Blaze Your Way to Greatest Productivity

Norton Blaze Rapid Strip Type 27 Depressed Center Discs

Strip/clean Cast Iron, Steels, Aluminum, Fiberglass and composites

- Open structure; will not load on sticky coatings, adhesives, and soft metals (e.g. aluminum), or snag and shed like a cloth or fiber disc might
- Norton Blaze ceramic alumina grain provides 2X cut rate and life over silicon carbide
- Will not shed on heavily rust-encrusted pieces
- Extremely versatile; use one disc; stiff enough to stand abuse, but soft enough to prevent gouging and rework
- Use on edge for blending weld root forms
- Apply some pressure to strip or remove coatings; lighter pressure finishes like a surface finishing disc
- Fewer safety, ergonomic, and environmental issues due to fewer change-outs, less downtime, and less production waste/landfill scrap



Non-Woven Depressed Center Discs

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



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





Non-Woven Depressed Center Discs

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



Better choice for surface prep, deburring, blending and removing parting lines, rust, and coatings

RAPID BLEND NEX A/O / S/C

- · Premium aluminum oxide or silicon carbide grain for consistent performance
- · Uniform construction extends life and maintains part tolerance; prevents cutting and gouging
- · Resin formula produces consistent, smear-free finishes



Consistent smear free performance with low entry price

RAPID BLEND ALUMINUM OXIDE

- · Premium aluminum oxide grain; engineered for more demanding applications
- · Uniform construction maintains part tolerance; prevents cutting and gouging
- Smear-free bond excels at producing light satin finishes

MOST AGGRESSIVE / LEAST CONFORMABLE

LEAST AGGRESSIVE / MOST CONFORMABLE











		HER.	DEST	DETTEN	DEITER	DEITEN	DEITER
		TRADENAME:	VORTEX RAPID BLEND	RAPID BLEND NEX	RAPID BLEND NEX	RAPID BLEND NEX	RAPID BLEND
		ABRASIVE:	Engineered A/O	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Aluminum Oxide
		GRIT SIZE:	100-120	150-180	220-280	320-400	150-180
	5	SPECIFICATION:	Vortex 5AM	NEX-2AM	NEX-2AF	NEX-2SF	High Strength Mediu
	Ī	TYPE/BACKING:	Type 27/Fiberglass	Type 27/Fiberglass	Type 27/Fiberglass	Type 27/Fiberglass	Type 27/Fiberglass
SIZE (D x H)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
4-1/2 x 5/8-11	12,000	10	662544 29243	662610 23947	662610 23946	662610 23943	662610 23949
4-1/2 x 7/8	12,000	10	662544 29268	662610 20548	662610 20547	662610 20546	662610 20549
	4-1/2 x 5/8-11	SIZE (D x H) MAX. RPM 4-1/2 x 5/8-11 12,000	TRADENAME: ABRASIVE: GRIT SIZE: SPECIFICATION: TYPE/BACKING: SIZE (D x H) MAX. RPM STD. PKG. 4-1/2 x 5/8-11 12,000 10	ABRASIVE: Engineered A/O GRIT SIZE: 100-120 SPECIFICATION: Vortex 5AM TYPE/BACKING: Type 27/Fiberglass SIZE (D x H) MAX. RPM STD. PKG. PART # 4-1/2 x 5/8-11 12,000 10 66254429243	TRADENAME:	TRADENAME: ABRASIVE: Engineered A/O	TRADENAME: VORTEX RAPID BLEND RAPID BLEND NEX RAPID BLEND NEX







Non-Woven Standard Back-up Pad Discs

Rapid Prep 7/8" Center Hole



Best choice for aggressive stock removal and blending in one step

RAPID PREP XHD

- Coarse and Medium discs solve your most aggressive stock removal and blending challenges; remove weld lines, weld spatter, weld discoloration and blend surfaces in a single step
- Improve cut control and surface blending over traditional coated flap discs and fiber discs from our unique combination of a conformable fiber matrix and premium ceramic grain
- XHD Coarse discs for aggressive weld removal and surface blending on steels and Medium discs on softer metals/alloys



TIER:	BEST
TRADENAME:	RAPID PREP XHD
ABRASIVE:	Ceramic Alumina

SIZE (D x H)	STD. PKG.	PART #
Coarse		
4-1/2" x 7/8"	40	662611 70275
5" x 7/8"	40	662611 70279
7" x 7/8"	25	662611 70280
Medium		
4-1/2" x 7/8"	40	662611 70282
5" x 7/8"	40	662611 70283
7" x 7/8"	25	662611 70284

All Vortex and Rapid Prep 7/8 hole discs are non-stock. Contact your Norton representative for current order quantities, and lead-times.

Note: Max RPM is determined by corresponding back up pad.



Norton Rapid Prep Surface Conditioning Products

The Perfect Abrasive, Coating, and Bond Built into Every Disc and Belt

- Available in premium Vortex aluminum oxide aggregate grain and Norton aluminum oxide grain; ideal for many aerospace, metal and stainless steel fabrication, and MRO applications
- Our proprietary coating method extends life and delivers consistent finishes by creating a thick layer of grain throughout the product; grain does not sit on top of fibers as other competitive products can
- Our new Clean Bond resin system guarantees smear-free finishes, even on high nickel content alloys; will not load on aluminum and soft metals, as competitive products can





Non-Woven Standard Back-up Pad Discs

Rapid Prep
7/8" Center Hole

Best choice for finishing and blending applications



VORTEX RAPID PREP ALUMINUM OXIDE DISCS

- High-performing, patented Vortex agglomerated aluminum oxide grain provides the cutting power of a coarser grit
 with the finish of finer grits
- 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





RAPID 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





	HER:	BEST	RELIEK
	TRADENAME:	VORTEX RAPID PREP	RAPID PREP
	ABRASIVE:	Engineered Aluminum Oxide	Aluminum Oxide
SIZE (D x H)	STD. PKG.	PART #	PART #
Extra Coarse			
4-1/2" x 7/8"	25		666233 26070
5" x 7/8"	25	666233 34975	
7" x 7/8"	25	666233 41360	
Coarse			
4-1/2" x 7/8"	25	666233 34944	662544 73868
5" x 7/8"	25	666233 34946	662610 08293
7" x 7/8"	25	666233 41362	666233 25138
Medium			
4-1/2" x 7/8"	25	666233 33612	666233 25915
5" x 7/8"	25	666233 34963	662610 17124
7" x 7/8"	25	666233 41364	666233 25919
Fine			
4-1/2" x 7/8"	25	666233 33608	666233 25153
5" x 7/8"	25	666233 34954	662544 69132
7" x 7/8"	25	666233 41366	666233 25897
Very Fine			
4-1/2" x 7/8"	25	666233 33616	
5" x 7/8"	25		666233 25943
7" x 7/8"	25	666233 41368	666233 25959

All these discs are non-stock. Contact your Norton representative for current order quantities, and lead-times. Note: Max RPM is determined by corresponding back-up pad.

See page 51 for 7/8" Hole Air Cooled Back-up Pads



Non-Woven Speed-Change Discs

Rapid Prep Speed Change 5/8"-11

 These 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.



TRADENAME:	RAPID PREP XHD
ABRASIVE:	Ceramic Alumina

SIZE (D x H)	STD. PKG.	PART #
Coarse		
4-1/2" x 5/8-11"	25	662611 70060
5" x 5/8-11"	25	662611 70061
7" x 5/8-11"	25	662611 70288
Medium		
4-1/2" x 5/8-11"	25	662611 70062
5" x 5/8-11"	25	662611 70063
7" x 5/8-11"	25	662611 70289

Max RPM is determined by corresponding back up pad.



		TIER:	BEST	BETTER
		TRADENAME:	VORTEX RAPID PREP	RAPID PREP
		ABRASIVE:	Engineered Aluminum Oxide	Aluminum Oxide
SIZE (D x H)	STD. PKG.		PART #	PART #
Extra Coarse				
4-1/2" x 5/8-11"	25		666233 73667	666233 73690
5" x 5/8-11"	25		666233 73669	
7" x 5/8-11"	25		666233 73670	666233 73692
Coarse				
4-1/2" x 5/8-11"	25		666233 73671	666233 73693
5" x 5/8-11"	25		666233 73674	662544 98516
7" x 5/8-11"	25		666233 73675	662611 92908
Medium				
4-1/2" x 5/8-11"	25		666233 73678	666233 08157
5" x 5/8-11"	25		666233 73679	666233 73694
7" x 5/8-11"	25		666233 73680	662611 92913
Fine				
4-1/2" x 5/8-11"	25		666233 73681	
5" x 5/8-11"	25		666233 73682	666233 73695
7" x 5/8-11"	25		666233 73684	
Very Fine				
5" x 5/8-11"	25		666233 73686	666233 73699
7" x 5/8-11"	25		666233 73687	666233 73700
Note: Speed Change disc	ce muet alwaye ha ue	ad with emonth fo	ca hack_un nade	

Note: Speed Change discs must always be used with smooth face back-up pads.

Max RPM is determined by corresponding back-up pad.

AVOS Non-Woven Speed-Lok

- Patented hole design allows for interrupted cut, reducing heat up to 30% over standard surface preparation discs for cooler cutting and longer life
- With complete vision into the grinding zone, operators can grind more accurately with less re-work; scooped holes create air glow to pull loose abrasive and swarf away from work surface grinding zone — resulting in extended disc life
- The 15° angle back-up pad lets you grind at 5° 15° angle allowing for greater utilization of disc surface and eliminates gouging of workpiece

See page 51 for Speed Change and AVOS Back-up Pads





TRADENAME: **RAPID PREP AVOS** ABRASIVE: Aluminum Oxide Coarse 66261010447 10 4-1/2 666233**74818** Medium 4-1/2 10 66261010448 10 66623374819 **Very Fine** 4-1/2 10 66623374823 10 666233**74824**

Note: AVOS discs must be used with AVOS Speed-Lok back-up pads. Max RPM is determined by corresponding back up pad.

Non-Woven Hook and Loop Discs

Rapid Prep

Non-Woven Hook and Loop Discs



TIER: BEST
TRADENAME: RAPID PREP XHD
ABRASIVE: Ceramic Alumina

SIZE (DIAMETER)	STD. PKG.	PART #
Coarse		
4-1/2	40	662611 70179
5	40	662611 70181
7	25	662611 70182
Medium		
4-1/2	40	662611 70183
5	40	662611 70185
7	25	662611 70186

Max RPM is determined by corresponding back-up pad.

Back-up Pads

Hook & Loop Back-up Pads

PAD DIAMETER	SPINDLE OR Hole Size	MAX. RPM	3M Equivalent	STD. PKG.	PART #
Back-up Pa	ds for Hook and Lo	op Discs			
2	1/4 Steel Shank	23,000	922	5	662610 59352
3	1/4 Steel Shank	20,000	923	5	662610 59354
4	1/4 Steel Shank	18,000	924	5	662610 59356
	5/8-11	13,000	914	5	662610 59304
	M10 x 1.250	13,000		5	662610 59305
4-1/2	5/8-11	10,000	9145	5	662610 06948
5	5/16-24 Male	10,000	905	5	662610 59360
	5/8-11	10,000	915	5	662610 59310
6	5/8-11	8,000	916	5	662610 59312
7	5/8-11	6,000	917	5	662610 59368
8	5/8-11	4,500	918	5	662610 59372





	TRADENAME:	VORTEX RAPID PREP	RAPID PREP
	ABRASIVE:	Engineered Aluminum Oxide	Aluminum Oxide
SIZE (DIAMETER)	STD. PKG.	PART #	PART #
Extra Coarse			
2	50		662610 17900
3	25	666233 33620	
	25	666233 34972	662610 17906
	25	666233 34974	662610 17215
7	25	666233 34976	662611 92846
Coarse			
2	50	666233 34882	662610 04431 *
3	25	666233 34883	662610 55015
4-1/2	25	666233 34943	662610 17806
5	25	666233 34945	662610 04435
7	25	666233 34951	662610 55027
Medium			
2	50	666233 34958	662610 04441
3	25	666233 34956	662610 04442
4-1/2	25	666233 34961	662610 04444
	25	666233 34962	662610 55022
7	25	666233 34965	662610 17813
Fine			
2	50	666233 33604	666233 25141
3	25	666233 33605	666233 25143
4-1/2	25	666233 33607	666233 25147
5	25	666233 33609	666233 25154
7	25	666233 34955	662611 99465
Very Fine			
2	50	666233 33613	666233 25926
3	25	666233 33614	666233 25934
	25	666233 33615	666233 25936
5	25	666233 33617	666233 25941
7	25	666233 34969	662610 19990

Max RPM is determined by corresponding back-up pad.



^{*} Standard Package = 80

^{*} Standard Package = 80

Cloth PSA Discs



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

Grit Range: Abrasive Grain: Back-up Pads:

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide

Rubber, with hardness variations for different applications, for portable machines. Steel for

stationary disc sanders.

Machine Used:





ORBITAL SANDER STATIONARY DISC SANDERS



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



Better choice for grinding and deburring stainless steel

BLUEFIRE R821P ZIRCONIA ALUMINA

- Latest generation of self-sharpening, zirconia alumina abrasive for cooler cut and extended life over aluminum oxide discs
- · Heavy-duty Y-weight cotton backing for edge-tear resistance and durability
- · Pressure sensitive adhesive makes for easy application and removal



Good choice for general-purpose metalworking

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



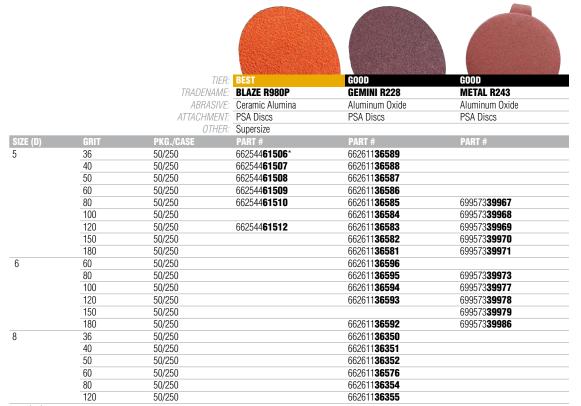
Good option for light- to medium-pressure grinding, blending, leveling and finishing applications

METAL R243 ALUMINUM OXIDE

- · Aluminum Oxide grain provides consistent cut for general purpose use
- Improved resin bond system provides longer life
- · Flexible J-weight cotton backing for added conformability, tabs allow for easy liner removal



Cloth PSA Discs for Dual-Action and Random Orbital Sanders



^{*}PKG./Case: Blaze R980P 5" 36 grit discs = 50/200



Back-up Pads for Cloth PSA Discs

DESCRIPTION	MAX. RPM	STD. PKG.	PART #
Back-up Pads for Cloth PSA Discs			
5" Diameter – Low Profile – Soft	12,000	5	636425 06126
5" Diameter – Low Profile – Medium	12,000	5	636425 06131
5" Diameter – Tapered – Medium	12,000	5	636425 06139
6" Diameter – Low Profile – Soft	10,000	5	636425 06127
6" Diameter – Low Profile – Med	10,000	5	636425 06133
6" Diameter – Tapered – Medium	10,000	5	636425 06141
8" Diameter – Tapered – Medium	6,000	5	636425 43112

COATED & NON-WOVEN ABRASIVES Cloth PSA Discs

Large Diameter Cloth PSA Discs

Used on stationary disc machines for dimensioning and finishing metal workpieces and woodworking. Pressure sensitive adhesive offers fast, convenient mounting. Made without center holes for full-face usage.

				A CHILDREN	200
			BEST	BETTER	GOOD
			BLAZE R980P	BLUEFIRE R821P	GEMINI R228
			Ceramic Alumina	Zirconia Alumina	Aluminum Oxide
		ATTACHMENT:		PSA	PSA
			Supersize		
SIZE (D)	GRIT	PKG./CASE	PART #	PART #	PART #
10	36	25/50			662611 36606
	40	25/50		662611 38314	662611 36604
	50	25/50			662611 36607
	60	25/50		662611 38316	662611 36602
	80	25/50		662611 38317	662611 36601
	100	25/50			662611 36600
12	24	25/50		662611 38318	
	36	25/50	662544 16171	662611 38319	662611 36635
	40	25/50	662544 16172	662611 38320	662611 36630
	50	25/50	662544 16173	662611 38321	662611 36625
	60	25/50	662544 16174	662611 38322	662611 36620
	80	25/50	662544 16175	662611 38323	662611 36615
	100	25/50			662611 36614
	120	25/50	662544 16176		662611 36613
15	36	25/50			662611 36666
	60	25/50			662611 36663
	80	25/50			662611 36662
16	36	25/50			662611 36700
	40	25/50			662611 36685
	50	25/50			662611 36684
	60	25/50		662611 38334	662611 36683
	80	25/50		00201100004	662611 36701
18	36	25/50			662611 36720
10	60	25/50			662611 36696
	80	25/50			662611 36723
20	36	25/50	662544 16165	662611 38343	662611 36710
20	40	25/50	00234410103	662611 38344	662611 36709
		-1	CC0E 444 C4 C7	002011 30344	
	50	25/50	662544 16167	00001100040	662611 36711
	60	25/50	662544 16168	662611 38346	662611 36712
	80	25/50	662544 16169		662611 36706
0.4	120	25/50	662544 16170		00004400740
24	36	10/10			662611 36718
	40	10/10			662611 36717
	50	10/10			662611 36725
	60	10/10			662611 36726
	80	10/10			662611 36727



Paper Discs



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:

Machine Used:

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"36 - 1500**Grit Range:**

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

ORBITAL

SANDER PORTABLE GRINDER

Material/Application-to-Product Recommendation Guide

	BEST	BETTER		GOOD			
	Heavy-Medium Stock Light S		Light Stock Removal Heavy-Medii Finishing Stock Remov			Light Stock Removal Finishing	Light Stock Removal Finishing
	SG H920	Blaze A995	Dry Ice A975	BlueFire H875P	BlueFire H822	A2750P	Gold Reserve A296
Primed, Painted Surfaces		•	•	♦		•	•
Fiberglass / Composites / Gel Coats		•	*	♦		•	*
Wood		*	•	•		•	*
Metal	*	*	•		•	•	*
Body Fillers / Compounds / Plastics		•	•	♦		•	•

Application/Grit Recommendation Guide

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

Cross Reference Guide

TOTAL PERFORMANCE INITIAL PRICE

	BEST			BETTER				GOOD	
	F-Weight	X-Weight	B- & C-Weight	F-Weight	E-Weight	B-Weight	B-Weight	C-Weight	B-Weight
NORTON	SG H920	Blaze A995	Dry Ice A975	BlueFire H822	BlueFire H875P	A275 OP	Durite A475	A290	Gold Reserve A296
3M	763U	732U, 737U, 755L 775L	334U, 734U, 735U	_	740I, 745I, 750U, 751U, 751I	216U, 255L, 236U, 260L, 334U	405N, 414N, 415U, 426U, 435U	236U, 316U, NX	216U, 236U
Hermes	BW114, CR116	CR116	_	BW115, BW184	BW110, VC153	VC154-LL	SF168	VC151-LL, VC152, WA flex 28	_
Indasa	_	HT Line	HT Line, RedLine	_	HeavyLine	PlusLine	_	WhiteLine, YellowLine	_
Klingspor	PS61	_	PS36	PS21	PS36	PS33, PS73W	PL35, PS14	PS33	PL36
Mirka	_	_	_	_	Royal CRS. Cut	Q-Silver, Royal Micro	CaratFlex, PolarStar	Bulldog Gold, Basecut	Bulldog Gold
SIA	_	_	Siaprime 5550, 1958	1820	1820, 1919, 1948	1940, 1944,1950	1748	1947, 1960	_
VSM	_	_	_	_	KP510E, KP709	_	CP131A	KP911	_

Ultra Fine Finishing



Heavyweight Paper Discs



Best choice for most demanding stock removal applications

SG H920 CERAMIC ALUMINA

- Durable and friable Norton seeded gel ceramic alumina abrasive ensures fast, aggressive, yet cool cutting action and maximum life
- Strong F-weight paper, synthetically-coated, provides maximum durability and resistance to edge chipping and shedding
- Closed coat and sharp grain make this a premiere product for metal fabricating and blending; ideal for soldered and welded areas



Better choice for aggressive metalworking applications

BLUEFIRE H822 ZIRCONIA ALUMINA

- Patented zirconia alumina abrasive provides 2X-3X life over aluminum oxide products
- Strong F-weight paper, synthetically-coated for excellent durability and chip resistance; pressure sensitive adhesive and linked disc roll format allow easy application, removal, and dispensing
- Non-stearated (no anti-loading agents) for non-contaminating; often required for prime auto and aerospace paint applications



Better choice for soft material and wood applications

BLUEFIRE H875P ZIRCONIA ALUMINA

- Next-generation, self-sharpening zirconia alumina abrasive provides 2-3 times the life of aluminum oxide discs, longer life versus original zirconia alumina discs, improved cut rate, and minimal heat
- · Strong E-weight latex/paper backing resists tearing while staying conformable and flexible
- · Open coat contributes to minimized loading

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

60

80

100

120

60

80

120

100

120

6

8



Refer to the Sanding Accessories section for back-up pads and accessories.



Heavyweight Paper Discs

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

36

40

80

36

40

80

36

40

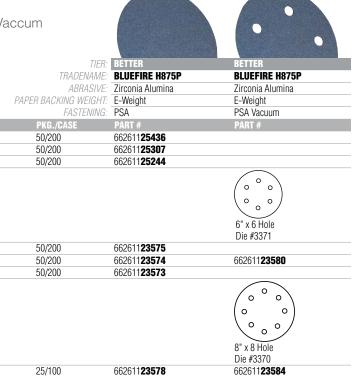
80

25/100

25/100

6

8



66261123577

662611**23576**

Hook & Loop Individual Discs Non-Vacuum and Vaccum



662611**23582**

		0111			• aoaann	
SIZE	GRIT	PKG./CASE	PART #	PART #	PART #	
5	40	25/100		662611 25684		
	60	50/250	662611 49864			
	80	50/250	662611 49865	662611 25444 *		
	100	50/250	662611 49866			
	120	50/250	662611 49867			
6	36	25/100		662611 23590		
	40	25/100		662611 23589		
	80	25/100		662611 23588		



8" x 8 Hole Die #3370

				Die #3370	
8	36	25/100	662611 23593	662611 23598	
	40	25/100	662611 23592		
	80	25/100	662611 23591	662611 23596	

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



Lightweight Paper Discs



Less dust; more productivity

NEW

MULTI-AIR CYCLONIC HOOK & LOOP VACUUM

- Multi-Air Cyclonic precision laser-cut, spiral vacuum hole design maximizes dust extraction for cleanest work
 environment and less potential for contamination, while delivering coolest, fastest, most consistent cut rate, and
 longest life of any paper disc
- Water-based, non-pigmented stearate No-Fil coating and open coat provide maximum load resistance and no color transfer to work
- Exceptional choice for the most demanding paper disc sanding applications; hook and loop back for easy disc
 mounting and changing

		TIFR.	BEST	BEST
		TRADENAME:		DRY ICE A975 NO-FIL
		ABRASIVE:		Ceramic Alumina
	PAPER BA	ACKING WEIGHT:	C- & D-Weight	B- & C-Weight
	7711 271 27	FASTENING:		Hook & Loop
		OTHER:		P-Graded
SIZE	GRIT	PKG/CASE	PART #	PART #
3 x 0	80	50/200		776960 95005
	120	50/200		776960 95006
	150	50/200		776960 95007
	180	50/200		776960 95008
	220	50/200		776960 95009
	240	50/200		776960 95010
	320	50/200		776960 95011
	400	50/200		776960 95012
	500	50/200		776960 95013
	600	50/200		776960 95014
	800	50/200		776960 95015
	1000	50/200		776960 95016
5 x 11/16	80	50/200	636425 97500	776960 07745
(125mm x 18mm)	120	50/200	636425 97501	776960 07753
	150	50/200	636425 97502	776960 07755
	180	50/200	636425 97503	776960 07756
	220	50/200	636425 97504	776960 07757
	240	50/200		776960 07760
	280	50/200		776960 07762
	320	50/200		776960 07763
	400	50/200		776960 07765
	500	50/200		776960 07768
	600	50/200		776960 07791
	800	50/200		776960 07793
	1000	50/200		776960 07795
6 x 11/16	80	50/200	636425 97505	776960 07770
(150mm x 18mm)	120	50/200	636425 97506	776960 07773
	150	50/200	636425 97507	776960 07774
	180	50/200	636425 97508	776960 07775
	220	50/200	636425 97509	776960 07776
	240	50/200		776960 07777
	280	50/200		776960 07778
	320	50/200		776960 07781
	400	50/200		776960 07784
	500	50/200		776960 07785
	600	50/200		776960 07786
	800	50/200		776960 07787
	1000	50/200		776960 07788



Improved Dust Extraction / Increased Productivity

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

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

Refer to the Sanding Accessories section for back-up pads and accessories.



Lightweight Paper Discs



Best choice for the most demanding coarse grit stripping, blending, and sanding applications

BLAZE A995 NO-FIL CERAMIC ALUMINA

- P-graded, next-generation sharper-edged ceramic aluminum oxide abrasive ensures fastest cut rate and longest life of any paper disc
- Unique polyester-reinforced, D-weight latex saturated backing provides maximum 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



Best choice for the most demanding sanding applications

DRYICE A975 NO-FIL CERAMIC ALLIMINA

- · P-graded seeded-gel ceramic alumina abrasive for fastest cut rate and longest life of any paper disc
- Unique fiber reinforced, flexible B or C-weight latex saturated backing delivers 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



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



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

DURITE A475 NO-FIL SILICON CARBIDE

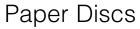
- Sharp and hard, P-graded, silicon carbide abrasive easily penetrates the hardest material and veneers to create finer finishes where finish is critical
- Flexible, B-weight fiber reinforced, latex paper backing provides flexibility and resistance to tearing
- Water-based, non-pigmented stearate No-Fil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



Good choice for sanding a broad range of substrates including primed or painted surfaces, wood, composites, aluminum, and ferrous metals

GOLD RESERVE A296 NO-FIL ALUMINUM OXIDE

- · P-graded premium aluminum oxide abrasive produces a quick, cool cut and a more consistent surface finish
- Strong B-weight latex/paper backing resists tearing while staying conformable and flexible
- · Water-based, non-loading (No-Fil) stearate coating minimizes clogging and increases disc life





Lightweight Paper Discs

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











		TRADENAME:	DRYICE A975 No-fil	A2750P NO-FIL	DURITE A475 NO-FIL	GOLD RESERVE A296 NO-FIL	A290 No-fil
		ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Silicon Carbide	Aluminum Oxide	Aluminum Oxide
		PAPER BACKING WEIGHT:		B-Weight	B-Weight	B-Weight	C-Weight
		FASTENING:		PSA	PSA	PSA	PSA
		OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded
175	CDIT	ROLLS/ DISCS/	DADT #	PART #	DART #	DART #	DART #
SIZE	GRIT	STD. PKG. ROLL	PART #		PART #	PART #	PART #
3-1/2	80	4 100 4 100		662611 36376			
	120			662611 36375			
	180			662611 36373			
	220			662611 36372			
	320	4 100 4 100		662611 36370			
				662611 36369			
	400			662611 36368			00001140001
5	60	4 100	00001140500	00001104404*	000004407445	00001100000	662611 49831
	80	4 100	662611 40502	662611 31464 *	662544 87415	662611 83806	662611 49830
	100	4 100	662611 40501	662611 31463 *	662544 87417	662611 83807	662611 49829
	120	4 100 4 100	662611 40500	662611 31462 *	662544 87418	662611 83808	662611 49828
	150		662611 40499	662611 31461 *	662544 87440	662611 83809	662611 49827
	180	4 100	662611 40498	662611 31460 *	662544 87441	662611 83810	662611 49826
	220	4 100 4 100	662611 42474	662611 31459 *	662544 87442	662611 83811	662611 49825
			662611 55380	662611 31458 *	662544 87443		662611 49824
	280	4 100	662611 55379	662611 31457 *	00054407444	00001100010	662611 49823
	320	4 100	662611 55378	662611 31456 *	662544 87444	662611 83813	662611 49822
	400	4 100	662611 55377	662611 31454 *	662610 65293	662611 83814	662611 49821
	500	4 100	0000000000000	662611 31453 *	00054404047		
	600	4 100	666233 05608	662611 31452 *	662544 21217		
	800	4 100	662544 80230	662611 31451 *			0000114004
ô	60	4 100	00004440540	00004404404*	00054407440	00004400045	662611 49847
	80	4 100	662611 40512	662611 31481 *	662544 87446	662611 83815	662611 49842
	100	4 100	662611 40511	662611 31480 *	00054405445	662611 83816	662611 49841
	120	4 100	662611 40510	662611 31479 *	662544 87447	662611 83817	662611 49840
	150	4 100	662611 40509	662611 31478 *	00054405440	662611 83818	662611 49839
	180	4 100	662611 40508	662611 31477 *	662544 87448	662611 83819	662611 49838
	220	4 100	662611 48340	662611 31476 *	662544 87449	662611 83820	662611 49837
	240	4 100	662611 55376	662611 31475 *		662611 83821	662611 49836
	280	4 100	000044FF074	662611 31474 *	00054407450	00001100000	662611 49835
	320	4 100	662611 55374	662611 31473 *	662544 87450	662611 83822	662611 49834
	400	4 100	662611 55373	662611 31471 *		662611 83823	662611 49833
	500	4 100	636425 06198	662611 31470 *		00001040001	
	600	4 100	636425 06199	662611 31469 *		662610 40261	
	800	4 100	636425 06200	662611 31468 *		636425 06164	
	80	4 100		662611 31617			
	120	4 100		662611 31615			
	150	4 100		662611 31614			
	180	4 100		662611 31613			
	220	4 100		662611 31612			
	320	4 100 ards 4275 = 6/100		662611 31609			

^{*} Packaging Standards A275 = 6/100

Refer to the Sanding Accessories section for back-up pads and accessories.



Paper Discs

Lightweight Paper Discs

Stick & Sand (PSA) Lightweight Disc Rolls Vacuum



TIER:	BETTER
TRADENAME:	A2750P NO-FIL
ABRASIVE:	Aluminum Oxide
PAPER BACKING WEIGHT:	B-Weight
FASTENING:	PSA
OTHER:	P-Graded



G00	D	V	
A29	O NO-FI	L	
Alur	ninum 0	kide	
C-W	/eight		
PSA			
P-G	raded		





TIER:	BETTER
TRADENAME:	A2750P NO-FIL
ABRASIVE:	Aluminum Oxide
PAPER BACKING WEIGHT:	B-Weight
FASTENING:	PSA Tabbed
OTHER:	P-Graded

		0 /// / / / /	
		MIN./	
SIZE	GRIT	STD PKG.	PART #
5	1000	100/400	662611 31450
	1200	100/400	662611 31449
6	1000	100/400	662611 31467
	1200	100/400	662611 31466
	1500	100/400	662611 31465

				P-Graded	_		P-Graded
		ROLLS/	DISCS/		ROLLS/	DISCS/	
SIZE	GRIT	STD. PKG.	ROLL	PART #	STD. PKG.	ROLL	PART #
				0 0			0 0 0 0 0
				5" x 5 Hole			5" x 5 Hole
				Die #3329			Die #3329
5	60				4	100	662611 30266
	80	6	100	662611 31498	4	100	662611 30265
	100	6	100	662611 31497			
	120	6	100	662611 31496	4	100	662611 30263
	150	6	100	662611 31495	4	100	662611 30262
	180	6	100	662611 31494	4	100	662611 30261
	220	6	100	662611 31493	4	100	662611 30260
	240	6	100	662611 31492			
	320	6	100	662611 31490	4	100	662611 30258
	400	6	100	662611 31488			
				0 0 0			0 0 0
				6" x 6 Hole Die #3333			6" x 6 Hole Die #3333
6	80	6	100	662611 31515	4	100	662611 30276
Ü	100	6	100	662611 31514	4	100	662611 30275
	120	6	100	662611 31513	4	100	662611 30274
	150	6	100	662611 31512	4	100	662611 30273
	180	6	100	662611 31511	4	100	662611 30272
	220	6	100	662611 31510	4	100	662611 30271
	240	6	100	662611 31509			
	280	6	100	662611 31508			
	320	6	100	662611 31507	4	100	662611 30268
	400	6	100	662611 31505			
	600	6	100	662611 31503			

Refer to the Sanding Accessories section for back-up pads and accessories.



PSA Disc Roll Dispenser

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

DESCRIPTION	STD. PKG.	PART #
PSA Disc Roll Dispenser		
Single Disc Roll Dispenser	1	636425 42772
Double Disc Roll Dispenser (shown)	1	636425 02981





Lightweight Paper Discs

ndivi		Discs	NEV	w					
Von-	Vacu	um							
		TIER:	BEST	BEST	35E	BETTER	BETTER	GOOD	GOOD
		CAP CODE:	BLAZE A995	DRY ICE A975		A2750P	DURITE A475	GOLD RESERVE	A290
			NO-FIL Ceramic Alumina	NO-FIL Ceramic Alumina	_	NO-FIL Aluminum Oxide	NO-FIL Silicon Carbide	A296 NO-FIL Aluminum Oxide	NO-FIL Aluminum Oxide
PAF	PER RACI	ADNASIVE. KING WEIGHT:		B- & C-Weight		B-Weight	B-Weight	B-Weight	C-Weight
7,11	LITERIO		Hook & Loop	Hook & Loop		Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop
		OTHER:	P-Graded	P-Graded		P-Graded	P-Graded	P-Graded	P-Graded
	GRIT	PKG/CASE	PART #	PART #	PKG/CASE		PART #	PART #	PART #
	80				50/200	662611 31532			
	100				50/200	662611 44926			
	120 150				50/200 50/200	662611 28688 662611 40385			
	180				50/200	662611 31528			
	220				50/200	662611 31527			
	240				50/200	662611 31526			
	320				50/200	662611 31524			
	400				50/200	662611 36995			
	500				50/200	662611 31521			
	600				50/200	662611 36996			
	800 1000				50/200 50/200	662611 31519 662611 35900			
	1500				50/200	662611 47434			
	60				100/400	00201147434			662611 30224
	80	50/200		662611 40522	100/400	662611 31549		666233 77539	662611 49907
	100	50/200		662611 40521	100/400	662611 31548			662611 49906
	120	50/200		662611 40520	100/400	662611 31547		666233 77541	662611 49905
	150	50/200		662611 40519	100/400	662611 31546		666233 77542	662611 49904
	180	50/200		662611 40518	100/400	662611 31545		666233 77543	662611 49903
	220	50/200		662611 49541	100/400	662611 31544		666233 05637	662611 49902
	240 280	50/200		662611 49540	100/400 100/400	662611 31543 662611 31542			
	320	50/200		662611 49538	100/400	662611 31541		666233 05638	662611 49900
	400	50/200		662611 49537	100/400	662611 31539	662610 52270	666233 05639	662611 49899
	500	50/200		662544 80233	100/400	662611 31538	00201002210	0002000000	002011-10000
	600				100/400	662611 31537		662611 05390	
	800	50/200		662544 80232	100/400	662611 31536	662610 52267	666233 77544	
	1000				100/400	662611 31535	662610 52254		
	1200				100/400	662611 31534			
	1500 80	50/200	636425 97510	662611 40532	100/400 100/400	662611 31533		636425 06236 *	662611 49916
	100	50/200	0304233/310	662611 40531	100/400	662611 31566 662611 31565		636425 06235 *	662611 49915
	120	50/200	636425 97511	662611 40530	100/400	662611 31564		636425 06234 *	662611 49914
	150	50/200	636425 97512	662611 40529	100/400	662611 31563		636425 06233 *	662611 49913
	180	50/200	636425 97513	662611 40528	100/400	662611 31562		636425 06232 *	662611 49912
	220	50/200	636425 97514	662611 49546	100/400	662611 31561		636425 06231 *	662611 49911
	240				100/400	662611 31560		636425 06225 *	
	280	F0/000		000044 407 40	100/400	662611 31559		0004050000	000044.5000
	320	50/200		662611 49543	100/400	662611 31558		636425 06230 *	662611 49909
	400 500	50/200		662611 49542	100/400	662611 31556		636425 06229 *	662611 49908
-	600	50/200 50/200		636425 06202 636425 06203	100/400 100/400	662611 31555 662611 31554		636425 06228 * 636425 06227 *	
	800	50/200		636425 06204	100/400	662611 31553		636425 06226 *	
	1000	50/200		636425 06375	100/400	662611 31552	662610 52255	000 12000120	
	1200	50/200		636425 06376	100/400	662611 31551			
	1500	50/200		636425 06377	100/400	662611 31550			
	120				100/400	662611 31662			
	180				100/400	662611 31661			

Packaging Standards: PKG/CASE A296 = 50/250

Refer to the Sanding Accessories section for back-up pads and accessories.



Lightweight Paper Discs

Hook & Loop Individual Discs Vacuum











			Q	0			9 9
		TIER:	BEST	BETTER	GOOD	GOOD	GOOD
		CAP CODE:	DRY ICE A975 NO-FIL	A2750P No-fil	GOLD RESERVE A296 NO-FIL	A290 No-fil	A290 No-fil
		ABRASIVE:	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
	PAPER B	BACKING WEIGHT:	B- & C-Weight	B-Weight	B-weight	C-Weight	C-Weight
		FASTENING:	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop	Hook & Loop
		OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded
SIZE	GRIT	PKG./CASE	PART #	PART #	PART #	PART #	PART #
			0 0 0 0 5" x 5 Hole Die #3328	© 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		5" x 5 Hole Die #3328	5" x 8 Hole Die #3392
5	60	100/400	DIC #3320	D10 # 3320		662611 30236 *	662611 30245 *
J	80	100/400	662611 40517 *	662611 31583		662611 30235 *	662611 30244 *
	100	100/400	00201140317	662611 31582		662611 30234 *	662611 30243 *
	120	100/400	662611 40515 *	662611 31581		662611 30233 *	662611 30242 *
	150	100/400	00201140010	662611 31580		662611 30232 *	662611 30241 *
	180	100/400		662611 31579		662611 30231 *	662611 30240 *
	220	100/400		662611 31578		662611 30230 *	662611 30239 *
	320	100/400		662611 31575		662611 30227 *	662611 30238 *
	400	100/400		662611 31573		662611 30226 *	00201100200
	600	100/400		662611 31571		00201100220	
			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 6" x 6 Hole Die #3371	6" x 6 Hole Die #3371	6" x 6 Hole Die #3371	
6	00	100/400		662611 31600	666233 34786 *		
0	80 100	100/400	662611 40527 *	662611 31599	666233 34786 **	662611 30255 *	
	120	100/400		662611 31598	666233 34788 *	662611 30253 *	
	150	100/400		662611 31597	00020034100	00201130233	
	180	100/400		662611 31596	666233 34790 *	662611 30251 *	
	220	100/400		662611 31595	666233 34791 *	662611 30250 *	
	280	100/400		662611 31593	000200 1111	00201130230	
	320	100/400		662611 31592	666233 34793 *		
	400	100/400		662611 31590	666233 34794 *		
	600	100/400		662611 31588	666233 34796 *		
	800	100/400		662611 31587	666233 34797 *		
	1000	100/400		662611 31586	00020007131		
	1500	100/400		662611 31584			
D I		100/400	40001/40001/	50/000			

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

Refer to the Sanding Accessories section for back-up pads and accessories.

Mesh Discs



An alternative to traditional perforated paper discs, mesh discs are a multi-functional abrasive, designed with thousands of holes, created by the unique mesh matrix structure. For use with random orbital and rotary sanders, superior performing mesh discs are engineered for maximum dust extraction on composite, automotive, and other fine finishing applications. Norton mesh discs produce superior finishes with virtually dust free sanding.

Applications: Surface preparation, Sanding, Finishing Size Range: 5", 6"

Size Range: Grit Range: Machine Used:

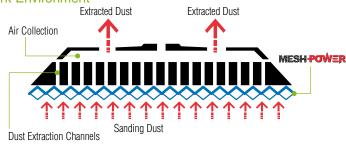


80-400

ORBITAL SANDER

Powerful Dust Extraction Means A Cleaner, Safer Work Environment

We've answered the demands for a cleaner and safer working environment with Norton MeshPower discs. The open construction of the mesh backing allows dust particles to flow freely through the thousands of tiny holes, creating a virtually dust free sanding environment. Better for your health, better for your application and better for your business!





Good choice for sharp cutting along with powerful dust extraction

MESHPOWER ALUMINUM OXIDE

- Mesh matrix backing with thousands of tiny holes offers powerful dust extraction for a cleaner, healthier working environment
- · Norton No-Fil technology prevents clogging and creates a consistent cut throughout the product life
- Self-grip backing with no designated hole pattern is quick and easy to align to any backing pad just apply and go!

		TIER:	GOOD		
		TRADENAME:	MESHPOWER		
		ABRASIVE:	Aluminum Oxide		
SIZE	GRIT	PKG./CASE	PART #		
5	80	50/200	636425 06451		
	120	50/200	636425 06452		
	180	50/200	636425 06453		
	220	50/200	636425 06454		
	240	50/200	636425 06455		
	320	50/200	636425 06456		
	400	50/200	636425 06457		
6	80	50/200	636425 06458		
	120	50/200	636425 06459		
	180	50/200	636425 06460		
	220	50/200	636425 06461		
	240	50/200	636425 06462		
	320	50/200	636425 06463		
	400	50/200	636425 06464		

Contact your Norton representative for more information on additional grit sizes.

TECH TIP

Increase performance even further by using the Norton MeshPower discs with the Norton Multi-Air back-up pads - it's the ultimate dust extraction experience!

Film and Foam Finishing Discs



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

Film discs: final dry finishing of primed and painted surfaces, varnishes, composites, and **Applications:**

gel coats before buffing

Foam finishing discs: final moist finishing of clear coat, varnishes, composites, and gel

coats before buffing

Compounds and buffing pads: removes swirl marks and sand scratches

Size Range: 3". 5" and 6"

Film Discs: P80-P1500

Foam Discs: P1500, P2000, P3000

Machine Used:

Grit Range:



SANDER





PORTABLE GRINDER

Finishing Film



Best choice for final dry finishing of primed and painted surfaces, varnishes,

PURE ICE Q175 A/O FINISHING FILM

- · White aluminum oxide grain and patented resin system for better life, cut rate, and finish
- . 3 mil polyester film backing for better flexibility and flatness of discs; hook and loop attachment for easy mounting and removal
- · Color-coded backprint by grit size

Good choice for dry sanding applications, especially uneven, hard-to-sand surfaces

Q275 NO-FIL A/O FINISHING FILM

- · Sharp, P-graded, heat-treated premium aluminum oxide grain ensures faster, yet cooler, cut for a longer life
- 3-mil polyester film backing delivers unmatched durability and tear strength with exceptional flatness for a flawless surface finish and reduced leveling and rework; hook and loop attachment for easy mounting and removal
- Water-based stearated No-Fil coating provides maximum load resistance when sanding dry for extended life

Finishing Foam



Best choice for moist finishing of clear coats, varnishes, composites, and gel coats

ICE Q255 A/O FINISHING FOAM

- · Premium, P-graded fine grit aluminum oxide grain
- Conformable, integrated foam backing eliminates pigtails and costly rework; produces a semi-polished finished that can be quickly buffed out; hook and loop attachment
- Open mesh design distributes pressure evenly for quicker sanding and uniform scratch patterns
- Color coded abrasive face by grit size for easy grit identification



P2000

P3000

COATED & NON-WOVEN ABRASIVES

Film and Foam Finishing Discs

15/60

15/60

Magenta

Green

636425**06014**

636425**06013**







			0	100 00	to Ma			
		TIER:	BEST		GOOD		BEST	
		TRADENAME:	PURE ICE (Q175	Q275 NO-FIL		ICE Q255	
		ABRASIVE:	Aluminum C)xide	Aluminum Oxide		Aluminum 0	xide
		BACKING WEIGHT:	3 mil Polyes	ster Film	3 mil Polyester Film		Foam	
		OTHER:	P-Graded		P-Graded		P-Graded	
SIZE	GRIT	PKG./CASE	COLOR	PART #	PART #	PKG./CASE	COLOR	PART #
3	P800	50/200	Black	776960 88701				
	P1000	50/200	Red	776960 88702				
	P1200	50/200	Green	776960 88703				
	P1500	50/200	Blue	776960 88704		6/24	Blue	636425 06022
	P2000					6/24	Magenta	636425 06021
	P3000					6/24	Green	636425 06020
5	P80	50/200			662611 01614			
	P120	50/200			662611 01613			
	P180	50/200			662611 01610			
	P220	50/200			662611 01609			
	P240	50/200			662611 01608			
	P320	50/200			662611 01607			
	P400	50/200			662611 01606			
	P600	50/200			662611 01604			
	P1200	50/200			662611 01601			
6	P80	50/200			662611 01628			
	P120	50/200			662611 01627			
	P180	50/200			662611 01625			
	P220	50/200			662611 01624			
	P320	50/200			662611 01622			
	P800	50/200	Black	776960 88713	662611 01618			
	P1000	50/200	Red	776960 88714	662611 01617			
	P1200	50/200	Green	776960 88715	662611 01616			
	P1500	50/200	Blue	776960 88716	662611 01615	15/60	Blue	636425 06015

Refer to the Sanding Accessories section for back-up pads and accessories.

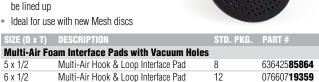


COATED & NON-WOVEN ABRASIVES Sanding Accessories

Multi-Air Foam Interface Pads

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





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

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



SIZE (D)	DESCRIPTION		STD. PKG.	PART #
Multi-Air Hook	& Loop Back-up Pads with Vac	uum Hol	es	
5" (125mm) with 5/16"-24 Shank	Medium-Density Urethane Pad	15,000	5	666233 76000
6" (150mm) with 5/16"-24 Shank	Medium-Density Urethane Pad	15,000	5	636425 06160

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

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



CIZE (D)	DECODIDATION	MAX.	STD. PKG.	DADT #
SIZE (D)	DESCRIPTION	RPM	PKG.	PART #
Low Profile	Pads for DA/Random Orbital Sand	lers		
3	Hook & Loop Soft Low-Profile	12,000	10	636425 06128
3-1/4	Hook & Loop Buffing Pad		5	662610 85302
5	PSA Soft Low-Profile	12,000	5	636425 06126
5	PSA Medium Low-Profile	15,000	5	636425 06131
5 x 5 holes	PSA Medium Low-Profile	15,000	5	636425 06132
5	Hook & Loop Soft Low-Profile	12,000	5	636425 06129
5	Hook & Loop Medium Low-Profile	15,000	5	636425 06135
5 x 5 holes	Hook & Loop Medium Low-Profile	15,000	5	636425 06136
6	PSA Soft Low-Profile	12,000	5	636425 06127
6	PSA Medium Low-Profile	15,000	5	636425 06133
6	Hook & Loop Soft Low-Profile	12,000	5	636425 06130
6	Hook & Loop Medium Low-Profile	15,000	5	636425 06137
6 x 6 holes	Hook & Loop Medium Low-Profile	15,000	5	636425 06138
8 x 8 holes, 5 screws	Hook & Loop Medium Low-Profile	1,500	5	636425 43712
8 x 8 holes, 6 screws	Hook & Loop Medium Low-Profile	1,500	5	636425 43714

Packed in individual clamshell

Tapered Pads for Dual Action / Random Orbital Sanders

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



SIZE (D)	DESCRIPTION	MAX. RPM	STD. PKG.	PART #
	ds for DA/Random Orbital Sanders		I IVOI	TAIL #
5	PSA Medium Tapered	15,000	5	636425 06139
5 x 5 holes	PSA Medium Tapered	15,000	5	636425 06140
5	Hook & Loop Medium Tapered	15,000	5	636425 06143
5 x 5 holes	Hook & Loop Medium Tapered	15,000	5	636425 06144
6	PSA Medium Tapered	15,000	5	636425 06141
6 x 6 holes	PSA Medium Tapered	15,000	5	636425 06142
6	Hook & Loop Medium Tapered	15,000	5	636425 06145
6 x 6 holes	Hook & Loop Medium Tapered	15,000	5	636425 06146
8	PSA Medium Tapered	6,000	5	636425 43112
8	Hook & Loop Medium Tapered	3,200	5	636425 43704
Doolsad in ins	dividual alamahall			

Packed in individual clamshell

Sanding Accessories

Hook & Loop Foam Interface Pads

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



STD. PKG.	PART #
10	636425 05457
5	636425 42089
2	636425 02161
2	636425 02162

Half Moon Hand Pad

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



SIZE (D)	DESCRIPTION	STD. PKG.	PART #
Half Moon Har	nd Pad		
5	Hook & Loop	10	636425 02768

Polishing Adapter Pad

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



SIZE	DESCRIPTION	MAX. RPM	STD. PKG.	PART #
Polishing	Adapter Pad			
5	Hook & Loop Adapter Pad	3,786	10	636425 03121
		-,		

Ergonomic Hand Sanders

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



SIZE (D)	DESCRIPTION	STD. PKG.	PART #
	Ergonomic Hand Sander		
5	Hook & Loop	5	636425 03147
6	Hook & Loop	5	636425 03726

Disc Hand Pads

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



SIZE (D x T)	DESCRIPTION	STD. PKG.	PART #
Disc Hand	Pads		
5 x 3/16	Soft Foam PSA	10	636425 03111
5 x 1	Soft Foam PSA	10	636425 02842
5 x 1	Soft Foam Hook & Loop	10	636425 03117

Panel and Adhesive Cleaner

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



SIZE/DESCRIPTION	STD. PKG.	PART #
Panel and Adhesive Cleaner		
Quart Can	12	076607 82780



Sanding Accessories

Liquid Ice Extra-Cut Compound

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



SIZE	DESCRIPTION	STD. PKG.	STD. CASE	PART #
Quart	Liquid Ice Extra-Cut Compound	1	4	636425 97116

Liquid Ice Clean-up / Detailer Spray

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



SIZE	DESCRIPTION	STD. PKG.	STD. CASE	PART #
32 oz.	Spray Bottle Clean-up Detailer	1	4	636425 42082

Liquid Ice Ultra-Fine Machine Glaze

- Use on its own for fine scratch removal or as Step 3 in place of Norton Liquid Ice Extra-Cut Compound to eliminate swirl marks and produce a high gloss finish
- · Ideal for dark-colored vehicles



SIZE	DESCRIPTION	STD. PKG.	STD. CASE	PART #
Quart	Liquid Ice Ultra-Fine	1	4	636425 06092
	Machine Glaze			

8" Hook & Loop Buffing/Polishing Waffle Pads

 These pads can be used with Norton Liquid Ice Extra-Cut Compound



SIZE (D)	DESCRIPTION	STD. PKG.	STD. CASE	PART #
8	Orange Waffle Foam pad - Step 1	1	6	636425 06379
8	Blue Waffle Foam Pad - Step 2	1	6	636425 06380
8	White Waffle Foam Pad - Step 3	1	6	636425 06381

8" and 9" Hook & Loop Buffing/Polishing Pads

 These pads can be used with Norton Liquid Ice Extra-Cut Compound following the step numbers



SIZE (D)	DESCRIPTION	STD. PKG.	STD. Case	PART #
8	Super Cut Wool Pad - Step 1	1	6	636425 42077
9	Blue Cutting Foam Pad - Step 2	1	6	636425 42078
9	White Finishing Foam Pad - Step 3	1	6	636425 42079

3" Hook & Loop Buffing/Polishing Pads

· For small spot repair



SIZE (D)	DESCRIPTION	SID. PKG.	CASE	PART #
3	Super Cut Wool Pad - Step 1	10	40	636425 43832
3	Blue Cutting Foam Pad - Step 2	10	40	636425 05459
3	White Finishing Foam Pad - Step 3	10	40	636425 05460

Hook & Loop Back-up Pads for 8" and 9" Buffing Pads

 Black plastic back-up plate with hook and loop face. Molded-in 5/8"-11 threaded female hub



SIZE (D)	DESCRIPTION	STD. PKG.	STD. CASE	PART #
8 and 9	Hook & Look Back-up Pad	1	3	636425 42080

Black Lambswool Hook & Loop Polishing Pads

 Distributing and applying material evenly and consistently, these dense, durable, lambswool pads are designed to repair clearcoat finishes



SIZE	DESCRIPTION	STD. CASE	PART #
3	Pad with Loop – 3/4" nap	40	636425 03670
4	Pad with Loop – 3/4" nap	250	636425 03671

Non-Woven Convolute Wheels



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. Non-woven wheels have an open mesh construction that is waterproof, washable, conformable and non-loading.

Non-Woven Convolute wheels are formed by wrapping and bonding web material impregnated with abrasive grain and resin around a center core.

Applications:

Abrasive Grain:

Machine Used:

Grit Range:

- · Burr and flashing removal
- Surface roughness reduction
- · Blending weld areas on stainless steel
- · Blending scratch patterns
- Weld polishing
- Removing rust and oxides
- · Applying decorative finishes including antique patterns

Aluminum Oxide, Silicon Carbide Medium (M), Fine (F), Very Fine (VF)





BENCH

PEDESTAL GRINDER

Application/Grit Recommendation Guide

NORTON	Rapid Finish GP Convolute Wheels	Metal Finishing Convolute Wheels	Clean & Finish Convolute Wheels	Light Finishing Convolute Wheels
Scale Removal				
Stock Removal	Second Choice			
Heavy Deburring	Second Choice			
Decorative Finishing		Best Choice	Second Choice	
Blending	Best Choice	Second Choice		
Cleaning		Second Choice	Best Choice	
Light Deburring	Second Choice			Best Choice
Light Finishing	Second Choice			Best Choice
Polishing				Best Choice
Buffing				

Surface Finish Variables

Changes in any one of many factors can affect the surface finish on the workpiece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.

Variable Factor	Rough Finish High RMS Reading	Smooth Surface Lower RMS Reading
1. Wheel Speed	Slow <	► Fast
2. Feed Speed	Faster (Long Scratch)	Slower (Short Scratch)
3. Oscillation	No Oscillation	→ Oscillation
4. Lubricants	Dry	➤ Soluble Oil ← Straight Oil
		Compounds →

Non-Woven Marking System

ABRASIVE	SILICON CARBIDE			ALUMINUM OXIDE
	SHARPER, FINER/BRI	GHTER SCRATCH PATTERN	MORE DURABLE, LONGER I	LASTING, POLISHED FINISH
GRIT SIZE	XC (50)	C (60-80)	M (100-150)	F (180-220)
	FASTER, AGGRESSIVI	E CUT, ROUGHER FINISH	REDUCE	ED CUT RATE, FINER FINISH
DENSITY	2			9
	SOFT, OPEN, CONFOR	RMABLE, LESS BURNING/LOADING	HARDER, MORE DURABLE, FASTEI	R CUTTING, BETTER FINISH

Cross Reference Guide

	BEST	BETTER	BETTER	GOOD	GOOD	GOOD
NORTON	Rapid Finish P	Series 1000	Metal Finishing	Series 4000	Light Finishing	Clean & Finish
3M	3M EXL, General Purpose	EXL Deburring	Metal Finishing	EX2 & EX3	Light Deburring	Multi Finishing
Standard	General Purpose Plus, Light Deburring	Deburring Convolute	Metal Finishing	GP Plus	LDW	Multi Finishing

Non-Woven Convolute Wheels

Aggressive Deburring



Good choice for heavy deburring applications

SERIES 4000 ALUMINUM OXIDE & SILICON CARBIDE

- High-quality synthetic web provides long life for heavy deburring, edge-breaking, and parting line removal on exotic metals
- · Advanced resin bond system ensures free cutting action
- · Use both wet and dry

				TIL	ER: GOOD	
				TRADENAN	ME: SERIES 4000	_
SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	8 DENSITY PART #	9 DENSITY PART #
6 x 1/2 x 1	S/C	F	6,000	4		662610 04021
6 x 1 x 1	A/0	М	6,000	3	662610 04208	
	S/C	F	6,000	3	662610 04142	662610 04141
8 x 1 x 3	A/0	M	4,500	3	662610 04165	
	S/C	F	4,500	3	662610 04123	662610 04135
12 x 1 x 5	S/C	F	3,000	2	662610 04284	662610 04148
12 x 2 x 5	S/C	F	3,000	1		662610 04011

General Duty



Best choice for broad range of applications: general deburring, blending, and finishing on all materials including metals, wood, glass

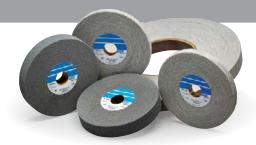
RAPID FINISH GENERAL PURPOSE A/O & S/C

- Eliminate smearing and loading on a wide range of workpieces (from high-nickel-content alloys to aluminum and other soft metals with patent-pending Norton Clean Bond resin technology
- Increase throughput with a 30% faster finish through new Norton grain/bond configuration, decrease wheel changes with a 10-30% longer life, provided by a new fiber and the high-temperature resin bond
- Ease wheel selection with color-coding wheel to match the primary use (maroon for General Purpose), and fiberglass core to match the abrasive (black for silicon carbide and white for aluminum oxide)

					TIER:	BEST			
					TRADENAME:	RAPID FINISH GEN	ERAL PURPOSE		
SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	PRODUCT CODE	6 DENSITY PART #	7 DENSITY PART #	8 DENSITY PART #	9 DENSITY PART #
6 x 1/2 x 1	A/0	M	6,000	4	C2315		662611 34177	662611 34178	662611 34179
	S/C	M	6,000	4	C4315				662611 08076
	S/C	F	6,000	4	C4415		662611 33213	662611 06732	662611 12985
6 x 1 x 1	A/0	M	6,000	3	C2315	662611 34180	662611 34181	662611 34182	662611 34183
	A/0	F	6,000	3	C2408	662611 32100	662611 32322	662611 32324	
	S/C	M	6,000	3	C4315		662611 08074	662611 33215	662611 08075
	S/C	F	6,000	3	C4415	662611 14475	662611 19988	636425 77269	636425 81587
	S/C	VF	6,000	3	C4515	662611 31970			
6 x 2 x 1	A/0	M	6,000	2	C2315		662611 34184		
	S/C	M	6,000	2	C4315		662611 14471		
	S/C	F	6,000	2	C4415		662611 32325		
8 x 1 x 3	S/C	M	4,500	3	C4315		662611 08066	662611 08069	
	S/C	F	4,500	3	C4415	662611 08064	662611 08065	636425 53754	636425 76004
	S/C	VF	4,500	3	C4515				662611 33209
8 x 2 x 3	S/C	M	4,500	2	C4315		662611 14473		
	S/C	F	4,500	2	C4415		662611 14480	662611 14483	662611 14486
	S/C	VF	4,500	2	C4515				662611 33210
10 x 1 x 5	A/0	M	3,600	3	C2315		662611 34185		
	S/C	F	3,600	3	C4415			662611 06554	662611 14488
10 x 2 x 5	S/C	F	3,600	1	C4415			636425 81044	662611 14489
12 x 1 x 5	A/0	М	3,000	2	C2315				662611 34186
	S/C	F	3,000	2	C4415	662611 08053	662611 14481	662611 14484	662611 14074
	S/C	VF	3,000	2	C4515				662611 34187
12 x 2 x 5	S/C	F	3,000	1	C4415		662611 14482	662611 12766	662611 14490

Non-Woven Convolute Wheels

General Duty continued



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

				TIER	BETTER		
				TRADENAME	SERIES 1000 LONG LIFE	E	
SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	7 DENSITY PART #	8 DENSITY PART #	9 DENSITY PART #
6 x 1/2 x 1	A/0	M	6,000	4	662610 18857		662610 18650
	S/C	M	6,000	4			662610 19540
	S/C	F	6,000	4	662610 18628		662610 18629
6 x 1 x 1	A/0	M	6,000	3	699573 97884	662610 18636	662610 19337
	S/C	M	6,000	3	699573 97882	699573 97883	662610 18630
	S/C	F	6,000	3	662610 18631	662610 18774	662610 18632
8 x 1 x 3	A/0	M	4,500	3	699573 97885	662610 18855	662610 18633
	S/C	M	4,500	3	699573 94610	662610 18673	662610 18997
	S/C	F	4,500	3	662610 18639	662610 18640	662610 18641
12 x 1 x 5	A/0	M	3,000	2	699573 97887		662610 18896
	S/C	M	3,000	2		662610 18786	662610 18908
	S/C	F	3,000	2			662610 18626

Aesthetic Finishing



Better choice for decorative finishing, blending, and final finishing

METAL FINISHING ALUMINUM OXIDE

- Premium, medium grit aluminum oxide grain generates uniform distinct satin and antique finishes
- Dense, very durable web allows these wheels to be used for blending applications; strong resin binder provides resiliency and long life
- Uniform grain dispersion and coating clean and condition without gouging or changing dimensions of workpiece

					TIER:	BETTER
				Ti	RADENAME:	METAL FINISHING
					STD.	
SIZE (D x T x H)	ABRASIVE	GRIT	DENSITY	MAX. RPM	PKG.	PART #
6 x 1 x 1	A/0	M	5	6,000	3	662610 07936
	A/0	M	6	6,000	3	662610 10148
6 x 2 x 1	A/0	M	5	6,000	2	662610 07957
	A/0	M	6	6,000	2	662610 09635
8 x 1 x 3	A/0	M	5	4,500	3	662610 07831
8 x 2 x 3	A/0	M	5	4,500	2	662610 07904
	A/0	M	6	4,500	2	662610 12971
12 x 1 x 5	A/0	M	5	3,000	2	662610 07434
	A/0	M	6	3,000	2	662610 09481
12 x 2 x 5	A/0	M	5	3,000	1	662610 07212
14 x 2 x 8	A/0	M	5	2,550	1	662610 07817



Non-Woven Convolute Wheels

Aesthetic Finishing continued



Good choice for light deburring, polishing, and fine finishing applications

LIGHT FINISHING SILICON CARBIDE

- Advanced manufacturing process produces a consistent web and grain distribution for a consistent finish on intricate polishing applications
- Superior form holding for consistent, reliable edge breaking and finishing with minimal wheel dressing and reshaping; less dust and shedding with more uniform wear
- · Controlled cut rate prevents "over benching", deburrs and polishes without altering geometry

			T	TER: GOOD		
			TRADENA	ME: LIGHT FINISHING		
SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	6 DENSITY PART #	7 DENSITY PART #	8 DENSITY PART #
6 x 1/2 x 1	S/C	F	6,000	662610 92322	662610 92324	662544 21572
6 x 1 x 1	S/C	F	6,000	662544 03708	662544 03709	662544 21573
8 x 1/2 x 3	S/C	F	4,500	662544 03707	662544 09698	662544 21575
8 x 1 x 3	S/C	F	4,500	662610 95702	662544 09924	662544 21577

All Light Finishing convolute wheels are non-stock. Ask your Norton representative for current lead-times and order quantities.



Good choice for fine finishing with light pressure

CLEAN & FINISH SILICON CARBIDE

- Sharp, more aggressive silicon carbide abrasive leaves a fine/brighter scratch pattern
- · Conformable to intricate shapes and contours without changing the workpiece dimension
- Open web construction makes these ideal for low-to moderate-pressure, low speed applications

					TIER:	GOOD
				TI	RADENAME:	CLEAN & FINISH
					STD.	
SIZE (D x T x H)	ABRASIVE	GRIT	DENSITY	MAX. RPM	PKG.	PART #
4 x 1 x 1	S/C	M	4	4,000	10	662610 58502
		F	4	4,000	10	662610 58501
6 x 1 x 1	S/C	M	4	3,000	4	662610 58507
		F	4	3,000	4	662610 58506
6 x 2 x 1	S/C	M	4	3,000	2	662610 58510
		F	4	3,000	2	662610 58509
6 x 3 x 1	S/C	M	4	3,000	1	662610 58512
6 x 4 x 1	S/C	M	4	3,000	1	662610 58514
8 x 1 x 3	S/C	M	4	2,500	3	662610 58518
8 x 2 x 3	S/C	М	4	2,500	2	662610 58521
8 x 3 x 3	S/C	М	4	2,500	1	662610 58524
8 x 4 x 3	S/C	М	4	2,500	1	662610 58526



Non-Woven Convolute Wheels

Aluminum Reducing Bushings for Flap and Convolute Wheels



- Durable, aluminum one-piece-design flanges with integrated contact washer
- · Snug fit; extended usable life
- Available in stock and non-stock sizes in many combinations of ID hole reduction

WHEEL CENTER HOLE	BUSHING REDUCES HOLE SIZE TO	FOR WHEEL DIAMETER	STD. PKG.	PART #
1	3/8	4 - 6	1 Pair	662610 80522
	1/2	4 - 6	1 Pair	662610 80523
	5/8	4 - 6	1 Pair	662610 80524
	3/4	4 - 6	1 Pair	662610 80525
	7/8	4 - 6	1 Pair	662610 80526
2	1/2	6	1 Pair	662610 80527
	5/8	6	1 Pair	662610 80528
	1	6	1 Pair	662610 80529
3	1	8	1 Pair	662610 80531
	1-1/4	8	1 Pair	662610 80532
5	1	10 and 12	1 Pair	662610 80533
	1-1/4	10 and 12	1 Pair	662610 80534
	3	10 and 12	1 Pair	662610 80535
8	1-1/4	14	1 Pair	662610 80536

- 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.



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



Portable file belt sanders have replaced tedious hand filing and sanding. First introduced in pneumatic, they are now also available in electric. Increasingly, tool manufacturers are introducing additional fixtures for additional applications. The belts listed are popular stock sizes, but additional sizes, specifications, backing materials, and edge scallops are available made-to-order.

Applications:

Light weld removal and blending, shape and contour sanding, surface preparation prior to coating and plating, removing cutting tool marks from molds and dies, general clean-up

Size Range: 1/8" to

Grit Range: Abrasive Grain: Machine Used: 1/8" to 1" wide, 12" to 30" long

40 - 120

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide



BELT SANDER

Cross Reference Guide

	BEST	BEST	BETTER	GOOD	GOOD
NORTON	Blaze R980P	RedHeat R983	BlueFire R887D/R823P	Gemini R766	Gemini R283
3M	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	747D, 777F, 778F, 784F, 987F, 977F	577F, 551E	361F, 363F	241E, 244E, 251E, 261E
Hermes	CR456	_	RB48624YX, RB48644Z	RB377XY, SB378	RB530J, RB304J, RB306J
Klingspor	CS610	CS912	CS411X, CS416, CS409	CS412, CS413	CS412
SIA	2515, 2503	_	2800,2803, 2815, 2829, 2824	_	_
VSM	XK875X, XK885Y, XK880Y	XK870X, XK870X	ZK713X, ZK713T, KK715X	LK719X, KK711X	KK711E
Sait	_	_	AZ-X	1AX, 2AX	LA-X
Sunmight	_	_	_	P656W	_

Material-to-Product Recommendation Guide

	BEST	BEST	BETTER	BETTER		
	Blaze R980P	RedHeat R983	BlueFire R887D	BlueFire R823P	Gemini R766	Gemini R283
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



REDHEAT R983 CERAMIC ALUMINA

- Premium ceramic abrasive provides sharp cutting, exceptional life and value, especially on hard-to-grind alloys
- "Supersize" grinding-aid for longer life, cooler cut and minimized loading
- Strong Y-weight polyester, waterproof cloth backing for improved grain adhesion, reduced edge-fray and better body retention, resulting in longer life and product consistency





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



Good choice for difficult-to-grind materials (aluminum, brass, bronze, stainless, carbon steel, titanium, etc.)

GEMINI R766 ALUMINUM OXIDE

- Premium aluminum oxide abrasive blend is ideal when primary purchasing criteria is a good-performing, economically-priced, general-purpose belt
- Y-weight waterproof polyester backing withstands light- to moderately-demanding applications and provides extended life on dry grinding applications
- Resin bond system provides improved edge retention and 30% plus improvement in life versus key competitors



Good choice for stainless and carbon steel applications when initial price is the primary purchasing factor

GEMINI R283 ALUMINUM OXIDE

- P-graded premium aluminum oxide abrasive for consistent, cool cut
- Strong, semi-flexible, smooth X-weight rayon waterproof backing is designed for light- to moderate- pressure applications
- · Durable resin coating provides excellent grain retention and product life



BLUEFIRE R887D/R823P GEMINI R766

		ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide Blend	Aluminum Oxide
		BACKING:	Y-Weight Polyester	Y-Weight Polyester	Y- or X-Weight Polyester	Y-Weight Polyester	X-Weight Rayon
		OTHER:	Supersize	Supersize			
SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
12" Belts							
1/8 x 12	40	50				666233 90000	
	60	50	662544 05345	662544 91522	662610 93029		
	80	50		662544 91523			
	120	50	662544 91519	662544 91524			
1/4 x 12	40	50	662544 91520			666233 90003	662544 91539
	60	50	662611 96480		780727 58896		
	80	50		662544 91526	780727 82621	666233 90005	780727 66143
	120	50	662610 63632	662544 91527	780727 82622		780727 63175
1/2 x 12	40	50	699573 98018	662544 91528	662544 92522	666233 90006	780727 27557
	50	50	662610 43759	780727 18700		666233 90007	662544 91540
	60	50	699573 98019	780727 18701	780727 28745	666233 90008	780727 27555
	60	25 V			666233 73753		
	80	50	699573 98020	780727 18702	780727 28744	666233 90009	780727 27554
	80	25 V			666233 73754		
	100	50	662610 81180	662544 91529	662544 91534		780727 27553
	120	50	662610 42909	780727 00518	780727 28742		780727 27552
	120	25 V			666233 73755		
1 x 12	60	50	662610 63641		780727 53073		780727 73813

Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Contact your Norton representative for availability, order quantities and lead-times. 40 and 50 grit BlueFire belts are furnished in BlueFire R887D (Y-weight Polyester); 60-120 grits are supplied in BlueFire R823P (X-weight Polyester).

REDHEAT R983

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

TRADENAME: BLAZE R980P

GEMINI R283

V = Vendible package. Ideal for vending machines and small jobs. 5 belts per pack / 5 packs per carton. Order in multiples of 25. continued















			BEST	BEST	BETTER	GOOD	GOOD
		TRADENAME:	BLAZE R980P	REDHEAT R983	BLUEFIRE R887D/R823P	GEMINI R766	GEMINI R283
		ABRASIVE: BACKING: OTHER:	Y-Weight Polyester Supersize	Ceramic Alumina Y-Weight Polyester Supersize	Zirconia Alumina Y- or X-Weight Polyester	Aluminum Oxide Blend Y-Weight Polyester	Aluminum Oxide X-Weight Rayon
SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
13" Belts	unii	SID. FRU.	FANI #	FANI#	rani #	FANI#	FANI#
3/8 x 13	60	50	699573 45359	780727 45459	780727 40295	666233 90011	780727 32112
3/0 X 13	80	50	699573 92150	780727 4916	780727 40293	666233 90012	780727 71323
18" Belts	00	30	099373 32130	10012114310	10012130002	00023390012	100121 11323
1/8 x 18	40	50	662544 75211				
1/0 X 10	60	50	662610 80010		662544 91535	666233 90014	
	80	50	662610 89120	780727 89083	780727 60595	666233 90015	
	120	50	662544 75215	780727 89084	636425 95221	00023390013	
1/4 x 18	40	50	662610 27923	662611 98953	662544 92525	666233 90016	662544 91543
1/4 X 10	60	50	699573 47249	780727 74684	780727 43583	666233 90017	780727 71000
	60	25 V	09937347243	10012114004	666233 73747	00023390017	10012111000
	80	50	699573 46155	780727 03284	780727 53075		780727 73921
	80	25 V	09907340100	100121 03204	666233 73748		10012113321
	120	50	662610 85071	780727 85655	780727 73764		
1/2 x 18	40	50	699573 98021	780727 66018	662544 44193	666233 90019	780727 27561
1/L A 1U	60	50	699573 98021	780727 18704	780727 28569	666233 90020	780727 27560
	60	25 V	00301030044	10012110104	666233 73756	00020030020	10012121300
	80	50	699573 98023	780727 18705	780727 28568	666233 90021	780727 27559
	80	25 V	0.0001 0.00020	10012110103	666233 73757	OOUZOO JUUZ I	100121 21333
	120	50	662610 41384	780727 18706	780727 28567		780727 27558
	120	25 V	00201041304	10012110100	666233 73758		10012121330
3/4 x 18	40	50	699573 98027	780727 62476	662544 92526	666233 90022	780727 81797
3/4 X 10	60	50	699573 98028	780727 45691	780727 09590	666233 90023	780727 39966
	60	25 V	03301030020	10012143031	666233 73762	00023330023	10012133300
	80	50	699573 98029	780727 56309	780727 58953	666233 90024	780727 32289
	80	25 V	09901090029	10012130303	666233 73763	00023330024	10012132203
	120	25 V			666233 73764		
20-1/2" Belts		20 V			00023373704		
3/4 x 20-1/2	40	50	699573 98030	780727 14398	662544 57869	666233 90025	780727 27573
3/4 X 2U-1/2	50	50	699573 44982	780727 14396	662544 92527	666233 90026	662544 91544
	60	50	699573 98031	780727 18715	780727 28560	666233 90027	780727 27571
	60	25 V	03301030031	10012110113	666233 73765	00023330021	10012121311
	80	50	699573 98032	780727 18716	780727 28559	666233 90028	780727 27570
	80	25 V	09937330032	10012110110	666233 73766	00023390020	10012121310
	100	50	662610 55516	780727 71151	662610 38911		780727 27569
	120	50	662610 44755	780727 771131	780727 28557		780727 27575
24" Belts	120	JU	00201044/33	10012121300	100121 20331		10012121313
24 DEILS 1/4 x 24	40	50	662611 98631	780727 47823	662544 73499		662544 01929
1/7 X 24	60	50	699573 45451	780727 47823	780727 28552	666233 90030	780727 27548
	60	25 V	033010 43431	10012130334	666233 73750	00020030030	10012121340
	80	50 V	636425 96940	780727 18340	780727 67713		
	120	50	662610 80367	780727 18340	780727 28550		
1/2 x 24	40	50	699573 98024	780727 60092	662544 92528	666233 90032	780727 27568
1/L X L4	50	50	662610 43757	780727 60092	662544 52237	666233 46910	780727 27567
	60	50	699573 98025	780727 18708	780727 28564	666233 90033	780727 27566
	60	25 V	033010 30023	10012110100	666233 73759	000200 30003	10012121300
	80	50 V	699573 98026	780727 18709	780727 28566	666233 90034	780727 27565
	80	25 V	033013 30020	10012110103	666233 73760	000233 30034	10012121303
		50 V	662610 42203	78070745024	780727 53076		66254401545
	100	50		780727 45021			662544 91545
	40	50	662610 42565	780727 18710	780727 28565		780727 27564
L v 2/I			699573 50019	662544 91531			CC0E1104E47
1 x 24	50	50	699573 44889	780727 10374			662544 91547
1 x 24	60	50	699573 53375	700707 70000	700707 76400	CCCCCCA	CCOC100E0C0
1 x 24	60		699573 45419	780727 72209	780727 76498	666233 34206	662610 85068
1 x 24	80	50		CCOF 4404 FOO			
		50 50	662610 85067	662544 91532	780727 30029		662610 85069
30" Belts	80 120	50	662610 85067	662544 91532		000000000000000000000000000000000000000	
30" Belts	80 120 40	50 50	662610 85067 662610 53470	662544 91532	662544 78257	666233 90038	662611 89958
1 x 24 30" Belts 1 x 30	80 120	50	662610 85067	662544 91532 780727 64439		666233 90038 666233 90039 666233 90040	

Additional sizes, grits and scalloped edge belts are available MTO (made-to-order). Contact your Norton representative for availability, order quantities and lead-times. 40 and 50 grit BlueFire belts are furnished in BlueFire R887D (Y-weight Polyester); 60-120 grits are supplied in BlueFire R823P (X-weight Polyester).

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

V = Vendible package. Ideal for vending machines and small jobs. 5 belts per pack / 5 packs per carton. Order in multiples of 25.

Portable Belts



Portable belts are ideal for all your metal and woodworking applications. Choose 36 - 50 grits for rough/heavy-duty applications, 60 - 100 for intermediate, and 100 - 220 for finishing/polishing applications.

The belts listed are popular stock sizes, but additional sizes, specifications, and backing materials, are available made-to-order.

Applications: Size Range:

Grit Range:

Abrasive Grain:

Machine used:

Grinding and finishing all metals, blending welds, sanding and finishing wood, glass

seaming, and polishing

3" to 4" wide, 15-1/2" to 24" long

36 - 220

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide



BELT SANDER IN-LINE DRUM SANDER

Cross Reference Guide

	BEST	BETTER	GOOD
NORTON	RedHeat R983	BlueFire R831	Gemini R215/ Metalite R255
3M	747D, 777F, 778F, 784F, 987F, 977F	577F	240DZ, 340A, 340D
Hermes	_	RB480	RB320
Klingspor	CS912	CS411	LS309XH
Sait	_	Z-H	1A-X, 2A-X, AO-X, LA-X
SIA	_	2800, 2829, 2925	2920, 2928, 2921, 2951, 2925
VSM	XK870X, XK870X	ZK713X	KK504X, KP510E

Material-to-Product Recommendation Guide

	BEST	BETTER	GOOD	
	RedHeat R983	Bluefire R831	Gemini R215	Metalite R255
Wood		•	•	•
Carbon Steel / Stainless Steel	•	*		
Brass / Bronze / Aluminum		•	•	•



Exceptional performance, especially on hard-to-grind alloys

REDHEAT R983 CERAMIC ALUMINA

- Premium ceramic abrasive provides sharp cutting, exceptional life and value, especially on hard-to-grind alloys
- "Supersize" grinding-aid for longer life, cooler cut and minimized loading
- Strong Y-weight polyester, waterproof cloth backing for improved grain adhesion, reduced edge-fray and better body retention, resulting in longer life and product consistency



Better choice for stainless steel and wood

BLUEFIRE R831 ZIRCONIA ALUMINA

- Premium, self-sharpening zirconia alumina abrasive provides superior cut on all surfaces, lasts substantially longer, and cuts faster than the next leading competitor in side-by-side comparisons
- Proprietary patented grain technology produces one of the finest scratch patterns in the industry for finer looking finish; open-coat design and strong Y-weight cotton backing for reduced loading and extended life
- Reversible butt splice allows belt to be used in either direction for longer life



Portable Belts



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

GEMINI R215 / 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

Portable Belts for Belt Sanders



GOOD
METALITE R255
Aluminum Oxide
X-Weight Cotton
Plyweld
Open Coat
UPC Bar Coded

		OTHL	ER:			UPC Bar Coded
SIZE (W x L)	GRIT	PKG./CASE	PART #	PART #	STD. PKG.	PART #
3 x 18	36				5	780727 80447
	50	5/25*	076607 49259	076607 00964	10	780727 27994
	80	5/25*	076607 49258	076607 00968	10	780727 27993
	120	5/25*	076607 49256	076607 00969	10	780727 27992
3 x 21	36	5/25*	076607 49266	076607 01741		
	40				10	780727 27927
	50	5/25*	076607 49265	076607 01740	10	780727 27926
	60				10	780727 27925
	80	5/25*	076607 49264	076607 02064	10	780727 27924
	100	5/25*	076607 49263		10	780727 27923
	120	5/25*	076607 49262	076607 02062	10	780727 27922
	220	5/25*		076607 05287		
3 x 24	36	5/25*	076607 49272	076607 01743	5	780727 81847
	40				10	780727 27937
	50	5/25*	076607 49271	076607 01742	10	780727 27936
	60				10	780727 27935
	80	5/25*		076607 02067	10	780727 27934
	100	5/25*	076607 49269	076607 02066	10	780727 27933
	120	5/25*	076607 49268	076607 02065	10	780727 27932
4 x 24	36	5/25*	076607 49278	076607 01745	5	780727 80438
	40				10	780727 27947
	50	5/25*	076607 49277	076607 01744	10	780727 27946
	60				10	780727 27945
	80	5/25*	076607 49276	076607 02069	10	780727 27944
	100	5/25*			10	780727 27943
	120	5/25*	076607 49274	076607 02068	10	780727 27942
	180	5/25*		076607 05285		

^{*}Job Pack packing standards: 5 belts/Job Pack; 5 Job Packs per case. Order by number of packs, in multiples of 5 packs.

Portable Belts for Pneumatic In-Line Drum Sanders





Narrow Belts



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:

Size Range: Grit Range:

Abrasive Grain:

Machine Used:

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.

1" to 10" wide, 36" to 132" long

24 - 320

Ceramic Alumina, Zirconia Alumina, Aluminum Oxide





BACKSTAND BELT GRINDER

BENCHSTAND GRINDER

Cross Reference Guide

	BEST	BEST	BETTER	BETTER	BETTER	GOOD	GOOD
NORTON	Blaze R980P	RedHeat R983	BlueFire R821P	BlueFire R823P	BlueFire R884P	Gemini R766	Gemini R228
3M	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	747D, 777F, 778F, 784F, 987F, 977F	_	551E	561D	361F, 363F	241D, 251D, 341D
Hermes	CR454, CR456	CN464	_	RB486 X, RB346, RB486	RB48024YX, RB48444Z, RB485Z	RB377XY, SB378, RB34MJ	RB320X, HSB
Klingspor	CS610	CS912	CS411X	CS411X, CS416	CS411	CS412, CS413	CS310
SIA	2515, 2503	_	_	_	2820	_	2918, 2928
VSM	XK875X, XK885Y, XK880Y	XK870X, XK870X	_	ZK713X, KK715X	KK716, ZK713T	LK719X, KK711X	KK511X, KK711

Material-to-Product Recommendation Guide

	BEST	BETTER			GOOD	
	Blaze R980P	BlueFire R884P	BlueFire R823P	BlueFire 821P	Gemini R766	Gemini R228
Aluminum		•	♦		*	
Cast Iron	*		*		*	
Brass / Bronze		•	*		*	
Die Castings	*		*		*	
Carbon Steel	*		*		*	*
Glass / Ceramics	•			*	*	
Stainless Steel and Alloys	•	*	*		*	
Wood		*			*	

Grit Selection Recommendation Guide

STOCK REMOVAL	INTERMEDIATE	FINISHING
24 – 50 grit	60 – 100 grit	120 – 320 grit

TECH TIP

Troubleshooting Guide

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

Problem	Correction
Belt breakage	Reduce belt tension
	Use less aggressive contact wheel
	Check tracking mechanism for belts tracking erratically

Narrow Belts



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

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



Exceptional performance, especially on hard-to-grind alloys

REDHEAT R983 CERAMIC ALUMINA

- Premium ceramic abrasive provides sharp cutting, exceptional life and value, especially on hard-to-grind alloys
- "Supersize" grinding-aid for longer life, cooler cut and minimized loading
- Strong Y-weight polyester, waterproof cloth backing for improved grain adhesion, reduced edge-fray and better body retention, resulting in longer life and product consistency



Better choice for heaviest-pressure applications

BLUEFIRE R821P/R823P/R884P 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
- R821P Y-weight cotton backing provides durability and even wear on coarser grit stock removal applications;
- R823 has flexible X-weight polyester waterproof backing to excel on light- to moderate-pressure, applications
- R884P has a durable Y-weight polyester waterproof cloth backing that excels on medium- to high pressure applications



Good choice for difficult-to-grind materials (aluminum, brass, bronze, stainless, carbon steel, titanium, etc.)

GEMINI R766 ALUMINUM OXIDE

- Premium aluminum oxide abrasive blend is ideal when primary purchasing criteria is a good-performing, economically-priced, general-purpose belt
- Y-weight waterproof polyester backing withstands light- to moderately-demanding applications and provides extended life on dry grinding applications
- Resin bond system provides improved edge retention and 30% plus improvement in life versus key competitors



Good choice for fine grit metalworking blending and polishing where initial price is the main concern

GEMINI R228 ALUMINUM OXIDE

- · Premium aluminum oxide abrasive delivers 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



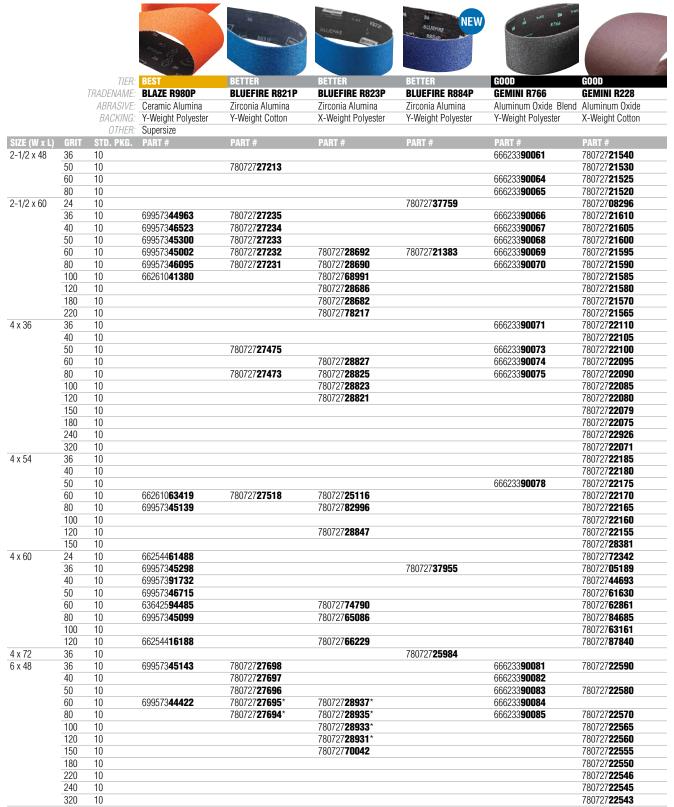
1" to 6" wide, 36" to 72" long

				25	SLUEHRE RAZZO	4 d 2745	run.
				89210			
			BEST	BETTER	BETTER	GOOD	GOOD
		TRADENAME:	BLAZE R980P	BLUEFIRE R821P	BLUEFIRE R823P	GEMINI R766	GEMINI R228
			Y-Weight Polyester	Zirconia Alumina Y-Weight Cotton	Zirconia Alumina X-Weight Polyester	Aluminum Oxide Blend Y-Weight Polyester	Aluminum Oxide X-Weight Cotton
SIZE (W x L)	GRIT	OTHER:	Supersize PART #	PART #	PART #	PART #	PART #
x 42	36	50	662544 76825	I AIII #	I AIII #	I AIII #	780727 91710
1 / 7/2	40	50	699573 45887	780727 26905			780727 20910
	50	50	662544 76826	780727 26904		666233 90042	780727 20905
	60	50	699573 45486	780727 26903	780727 28596	666233 34502	780727 20900
	80	50	662610 41539	780727 26902	780727 28594	666233 90043	780727 20895
	100	50	662610 43462		780727 28592		780727 20890
	120	50	662610 38660		780727 28590		780727 20885
	150	50			780727 28588		780727 20880
	180	50			780727 28586		780727 20875
	220	50			780727 00001		780727 20871
	240	50					780727 20870
-1/2 x 60	320 36	50 10	699573 45578				780727 20865 780727 21060
- 1/2 X OU	40	10	636425 95003				100121 21000
	50	10	000420 33003				780727 87807
	60	10	699573 45631			666233 90045	10012101001
	80	10	699573 45579			666233 90046	
	100	10	00001010010		780727 65077	000200000	699573 51736
	120	10	662610 56493		780727 26984		
	220	10			780727 08871		
x 48	24	10					780727 26130
	36	10	636425 92057	780727 27103		666233 90047	780727 21255
	40	10	699573 45193	780727 27102		666233 90048	780727 21250
	50	10	699573 46716	780727 27101			780727 21245
	60	10	699573 44423	780727 27100	780727 28621	666233 90050	780727 21240
	80	10	699573 45100	780727 27099	780727 28619	666233 90051	780727 21235
	100	10	662610 52522		780727 28617		780727 21230
	120	10	662610 52520		780727 28615		780727 21225
	150 180	10			780727 28613		780727 23246
	220	10			780727 28611 780727 28609		780727 21223 780727 63677
	320	10			100121 20003		780727 46387
x 60	24	10					662610 54787
X 00	36	10	699573 45196			666233 90052	780727 01170
	40	10	699573 94425	780727 27124		0002000000	780727 21300
	50	10	699573 46149				780727 62537
	60	10	699573 44901	780727 27122		666233 90055	780727 21290
	80	10	636425 92574	780727 27121		666233 90056	780727 21285
	100	10	662610 52222		662610 82976		780727 21280
	120	10	662610 42738		780727 61958		
	150	10					780727 44018
	180	10			780727 02695		780727 20441
	220	10			780727 06282		780727 44020
	240	10					780727 61862
70	320	10	000004400000				780727 02825
x 72	36	10 10	662544 33969 699573 45460	780727 27147		666233 90057	780727 21335
	40	10	699573 46729	780727 27147		666233 90058	780727 21332
	50	10	699573 44966	780727 27145		000203 30030	780727 21332
	60	10	699573 45157	780727 27143	780727 28645	666233 90060	780727 21325
	80	10	699573 44961	780727 27142	780727 28643	666233 34237	780727 21320
	100	10	662610 41897		662610 25537		780727 23235
	120	10	662610 44095		780727 28639		780727 21318
	150	10			780727 61770		780727 61973
	180	10			780727 63853		780727 18488
	220	10			780727 28633		780727 65601
	320	10					780727 21308

^{*} Std. Pkg. = 20 Belts Continued



1" to 6" wide, 36" to 72" long continued



^{*} Std. Pkg. = 20 Belts Continued



Narrow Belts

1" to 6" wide, 36" to 72" long continued



Belt Cleaning Stick



- This solid, rubber cleaning stick is designed to remove wood and other non-metallic materials that build up on belt surface during use
- Apply it to the face of the belt, while running, to remove unwanted materials and prolong the overall life of the belt up to 10 times

DESCRIPTION	STD. PKG.	PART #
1-3/8 x 1-3/8 x 6	10	076607 01717

TFCH TIP

A light-bodied grease applied to a benchstand belt surface will reduce loading and greatly enhance the belt life and performance when grinding soft, malleable nonferrous materials such as aluminum, brass, bronze and copper.



For non-stock belts, FastTrack Service offers all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry's leading producer of abrasive material and backings, our FastTrack service offers an extensive range of Norton made-to-order belts including Blaze ceramic alumina, BlueFire zirconia alumina, and versatile aluminum oxide and silicon carbide belts.

Manufacturing Lead-times:

- Narrow belts: (1/2" 12" wide) two days
- Wide belts (14" 52" wide) three days

Size Availability:

- Maximum width: 52"
- $\bullet~$ 1/2" and greater widths; 25" and greater lengths

Please see the FastTrack Service Made-to-Order Belts section of this catalog for complete details.

GEMINI R228



2" to 10" wide, over 70" long



		BACKING:	Y-Weight Polyester	Y-Weight Polyester	Y-Weight Polyester	X-Weight Polyester	Y-Weight Polyester	X-Weight Cotton
		OTHER:	Supersize	Supersize				
SIZE (W x L)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
2 x 132	36	10		780727 53086	780727 50016		666233 47337	
	40	10			780727 50015		666233 90089	
	50	10		780727 40771	780727 50013		666233 90090	
	60	10			780727 50011		666233 90091	780727 21445
	80	10		780727 01958	780727 50008		666233 90092	780727 21440
	120	10				780727 28662		
3 x 79	50	10	662610 90276					
	60	10			780727 48280			
x 90	36	10	699573 46319					780727 85831
x 132	24	10			780727 50140			
	36	10	699573 44710	780727 53087	780727 50138 RR		666233 90093	780727 21900
	36	10			780727 50139 L			
	40	10	699573 44964	780727 01614				
	50	10	699573 44763	780727 03709	780727 50135			780727 21890
	60	10	699573 44958			780727 28794	666233 90096	780727 21885
	80	10	699573 44764			780727 28792	666233 90097	780727 21880
	100	10				780727 28790		
	120	10				780727 28789		780727 21870
	180	10				780727 28785		780727 21860
x 79	36	10		662610 22622				
	40	10			780727 74955			
x 100	36	10			780727 68679			
x 132	24	10			780727 50289			
	36	10	699573 43852	780727 39662	780727 50287		666233 26093	
	40	10					666233 90098	
	60	10			780727 50281			
	80	10			780727 50279			780727 22385
	120	10						780727 22375
x 78-3/4	40	10			780727 25150			
x 79	36	10			780727 38105			
	80	10			780727 79322			
x 107	36	10						780727 22795
	50	10						780727 49887
	60	10						780727 22780 *
	80	10						780727 22775 *
0 x 70-1/2	36	10						780727 22840
	40	10						780727 22835
	50	10						780727 22830
	60	10					666233 47345	780727 22825
	80	10					666233 47346	780727 22820
Std Pka =							666233 47346	780727 22820

^{*} Std. Pkg. = 20 Belts



Wide Belts



A small selection of stock products in popular sizes are available for wide belt woodworking and metalworking applications.

Applications: Metalworking

> Metalworking wide belts are used for plate dimensioning, slag grinding, machining, deburring, and other general metalworking applications. They are usually cloth and are closed coat.

Woodworking

Cloth woodworking wide belts are used for rough stock removal and dimensioning Paper woodworking belts are used to upgrade the finish on furniture and other

wood components.

Size Range: Stock: 25" - 52" wide, 48" to 103" long

Stock: 36 - 220 **Grit Range:** Abrasive Grain:

Zirconia Alumina, Aluminum Oxide

Metalworking Cloth Belt Recommendation Guide/Cross Reference

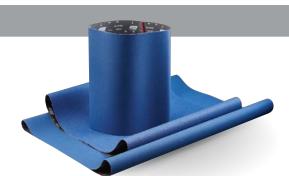
TOTAL PERFORMANCE

	TOTAL PERFORMANCE								
	BEST		BETTER			GOOD			
	H-wt. Polyester	•	H-wt. Polyester	•	X-wt. Polyester		X-wt. Polyester	X-wt. Cotton	
NORTON	Blaze R940P	Blaze R980P	BlueFire R840P	BlueFire R887D/R884P	BlueFire R823P	Gemini R766	Gemini R766X	Gemini R228	
3M	966F, 984F, 994F, 997F	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	561F	577F, 561D	551E	361F, 363F	353F, 384F	241D, 251D, 341D	
Ekamant/ Uneeda	_	PS991, PS992	PZ628	PZ528, PZ633	XZ677	PA631, PG730, PG830	XA911	XA167	
Hermes	CB441Z	CR456	SB488YR	RB48624YX, RB48644Z, RB48024YX, RB48444Z, RB485Z	RB486	RB377XY, SB378	RB377XY	RB320X, HSB	
Klingspor	_	CS610	CS811	CS409, CS411	CS411X, CS416	CS412, CS413	CS341, CS710	CS310	
SIA	_	2515, 2503	C888DP	2803, 2815, 2829, 2824, 2820	_	_	2820	2918, 2928	
VSM	XK888Z, XK877Z	XK875X, XK885Y, XK880Y	KK717	KK716	ZK713X, ZK713T, KK715X	LK719X, KK711X	LK719X, KK711X	KK511X	

Woodworking Cloth and Paper Belt Recommendation Guide/Cross Reference

TOTAL PERFORMANCE INITIAL PRICE

	BEST		BETTER	GOOD		
	Y-wt. Cotton	F-wt. Paper	Y-wt. Cotton	X-wt. Cotton	F-wt. Paper	F-wt. Paper
	Dust-Less	Dust-Less			Dust-Less	Dust-Less
NORTON	SG R963	SG 975	BlueFire R831	Gemini R215	H295	H275
3M	960G, 970DZ, 990FZ, 991FZ	966UZ	_	240DZ, 340A, 340D	260UZ	364UZ
Ekamant/ Jneeda	_	_	XZ677	RKX, RKXO	_	ARKFO, EKA1000, EKABlack
Hermes	_	CB115	RB480	RB320	BW114	BW110, BW114, CB115
(lingspor	_	_	C409, CS411	LS309XH	PS22	PS29
SIA	_	_	2803, 2820, 2829	2920, 2928, 2921, 2951	1919	1909,1918,1919 CRS,1993
/SM	XK760X, XK760Y	XP760	KK713X, KK715X	KK504X, KP510E	KK508E	KP709, KP520, KP508E, KP510E



Better choice for all metal and wood applications due to the cut rate and life of the proprietary Norton BlueFire grain

BLUEFIRE R884P/R823P ZIRCONIA ALUMINA CLOTH

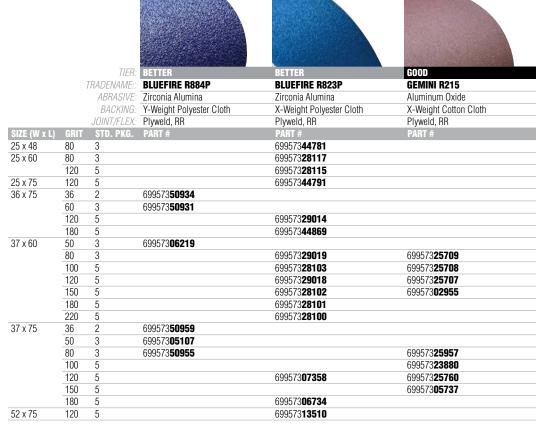
- Strong, self-sharpening zirconia alumina abrasive for fast, aggressive cut and 30% longer life than competitive zirconia belts
- · Durable resin bond for excellent grain retention and product life
- R884P has a durable Y-weight polyester waterproof cloth backing that excels on medium- to high pressure metal applications
- R823 has flexible X-weight polyester waterproof backing to excel on light- to moderate-pressure metal applications



Good choice for abrasive planing and dimensioning of glued-up stock and banded particleboard

GEMINI R215 ALUMINUM OXIDE CLOTH

- · 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



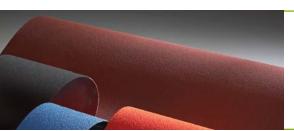
Due to the wide varieties of machines and applications, the majority of wide belts are non-stock. Our FastTrack belt service is available on the majority of products with 3-day lead-time on orders up to two cases quantity.

TECH TIP

6" wide belts can be used on machines that normally use 37" wide belts.



FastTrack Service Made-to-Order Belts



For many non-stock belts, our FastTrack belt service offers all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry leader of abrasive belts, our FastTrack belt service has an extensive range of Norton made-to-order belts including Blaze ceramic alumina, BlueFire zirconia alumina, versatile aluminum oxide, and silicon carbide belts.

Manufacturing lead-time is two days for narrow belts (1/2" - 12" wide) and three days for wide belts (14" - 52" wide). Please see the FastTrack belt service chart below for complete details on availability and lead-time.

FastTrack Availability and Lead-time information

WIDTH	GRIT SIZE	MINIMUM Order Quantity	CASE QUANTITY	MAXIMUM ORDER QUANTITY (EQUALS 2 CASES)	CONVERSION LEAD-TIMES
Narrow Belts					
1/2" through 1"	All	50	200	400	2
Over 1" through 5"	All	10	50	100	2
Over 5" through 9"	All	10	20	40	2
Over 9" through 14"	All	10	10	20	2
Wide Belts					
Over 14" through 20"	All	5	10	20	3
Over 20" through 52"	36 & coarser	2	2	4	3
Over 20" through 52"	40-80	3	3	6	3
Over 20" through 52"	100 & finer	5	5	10	3

How to Place a FastTrack Belt Order

- · Check the FastTrack belt availability
- Include a full description of belt: quantity, size, Norton CAP code, and grit size
- · Send order electronically, fax, or phone to customer service
- When ordering a belt that does not have an existing part number, please call Customer Service to expedite part number creation

TIER	PRODUCT CAP CODE	SHAPE Availability	GRIT SIZE	ABRASIVE Grain	BACKING	APPLICATIONS
	working		0.22	CHIPTIN	Drionna	
Best	R980P	Narrow, Wide	24-120	Blaze Ceramic Alumina	Y-wt. Polyester	Latest-generation Norton SG grain, supersized and designed for high-performance grinding on stainless and other alloys
Best	R984	Narrow, Wide	36-120	SG Ceramic Alumina	Y-wt. Polyester	Norton SG grain for medium-pressure grinding and finishing heat-sensitive alloys
Best	R983	Narrow	P36-P120	Red Heat Ceramic Alumina	Y-wt. Plus	P-graded ceramic alumina abrasive with lubricating supersize coat; engineered for maximum productivity on mild carbon steel, ferrous metal, and cast iron applications
Better	R884P	Narrow, Wide	24, 36-80	BlueFire Zirconia Alumina	Y-wt. Polyester	High-performance zirconia alumina grain designed for medium- to high-pressure grinding
Better	R887D	Narrow, Wide	24, 36-120	BlueFire Zirconia Alumina		High-performance zirconia alumina grain, supersized and designed for medium- to high-pressure grinding of heat-sensitive alloys
Better	R823P	Narrow, Wide	60-220	BlueFire Zirconia Alumina		High-performance zirconia alumina grain on lighter backing designed for light to medium grinding
Good	R766	Narrow	P24-80	Gemini Aluminum Oxide Blend	Y-wt. Polyester	Premium aluminum oxide blend product designed for a variety of applications including soft metals to hard-to-grind stainless and carbon steel
Good	R766X	Narrow, Wide	P60-P400	Gemini Aluminum Oxide Blend	X-wt. Polyester	finer finishing
Good	MX240	Narrow, Wide	P80-P150	Aluminum Oxide	X-wt. Poly/Cotton	P-graded, heat-treated aluminum oxide X-weight cloth with strong, but flexible, cotton/ polyester backing making it an ideal multi-purpose product
Good	R245	Narrow	P80-P240, P320, P400	Aluminum Oxide	J-wt. Polyester	Aluminum oxide on flexible, lightweight polyester backing for moderate- to light- pressure applications on mild steel
Good	KF376	Narrow	P80-P320, P400, P600	Aluminum Oxide	J-wt. Cotton	P-graded, heat-treated aluminum oxide with ceramic coating on a very flexible backing for use wherever flexibility and conformability are needed
Good	R445	Narrow	60-220	Silicon Carbide	X-wt. Polyester	Sharp, silicon carbide grain on medium polyester backing for grinding very hard materials — glass, stone, solid surface
Good	U243	Narrow, Wide to 24"	X80, X65, X45, X30, X22, X16	NORaX Aluminum Oxide	J-wt. Cotton	High-performance, multi-layered NORaX grain on very flexible backing for dry polishing applications
Wood	working					
Best	R963	Narrow, Wide	24-60, P80 100-150	SG Ceramic Alumina	Y-wt. Polyester	Norton SG ceramic alumina grain with anti-static coating for forest product applications (MDF, particleboard, plywood)
Best	R955	Narrow	P36-P120	Red Heat Ceramic Alumina	Y-wt. Cotton	100% ceramic alumina abrasive with Y-weight cloth backing for dimensioning, intermediate sanding of wood
Better	R831	Narrow, Wide	24, 36-120	BlueFire Zirconia Alumina	Y-wt. Cotton	Norton BlueFire open-coat product recommended for dry low-pressure applications or where loading is a problem
Good	R215	Narrow, Wide	50-180	Gemini Aluminum Oxide	X-wt. Cotton	Initial starting specification for woodworking applications where loading is a problem, and initial cost a primary concern
Good	R490	Narrow, Wide	P36-P150	Silicon Carbide	Y-wt. Polyester	Anti-static product for forest product applications (MDF, particle board, plywood) where loading is an issue
Good	R422	Narrow	50-120	Silicon Carbide	X-wt. Cotton	Initial starting specification for woodworking applications where loading is not an issue
Best	H975	Narrow, Wide	60-220	Red Heat Ceramic Alumina	F-wt. Paper	Ceramic alumina grain, antistatic coating, and open coat; the best choice for applications where loading is a problem (soft woods, etc.)
Better	H831	Wide	24,36-120	BlueFire Zirconia Alumina	F-wt. Paper	Durable zirconia alumina grain, antistatic coating, and open coat: the better choice for applications where loading is a problem (soft woods, etc.)
Good	H275B	Narrow, Wide	P60-P220	Aluminum Oxide	F-wt. Paper	Quality aluminum oxide grain, antistatic coating, and open coat make these an economical choice for all heavy-weight paper belt jobs
Better	H475	Narrow, Wide	P120-P400	Onyx Silicon Carbide	F-wt. Paper	Sharp silicon carbide and antistatic coating create finer finishes on hard materials and veneers where finish is critical

Non-Woven Belts



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.

Engineered Aluminum Oxide, Aluminum Oxide

Extra Coarse (Black), Coarse (Brown), Medium (Maroon), Fine (Green), Very Fine (Blue)









PORTABLE FILE BELT SANDER

BELT SANDER IN-LINE DRUM SANDER

BENCHSTAND **GRINDER**

BACKSTAND **BELT GRINDER**

Application/Grit Recommendation Guide

1.1.				
	EXTRA COARSE COARSE	MEDIUM	FINE	VERY FINE
		BEST Choice - Vortex		
		BETTER Choice - R	apid Prep	
Scale Removal	•			
Stock Removal	•			
Heavy Deburring	•			
Light Deburring		*		
Light Finishing		•		
Blending			*	
Finishing				•

Vortex Rapid Prep Pump Sleeve Belts





VORTEX RAPID PREP ALUMINUM OXIDE

- Patented Vortex agglomerated aluminum oxide grain produces the most consistent cutting and finishing action combining the cutting power of a coarser grit with the finish of finer grits
- Premium high-loft nylon fiber bonded to a strong nylon scrim backing allows a uniformly thick layer of resin bond and grain for extended life, durability, and stiffness
- 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

		GRIT/COLOR:	EXTRA COARSE	COARSE	MEDIUM	FINE	VERY FINE
		TIER:	BEST	BEST	BEST	BEST	BEST
		TRADENAME:	VORTEX RAPID PREP	VORTEX RAPID PREP	VORTEX RAPID PREP	VORTEX RAPID PREP	VORTEX RAPID PREP
		ABRASIVE:	Engineered A/O	Engineered A/O	Engineered A/O	Engineered A/O	Engineered A/O
WIDTH	LENGTH	STD. PKG.	PART #	PART #	PART #	PART #	PART #
3-1/2	15-1/2	8	666233 33725	666233 35042	666233 35118	666233 33665	666233 35139





Rapid Prep File and Narrow Belts





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

	GRIT/COLOR:	EXTRA COARSE	COARSE	MEDIUM	FINE	VERY FINE
	,					BETTER
			RAPID PREP	RAPID PREP	RAPID PREP	RAPID PREP
			Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
LENGTH	STD. PKG.	PART #	PART #	PART #	PART #	PART #
			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
	24		662610 11420	662610 12524	666233 33424	666233 33511
					*********	666233 33512
						662544 99884
						662610 55311
						662610 19876
			***************************************			662610 03622
					0020110000	666233 33515
					666233 33429	666233 33518
						666233 33519
			33020000112	000200000	33020000100	3002000010
	12		666233 33411	666233 33505	666233 33428	666233 33516
						662610 01972
						666233 33521
			00201000011	00201141200	00020000102	662610 55412
			666233 3311	666233 01513	666233 33434	662610 55413
						662610 05583
				00201000010	0020443000	00201003300
			00023314301	662610 1141 4	662544 36886	666233 33525
			666222 271 5		00234430000	666233 03624
		66261010226	000233 33413		66600000106	666233 33528
, -		00201010220	662610 62200	00020333307		666233 33529
				66261006648		666233 33531
						666233 33532
						662610 02307
			002010 02371	00201007737		666233 33533
			66254420265	66254441401	**-***	666233 33534
		66602222570			000233 3344 I	666233 33535
					66600022112	666233 33536
						662610 19836
-						666233 33537
				00201010070		662610 55593
		00234433333		60067206022		662610 03176
			****			666233 33542
				00201007145		666233 33541
				66600022510		662610 47121
-						666233 33543
		66602022505				662610 55326
					000233 33432	002010 33320
		000233 33390	00254495931		CCCOCOCAEA	CCC00000E4C
			CC0C10 000EC			666233 33546 666233 33547
			***************************************		***************************************	
IDA	4		636425 76650 662610 55330	662610 09174 662610 55331	666233 33456 666233 33457	666233 33548 662610 55332
	LENGTH	TRADENAME: ABRASIVE: LENGTH	TIER: TRADENAME: ABPID PREP ABRASIVE: Aluminum Oxide LENGTH STD. PKG. PART # 18	### TRADENAME: RAPID PREP RAPID PREP Aluminum Oxide Aluminum Oxide Aluminum Oxide Aluminum Oxide PART # #### TRADENAME: Aluminum Oxide Aluminum Oxide PART # #################################	TIER. TRADENAME: RAPID PREP RAPID PREP RAPID PREP RAPID PREP ARRAIN	RAPID PREP RAP

Most Narrow belts are also available in our Vortex grain. If you do not see the Rapid Prep belts you need in our stock offering contact your Norton Representative for made-to-order availability.





Cloth Rolls and Sheets



Engineered for flexibility and fast cutting, cloth sheets and rolls have a longer life than paper. They tear cleanly and straight without shedding and are packed in a protective dispenser to eliminate waste and damage.

Categories: All purpose, fine finishing, and screen-back

Applications: Scouring and light deburring, scale and rust removal, blending and fine sanding, polishing

lathe turnings, rolls and cylinders, and blending machine tool marks

Size Range: Sheets: 9" x 11"

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

Grit Range: 40 – 600, extra coarse, coarse, medium, fine **Abrasive Grain:** Aluminum Oxide, Silicon Carbide, Emery





SANDING

JITTERBUG SANDER

Cross Reference Guide

	GOOD			
NORTON	Gemini K225	Metal R243	K622 Emery	Screen-Bak Q421
3M	011K	211K, 314D	011K, Emery Cloth	481W, 483W
Hermes	RB317	RB232J	-	GS91350, GS92400
Klingspor	LS309	KL361, LS309	KL371X	_
Sait/United Abrasives	DA-F	EA-F	_	Sait-Screen
SIA	2915	2601, 2915, 2936	1600, 2601	SIA-Screen
VSM	KK114F	KK505J, KK504X	_	_

Application/Starting Recommendation Guide

Durability/Stock Removal	Conformability	Slower Cut	Waterproof
Fast Cut	Excellent Finish	Fine Finish	Load Resistant
Gemini K225	Metal R243	K622 Emery	Screen-Bak Durite Q421



Good choice for general-purpose metal and woodworking 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



Good choice for small-volume metal and woodworking applications at a low initial price

METAL R243 ALUMINUM OXIDE

- Quality P-graded aluminum oxide abrasive grain delivers fast cut rate and consistent finish on metals
- Smooth, flexible J-weight cotton backing provides superior conformability to complex surfaces and better finishes
- Advanced full resin bond system provides exceptional grain adhesion for longer life on aluminum, fiberglass, composites, hard woods and soft woods

COATED & NON-WOVEN ABRASIVES Cloth Rolls and Sheets

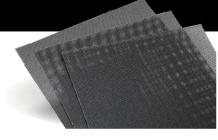
Good choice for removing rust, paint and scale from metal surfaces



K622 EMERY

- Natural emery abrasive for scouring and polishing non-rated metals and utensils
- · Abrasive is durabonded onto a flexible cloth backing for durability
- · Close coat for the greatest degree of stock removal and longest life

Good choice for sanding softer materials where loading is a major problem such as plastic, copper, brass, plaster, wood, and drywall $\,$



SCREEN-BAK Q421 SILICON CARBIDE

- · P-graded silicon carbide for excellent cutting and non-loading properties
- Open weave screen for extreme resistance to loading when removing scale, rust and corrosion
- · Open mesh design is waterproof and washable, allowing you to rinse and reuse

Cloth and Screen Rolls











	TIER:	GOOD	GOOD	GOOD	GOOD	GOOD
	TRADENAME:	GEMINI K225	GEMINI K225	GEMINI K225	GEMINI K225	GEMINI K225
	ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
	BACKING:	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton
	SIZE:	1" x 10 yds	1" x 50 yds	1-1/2" x 50 yds	2" x 50 yds	4" x 50 yds
GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
40	1		662610 58716 +	662610 58715 +	662610 58714 +	
50	1		662611 27728 +	662611 27730 +	662611 27732 +	
60	1		662611 27729 +	662611 27731 +	662611 27733 +	
80	1	662611 34298	662611 26276	662611 26288	662611 26299	
100	1	662611 34299	662611 26275	662611 26287	662611 26298	
120	1	662611 34300	662611 26274	662611 26286	662611 26297	662611 27285 *
150	1	662611 34301	662611 26273	662611 26285	662611 26296	
180	1	662611 34302	662611 26272	662611 26284	662611 26295	
220	1		662611 26271	662611 26283	662611 26294	
240	1	662611 34303	662611 26270	662611 26282	662611 26293	
280	1		662611 26269	662611 26281	662611 26292	
320	1	662611 34304	662611 26268	662611 26280	662611 26291	
400	1		662611 26267	662611 26279	662611 26290	
600	1		662611 26266	662611 26278	662611 26289	

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

^{*} Packaging Standards: 4" Roll Std. Pkg.: 6 rolls











TIER:	GOOD	GOOD	GOOD	GOOD	GOOD
TRADENAME:	METAL R243	METAL R243	METAL R243	SCREEN-BAK Q421	SCREEN-BAK Q421
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Silicon Carbide
BACKING:	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	Mesh	Mesh
SIZE:	1" x 50 yds	1-1/2" x 50 yds	2" x 50 yds	1-1/2" x 25 yds	2" x 25 yds
OTHER:				Waterproof	Waterproof
TD. PKG.	PART #	PART #	PART #	PART #	PART #
	662611 36178	662611 36190	662611 36203		
	662611 36179	662611 36192	662611 36204	662611 07275 *	

GRIT	STD. PKG.	PART #	PART #	PART #	PART #	PART #
60	1	662611 36178	662611 36190	662611 36203		
80	1	662611 36179	662611 36192	662611 36204	662611 07275 *	
100	1	662611 36180	662611 36194	662611 36205		
120	1	662611 36181	662611 36195	662611 36206	662611 07270 *	662611 49811 *
150	1	662611 36182	662611 36196	662611 36207		
180	1	662611 36186	662611 36199	662611 36208	662611 07265 *	
240	1	662611 36187	662611 36200	662611 36209		
320	1	662611 36188	662611 36201	662611 36210		
400	1	662611 36189	662611 36202	662611 36211		

^{*} Packaging Standards: Screen-Bak Q421 Std. Pkg.: 10 rolls

COATED & NON-WOVEN ABRASIVES Cloth Rolls and Sheets

Cloth Sheets



				200
TIER:	GOOD	GOOD	GOOD	
TRADENAME:	GEMINI K225	METAL R243	K622 EMERY	
ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Emery	
BACKING:	J-Weight Cotton	J-Weight Cotton	J-Weight Cotton	
OTUED:				



GUUD
SCREEN-BAK Q421
Silicon Carbide
Mesh
Waterproof
DADE //

		UTTILI					waterproor
SIZE (W x L)	GRIT	PKG./CASE	PART #	PART #	PART #	PKG./CASE	PART #
x 11	40	25/125	662610 58713 +				
	50	25/125	662611 01862 +				
	60	25/125	662611 01861 +				
	80	25/125	662611 26340	662611 79998		25/125	662611 00960
	100	50/250	662611 26339	662611 81503		25/125	662611 00955
	120	50/250	662611 26338	662611 81504		25/125	662611 00950
	150	50/250	662611 26337	662611 81505		25/125	662611 00945
	180	50/250	662611 26336	662611 80005		25/125	662611 00940
	220	50/250	662611 26335			25/125	662611 00935
	240	50/250	662611 26334	662611 81507			
	280	50/250	662611 26333				
	320	50/250	662611 26332	662611 80006		25/125	662611 00920
	400	50/250	662611 26331	662611 81509		25/125	662611 00915
	600	50/250	662611 26330				
	Extra Coarse	25/125			662611 01255		
	Coarse	25/125			076607 01307		
	Medium	50/250			076607 01309		
	Fine	50/250			076607 01308		

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





Paper Rolls and Sheets



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: 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

Size Range: Full Sheets, Cut Sheets, File Strips and Rolls

Grit Range: 36 – 2500

Abrasive Grain: Paper Weights: Machine Used: Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide, and Garnet

 $Heavyweight-E;\ Lightweight-A\ through\ D$







HAND SANDING

JITTERBUG SANDER

SANDING BOARD

Material-to-Product Recommendation Guide

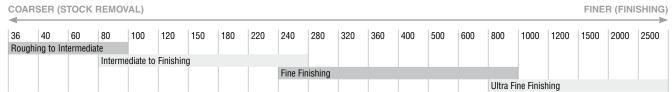
	BEST	BEST				BETTER		GOOD					
	Blaze A995	Dry Ice A975	A2750P	Black Ice T214	Black Ice T401	A259PS	Durite A475	Blue-Bak T414	Gold Reserve A296	PB273	Garnet	TufBak T461	Other
Unfinished Metal	*	*	*						♦	*			
Primed / Painted Surfaces / Between Coats	•	•	*				•		•	•			
Fiberglass / Composites	•	•	♦				•		♦	*			
Bare Wood	•	•	•								◆ A511, A513, A514		
Clear Coat Sanding				♦	♦							♦	
Sealer Sanding	•	•	♦				•		♦	*			
Lacquer Sanding				♦	♦			•				*	
Wet Sanding				♦	♦			♦				♦	
Paint Stripping	•	•	*			*	•						A290
All Purpose	•	•	•			•							A212, A213, A211

Cross Reference Guide

Closs Helefelice	adide					
NORTON	3M	Hermes	Klingspor	Mirka	SIA	VSM
STEARATED (NON-LOAD	DING)					
Blaze A995	732U, 737U, 755L, 775L	CR116	_	_	_	_
Dry Ice A975	334U	_	PS36	_	Siaprime 5550	_
A2750P	216U, 255L, 236U, 260L, 334U	VC154-LL	PS33, PS73W	Q-Silver, Royal Micro	1940, 1944,1950	_
A259PS	216U, 255L, 236U, 260L, 334U	_	_	_	_	_
Durite A475	405N, 414N, 415U, 426U, 435U	SF168	PL35, PS14	CaratFlex, PolarStar	1748	CP131A
Gold Reserve A296 / PB273	216U, 236U, 316U, 315U, NX	VC154-LL	PS33, PS73W	Q-Silver, Royal Micro, Bulldog Gold	19,401,950	MP10
WATERPROOF						
Blue Ice T214	213Q	WAFlex28	_	_	1913, 1951, 1600	_
Blue Ice T401	401Q, 414Q, 486Q	WSFlex16	PL35	Waterproof (A)	_	CP918A
Blue-Bak T414	413Q	WSFlex 16	PS14	Waterproof (A)	_	CP918A/C
TufBak T461	431Q	WSFlex 18	PS14		1727	CP918A/C
ALL PURPOSE/WOOD						
A211	230U, 240N, 346U	_	_	_	_	_
A212	210N	_	PL31	_	_	_
A213	230N	_	PL31	_	_	_
Garnet A511	110N	_	PS10	_	1400	_
Garnet A513	130N	GCAB	_	_	_	_
Garnet A514	140N	GCAB	_	_	_	_
HEAVYWEIGHT PAPER						
BlueFire H875P	740I, 745I, 750U, 751U, 751I	BW110	PS36	Royal CRS. Cut	1820,1919, 1948	KP510E, KP709

Paper Rolls and Sheets

Application/Grit Recommendation Guide



Recommended Backing Weight

	H-WT	F-WT	E-WT	D-WT	C-WT	B-WT	A-WT	
Stiffest / Strongest Most Aggressive Applications	←						-	Most Flexible / Lightest Applications

Paper Rolls



Best choice for fast cut rate and maximum dust extraction

BLAZE A995 MULTI-AIR CYCLONIC CERAMIC ALUMINA

- P-graded next-generation ceramic aluminum oxide abrasive for fastest cut rate and longest life with innovative spiral hole design to optimize dust extraction
- Proprietary D-weight Polyester-reinforced, flexible latex-saturated backing for 100% improvement in tear strength and edge durability providing longer life in all applications
- Waterbased, non-loading (No-Fil) stearate resists clogging and increases roll life; hook and loop (NorGrip) back for easy mounting and changing



Best choice for the most demanding dry sanding applications

DRYICE A975 CERAMIC ALUMINA

- P-graded, 100% SG ceramic alumina abrasive delivers fastest cut rate and longest life of any paper roll; available in Multi-Air Cyclonic version with laser-cut, spiral, vacuum-hole design to maximizes dust extraction
- Unique fiber reinforced, flexible B-wt. latex saturated paper backing for 50% 60% improvement in tear strength while retaining flexibility; perforated for easy sizing
- Water-based non-pigmented stearate No-Fil coating provides improved load resistance and no color transfer to work



Better choice for high performance dry sanding applications

A2750P 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 provides maximum load resistance; available in Multi-Air Cyclonic version for maximum dust collection



Good choice and value for dry sanding and finishing aluminum, fiberglass, composites, hard woods and soft woods

A296 GOLD ALUMINUM OXIDE

- · P-graded premium aluminum oxide abrasive produces a quick, cool cut and a more consistent surface finish
- . Strong paper backing resists tearing while staying conformable and flexible
- · Water-based, non-loading No-Fil stearate coating minimizes clogging and increases disc life



Paper Rolls and Sheets

Paper Rolls continued

Hook and Loop Paper Rolls









	TIER:	BEST	BEST	BETTER		BEST
	TRADENAME:	BLAZE A995 NO-FIL Multi-Air Cyclonic	DRY ICE A975 NO-FIL Multi-Air Cyclonic	A2750P NO-FIL Multi-Air Cyclonic		DRY ICE A975 NO-FIL
	ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide		Ceramic Alumina
В	BACKING WEIGHT:	D-Weight.	C- & B-Weight	D-Weight		B-Weight.
BACKII	<i>VG ATTACHMENT:</i>	Hook & Loop	Hook & Loop	Hook & Loop		Hook & Loop
	OTHER:	P-Graded	P-Graded	P-Graded		P-Graded
	SIZE:	2-3/4" x 13 yd	2-3/4" x 13 yd	2-3/4" x 13 yd		2-3/4" x 13 yd
GRIT	PKG./CASE		PART #	PART #	PKG./CASE	PART #
80	1/4	699573 08899	636425 06113	666233 90523	1/4	636425 06261
120	1/4	699573 08900	636425 06114	666233 90522	1/4	636425 06259
150	1/4	699573 08901	636425 06117	666233 90521	1/4	636425 06258
180	1/4	699573 08902	636425 06118	666233 90520	1/4	636425 06257
220	1/4	699573 08903	636425 06119	666233 90519	1/4	636425 06256
240	1/4		636425 06120			
320	1/4		636425 06121	666233 90518	1/4	636425 06255
400	1/4		636425 06122	666233 90517	1/4	666233 29518
500	1/4		636425 06123		1/4	666233 29547
600	1/4		636425 06124		1/4	666233 29548
0.07411	· d l		(A)! l. ! . l ll	Leading of head librate and Clabers	.1.	

^{2-3/4&}quot; wide hook and loop paper rolls are perforated at 2-3/4" which allows use on all standard lengths of hand blocks and file boards. Additional grit sizes available, contact your Norton rep for more details.

PSA (Pressure Sensitive Adhesive) Paper Rolls

















	(R/D/5630)	(ED050)	WHENCH			10.00	1000	
TIER:	BEST	BEST	BEST	BETTER	BETTER	BETTER	BETTER	GOOD
TRADENAME:	DRY ICE A975 No-fil	DRY ICE A975 NO-FIL	DRY ICE A975 No-fil	A275 OP No-fil	A275 OP No-fil	A275 OP No-fil	A275 OP No-fil	GOLD RESERVE A296 NO-FIL
ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
BACKING WEIGHT:	C-Weight.	C-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight.	B-Weight
<i>ING ATTACHMENT:</i>	PSA	PSA	PSA	PSA	PSA	PSA	PSA	PSA
OTHER:	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded	P-Graded
SIZE:	2-3/4" x 25 yd	2-3/4" x 30 yd	2-3/4" x 45 yd	2-3/4" x 25 yd	2-3/4" x 30 yd	2-3/4" x 45 yd	4-1/2 x 10 yd	2-3/4" x 25 yd
PKG./CASE	PART #	PART #	PART #	PART #	PART #	PART #	PART #	PART #
1/5	662611 49566			662611 31691			662611 31697	636425 06153
1/5					662611 31690		662611 31696	
1/5		662611 49564			662611 31689		662611 31695	636425 06152
1/5			662611 49563			662611 31688	662611 31694	636425 06151
1/5			662611 49562			662611 31687	662611 31693	636425 06150
1/5			662611 49561			662611 31686	662611 31692	636425 06149
1/5						662611 31685		
1/5			662611 49558			662611 31683		636425 06148
1/5			662611 49557			662611 31681		636425 06147
1/5						662611 31679		
	TRADENAME: ABRASIVE: BACKING WEIGHT: ING ATTACHMENT: OTHER: SIZE: PKG./CASE 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5 1/5	### TRADENAME: DRY ICE A975 NO-FIL ABRASIVE: Ceramic Alumina BACKING WEIGHT: C-Weight. ### P-Graded SIZE: 2-3/4" x 25 yd PKG./CASE	TRADENAME: NO-FIL	TRADENAME: NO-FIL	TRADENAME: NO-FIL DRY ICE A975 NO-FIL NO	DRY ICE A975 NO-FIL N	DRY ICE A975 NO-FIL N	DRY ICE A975 NO-FIL NO-F

Additional attachment options available as non-stock, contact your Norton rep for more details.





PSA Roll Dispenser

- · Heavy-duty wire dispenser has a vinyl coating to protect the work surface
- Accommodates two 2-3/4" PSA rolls; stackable for multi-grit operations. Attach to wall or mount on cabinet

DESCRIPTION	STD. PKG.	PART #
PSA Roll Dispenser	1	636425 42773

PSA/Hook & Loop Sanding Blocks

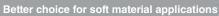
- Ergonomically-shaped flexible foam blocks used with 2-3/4" rolls, fit comfortably in your hand
- Firm block produces a truly flat surface
- · The soft block is designed for flat surfaces and contours

	BACK	ING ATTACHMEN	T: PSA	Hook & Loop	
SIZE	DESCRIPTION	STD. PKG.	PART #	PART #	
2-3/4 x 5	Soft	5	636425 42090	636425 42092	
2-3/4 x 5	Firm	5	636425 42091	636425 42093	
2-3/4 x 7-3/4	Soft	5		636425 42095	
2-3/4 x 7-3/4	Firm	5	636425 42094		



Paper Rolls and Sheets

Paper File Strips



BLUEFIRE H875P ZIRCONIA ALUMINA

- Strong zirconia alumina plus abrasive provides 2 3 times life over aluminum oxide products
- Strong E-weight paper, synthetically-coated for excellent durability and chip resistance plus superior bond system
 optimizes grain adhesion and extends product life
- Non-stearated (no anti-loading agents); non-contamination often required for prime auto and aerospace paint applications

Paper File Strips PSA (Pressure Sensitive Adhesive) and Non-PSA



BETTER	BETTER
BLUEFIRE H875P	BLUEFIRE H875P
Z/A	Z/A
E-Weight	E-Weight
Non-PSA	PSA



SIZE	ADIT	PKG./	D4.DT //	D. D. T. //	DADT //	D. D. T. //	PKG./	DADE //	D. D. T. //	PKG./	D4DT //
(W x L)	GRIT	CASE	PART #	PART #	PART #	PART #	CASE	PART #	PART #	CASE	PART #
2-3/4 x 16	100	50/500				662611 31657					
	120	50/500				662611 31656					
	180	50/500				662611 31654					
2-3/4 x 16-1/2	36						50/250		662611 23610	25/125	662611 23616
	40						50/250		662611 23609	25/125	662611 23615
	80	50/500		662611 31640	662611 31646		50/250		662611 23608	25/125	662611 23614
	100	50/500		662611 31639	662611 31645						
	120	50/500			662611 31644						
	150	50/500		662611 31637	662611 31643						
	180	50/500		662611 31636	662611 31642						
	220	50/500			662611 31641						
2-3/4 x 17-1/2	36						50/250	662611 23622			
	40						50/250	662611 23621			
	80	50/500	662611 31652				50/250	662611 23620			
	100	50/500	662611 31651				50/250	662611 26512			
	120	50/500	662611 31650								
	150	50/500	662611 31649								
	180	50/500	662611 31648				50/250	662611 26511			
	220	50/500	662611 31647								

Sanding Boards



VACUUM HOLE PATTERN FOR 2-3/4 X 16 FILE STRIPS





PSA/Non-PSA Sanding Board

- · This sanding board has a cushioned surface
- Spring clips mounted at each end securely hold 2-3/4" x 16-1/2" PSA file strips and 2-3/4" x 17-1/2" non-PSA file strips

Hook and Loop and Non-PSA Sanding Board

- · Lightweight, rugged design for easy sanding of plastic fillers
- Spring clips mounted at each end securely hold 2-3/4" x 16-1/2" hook and loop file strips and 2-3/4" x 17-1/2" non-PSA file strips
- Air file shoe eliminates the need for clips. The quick-change backing positively locks and unlocks for fast use.

DESCRIPTION	STD. PKG.	PART #
PSA/Non-PSA File Strip Sanding Board	6	636425 42724
Hook and Loop/Non-PSA File Strip Sanding Board	5	636425 52836
Hook and Loop Air File Shoe	5	636425 52835

Paper Rolls and Sheets

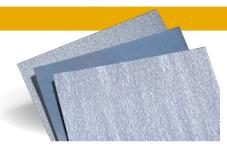
Stearated (Non-Loading) 9" x 11" Sheets



The best choice for sanding 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



Best choice for moderate material removal

A259PS NO-FIL ALUMINUM OXIDE

- · Premium heat-treated abrasive offers faster cut and long sanding life
- Open coat, non-pigmented, water-based stearate coating prevents color transfer and minimzes loading
- Increased backing weight, fiber-reinforcement and latex saturation offers better grain retention and tear-resistance yet is highly flexible for easy folding and unfolding



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

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



Good choice for fast cuts and an even finish

PB273 NO-FIL ALUMINUM OXIDE

- P-graded, sharp light-brown, aluminum oxide abrasive for fast cut rate, extended life and consistent finish
- Water based non-pigmented stearate provides maximum load resistance and extended life; no dye in coating means no risk of color transfer or finish contamination
- Flexible latex-saturated B-weight backing, with a full resin bond and open coat for improved life

Paper Rolls and Sheets

Stearated (Non-Loading) 9" x 11" Sheets continued

9 x 11 Paper			IST	JOBPACK		
		TIER:	BEST	BEST	BETTER	GOOD
	TI	RADENAME:	A2750P No-fil	A259PS No-fil	DURITE A475 No-fil	PB273 No-fil
		ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Silicon Carbide	Aluminum Oxide
	BACKII	NG WEIGHT:	B-Weight	C- & B-Weight	B-Weight	B-Weight
		OTHER:	P-Graded	P-Graded	P-Graded	P-Graded
SIZE		PKG./				
(W x L)	GRIT	CASE	PART #	PART #	PART #	PART #
9 x 11	80	50/250	662611 31634	076607 68174 *	662544 87393	666233 11878
	100	100/500	662611 31633	076607 68173 *	662544 87394	666233 11877
	120	100/500	662611 31632	076607 68172 *	662544 87395	666233 11876
	150	100/500	662611 31631	076607 68171 *	662544 87396	666233 11875
	180	100/500	662611 31630	076607 68168 *	662544 87397	666233 11874
	220	100/500	662611 31629	076607 68167 *	662544 87398	666233 11873
	240	100/500	662611 31628		662544 87399	666233 11879
	280	100/500	662611 31627			
	320	100/500	662611 31626	076607 68166 *	662544 87400	666233 11871
	400	100/500	662611 31624	076607 68165 *		666233 11870
	500	100/500	662611 31623			
	600	100/500	662611 31622			
	800	100/500	662611 31621			
	1000	100/500	662611 31620			
	1200	100/500	662611 31619			
	1500	100/500	662611 31618			

^{*} Packaging Standards: A259PS Job Packs: 20 sheets per pack / 10 packs per standard package for a total of 200 sheets

Rubber Hand Sanding Blocks

· Resilient rubber blocks that conform well to mild contours and flat surfaces



Paper Rolls and Sheets

Waterproof 9" x 11" Sheets



Best choice for superior cut and life in wet applications

BLACK ICE T214 ALUMINUM OXIDE WATERPROOF

- Premium, P-graded, heat-treated aluminum oxide abrasive for ultimate cut and life in wet applications
- · Strong resin bond for longer life in wet applications
- High-strength B-weight waterproof latex paper backing is extremely flexible, environmentally stable, and resists humidity-caused curling



Best choice for superior finish in wet applications

BLACK ICE T401 SILICON CARBIDE WATERPROOF

- Premium, JIS graded ultra-fine silicon carbide abrasive provides the ultimate finish in wet applications
- Strong resin bond for longer life in wet applications
- High-strength B-weight waterproof latex paper backing is extremely flexible, environmentally stable, and resists humidity-caused curling



Better choice for wet finishing applications

BLUE-BAK T414 SILICON CARBIDE

- Sharp, ANSI graded silicon carbide abrasive for exceptional finishes in wet applications
- Strong resin bond for longer life in wet applications
- High-strength B-weight waterproof latex paper backing is extremely flexible, environmentally stable, and resists humidity-caused curling



Good choice for medium material removal in wet applications

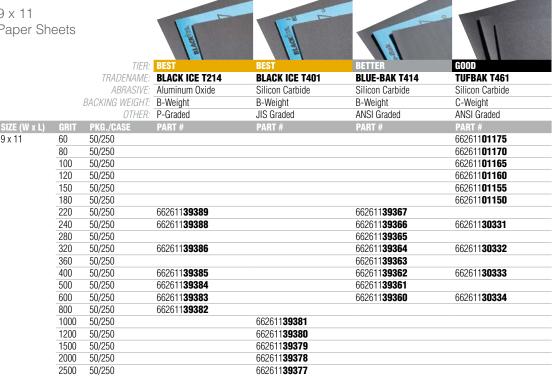
TUFBAK T461 SILICON CARBIDE

- 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

Paper Rolls and Sheets

Waterproof 9" x 11" Sheets continued

9 x 11 Paper Sheets



Waterproof Sanding Blocks - with "Grabbing" Power





- No adhesive required: simply wrap a 5-1/2" x 9" (9" x 11" cut in half) sheet around the block
- The dense side is for more aggressive blocking, while the soft side is for color sanding
- Equalizes sanding pressure for fine grit applications

Holey Block

- No adhesive required: simply wrap a 5-1/2" x 9" (9" x 11" cut in half) sheet around the block
- A rugged, semi-rigid, multi-purpose sanding block engineered for flat to medium curved surfaces
- A tactical hole pattern side provides numerous cutting edges to create a 30% faster cut rate
- The plain side provides firmness and a comfortable, easy-to-hold surface



DESCRIPTION	STD. PKG.	PART #
Wet Sanding Block	12	636425 03728
Holey Block	8	636425 03729

Paper Rolls and Sheets

All-Purpose 9" x 11" Paper Sheets



Good choice for your wood, metal or composite sanding projects

A211/A212/A213 ALUMINUM OXIDE

- · P-graded, aluminum oxide grain, open-coat provides aggressive, long-lasting cutting action
- · Use for dry, general purpose hand sanding on hardwood, metal, and composites
- Available in multiple backing weights: A212 A-weight; A213 C-weight, A211 D-weight

Good choice for use on soft woods such as pine



A513/A511 GARNET

- Natural garnet abrasive is ideal for soft woods, such as pine, and produces an excellent, consistent finish
- · Use dry on bare wood prior to coating
- Available in two backing weights: A511 A-wt. and A513 C-wt. for heavy-duty to light-duty hand sanding

9	Χ	1	1	
Ρ	ap	е	r	Sheets



	50	50/250	662611 00325						
	60	50/250		662611 00320			662611 01560		
	80	50/250		662611 00315			662611 01555	662611 01505	076607 01584 *
	100	100/500		662611 00295		076607 00358 *	662611 01535	662611 01500	076607 01583 *
	120	100/500		662611 00290		076607 00357 *	662611 01530	662611 01495	076607 01582 *
	150	100/500		662611 00285		076607 00356 *	662611 01525	662611 01490	076607 01581 *
	180	100/500			662611 00245	076607 00355 *		662611 01489	076607 01580 *
	220	100/500			076607 00156	076607 00354 *		662611 01488	076607 01579 *
	Asst+	100/500				076607 00365 *			
* Packagi	ng Stana	lards: Job Pad	cks: 25 sheets per pack	(/ 10 packs per stand	ard package for a total	of 250 sheets			

⁺ Assorted contains 6 each of 60, 100, 150 grit and 7 each of 220 grit





Non-Woven Rolls



Surface finishing rolls are made of a non-woven nylon web impregnated with abrasive grain and resin bond.

Applications:

Abrasive Grain: Grit Range: Roll Features:

Machine Used:

Light- to heavy-duty cleaning, deburring, blending, polishing, and finishing of metal, wood, composite, plastics, stone, solid surface and painted surfaces.

Aluminum Oxide, Silicon Carbide

Medium (M), Fine (F), Very Fine (VF), Ultra Fine (UF), Micro Fine (MF)

- · Economical alternative to cut pads
- · Can be cut to specific sizes







Application/Grit Recommendation Guide

MORE AGGRESSIVE, ROUGHER FINISH

LESS AGGRESSIVE, FINER FINISH

PRODUCT #:	#740	#644	#747	#635	#851	#777	HIGH STRENGTH
COLOR:	Dark Tan	Maroon	Maroon	Gray	Gray	Maroon	Maroon
DESCRIPTION:	Heavy Duty	GP – Fine	GP Plus - Very Fine	Clean & Finish	General Cleaning	General Purpose	High Strength
ABRASIVE:	AO	A0	A0	SC	SC	A0	AO
GRIT SIZE:	Medium 100 - 150	Fine 180 - 220	Very Fine 240 - 360	Ultra Fine 400 - 600	Very Fine 240 - 360	Very Fine 240 - 360	Medium 100 - 150
STEEL WOOL	4	2	1	00	00	1	4
EQUIVALENT:	Extra Coarse	Medium Coarse	Medium	Very Fine	Very Fine	Medium	Extra Coarse
	 Smear-free Clean Bond technology 2X life 	 Cleaning and deburring machinery 	 Light cleaning, deburring and finishing 	 Light cleaning and finishing of most surfaces 	 Light cleaning and finishing of most surfaces 	 Light cleaning, deburring and finishing 	 Moderate deburring and surface blending
ADDI ICATIONO	 Most durable and aggressive cutting 	» metal parts » plastic	» machinery » metal parts	» steel, aluminum » denibbing plastic	» steel, aluminum » denibbing plastic	» machinery » metal parts	
APPLICATIONS:	pad • Heavy-duty removal » rust	» solid surface » stone	» plastic» solid surface» stone	» scuffing acrylics	» scuffing acrylics	» plastic» solid surface» stone	
	» oxidation • Deburring		" Storio			" diono	

					TIER.	BEST	BETTER
	201.00	PERCEINIAN	400400/5	GRIT	STD.		2127 //
SIZE (W x L)	COLOR	DESCRIPTION	ABRASIVE	SIZE	PKG.	PART #	PART #
Non-Woven Rolls							
4" x 30 Ft.	Maroon	High Strength Roll	A/0	M	3	662610 06358	
	Dark Tan	740 Heavy-Duty Roll	A/0	M	3		662610 10081
	Maroon	644 General Purpose Fine Roll	A/0	F	4		662610 58364
	Maroon	777 General Purpose Very Fine Roll	A/0	VF	4	662610 06373	662610 58361
	Maroon	747 General Purpose Plus Roll	A/0	VF	4		662610 51701
	Gray	851 General Cleaning Roll	S/C	VF	4		662610 58360
	Gray	635 Clean & Finish Roll	S/C	UF	5		662610 58357
6" x 30 Ft.	Maroon	High Strength Roll	A/0	M	2	662610 05182	
	Maroon	747 General Purpose Plus Roll	A/0	VF	3		662610 16430
	Maroon	777 General Purpose Very Fine Roll	A/0	VF	3	662610 04281	662610 58376
	Gray	851 General Cleaning Roll	S/C	VF	3		662610 58377
2" x 15 Ft. Handy Roll Pack	Assorted	1 each A/O Fine, A/O VF, SC MF	_	-	1		662610 08108

Abrasive Sponges



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

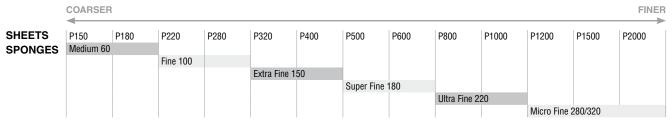
Pressure Control

- Foam backing allows optimum pressure distribution to prevent sanding through surfaces
- Pressure spots are eliminated providing even surface pattern

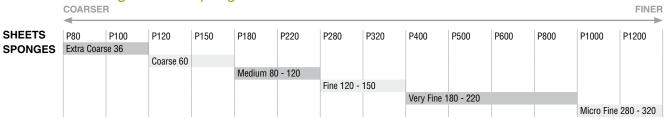
Adapt to Contours

- 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



Surface Finishing Chart - Sponges versus Sheets



Cross Reference Guide

	BETTER GOOD		GOOD	GOOD	GOOD	GOOD
NORTON	SoftTouch	Contour	Small Area	Profile	Sealer Sanding	Flexible
3M	Softback	Contour	Full Size	High Flexibility	Woodworking	Pro Pads
Hermes	Single Side	_	Four Sided	_	Two Sided	_
Klingspor	_	_	_	_	Foam Sanding Pad	_
SIA	Flat Pad	_	Standard Block	_	Standard Pad	_

Abrasive Sponges



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 sanding small diameters and contours

CONTOUR SPONGES — COATED 1 SIDE

 Thin, flexible; good for sanding small diameters and contours such as ceramics, spindles, turnings and railings

SIZE (W x L x T)	GRIT	STD. PKG.	PART #
4-1/2 x 5-1/2 x 3/16	100 Fine	100	076607 02257
	150 Extra Fine	100	076607 02256
	220 Ultra Fine	100	076607 02255



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 #	BULK PKG.	PART #
4 x 2-3/4 x 1	36/80 Ex. Coarse/Med	24	076607 49505	250	076607 04735
	80/80 Med/Med	24	076607 49507	250	076607 01875
	80/120 Med/Fine	24	076607 49504	250	076607 02600
	120/120 Fine/Fine	24	076607 49506		



Good for corners and flat surfaces on wood, metal, plastic and paint

PROFILE SPONGES - COATED 3 SIDES

 Ideal for cabinet sanding of raised profile doors

SIZE (W x L x T)	GRIT	STD. PKG.	PART #
4 x 2-3/4 x 1/2	100 Medium	500	636425 36313



Good for sanding primers, sealers and between coats on furniture and cabinets

SEALER SANDING SPONGES — COATED 2 SIDES

 Very flexible; silicon carbide abrasive for sanding primers, sealers and between coats on furniture and cabinets

SIZE (W X L X I)	GRII	BULK PKG.	PAKI #
4-3/4 x 3-3/4 x 1/2	36 Extra Coarse	250	636425 02538
	60 Coarse	250	636425 52870
	100 Medium	250	636425 52869
	220 Very Fine	250	636425 52868



Ideal for final sanding of surfaces, primer sanding, and between coats sanding

FLEXIBLE ABRASIVE SPONGES — COATED 1 SIDE

 Best initial price point for abrasive sponges

SIZE (W x L x T)	GRIT	STD. PKG.	PART #	BULK PKG.	PART #
3 x 4 x 1/2	60 Coarse	48	076607 04068	108	076607 0111 0
	80 Medium	48	076607 04067	108	076607 0407 (
	100 Medium	48	076607 04066	108	076607 0095 6
	150 Fine	48	076607 04065	108	076607 0094 9
	220 Very Fine			108	076607 0406 9

Non-Woven Hand Pads and Sponges



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: Grit Range:

Aluminum Oxide, Silicon Carbide

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

Sponge Pad Features: • Non-woven material is laminated to a long-lasting sponge for the convenience of 2 pads

 Superior replacement for steel wool **Machine Used:**







Application/Grit Recommendation Guide

MORE AGGRESSIVE, ROUGHER FINISH

LESS AGGRESSIVE, FINER FINISH

PRODUCT#:	#740	#746	#644	#747	#796	#635	#748	THIN-FLEX VF	THIN-FLEX UF	THIN-FLEX BP	#456
COLOR:	Dark Tan	Gray	Maroon	Maroon	Green	Gray	Gray	Maroon	Gray	Gold	White
DESCRIPTION:	Heavy Duty	Blending	GP – Fine	GP Plus – Very Fine	Scouring	Clean & Finish	Final Shine	Cleaning	Cleaning	Blend Prep	Cleaning
ABRASIVE:	AO	SC	AO	A0	A0	SC	SC	A0	SC	A0	Non-Abrasive
GRIT SIZE:	Medium 100 - 150	Medium 100 - 150	Fine 180 - 220	Very Fine 240 - 360	Very Fine 240 - 360	Ultra Fine 400 - 600	Micro Fine 800 - 1200	Very Fine 240 - 360	Ultra Fine 400 - 600	Micro-Fine 800 - 1200	Non-Abrasive
STEEL WOOL EQUIVALENT:	4 Extra Coarse	3 Coarse	2 Medium Coarse	1 Medium	0 Fine	00 Very Fine	00 Very Fine	00 Very Fine	000 Extra Fine	000 Extra Fine	0000 Super Fine
APPLICATIONS:	Smear-free Clean Bond technology 2X life Most durable and aggressive cutting pad Heavy-duty removal » rust » oxidation Deburring	Blending and deburring welds » aluminum » stainless	Cleaning and deburring machinery metal parts plastic solid surface stone	• Light cleaning, deburring and finishing » machinery » metal parts » plastic » solid surface » stone	Removing stains, marks, rust, corrosion or oxidation from stainless equipment Light cleaning of metal surfaces	• Light cleaning and finishing of most surfaces » steel, aluminum » denibbing plastic » scuffing acrylics	• Final finishing » final rub on wood » final blend on metal » final finish on plastics and acrylics	Maximum flexibility for consistent finishes Cleaning blending, finishing, and deburring in woodwork, metalwork, MRO, and synthetic applications	Maximum flexibility for consistent finishes Cleaning blending, finishing, and deburring in woodwork, metalwork, MRO, and synthetic applications	• Fine cleaning • Fine polishing (most surfaces) • Top coat finishing (water-based and solvent)	• Scratch-free cleaning » metal » fiberglass » stone » solid surface » ceramic • Wood » high-lighting » rubbing

Cross Reference Guide

	COARSER										
NORTON	#740	#746	#644	#747/847	#796	#635	#748	Thin-Flex VF	Thin Flex UF	#456	
3M	7440	7446	64659	7447/8447 Production Hand Pad	96	64660	7448	Multi-Flex Maroon	Multi-Flex Gray	7445	
Camel	Tan	_	_	Maroon	Green	_	Grey	_	_	White	
Mirka	_	_	_	Maroon/Red VF	_		_	Mirlon Total Maroon	Mirlon Total Gray	_	
Sait	Brown	_	_	Maroon	Green	_	Gray	_	_	_	
SIA	6912 Brown	6712 Grey	_	6912 Maroon	6312 Green	_	_	_	_	_	
Standard	HD-Tan AO	_	_	GP-Maroon VF	Green-AO	HP-VF	UF Gray	_	_	Cleaning White	



Non-Woven Hand Pads and Sponges

					TIER:	BEST	BETTER
				GRIT	STD.		
SIZE (W x L)	COLOR	DESCRIPTION	ABRASIVE	SIZE	PKG.	PART #	PART #
Hand Pads							
4-1/2 x 9	Maroon	Thin Flex Cleaning Pad	A/0	VF	25	666233 98062	
	Grey	Thin Flex Cleaning Pad	S/C	UF	25	666233 98063	
	Gold	Thin Flex Blend Prep	A/0	MF	25	662611 13519	
6 x 9	Dark Tan	740 Heavy-Duty Pad	A/0	Med	40	662610 74000	
	Gray	746 Blending Pad	S/C	Med	40		662610 74600
	Maroon	777 General Purpose Very Fine Pad	A/0	VF	60		662610 77700
	Maroon	747 General Purpose Plus Pad	A/0	VF	60	662610 74700	
	Maroon	847 General Purpose Plus Perforated Pad	A/0	VF	60	662610 84700	
	Green	796 Scouring Pad	A/0	VF	60		662610 79600
	Lt. Green	696 Food Pro Pad	A/0	VF	60		662610 69600
	Gray	851 General Cleaning Pad	S/C	VF	40		662610 85100
	Gray	635 Clean & Finish Pad	S/C	UF	60		662610 63500
	Gray	748 Final Shine Pad	S/C	MF	60		662610 74800
	White	456 Cleaning Pad	None	-	60		662610 45600
Hand Pad Holder							
3-1/4 x 5-1/2	N/A	Hand Pad Holder			10		662610 47583
Scouring Pads/Spor	nges						
3-1/4 x 6-1/4 x 3/4	Green/Yellow	893 Scour-N-Sponge Pad	A/0	VF	40		662610 59403
3-1/4 x 6-1/4 x 3/4	White/Yellow	875 Clean-N-Sponge Pad	None	_	40		662610 59402





THIN and FLEXIBLE: Perfect for Tight Spots

Norton Bear-Tex Thin-Flex High-Performance Hand Pads

- Achieve performance benefits of a coarse and fine grain product in one hand pad; fast cut and definitively better finish than competing pads
- Extremely thin and conformable; ideal for deburring, cleaning, blending, and finishing contoured surfaces and tight spaces
- · Special coated web design for superior and constant cutting action without added effort from user
- · Versatile; ideal for woodworking, metalworking, maintenance operations, and synthetics fabrication

Foam Hand Pads

Rotolo Foam Sanding Pads

Application/Grit Recommendation Guide

COARSE	R										FINER
120	150	180	220	240	280	320	400	500	600	800	1000
Cleaning/I	Repairing										
			Final Sanding	j							
						Feather Edgir	ng				
								Basecoat San	ding		
										Clearcoat S	Sanding

The better choice for fine sanding flat and curved surfaces

A2750P NO-FIL ROTOLO FOAM ROLLS

- Premium, P-graded, heat-treated aluminum oxide abrasive for consistent surface finish, exceptional performance on all surfaces and coatings
- Foam backing is perfect for hand sanding primer without leaving finger marks; 50% 60% improvement in tear strength versus conventional paper rolls; perforated for easy sizing
- Non-pigmented, water based stearate No-Fil coating, open coat for best resistance to clogging and loading during sanding

		TIER:	BETTER
		TRADENAME:	A275 OP ROTOLO
		ABRASIVE:	Aluminum Oxide
		OTHER:	P-Graded
SIZE (W x L)	GRIT SIZE	ROLLS/STD. PKG.	PART #
4-1/2" x 82'	120	2	636425 35316
	150	2	636425 57584
	180	2	636425 57599
	220	2	636425 57600
	240	2	636425 57602
	280	2	636425 57604
	320	2	636425 57606
	400	2	636425 57608
	500	2	636425 57611
	600	2	636425 57612
	800	2	636425 57613
	1000	2	636425 57616







Mini Angle Sander



Put the world right in the palm of your hand with our 2" and 3" Norton Mini Angle Sanders. Small, compact enough to get into those hard-to-reach areas, and powerful enough to finish the job fast and efficiently.

Specifications for:	2" Mini Angle Air Sander	3" Mini Angle Air Sander
Weight of tool:	1.6 lbs. (0.742kg)	1.8 lbs. (0.816kg)
Compressed air:	6.2 bar (90psi)	6.2 bar (90psi)
Maximum permissible operating pressure:	6.2 bar (90psi)	6.2 bar (90psi)
Horsepower:	.45	.9
Free speed:	22,000 rpm	20,000 rpm
Air consumption @90psi:	85 liters/min (3 CFM)	116 liters/min (4.1 CFM)
Noise characteristic value in accordance with EN ISO 15744 (ISO 15744):		
 A-weighted sound pressure level at workstation 	87.3 dB	83.2 dB
A-weighted sound power level	98.3 dB	94.2 dB
 Peak C-weighted instantaneous sound pressure level at workstation 	<130 dB	<130 dB
Measurement uncertainty (Standard):	3.00 m/s ²	5.92 m/s ²
Vibration value according to EN ISO 28927-3:	0.84 m/s ²	1.09 m/s ²
Recommended lubrications:	Air oil 20#	Air oil 20#
Sanding tool specifications:	Pad Size 2" Collet	Pad size 3" Collet
	Collet Chuck 1/4" (6mm)	Collet Chuck 1/4" (6mm)
Applications and suitability:	Surface preparation, grind we finishing applications.	lds, spot sanding and light-duty



Put the power right in the palm of your hand with our Mini Angle Sanders

MINI ANGLE SANDERS

- A double-bearing spindle generates superb concentricity, reducing vibrations allowing for longer use and finer finishes
- Finesse your projects by having the ultimate control in both precision and power with the speed regulator
- Get better tool handling along with reduced fatigue with the ergonomic and streamlined non-slip grip

DESCRIPTION	STD. PKG.	PART #
Mini Angle Sanders and Kits		
2" Mini Angle Sander	1	662611 50076
2" Kit Includes:	1	662611 50077
1 – 2" Sander		
25 – 2" 36 Grit Blaze R980P 3-Ply TR Discs (662611 62318)		
50 – 2" Medium Grit Rapid Prep Non-Woven TR Discs (662610 09190)		
1 – 2" Medium Density Back-Up Pad (662610 55103)		
3" Mini Angle Air Sander	1	699573 82154
B" Kit Includes:	1	699573 82155
1 – 3" Sander		
25 – 3" 36 Grit Blaze R980P 3-Ply TR discs (662611 62328)		
25 – 3" Medium Grit Rapid Prep Non-Woven TR discs (662610 17522)		
1 – 3" Medium Density Back-Up Pad (662610 55105)		

Mini Flap Discs



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, Poly-cotton **Attachment:** TR (Type III) and TS (Type II) Backing Plate Material: Extra Heavy-Duty Plastic

Machine Used:





Best choice for beveling, blending, deburring, and stock removal in tight spaces

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
- Flexible, high-strength, plastic backing plates absorb vibration for optimized ergonomics
- Y-weight polyester flaps with a supersize grinding aid significantly improve life, grain retention, and fray resistance while providing a cool, noticeably faster cut rate



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

BLUEFIRE R884P 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
- Poly-cotton flaps with semi-open coat provide improved durability and minimizes loading on aluminum









TIER:
TRADENAME:
ABRASIVE:
FLAP:
BACKING MATERIAL:
ATTACHMENT:

BEST	BETTER	BEST	BETTER
BLAZE R980P	BLUEFIRE R884P	BLAZE R980P	BLUEFIRE R884P
Ceramic Alumina	Zirconia Alumina Plus	Ceramic Alumina	Zirconia Alumina Plus
Polyester	Polyester	Polyester	Polyester
Extra Heavy-Duty Plastic	Extra Heavy-Duty Plastic	Extra Heavy-Duty Plastic	Extra Heavy-Duty Plastic
TR (Type III)	TR (Type III)	TS (Type II)	TS (Type II)





TS (TYPE II)

SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #	PART #
2	36	10	776960 90145	776960 90165	776960 90155	776960 90175
	40	10	776960 90146	776960 90166	776960 90156	776960 90176
	60	10	776960 90147	776960 90167	776960 90157	776960 90177
	80	10	776960 90148	776960 90168	776960 90158	776960 90178
	120	10	776960 90149	776960 90169	776960 90159	776960 90179
3	36	10	776960 90150	776960 90170	776960 90160	776960 90180
	40	10	776960 90151	776960 90171	776960 90161	776960 90181
	60	10	776960 90152	776960 90172	776960 90162	776960 90182
	80	10	776960 90153	776960 90173	776960 90163	776960 90183
	120	10	776960 90154	776960 90174	776960 90164	776960 90184

Quick-Change Discs



Tool-free, twist-on and -off fastening systems make fast work of disc changes to maximize productivity by minimizing downtime.

Fiber and NorKut trimmable hard plastic discs: welding, grinding and blending; heavy metal **Applications:**

removal; light deburring and finishing

Cloth discs: light- to medium-pressure grinding; blending, leveling and finishing

applications; for use on contours or flat surfaces

9/16" - 4" diameter

Size Range: **Grit Range:** 24 - 320

Cloth Flex: Attachment:

Back-up Pads: Machine Used:

Abrasive Grain: Ceramic Alumina, Zirconia Alumina, Aluminum Oxide, Silicon Carbide Backing:

Fiber, cloth, or polymer

3-ply (more aggressive), 2-ply (standard), Type TS (II), Type TR (III), and Type TP (I)

Rubber with hardness variations for different applications



MINI ANGLE SANDER

Coated Abrasive Quick-Change Disc Availability

- The most heavy-duty discs with resin over resin construction on heavy-duty vulcanized fiber backing
- Premium grain for applications from heavy stock removal to surface blending



Cloth 3-Plv

These heavy-duty, 3-ply polyester laminate construction discs are the most aggressive and durable cloth discs on the market



NorKut

- · Unique polymer backing resists cracking and breakage and can be cut down up to
- Use the cores to grind "pinch" welds and other hard-to-reach areas



Cloth 2-Ply

Our standard 2-ply laminate construction creates an aggressive and durable cloth disc for flat surfaces

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

Type TR (Type III)

- · Features a roll-on/roll-off style fastener
- · Fastener is made of plastic

Type TP (Type I)

- · Features a snap-on/snap-off style fastener
- · Fastener is made of nylon







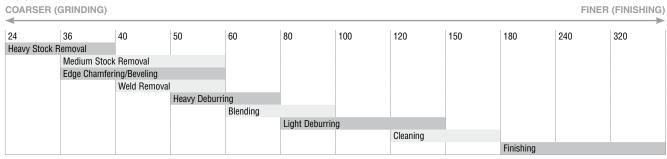
NORTON MERIT	TS (Type II)	TR (Type III)	TP (Type I)	
3M	Roloc TS/TSM	Roloc TR	Roloc TP	
Standard	TS (SocAtt)	TR (Lockit)	TP (ClickOn)	
Superior	Type S	Type R	_	
Arc	Type S	Type R	Type P	
Pferd	Type CD	Type CDR	_	
Sait	SAIT-LOK	SAIT-LOK-R	_	
Camel	Turn On	Roll On	_	
Klingspor	QMC	QRC	_	
Garryson	Type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

Quick-Change Discs

Material/Application-to-Product Recommendation Guide

	BEST	BETTER	GOOD	
	Blaze R980P	BlueFire R884P	Aluminum Oxide	Silicon Carbide R422
Stainless Steel / Titanium / Super Alloys	•	♦	•	
Mild Carbon Steel / Welds		•	*	
Ferrous Metals / Cast Iron		*	*	
Brass / Bronze / Aluminum		*	*	
Paint / Glue / Adhesive			*	
Concrete / Stone / Fiberglass				*

Application/Grit Recommendation Guide



Cross Reference Guide

	TOTAL PERFORMANC	CE			INITIAL PRIC
	BEST		BETTER	GOOD	
Abrasive	Ceramic Alumina	Ceramic Alumina	Zirconia Alumina	Aluminum Oxide	Silicon Carbide
Backing	Fiber	Cloth	Cloth	Cloth	Cloth
NORTON	Blaze F980	Blaze R980P	BlueFire R884P		R422
3M	782C, 785C, 787C, 982C, 985C, 987C, 988C	963G/H, 966F, 967F, 997F, 984F, 784F, 947A	561D	361F, 363F	421A, 441D, 461F
Standard	Ceramic, Ceramic Pro	Ceramic Pro, Ceramic	Zirconia	A/O Extra, A/O Pro	Silicon Carbide
Superior		Ceramic G.A.	Premium Zirc	A/O with Grinding Aid	
Arc	_	_	Zirconia/Y Standard	A/O/X Plus Coolant	_
Pferd	CO, CO Cool	Ceramic	ZA Z	Aluminum Oxide A-Plus, Aluminum Oxide A-INOX-FORTE	Silicon Carbide SiC
Sait	7S,7A, 9S	_	Z	3A	C-W
Camel	Ceramic	_	Zirconia AO	_	_
Klingspor	CS570, FS966	CS610	Alumina Zirconia	_	CS333X
Garryson	_	Ceramic	_	_	_

Quick-Change Discs - Fiber

Best choice for tough applications and stainless steel



BLAZE F980 CERAMIC ALUMINA FIBER

- 100% ceramic grain constantly exposes sharper edges to deliver highest productivity at lowest overall costs vs. competitive lower-ratio ceramic discs
- Strong fiber backing, heavier and more rigid than conventional cloth discs, adds strength and tear resistance, and allows additional pressure for better results when grinding difficult materials
- Advanced self-lubricating grain treatment provides coolest cut and significantly faster cut rates; excels on hard-to-grind materials like 300 and 400 Series stainless and exotic alloys



TIER:	BEST
TRADENAME:	BLAZE F980
ABRASIVE:	Ceramic Alumina
BACKING:	Fiber – Heavy Duty
OTHER:	Supersize
TTACHMENT:	TR (Type III)



SIZE (D)	GRIT	STD. PKG.	PART #
2	24	25	776960 90139
	36	25	662610 58704
	50	25	662610 58705
	60	25	662610 58706
	80	25	662610 58707
3	24	25	776960 90140
	36	25	662610 58708
	50	25	662610 58709
	60	25	662610 58711
	80	25	662610 58712

Quick-Change back-up pads shown at the end of the Quick-Change Disc section.





Quick-Change Discs - Cloth



Best choice for tough applications, titanium, super alloys, and stainless steel (3-ply) or contoured surfaces (2-ply)

BLAZE R980P CERAMIC ALUMINA

- 100% ceramic grain constantly exposes sharper edges to deliver highest productivity at lowest overall costs vs. 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



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

BLUEFIRE R884P ZIRCONIA ALUMINA

- Premium, versatile, self-sharpening zirconia plus grain provides aggressive cut and up to 30% longer life vs. competitive zirconia discs
- Semi-open coat minimizes loading on soft metals (aluminum, brass, and bronze) and wood, as well as stainless and carbon steels
- Durable Y-weight, polyester waterproof backing stands up to demanding applications: high-pressure and hard-to-grind exotic alloys



Better choice for stainless steel, titanium and other exotic alloys

R801 ZIRCONIA ALUMINA PLUS

- Self-sharpening, zirconia alumina abrasive with grinding aid provides cooler cut, and longer life on hard-to-grind materials
- Durable, Y-weight, 2-ply polyester waterproof blend back stands up to these demanding applications
- Minimized heat build-up allows these discs to outlast conventional aluminum oxide and zirconia alumina discs in many applications





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



Good choice for non-ferrous materials

R422 SILICON CARBIDE

- · Sharp, silicon carbide abrasive provides high initial cut and penetration to resist loading on soft metals
- Strong, X-weight, 2-ply cotton backing construction for extended durability and reduced edge wear
- When completion time is important, sharp silicon carbide abrasive gets non-ferrous blending jobs done quickly

PORTABLE TOOLS AND SPECIALTIES Quick-Change Discs — Cloth

Ceramic Alumina Quick-Change Cloth Discs



Quick-Change back-up pads shown at the end of the Quick-Change Disc section.



PORTABLE TOOLS AND SPECIALTIES Quick-Change Discs — Cloth

Zirconia Alumina Quick-Change Cloth Discs



1	36	100				088341 67093 NS	
	40	100			088341 67052 NS	088341 67094 NS	
	50	100				088341 67095 NS	088341 67011 NS
	60	100	662611 38608			088341 67096 NS	088341 67012 NS
	80	100	662611 38607			088341 67097	088341 67013 NS
	120	100				088341 67099	088341 67015 NS
-1/2	36	100	662611 38624	662611 21041			
	50	100				088341 67102	088341 67018 NS
	60	100	662611 38621	662611 21043	088341 67061	088341 67103	088341 67019 NS
	80	100	662611 38620	662611 21044	088341 67062	088341 67104	
	120	100				088341 67106	
	24	100	662611 38638 *	662611 38672 *			
	36	100	662611 38637 *	662611 38671	088341 67065	088341 67107	088341 67023
	40	100			088341 67066	088341 67108	
	50	100	662611 38635 *	662611 38670 *	088341 65583	088341 67109	088341 67025
	60	100	662611 38634 *	662611 21048 *	088341 67068	088341 67110	088341 67026
	80	100	662611 38633 *	662611 21049 *	088341 67069	088341 67111	088341 67027
	120	100			088341 67071	088341 67113	088341 67029
	24	50	662611 38665 *	662611 38675 *			
	36	50	662611 38664 *	662611 38674 *	088341 67072	088341 67114	088341 67030
	40	50			088341 67073		
	50	50	662611 38662 *	662611 38673 *	088341 67074	088341 67116	088341 67032
	60	50	662611 38661 *	662611 21053 *	088341 67075	088341 67117	088341 67033
	80	50	662611 38660 *	662611 21054 *	088341 67076	088341 67118	088341 67034
	120	50			088341 67078	088341 67120	
	36	50	662611 38683 *		088341 67079		
	50	50	662611 38681 *				
	60	50	662611 37343 *				088341 67040 NS
	80	50	662611 38679 *		088341 67083 NS		
	120	50			088341 67085 NS		

^{*} Standard Package = 25 discs

Quick-Change back-up pads shown at the end of the Quick-Change Disc section.



Quick-Change Test Kit "D"

- Part # 088341**65001**
- Includes 150 discs, assorted grits, in 1", 2", and 3" diameters and 3" back-up pads
- Primarily aluminum oxide cloth quick-change discs
- Several zirconia alumina and aluminum oxide FlexEdge discs are included

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

PORTABLE TOOLS AND SPECIALTIES Quick-Change Discs - Cloth

Aluminum Oxide Quick-Change Cloth Discs



		TIER:	GOOD	GOOD	GOOD
		ABRASIVE:	Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
		BACKING:	Polyester	Polyester	Polyester
			2-Ply Standard	2-Ply Standard	2-Ply Standard
		ATTACHMENT:	TS (Type II)	TR (Type III)	TP (Type I)
SIZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #
3/4	40	100			699573 99739
	50	100	699573 99604		699573 99740
	60	100	699573 99605	699573 99673	699573 99741
	80	100	699573 99606	699573 99674	699573 99742
1	36	100	699573 99614	699573 99682	699573 99750
	40	100	00007000040		699573 99751
	50	100	699573 99616	C00E7200C0E	699573 99752
	60 80	100	699573 99617	699573 99685 699573 99686	699573 99753 699573 99754
	100	100	699573 99618 699573 99619	699573 99687	699573 99755
	120	100	699573 99620	699573 99688	699573 99756
	180	100	699573 99622	699573 99690	699573 99758
	240	100	699573 99623	699573 99691	699573 99759
1-1/2	36	100	699573 99626	699573 99694	699573 99762
,_	40	100	699573 99627	699573 99695	699573 99763
	50	100	699573 99628	699573 99696	699573 99764
	60	100	699573 99629	699573 99697	699573 99765
	80	100	699573 99630	699573 99698	699573 99766
	100	100	699573 99631	699573 99699	
	120	100	699573 99632	699573 99700	699573 99768
	150	100			699573 99769
	180	100	699573 99634	699573 99702	699573 99770
	240	100	699573 99635	699573 99703	
2	24	100	699573 99637	699573 99705	699573 99773
	36	100	699573 99638	699573 99706	699573 99774
	40 50	100 100	699573 99639	699573 99707	699573 99775
	60	100	699573 99640 699573 99641	699573 99708 699573 99709	699573 99776 699573 99777
	80	100	699573 99642	699573 99710	699573 99778
	100	100	699573 99643	699573 99711	699573 99779
	120	100	699573 99644	699573 99712	699573 99780
	150	100	699573 99645	699573 99713	699573 99781
	180	100	699573 99646	699573 99714	699573 99782
	240	100	699573 99647	699573 99715	699573 99783
	320	100	699573 99648	699573 99716	699573 99784
3	24	50	699573 99649	699573 99717	699573 99785
	36	50	699573 99650	699573 99718	699573 99786
	40	50	699573 99651	699573 99719	699573 99787
	50	50	699573 99652	699573 99720	699573 99788
	60	50	699573 99653	699573 99721	699573 99789
	80	50	699573 99654	699573 99722	699573 99790
	100	50	699573 99655	699573 99723	699573 99791
	120	50	699573 99656	699573 99724	699573 99792
	150	50	699573 99657	699573 99725	00007000704
	180	50	699573 99658	699573 99726	699573 99794
	240	50	699573 99659	699573 99727	699573 99795
4	320	50	699573 99660	699573 99728	699573 99796
4	36	50 50	699573 99661	699573 99729 699573 99731	
	50 60	50	699573 99664	099073 99731	699573 99800
	80	50	U33719 33004	699573 99733	699573 99801
	OU	JU		0990/093/00	099010 99001

Quick-Change back-up pads shown at the end of the Quick-Change Disc section.

MORTON MERIT Quick-Change Discs – Cloth, Specialty

Silicon Carbide Quick-Change Cloth Discs







		HER:	GOOD	GOOD	GOOD
		TRADENAME:	R422	R422	R422
		ABRASIVE:	Silicon Carbide	Silicon Carbide	Silicon Carbide
		BACKING:	Cotton Standard	Cotton Standard	Cotton Standard
		ATTACHMENT:	TS (Type II)	TR (Type III)	TP (Type I)
ZE (D)	GRIT	STD. PKG.	PART #	PART #	PART #
	40	100	088341 65252	088341 64275	
	60	100	088341 65254	088341 64163	088341 62168
	80	100	088341 65255	088341 66155	088341 62169
	120	100		088341 64837	088341 62171
	180	100	088341 65259	088341 67313	088341 62173
	40	50	088341 65267	088341 64277	
	60	50		088341 64850	
	80	50		088341 66159	088341 62188
	120	50	088341 65272	088341 66160	088341 62190
	180	50	088341 65274	088341 68177	

Some part number are non-stock, contact your Norton representative for status, order quantities and lead-times.

Quick-Change back-up pads shown at the end of the Quick-Change Disc section.

Specialty Quick-Change Discs

3



Better choice for hard-to-grind areas where flexibility is not required

NORKUT ZIRCONIA ALUMINA POLYMER

- Durable zirconia alumina grain is resin bonded to a unique polymer backing which resists cracking and breaking; can be trimmed to the 1 Inch core
- Used with a quick change mandrel: 7/16-20 threaded for hand-held pneumatic grinders or 1/4 inch mandrel for
- Use for deburring and blending; use the core to grind pinch welds and other hard-to-reach areas

TIER:	BETTER
TRADENAME:	NORKUT
ABRASIVE:	Zirconia Alumina
BACKING:	Extra HD Polymer
ATTACHMENT:	Threaded Hole

		ALIAUTIVIENT.	Ппеацец поте
SIZE (D)	GRIT	STD. PKG.	PART #
NorKut Discs			
3	24	20	636425 03656
	36	20	636425 03657
	50	20	636425 03658

	TIER:	BETTER
	ATTACHMENT:	Threaded Hole
SIZE (D)	STD. PKG.	PART #
Mandrels		
7/16-20 Mandrel	5	636425 03659
1/4" Mandrel	5	636425 03660



Non-Woven Quick-Change Discs



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.

Medium-light stock removal, beveling, deburring/deflashing, rust removal, blending, **Applications:**

cleaning and finishing, polishing, and decorative finishing

3/4" - 4" diameter

X-Coarse, Coarse, Medium, Fine, Very Fine, Super Fine **Grit Range: Abrasive Grain:**

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

Quick-Change Type TR (Type III), Type TS (Type II) Rubber with hardness variations for different applications



MINI ANGLE **SANDER**

Quick-Change Attachment Systems and Cross Reference Guide

Size Range:

Attachment:

Back-up Pads:

Machine Used:

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

Type TS (Type II)

- Features a turn-on/turn-off style fastener
- · Fastener is made of metal



Type TR (Type III)

- · Features a roll-on/roll-off style fastener
- · Fastener is made of plastic



NORTON	TS	TR	
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

MOST AGGRESSIVE

LEAST AGGRESSIVE

					_
NORTON MERIT	Rapid Strip	Vortex Rapid Blend	Vortex Rapid Prep	Rapid Prep	HS Buffing, Buffing
		Deburring & Blending			
Scale Removal	Best Choice				
Stock Removal	Best Choice	Second Choice			
Heavy Deburring	Second Choice	Best Choice			
Light Deburring		Best Choice	Second Choice		
Light Finishing			Best Choice	Second Choice	
Blending			Best Choice	Second Choice	
Cleaning			Second Choice	Best Choice	
Finishing				Best Choice	Second Choice







Cross Reference Guide

	STRIPPING		HEAVY/LIGHT DEBURRING		LIGHT DEBURRING/BLENDING/CLEANING/FINISHING		
	BEST	BETTER	BEST	BETTER	BEST	BETTER	BETTER
NORTON MERIT	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	Rapid Blend, Deburring & Blending	Vortex Rapid Prep	Rapid Prep	HS Buffing, Buffing
3M	Clean and Strip XT PRO,	Clean & Strip Clean Strip XT	Deburr and Finish PRO	EXL Unitized	SE	Surf Cond, SL	_
	Clean and Strip XT PRO Extra Cut						
Standard	-	Cleaning Disc	_	500-900 Series Unitized	_	FE, GP, RC	Buff & Blend - HS, Buff & Blend
Fiberal/SIA	-	-	_	_	_	Meteor, Type B & C	_
Superior	_	Type R	_	XL Unitized	_	FD, GD, CC	HS, HD A/O
Arc	_	Arcstrip	_	_	_	Surface Cond	Blend & Finish
Pferd	-	Policlean	_	_	-	Finishing Disc - Hard & Soft	_
Sait	-	SAIT-Strip	_	_	-	HD, GP	Sand-Light Blending
Camel	_	EZ Strip - Black	_	_	_	_	_
Klingspor	_	_	_	_	_	_	_
Garryson	_	_	_	_	_	Surface Cond	_
Bibielle	_	Strip-It Black	_	BUR Unitized	_	DCR	_

Abrasive/Grit/Density Key

ABRASIVE	SILICON CARB	BIDE		ALUMINUM OXIDE CERAMIC AL		
	SHARPER, FIN	ER/BRIGHTER SCRAT	CH PATTERN	MORE DU	RABLE, LONGER LAS	TING, POLISHED FINISH
GRIT SIZE	XC (50)	C (60-80)	M (100-150)	F (180-220)	VF (240-360)	SF (400-600)
	FASTER, AGGF	RESSIVE CUT, ROUGH	ER FINISH	REDUCED CUT RATE, FINER FINISH		
DENSITY	2					9
	SOFT, OPEN, C	ONFORMABLE, LESS	BURNING/LOADING	HARDER, MORE	OURABLE, FASTER CL	JTTING, BETTER FINISH







PORTABLE TOOLS AND SPECIALTIES Non-Woven Quick-Change Discs

3D Quick-Change Stripping Discs



Best choice for removing coatings on a variety of substrates, such as wood, metal

BLAZE RAPID STRIP CERAMIC ALUMINA

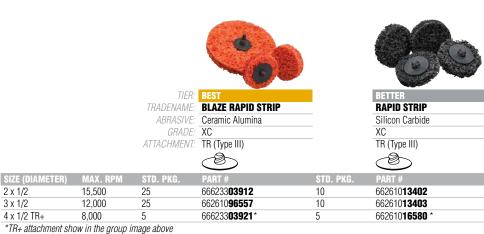
- · Blaze ceramic grain cuts 2X faster than competitive discs; leaves a thoroughly cleaned surface, ensuring excellent adhesion in subsequent processes such as coating, painting and soldering
- Open web construction for minimal loading; great alternative to wire brushes
- · Rapid Strip material provides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



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

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



For unified wheels with arbor holes or spindle mounts, see Non-woven Unified Wheels section. Quick-Change back-up pads shown at the end of this section.







Non-Woven Quick-Change Discs

3D Quick-Change Deburring & Blending Discs



Best technology for heavy deburring and finishing

BLAZE RAPID BLEND CERAMIC ALUMINA

- Blaze SG ceramic alumina grain provides quickest cut rate and up to 8X longer life than competitive aluminum oxide discs
- Superior resin chemistry resists shedding when used on sharp edges; ideal for deburring
- 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



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



Better choice for light deburring, blending, and cleaning

RAPID BLEND NEX ALUMINUM OXIDE

- · Quality aluminum oxide delivers durability and long life
- · Resin formula delivers smear-free finishes
- Abrasive is distributed throughout the entire disc (top, bottom and side) so all three faces can be used versus competitive discs' one bottom layer of abrasive

3D Quick-Change Deburring & Blending TS Discs



SIZE				MAX.	STD.		
(D x T)	ABRASIVE	GRIT	DENSITY	RPM	PKG.	PART #	PART #
1 x 1/4	Ceramic Alumina	XC	1	35,000	100	666233 13920	
1-1/2 x 1/4	Ceramic Alumina	XC	1	35,000	80	666233 13922	
2 x 1/4	Ceramic Alumina	XC	1	22,000	25	666233 13925	
	Aluminum Oxide	M	1	22,000	25		662544 97070
3 x 1/4	Ceramic Alumina	XC	1	15,000	25	666233 13931	
	Aluminum Oxide	М	1	15,000	25		662544 97069







Non-Woven Quick-Change Discs

3D Quick-Change Deburring & Blending Discs continued

3D Quick-Change Deburring & Blending TR Discs







TIER: TRADENAME: _ABRASIVE: _ATTACHMENT:

BEST
BLAZE RAPID BLEND
Ceramic Alunima
TR (Type III)

VORTEX RAPID BLEND
Engineered Aluminum Oxide
TR (Type III)

RAPID BLEND NEX
Aluminum Oxide
TR (Type III)

SIZE				MAX.	STD.			
(D x T)	ABR.		DENSITY	RPM	PKG.	PART #	PART #	PART #
1 x 1/4	Ceramic Alumina	XC	1	35,000	100	666233 13919		
1-1/2 x 1/4	Ceramic Alumina	XC	1	35,000	80	666233 13921		
2 x 1/8	Aluminum Oxide	M	4-6	22,000	60		662544 25632	
	Aluminum Oxide	M	7-9	22,000	60		662544 33509	
2 x 3/16	Aluminum Oxide	M	2-3	22,000	60		662544 28236	
2 x 1/4	Ceramic Alumina	XC	1	22,000	25	666233 13923		
	Aluminum Oxide	С	7-9	22,000	60			662610 14921
	Aluminum Oxide	М	1	22,000	25		662544 97067	
	Aluminum Oxide	М	2-3	22,000	60		662544 28237	662610 14897
	Aluminum Oxide	М	4-6	22,000	60		662544 13660	662610 14911
	Aluminum Oxide	М	7-9	22,000	60		662544 33510	662610 14935
	Silicon Carbide	F	2	22,000	60			662610 14889
	Silicon Carbide	F	3	22,000	60			662610 17306
3 x 1/8	Aluminum Oxide	М	4-6	15,000	40		662610 93556	
	Aluminum Oxide	М	7-9	15,000	40		662610 90909	
3 x 3/16	Aluminum Oxide	М	7-9	15,000	40		662544 28239	
3 x 1/4	Ceramic Alumina	XC	1	15,000	25	666233 13930		
	Aluminum Oxide	С	7-9	15,000	40			662610 14922
	Aluminum Oxide	М	1	15,000	25		662544 97068	
	Aluminum Oxide	М	2-3	15,000	40		662544 28238	662610 14898
	Aluminum Oxide	М	4-6	15,000	40		662544 13661	662610 14912
	Aluminum Oxide	М	7-9	15,000	40		662544 06395	662610 14936
	Aluminum Oxide	F	4-6	15,000	40			662610 15419
	Silicon Carbide	F	2	15,000	40			662610 14890
	Silicon Carbide	F	3	15,000	40			662610 16005

For unified wheels with arbor holes or spindle mounts, see the Non-woven Unified Wheel section. Quick-Change back-up pads shown at the end of this section.





Non-Woven Quick-Change Discs

Quick-Change Surface Preparation Discs



Best choice for aggressive stock removal and blending in one step

RAPID PREP XHD

- Coarse and Medium discs solve your most aggressive stock removal and blending challenges, remove weld lines, weld spatter, weld discoloration and blend surfaces in a single step
- Improve cut control and surface blending over traditional coated discs with our unique combination of a conformable fiber matrix and premium ceramic grain
- XHD Coarse discs for aggressive weld removal and surface blending on steels and Medium discs on softer metals/ alloys





Non-Woven Quick-Change Discs

Quick-Change Surface Preparation Discs



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
- 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

Better choice for finishing and blending applications



TRADENAME:

VORTEX RAPID PREP

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 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

RAPID PREP

VORTEX RAPID PREP

			Engineered A/O	Aluminum Oxide	Engineered A/O	Aluminum Oxide
		ATTACHMENT:	TR (Type III)	TR (Type III)	TS (Type II)	TS (Type II)
SIZE (DIAM.)	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
Extra Coarse						
3/4	25,000	50	666233 25001	666233 40002	666233 35324	
1	25,000	50	666233 25004		666233 25003	666233 40006
1-1/2	20,000	50	666233 25007	666233 40011	666233 25006	666233 40010
2	20,000	50	666233 35326	662610 16373	666233 35325	662610 17819
3	18,000	25	666233 35327	662610 16994	666233 25010	662610 17818
4	12,000	25	666233 35329	662610 16374		
Coarse						
3/4	25,000	50	666233 25013	666233 40021	666233 35410	662610 95015
1	25,000	50	666233 25015	666233 40023	666233 35537	662610 24310
1-1/2	20,000	50	666233 35411	662610 47579	666233 25017	666233 40026
2	20,000	50	666233 35414		666233 35413	662610 09183
3	18,000	25	666233 35417	662610 09194	666233 35416	662610 09186
4	12,000	25	666233 35419	662610 08822		
Medium						
3/4	25,000	50	666233 25020	666233 40032	666233 35420	662544 28059
1	25,000	50	666233 35422	662544 82331	666233 35421	662544 82327
1-1/2	20,000	50	666233 35424	662544 82332	666233 35423	662544 82328
2	20,000	50	666233 35427	662610 09190 *	666233 35426	662610 09182
3	18,000	25	666233 35430	662610 17522	666233 35429	662610 09185
4	12.000	25	666233 35432	662610 08821		662610 55350
Fine	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-				
3/4	25,000	50	666233 25026	666233 40058	666233 25025	
1	25,000	50	666233 25029	666233 40064	666233 25028	666233 40062
1-1/2	20,000	50	666233 25032	666233 40070	666233 25031	666233 40068
2	20,000	50	666233 25035	666233 40077	666233 25034	666233 40074
3	18,000	25	666233 25038	666233 40085	666233 25037	666233 40082
4	12.000	25	666233 25041	666233 40092		
Very Fine	,000					
3/4	25,000	50	666233 25044	666233 40044	666233 25043	666233 40042
1	25.000	50	666233 25047	662544 82339	666233 25046	662544 82335
1-1/2	20,000	50	666233 25050	662544 82340	666233 25049	662544 82336
2	20,000	50	666233 35433	662610 09189 *	666233 25052	662544 82337
3	18,000	25	666233 35437	662610 09192	666233 35436	662610 09184
4	12,000	25	00020000101	666233 40053	30020000100	30201000101
Super Fine	12,000	20		3002007000		
2	20.000	50		662610 91459		
3	18,000	25		662610 91460		
* 25 per standa		20		3020 10 3 1 700		

RAPID PREP



¹25 per standard package.



PORTABLE TOOLS AND SPECIALTIES Non-Woven Quick-Change Discs

Quick-Change Buffing/Polishing Discs



Best choice for light removal of paint or rust

BUFFING/POLISHING DISCS

- This aluminum oxide grain and resin bond combination produce a smooth cut rate and smear-free, uniform finish
- Non-woven nylon fibers are laminated to tough yet conformable nylon backing that resists tearing on burrs and sharp edges
- Designed for light removal of coatings oxidation or rust without affecting the base product

TIER: BEST
TRADENAME: HIGH-STRENGTH
ABRASIVE: Aluminum Oxide
ATTACHMENT: TR (Type III)



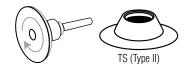
A122 (2)		MAX.							
SIZE (D)	GRIT	RPM	STD. PKG.	PART #	STD. PKG.	PART #	PART #	PART #	PART #
1-1/2	M	20,000			100			088341 66368	088341 66392
	F	20,000			100			088341 66369	
2	С	18,000			50			088341 61649	088341 66394
	M	18,000	160	662610 14792	50	088341 64064	088341 64244	088341 66303	088341 66395
	F	18,000			50			088341 66304	088341 66396
	VF	18,000			50	088341 63987	088341 64245	088341 66305	088341 66405
3	С	12,000			25			088341 61651	088341 66397
	M	12,000	80	662610 14793	25	088341 64065	088341 64252	088341 66308	088341 66398
	F	12,000			25			088341 66309	088341 66399
	VF	12,000			25	088341 63559	088341 64255	088341 66310	088341 66403

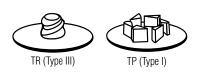


Quick-Change Disc Accessories

Quick-Change Back-up Pads

- Hard density pads are for aggressive cutting action
- Medium density pads are for all-purpose applications
- Soft density pads are used for contours and fine finishing work





SIZE (DIAMETER)	DENSITY	MAX. RPM	STD. PKG.	TS (TYPE II)	TR (TYPE III)	TP (TYPE I)
Ouick-Change		111 171	ı nu.	13 (111 2 11)	111 (111 2 111)	11 (11121)
9/16	Duok up i uus	40.000	1	662610 54014 NS		662610 54013 NS
3/4	Medium	40,000	1	088341 64206	088341 64038	088341 64001
1	Medium	40,000	1	088341 64651	088341 64037	088341 64002
1-1/2	Hard	30,000	1	088341 64622		088341 63996
	Medium	30,000	1	088341 64146	088341 61174	088341 64003
2	Hard	30,000	1	088341 64624	088341 64643	088341 63997
	Medium	30,000	1	088341 64198	088341 64922	088341 64004
	Soft	30,000	1	088341 61625	088341 64641	088341 63949
3	Hard	20,000	1	088341 61626	088341 64036	088341 63998
	Medium	20,000	1	088341 64113	088341 64949	088341 64005
	Soft	20,000	1	088341 64626	088341 64644	088341 63948
4	Medium	15,000	1	088341 64135	088341 64655	
4	Medium	8,000	1		636425 55106	
Vendible Quick	c-Change Back	-up Pads				VENDIBLE
2	Medium	30,000	5	666233 41082	666233 41083	
3	Medium	20,000	5		666233 41085	

All Quick-Change back-up pads have a 1/4" solid steel shank.

NS Non-stock. Contact your Norton representative for current order quantities and lead-times. Vendible back-up pad Std. Pkg. Qtys: 1 pad per pack; 5 packs per carton. Order in multiples of 5.

Replacement Medium Density Rubber Pads for Quick-Change TP (Type I) Back-up Pads

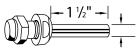
 When the rubber pad has worn away, but the steel components of your quick-change back-up are still serviceable, order these replacement rubber pads.

SIZE (D)	MODEL #	STD. PKG.	PART #
Quick-Chan	ge Replacement Rubb	ber Back-up Pads	
3/4	RR75	1	088341 64008 NS
1	RR10	1	088341 64009 NS
4	RR40	1	088341 64013 NS

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

Replacement Assemblies and Shanks for Quick-Change Back-up Pad

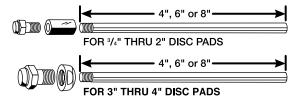
 Assemblies replace all the steel components of a quick-change back-up pad. This shank replaces the screw-in 1/4" solid steel shank only.



DESCRIPTION	STD. PKG.	PART #
Replacement Mandrels and Nut Assembly		
TP (Type I) Assembly RMN3 for 3 - 4	1	088341 64016 NS
TS (Type II) & TR (Type III) Replacement 1/4" Shank	1	088341 64303

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

Extension Mandrels and Assembly

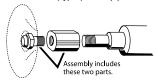


DIAMETER	MODEL #	LENGTH	STD. PKG.	PART #
Extension M	andrels and Ass	embly – TP (T	ype I)	
3/4 - 2	EMN-14	4"	1	088341 64017 NS
3/4 - 2	EMN-16	6"	1	088341 64018 NS
3/4 - 2	EMN-18	8"	1	088341 64019 NS
3 - 4	EMN-34	4"	1	088341 64020 NS
3 - 4	EMN-36	6"	1	088341 64026 NS
3 - 4	EMN-38	8"	1	088341 64021 NS

All extension mandrels are non-stock, Contact your Norton representative for current order quantities and lead-times.

MNA-1 Pad Adapters

· Convert a TP (Type I) back-up pad 1/4" diameter solid shank to a threaded shank



DISC DIAMETER	MODEL NO.	STD. PKG.	PART #
MNA-1 Pad Adapters	s – TP (Type I)		
3/4 - 2	MNA 1/4-20 THD.	1	088341 61176 NS
3/4 - 2	MNA 3/8-24	1	088341 64055 NS
3/4 - 2	MNA 5/8-11	1	088341 63001 NS
3 - 4	MNA 1/4-20	1	088341 63002 NS
3 - 4	MNA 3/8-24	1	088341 64041 NS
3 - 4	MNA 5/8-11	1	088341 64028 NS

All pad adapters are non-stock. Contact your Norton representative for current order quantities and lead-times.

MNA-23 Pad Adapters

- For use on a right angle grinder: convert TS (Type II) and TR (Type III) back-up pad 1/4" diameter solid shanks to threaded shanks.
- The larger 5/8"-11 adapter (for 4-1/2" discs) is used alone to convert to a 5/8"-11 thread.
- The 3/8"-24 insert (for 4" discs) is screwed into the 5/8"-11 adapter to create a 3/8"-24 thread adapter.



DISC DIAMETER	MODEL #	STD. PKG.	PART #
MNA-23 Pad Adapte	rs – TS (Type II) and TR (1	type III)	
3/4 - 4	MNA-23 3/8"-24 and	1	088341 62764 NS
	5/8"-11 THD.		

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

1/4" Diameter Extension Mandrel



MODEL NO.	LENGTH	STD. PKG.	PART #
1/4" Diameter Extensio	n Mandrel 1/4-20 Thre	ad	
EM-144	4"	1	088341 54185
EM-146	6"	1	088341 54186
EM-148	8"	1	088341 54187

Die Grinder



Our new Norton pneumatic die grinder quickly and comfortably accomplishes many portable applications without changing machines – including jobs for abrasive specialties (cartridge and spiral rolls...), small diameter flap wheels, mounted points, and carbide burrs.

Weight of tool:

Compressed air:

Maximum permissible operating pressure:

Recommended operating pressure:

Horsepower:

Free speed:

Air consumption @90psi:

1.4 lbs.
6.2 bar (90psi)
6.2 bar (90psi)
6.2 bar (90psi)
9.9HP
25,000 rpm
85 l/min (3 CFM)

Noise characteristic value in accordance with EN ISO 15744 (ISO 15744):

A-weighted sound pressure level at workstation
 A-weighted sound power level
 Peak C-weighted instantaneous sound pressure level
 < 130 dB

at workstation
• Measurement uncertainty (Standard) 3 dB

 Vibration value according to EN ISO 28927-12:
 3.00 m/s²

 Measurement uncertainty (Standard):
 0.84 m/s²

 Recommended lubrications:
 Air drill oil 20#

 Sanding tool specifications:
 Pad Size 2" Collet

Chuck 1/8" (3 mm) and 1/4" (6 mm)

Applications and suitability: Final surface finishing, chamfering, d

Final surface finishing, chamfering, deburring of architectural millwork, sheet metal and surface prep, zinc casting, aluminum products, injection molds, etc.; general sanding and polishing.



Put the power right in the palm of your hand with our die grinder

PNEUMATIC DIE GRINDER

- Comfortable during prolonged use thanks to vibration-limiting technology, ergonomic design, and streamlined non-slip grip
- Adaptable to the needs of each job with speed regulation and two collet inserts in 1/8" and 1/4"
- Compatible with many accessories including cartridge rolls, spiral rolls, square pads, cross pads, overlap slotted discs, flap wheels, mounted points and carbide burrs

DESCRIPTION	STD. PKG.	PART #
Norton Pneumatic Die Grinder		
Single Die Grinder with 1/8" and 1/4" collets	1	699573 08000
Die Grinder Kit*	1	699573 08001
Kit includes:		

1 die grinder with 1/8" and 1/4" collets

100 - 3/8" x 1-1/2" x 1/8", 80 grit Metal R228 cartridge rolls (088341**80232**)

1- M9 cartridge roll mandrel (088341**81209**)

10 - 1" x 1" x 1/4" shank, 60 grit Blaze R920 flap wheels (662611**51170**)

5-1" x 1" W220, 1/4" x 1-1/2" spindle Gemini 38A60-P mounted points (61463624566)

1 – 1/2" x 1" SF5 Double-Cut carbide burr (699573**08021**)





Learn more about how to safely and effectively use a die grinder on our Youtube page https://nortonsga.us/44yj2 or visit http://nortonsga.us/diegrinder

Cartridge Rolls



Cartridge rolls are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive. A valuable abrasive tool for reaching into corners, where larger diameter tools cannot work

Applications: Used on inside surfaces and inside corners where other abrasive shapes cannot reach.

Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing or removing machine tool marks, and edge breaking.

Cartridge rolls, half-glued

Grit Range: 36 - 320

Abrasive Grain: Ceramic Alumina, Aluminum Oxide

Backing: X-weight cotton, X-weight poly-cotton

Construction: All cartridge roll part numbers shown are resin bond, half-glued.

Quarter and full glue are also available for quotation as made-to-order products.

Maximum RPM: 1/8" to 1/2" – 23,000 5/8" to 1" – 18.000

5/8" to 1" - 18,000 1" to 1-1/2" - 15,000

Machine Used:

Stock Shapes:

DIE GRINDER

Application/Grit Recommendation Guide

COARSER (GRINDING) FINER (FINISHING) 36 50 60 80 120 180 240 320 Blending Out Heavy Machine Marks Removing Heavy Burrs Applying Heavy Scratch Pattern Removing Flash/Parting Lines Removing Rust/Scale/Pit Marks Preparing Metal for Painting Blending Out Medium Machine Marks Blending Metal Surfaces Applying Light Scratch Pattern Fine Blending and Cleaning Metal Finishing and Polishing



Best choice for hard-to-grind materials including super alloys (cobalt, inconel, and titanium) and stainless steel

BLAZE R920 CERAMIC ALUMINA

- Premium ceramic alumina abrasive grain provides greatest productivity with significantly faster cut rates; resists wear resulting in 50% – 300% longer life; supersized for cool cutting
- X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- · Constructed of rolled and half-glued abrasive strips that break down to expose next layer of abrasive



Better choice for accessing tight areas and where long life & fast cut are required

PINK R928 CERAMIC ALUMINA

- Excellent option for reaching into corners and small areas, ceramic grain provides better performance than aluminum oxide or zirconia alumina alternatives
- · Improved resin bond system provides longer life; supersized for cool cutting
- · Versatile X-weight poly cotton backing for flexibility and life

Good starting specification for flash removal, polishing, or removing machine tool marks and edge breaking on all types of metal

R228 ALUMINUM OXIDE

- · Quality aluminum oxide abrasive delivers long life
- X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- Constructed of rolled and half-glued abrasive strips that break down to expose next layer of abrasive





Cartridge Rolls

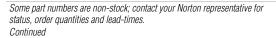




		TIER:	BEST	BETTER
		TRADENAME:	BLAZE R920	PINK R928
		ABRASIVE:	Ceramic Alumina	Ceramic Alumina
		OTHER:	Supersize	Supersize
SIZE (D x L x H)	GRIT	STD. PKG.	PART #	PART #
1/4 x 1-1/2 x 1/8	60	100	662611 94384	699573 39765
Use M-9 Mandrel	80	100	662611 94394	699573 39766
	120	100	662611 94397	699573 39767
3/8 x 1-1/2 x 1/8	60	100	662611 94392	699573 39768
Use M-9 Mandrel	80	100	662611 94395	699573 39769
	120	100	662611 94398	699573 39770
1/2 x 1-1/2 x 1/8	60	100	662611 94393	699573 39771
Use M-9 Mandrel	80	100	662611 94396	699573 39772
	120	100	662611 94399	699573 39774



		TIER:	GOOD
		TRADENAME:	R228
		ABRASIVE:	Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/16 x 3/4 x 3/32	80	100	088341 80005
3/16 x 1 x 3/32	60	100	088341 80023
Use M-2E Mandrel	80	100	088341 80024
	100	100	088341 80025
	120	100	088341 80026
	150	100	088341 80027
	180	100	088341 80028
	240	100	088341 80030
1/4 x 3/4 x 1/8	60	100	088341 80042
Use M-3 or M-7 Mandrel	80	100	088341 80043
1/4 x 1 x 1/8	50	100	088341 80060
Use M-4 or M-8 Mandrel	60	100	088341 80061
	80	100	088341 80062
	100	100	088341 80063
	120	100	088341 80064
	150	100	088341 80065
	180	100	088341 80066
	320	100	088341 80070
1/4 x 1-1/2 x 1/8	50	100	088341 80079
Use M-9 Mandrel	60	100	088341 80080
	80	100	088341 80081
	100	100	088341 80082
	120	100	088341 80083
	150	100	088341 80084
	180	100	088341 80085
	320	100	088341 80089
1/4 x 2 x 1/8	80	100	088341 80100
Use M-10 Mandrel	120	100	088341 80102
5/16 x 1 x 1/8	80	100	088341 80138
Use M-4 or M-8 Mandrel	120	100	088341 80140
5/16 x 1-1/2 x 1/8 Use M-9 Mandrel	80	100	088341 80157



Refer to the back of this section for mandrels.



		1141.	UUUD
		TRADENAME:	R228
		ABRASIVE:	Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/8 x 3/4 x 1/8	120	100	088341 80197
Use M-7 Mandrel			
3/8 x 1 x 1/8	60	100	088341 80213
Use M-8 Mandrel	80	100	088341 80214
	100	100	088341 80215
	120	100	088341 80216
	150	100	088341 80217
	180	100	088341 80218
	240	100	088341 80220
3/8 x 1-1/2 x 1/8	36	100	088341 80228
Use M-9 Mandrel	40	100	088341 80229
	50	100	088341 80230
	60	100	088341 80231
	80	100	088341 80232
	100	100	088341 80233
	120	100	088341 80234
	180	100	088341 80236
	240	100	088341 80238
	320	100	088341 80240
3/8 x 2 x 1/8	60	100	088341 80250
Use M-10 Mandrel	80	100	088341 80251
	120	100	088341 80253
1/2 x 3/4 x 1/8	80	100	088341 80270
Use M-7 Mandrel			
1/2 x 1 x 1/8	50	100	088341 80287
Use M-8 Mandrel	60	100	088341 80288
	80	100	088341 80289
	100	100	088341 80290
	120	100	088341 80291
	150	100	088341 80292
	180	100	088341 80293
	240	100	088341 80295
Castinual			

Continued





		TIER:	GOOD
		TRADENAME:	R228
		ABRASIVE:	Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
1/2 x 1-1/2 x 1/8	36	100	088341 80304
Use M-9 Mandrel	40	100	088341 80305
	50	100	088341 80306
	60	100	088341 80307
	80	100	088341 80308
	100	100	088341 80309
	120	100	088341 80310
	150	100	088341 80311
	180	100	088341 80312
	240	100	088341 80314
	320	100	088341 80316
1/2 x 2 x 1/8	60	100	088341 80326
Use M-10 Mandrel	80	100	088341 80327
OSO W TO WIGHTER	120	100	088341 80329
1/2 x 2 x 3/16	60	100	088341 80350
Use M-17 Mandrel	80	100	088341 80653
	120	100	088341 80338
1/2 x 2 x 1/4	80	100	088341 80351
Use M-22 Mandrel			
5/8 x 1 x 3/16	80	100	088341 80364
Use M-15 Mandrel			
5/8 x 1-1/2 x 1/8	60	100	088341 80275
Use M-9 Mandrel	80	100	088341 80789
	120	100	088341 80394
5/8 x 1-1/2 x 3/16	60	100	088341 80382
Use M-16 Mandrel	80	100	088341 80383
5/8 x 2 x 1/8	60	100	088341 82505
Use M-10 Mandrel	80	100	088341 81080
5/8 x 2 x 3/16	50	100	088341 80400
Use M-10 Mandrel	60	100	088341 80401
	80	100	088341 80402
3/4 x 1 x 1/8	80	100	088341 80469
Use M-8 Mandrel	120	100	088341 81543
3/4 x 1 x 3/16	80	100	088341 80459
Use M-15 Mandrel	120	100	088341 80461

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Continued



		TIER:	GOOD
		TRADENAME:	R228
		ABRASIVE:	Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/4 x 1-1/2 x 1/8	60	100	088341 80490
Use M-9 Mandrel	80	100	088341 80527
	120	100	088341 80487
3/4 x 1-1/2 x 3/16	36	100	088341 80474
Use M-16 Mandrel	50	100	088341 80476
	60	100	088341 80477
	80	100	088341 80478
	120	100	088341 80480
	180	100	088341 80482
3/4 x 1-1/2 x 1/4	36	100	088341 80907
100/box 400/case	60	100	088341 80489
Use M-21 Mandrel	80	100	088341 80358
	120	100	088341 80488
	150	100	088341 82807
3/4 x 2 x 1/8	60	100	088341 80791
Use M-10 Mandrel			
3/4 x 2 x 3/16	40	100	088341 80494
Use M-17 Mandrel	60	100	088341 80496
	80	100	088341 80497
	100	100	088341 80498
	120	100	088341 80499
3/4 x 2 x 1/4	60	100	088341 80506
Use M-22 Mandrel	80	100	088341 81297
	100	100	088341 80509
	120	100	088341 80507
1 x 1-1/2 x 1/8	80	100	088341 80584
Use M-9 Mandrel			
1 x 1-1/2 x 1/4	36	100	088341 81195
Use M-21 Mandrel	60	100	088341 80587
	80	100	088341 80583
1 x 2 x 3/16	60	100	088341 80591
Use M-17 Mandrel	80	100	088341 80592
1 x 2 x 1/4	60	100	088341 80603
Use M-22 Mandrel	80	100	088341 80606

Refer to the back of this section for mandrels.

Spiral Rolls



Spiral rolls are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive.

Applications: Used on inside surfaces and inside corners where other abrasive shapes cannot reach.

Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing, or removing machine tool marks, and edge breaking.

Shapes: Full taper (all stock part numbers), half taper, and sidewall taper

Grit Range: 36 - 240

Abrasive Grain: Ceramic Alumina, Aluminum Oxide
Backing: X-weight cotton, X-weight poly cotton

Construction: All spiral roll part numbers shown are full tapered, resin bond, half glued

Half-tapered and sidewall-tapered are available for quotation as made-to-order products

Quarter and full glue are also available for quotation as made-to-order products

Maximum RPM: 1/8" to 1/2" – 23,000

5/8" to 1" - 18,000 1" to 1-1/2" - 15,000

Machine Used:

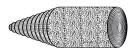




Full Taper

- Especially useful for grinding/polishing of channels, fillets and radii, and deburring small holes
- Full taper used when the area to be finished is hard to reach with a full cartridge roll
- The tapered roll conforms to smaller areas
- · Fits into irregular concaves, contours, channels

All part numbers shown are full tapered



Half Taper

- Used when the area to be finished is not narrow but a beginning point on the roll is needed
- The portion of the roll that is not tapered is then used to finish off the sides

Available for quotation as made-to-order products



Sidewall Taper

- The portion of the roll that is tapered guides the roll down to the area to be finished
- The sidewall then finishes off the sides

 Available for quotation as made-to-order products

Application/Grit Recommendation Guide COARSER (GRINDING)

FINER (FINISHING) 40 50 60 80 120 180 240 320 Blending Out Heavy Machine Marks Removing Heavy Burrs Applying Heavy Scratch Pattern Removing Flash/Parting Lines Removing Rust/Scale/Pit Marks Preparing Metal for Painting Blending Out Medium Machine Marks Blending Metal Surfaces Applying Light Scratch Pattern Fine Blending and Cleaning Metal Finishing and Polishing

Spiral Rolls



Best choice for hard-to-grind materials including super alloys (cobalt, inconel, and titanium) and stainless steel

BLAZE R920 CERAMIC ALUMINA

- See significantly faster, cooler, burn-free results on the toughest jobs from the premium, sharp, longest-lasting P-graded ceramic abrasive grains and advanced grinding aid lubricant; supersized for cool cutting
- . X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- · Full taper construction consisting of rolled and half-glued abrasive strips that break down to expose next layer of



Better choice for accessing tight areas and where long life and fast cut are required

PINK R928 CERAMIC ALUMINA

- Excellent option for reaching into corners and small areas, ceramic grain provides better performance than aluminum oxide or zirconia alumina alternatives
- Improved resin bond system provides longer life; superiszed for fast cutting
- · Versatile X-weight poly cotton backing for flexibility and life



Good choice for cooler grinding/polishing of channels, fillets and radii, and deburring small holes at a low initial price

R228 ALUMINUM OXIDE

- · Quality aluminum oxide abrasive delivers long life
- . X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- Full taper construction consisting of rolled and half-glued abrasive strips that break down to expose next layer of











		HER:	BEST	BETTER	GOOD
		TRADENAME:	BLAZE R920	PINK R928	R228
		ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide
		OTHER:	Supersize	Supersize	
SIZE (D x L x H)	GRIT	STD. PKG.	PART #	PART #	PART #
3/8 x 1 x 1/8	60	100			088341 81714
Use M-8 Mandrel	80	100			088341 81715
	120	100			088341 81717
3/8 x 1-1/2 x 1/8	60	100	662611 94481	699573 39775	088341 81724
Use M-9 Mandrel	80	100	662611 94490	699573 39785	088341 81708
	120	100	662611 94491	699573 39787	088341 81727
	180	100			088341 81709
1/2 x 1 x 1/8	60	100			088341 81734
Use M-8 Mandrel	80	100			088341 81735
	120	100			088341 81737
1/2 x 1-1/2 x 1/8	36	100			088341 81230
Use M-9 Mandrel	50	100			088341 81743
	60	100	662611 94484	699573 39790	088341 81744
	80	100	662611 94492	699573 39791	088341 81745
	100	100			088341 81746
	120	100	662611 94495	699573 39792	088341 81747
	180	100			088341 81749
	240	100			088341 81750
1/2 x 2 x 1/8	60	100			088341 81754
Use M-10 Mandrel	80	100			088341 81755
	120	100			088341 81757
5/8 x 1-1/2 x 1/8	100	100			088341 81776
Use M-9 Mandrel	120	100			088341 81777
5/8 x 1-1/2 x 3/16 Use M-16 Mandrel	80	100			088341 81444
3/4 x 1-1/2 x 1/8	60	100			088341 81286
Use M-9 Mandrel	80	100			088341 80886
3/4 x 1-1/2 x 3/16	60	100			088341 81808
Use M-16 Mandrel	80	100			088341 81809
	120	100			088341 81811
3/4 x 2 x 3/16 Use M-17 Mandrel	60	100			088341 81820
1 x 1-1/2 x 1/8 Use M-9 Mandrel	60	100		699573 39790	088341 81240
1 x 2 x 3/16	36	100			088341 81875
Use M-17 Mandrel	60	100			088341 81878
	80	100			088341 81879

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Refer to the back of this section for mandrels.

MORTON MERIT. Square & Cross Pads, Overlap Slotted Discs



Square pads, cross pads and overlap slotted discs are all used on high-speed pneumatic tools for deburring, blending, cleaning, and polishing applications. All of these abrasive specialties are designed for applications in small, tight, hard-to-access locations on parts that are being finished.

Benefits: Variety of shapes and sizes to fit application and part geometry

Shapes provide flexibility for the application, while eliminating aggressiveness of

the sanding action

Cross pads allow visibility of the surface while sanding, to ensure correct amount of

material is removed

Grit Range: 50 - 180

Ceramic Alumina. Aluminum Oxide **Abrasive Grain:** Backing: X-weight cotton, X-weight poly-cotton

Standard quick-change eyelet for easy mounting and removal on quick-change mandrel

minimizes downtime; Mandrel use increases range and versatility

Maximum RPM: 1" Diameter - 25,000 3" Diameter - 12,000 to 14,000

> 4" Diameter - 8,000 to 12,000 1-1/2" to 2" Diameter – 18,000 to 23,000

2-1/2" Diameter - 14,000 to 18,000

5" to 6" Diameter - 5.500 to 7.500

Machine Used:

Construction

DIE GRINDER

Application/Grit Recommendation Guide

COARSER (GRINDING) FINER (FINISHING) 80 100 120 150 50 180 Light Stock Removal Edge Chamfering/Beveling Blendina Deburring/Deflashing Cleaning Finishing



Best choice for hard-to-grind materials including super alloys (cobalt, inconel, and titanium) and stainless steel

BLAZE R920 CERAMIC ALUMINA

- · See significantly faster, cooler, burn-free results on the toughest jobs from the sharp, longest-lasting P-graded ceramic abrasive grains and advanced supersize grinding aid for cool cutting
- X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- Corners wear down consistently, exposing fresh abrasive; as these become round, they become less aggressive and run even smoother, with less stock removal - to retain workpiece shape



Better choice for accessing tight areas and where long life & fast cut are required

PINK R928 CFRAMIC ALUMINA

- · Excellent option for reaching into corners and small areas, ceramic grain provides better performance than aluminum oxide and zirconia alternatives
- Improved resin bond system provides longer life; supersized for cool cutting
- Versatile X-weight poly cotton backing for flexibility and life

Good for most ID deburring and polishing applications



R228 ALUMINUM OXIDE

- · Versatile, quality aluminum oxide abrasive grain ensures good cut rate
- X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- Corners wear down consistently, exposing fresh abrasive; as these become round, they become less aggressive and run even smoother, with less stock removal - to retain workpiece shape

MORTON MERIT, Square & Cross Pads, Overlap Slotted Discs





Square Pads

- · Corners wear down consistently exposing fresh abrasive; the pad becomes round for less aggressive stock removal
- Grind almost as fast as hard wheels, but are much smoother and easier to control
- For quick blending of channels, fillets, corners, or spotting flat surfaces



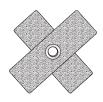
			TIER:	BEST	BETTE4R	GOOD
			TRADENAME:	BLAZE R920	PINK R928	R228
			ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide
			OTHER:	Supersize	Supersize	
SIZE (L x W x T)	EYELET	GRIT	STD. PKG.	PART #	PART #	PART #
1 x 1 x 6 ply	8-32	80	100			088341 84826
1 x 1 x 8 ply		80	100			088341 84124
1-1/2 x 1-1/2 x 1/2	1/4-20	60	100			088341 84463
		80	100			088341 84125
2 x 2 x 1/2	1/4-20	60	100	662611 94520	699573 40138	
	80	100	662611 94552	699573 40139	088341 84397	
		120	100	662611 94554	699573 40141	
2 x 2 x 3/4	1/4-20	80	100			088341 84394
3 x 3 x 1/4	1/4-20	60	100	662611 94531	699573 40142	
		80	100	662611 94555	699573 40143	
		120	100	662611 94556	699573 40144	
3 x 3 x 1/2	1/4-20	50	100			088341 82152
		60	100	662611 94528	699573 40146	088341 82057
		80	100	662611 94557	699573 40147	088341 84336
		120	100	662611 94558		

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Refer to the back of this section for mandrels.

MORTON MERIT, Square & Cross Pads, Overlap Slotted Discs





Cross Pads

- The shape of cross pads enables you to see through to the contact area, and provides greater flexibility than square pads to conform to variable internal diameters
- · Used for close-tolerance polishing of small radii and channels, deburring, and finishing of bell-mouth configurations
- All pads are furnished with standard quick-change eyelet, as listed
- · Plain hole sizes must be specified and are available for quotation as made-to-order products







				TIER:	BEST	BETTER	GOOD
				TRADENAME:	BLAZE R920	PINK R928	R228
				ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Aluminum Oxide
				OTHER:	Supersize	Supersize	
SIZE (L x W x T)	PLY	EYELET	GRIT	STD. PKG.	PART #	PART #	PART #
3/4 x 3/4 x 3/8	8	3-48	80	100			088341 85578
1 x 1 x 3/8	8	3-48	60	100			088341 84943
			80	100			088341 85519
			100	100			088341 84195
			120	100			088341 85164
1-1/2 x 1-1/2 x 1/2	8	8-32	60	100	662611 94496	699573 39793	088341 84258
			80	100	662611 94508	699573 39794	088341 84465
			100	100			088341 82196
			120	100	662611 94511	699573 39804	088341 82148
2 x 2 x 1/2	8	8-32	60	100			088341 82156
			80	100			088341 82157
			120	100			088341 82132
2 x 2 x 3/4	8	8-32	60	100	662611 94502	699573 39806	088341 84128
			80	100	662611 94513	699573 40133	088341 84194
			120	100	662611 94516	699573 40134	
2-1/4 x 2-1/4 x 1/2	8	8-32	80	100			088341 84402
2-1/2 x 2-1/2 x 3/4	8	8-32	80	100			088341 84206
3 x 3 x 1	8	1/4-20	60	100	662611 94504		088341 82135
			80	100	662611 94549		088341 84119
			120	100	662611 94551		088341 84116
3 x 3 x 1	8	1/4-20	60	100		699573 40135	
	10	1/4-20	80	100		699573 40136 *	088341 82140
	8	1/4-20	120	100		699573 40137	
3 x 3 x 1-1/2	10	1/4-20	80	100			088341 82184
4 x 4 x 1	8	1/4-20	60	100			088341 84142
			80	100			088341 84135
			120	100			088341 84377
4 x 4 x 1-1/2	8	1/4-20	80	100			088341 84129

^{*} Pink R928 3 x 3 x 1 are 8 ply.

Ceramic Alumina and Alumina Oxide cross pads are also available upon request as made-to-order products. Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Refer to the back of this section for mandrels.



Overlap Slotted Discs



Overlap Slotted Discs

- Used for deburring and polishing radii, holes and cylinder walls
- Our "2 to a set" configuration cuts on the inward motion only
- The "4 to a set" configuration, assembled back to back, cuts on both the inward and outward motions
- · All discs are furnished with standard quick-change eyelet
- · Plain hole sizes must be specified and are available for quotation as made-to-order products





			TIER:	BEST	GOOD
			TRADENAME:	BLAZE R920	R228
			ABRASIVE:	Ceramic Alumina	Aluminum Oxide
			OTHER:	Supersize, 2 Per Set	2 Per Set
DIA.	EYELET	GRIT	STD. PKG.	PART #	PART #
1	8-32	60	100		088341 84346
		80	100		088341 84019
		100	100		088341 84224
		120	100		088341 84151
1-1/4	8-32	60	100		088341 84270
		80	100		088341 84065
		100	100		088341 84291
		120	100		088341 84084
1-1/2	8-32	60	100	662611 95051	088341 84066
		80	100	662611 95368	088341 84079
		100	100		088341 84279
		120	100	662611 95367	088341 86035
1-3/4	8-32	60	100		088341 84655
		80	100		088341 84042
2	8-32	60	100	662611 95054	
		80	100	662611 95055	088341 84076
		100	100		088341 84145
		120	100	662611 95056	088341 84055
2-1/2	8-32	80	100		088341 84444
3	1/4-20	60	100	662611 95057	088341 84041
		80	100	662611 95058	088341 84077
		100	100		088341 84082
		120	100		088341 84344
4	1/4-20	60	100		088341 84000
		120	100		088341 85155
4-1/2	1/4-20	100	100		088341 84431

All overlap slotted discs are available (made-to-order) reinforced with a fiber washer

Ceramic Alumina and Alumina Oxide overlap slotted discs are also available upon request as made-to-order products. Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Quick-Change Mandrels for Overlap Slotted Discs, Square and Cross Pads

CROSS PAD SIZE DIA.	SQUARE PAD SIZE DIA.	OVERALL LENGTH	MODEL NO.	THD. SIZE	PART #
1/4, 3/8, and 1/2 wide		2-1/2	MM48-4	3-48	088341 83162
3/4, 1 wide	Up thru 1-1/2 sq. x 1/2 thick	3	MM32-4	8-32	088341 83163
	2 sq. x 1/4 or 3/8 thick	4	MM-32-4-4	8-32	088341 21680
		6	MM-32-4-6	8-32	088341 21681
All pads 2-1/2 x 1-1/2 and larger	2 sq. x 1/4 or 1/2 thick and larger	3	MM20-4	1/4-20	088341 83164

For overlap slotted discs, choose a mandrel with the same thread size as the disc





Spiral Bands



Best product for blending and polishing contours when smooth running is a primary concern. Used for finishing hard-to-reach areas, removing parting lines, imperfections, and burrs on all surfaces.

Benefits: Spiral construction avoids shadow marks and provides smooth, chatter-free cutting action.

Achieves close tolerances when finishing curved, contoured, and hard-to-reach areas. Fast cutting and removes toughest metal. Bands are easily removed and replaced.

24 - 320

Abrasive Grain: Ceramic Alumina, Aluminum Oxide

Backing: X-weight cotton

Grit Range:

Machine Used:

Other: Use with rubber expanding drum



DIE GRINDER

Application/Grit Recommendation Guide

COARSER (GRINDING) FINER (FINISHING) 24 36 60 80 120 180 240 320 Heavy Stock Removal Blending Out Heavy Machine Marks Removing Heavy Burrs Applying Heavy Scratch Pattern Removing Flash/Parting Lines Removing Rust/Scale/Pit Marks Preparing Metal for Painting Blending Out Medium Machine Marks Blending Metal Surfaces Applying Light Scratch Pattern Fine Blending and Cleaning Metal Finishing and Polishing



Best choice for hard-to-grind materials including super alloys (cobalt, inconel, and titanium) and stainless steel

BLAZE R920 CERAMIC ALUMINA

- See significantly faster, cooler, burn-free results on the toughest jobs from the next-generation of sharp, longest-lasting P-graded ceramic abrasive grains and advanced grinding aid lubricant
- · Advanced, full resin bond system designed to promote exceptional grain retention for additional product life
- . X-weight cotton backing and spiral construction avoid shadow marks and provide smooth, chatter-free cutting action

Good starting specification for all types of metal



R228 ALUMINUM OXIDE

- Tough and durable quality aluminum oxide abrasive removes tough metal
- . X-weight cotton backing and spiral construction avoid shadow marks and provide smooth, chatter-free cutting action
- Achieves close tolerances on curved, contoured, and hard-to-reach areas



Spiral Bands



TIER:	BEST
TRADENAME:	BLAZE R920
ABRASIVE:	Ceramic Alumina

			OTHER: Supersize
SIZE (D x W)	GRIT	STD. PKG.	PART #
1/2 x 1	40	100	662611 46012
	60	100	662611 46013
	80	100	662611 46014
	120	100	662611 46015
3/4 x 1	40	100	662611 46016
9, 1	60	100	662611 46017
	80	100	662611 46018
	120	100	662611 46019
1 x 1	40	100	662611 46020
	60	100	662611 46021
	80	100	662611 46022
	120	100	662611 46023
1-1/2 x 1-1/2	40	100	662611 46024
	60	100	662611 46025
	80	100	662611 46026
	120	100	662611 46027
2 x 2	40	100	662611 46028
	60	100	662611 46029
	80	100	662611 46030
	120	100	662611 46031
3 x 3	40	50	662611 46032
	60	50	662611 46033
	80	50	662611 46034
	120	50	662611 46035





TIER: GOOD
TRADENAME: R228

			<i>ABRASIVE</i>	: Aluminum Oxide
		STOCK	NON-STOCK	
SIZE (D x W)	GRIT	PKG. QTY.	MOQ	PART #
3/8 x 1	80	100/box	300	088341 96645
1/2 x 1/2	50	100/box	300	088341 96228
	80	100/box	300	088341 96179
	100	100/box	300	088341 96189
	120	100/box	300	088341 96069
	180	100/box	300	088341 96209
1/2 x 1	36	100/box	300	088341 96591
	40	100/box	300	088341 96174
	60	100/box	300	088341 96212
	80	100/box	300	088341 96215
	120	100/box	300	088341 96210
1/2 x 2	50	100/box	200	088341 96548
	80	100/box	200	088341 96669
3/4 x 3/4	60	100/box	300	088341 96168
	80	100/box	300	088341 96161
3/4 x 1	36	100/box	300	088341 96261
	40	100/box	300	088341 96517
	50	100/box	300	088341 96515
	60	100/box	300	088341 96070
	80	100/box	300	088341 96071
	120	100/box	300	088341 96219
3/4 x 1-1/2	24	100/box	300	088341 96596
	60	100/box	300	088341 96554
	80	100/box	300	088341 96249
3/4 x 2	80	100/box	200	088341 96756



TIER: GOOD	
TRADENAME: R228	
ABRASIVE: Aluminum	n Oxide

			71011710171	. / warminam oxido
SIZE (D x W)	GRIT	STOCK PKG. QTY.	NON-STOCK MOQ	PART #
1 x 1	36	100/box	300	088341 96072
	40	100/box	300	088341 96073
	50	100/box	300	088341 96184
	60	100/box	300	088341 96075
	80	100/box	300	088341 96074
	120	100/box	300	088341 96177
1 x 1-1/2	36	100/box	200	088341 96525
1 x 2	80	100/box	200	088341 96268
	100	100/box	200	088341 96750
1 x 3	36	100/box	100	088341 96665
	50	100/box	100	088341 97688
	60	100/box	100	088341 96676
	80	100/box	100	088341 96195
	120	100/box	100	088341 96197
1-1/2 x 1-1/2	36	100/box	200	088341 96164
	40	100/box	200	088341 96171
	50	100/box	200	088341 96176
	60	100/box	200	088341 96091
	80	100/box	200	088341 96165
	120	100/box	200	088341 96066

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Continued



Spiral Bands





TIER: GOOD	ı
TRADENAME: R228	
ABRASIVE: Aluminum Oxide	

			ADNASIVE	Alullillulli Oxide
CIZE (D W)	ODIT	STOCK	NON-STOCK	DADT #
SIZE (D x W)	GRIT	PKG. QTY.	MOQ	PART #
1-1/2 x 2	60	100/box	200	088341 96067
	80	100/box	200	088341 96533
1-1/2 x 3	36	100/box	100	088341 97063
	60	100/box	100	088341 96703
	80	100/box	100	088341 96809
	120	100/box	100	088341 96343
	180	100/box	100	088341 97869
2 x 1	80	100/box	200	088341 96166
	120	100/box	200	088341 96595
2 x 2	36	100/box	200	088341 96110
	40	100/box	200	088341 96172
	60	100/box	200	088341 96173
	80	100/box	200	088341 96181
	120	100/box	200	088341 96585
2 x 3	50	100/box	100	088341 96152
	60	100/box	100	088341 96175
	80	100/box	100	088341 96198
2-1/4 x 3	36	100/box	100	088341 97140
	50	100/box	100	088341 96620
	80	100/box	100	088341 96270
	120	100/box	100	088341 96729
	150	100/box	100	088341 95857

			TRADENAME:	
			ABRASIVE:	Aluminum Oxide
		STOCK	NON-STOCK	
SIZE (D x W)	GRIT	PKG. QTY.	MOQ	PART #
3 x 2	40	100/box	100	088341 96090
	50	100/box	100	088341 96264
	60	100/box	100	088341 96530
	80	100/box	100	088341 96265
	120	100/box	100	088341 96531
3 x 3	24	100/box	100	088341 96256
	36	100/box	100	088341 96262
	40	100/box	100	088341 96555
	50	100/box	100	088341 96253
	60	100/box	100	088341 96188
	80	100/box	100	088341 96159
	100	100/box	100	088341 96250
	120	100/box	100	088341 96572
	150	100/box	100	088341 96452
	180	100/box	100	088341 96131
	320	100/box	100	088341 97968

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

Expanding Rubber Drums

Spiral Bands are easily removed and replaced on the rubber expanding drum.





					EXPANDING DUCING
DRUM DIAMETER	WIDTH	SHANK DIAMETER	MAX. RPM	STD. PKG.	PART #
1/4	1/2	1/8	30,000	1	088341 96030
3/8	1/2	1/4	30,000	1	088341 96944 NS
3/8	1	1/8	18,000	1	088341 96011 NS
1/2	1/2	1/4	30,000	1	088341 96904
1/2	1	1/4	15,000	1	088341 96906
1/2	1-1/2	1/4	12,000	1	088341 96907
1/2	2	1/4	10,000	1	088341 96908
3/4	1/2	1/4	27,000	1	088341 96909 NS
3/4	3/4	1/4	24,000	1	088341 96910 NS
3/4	1	1/4	17,000	1	088341 96911
3/4	1-1/2	1/4	10,000	1	088341 96912
3/4	2	1/4	10,000	1	088341 96913
NIO AL					1 1111

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



TIER:	GOOD
TRADENAME:	
	EXPANDING DRUMS

DRUM DIAMETER	WIDTH	SHANK DIAMETER	MAX. RPM	STD. PKG.	PART #
1	1/2	1/4	20,000	1	088341 96914 NS
1	1	1/4	18,000	1	088341 96916
1	1-1/2	1/4	10,000	1	088341 96917
1	2	1/4	8,000	1	088341 96918
1-1/2	1	1/4	12,000	1	088341 96921
1-1/2	1-1/2	1/4	10,000	1	088341 96922
1-1/2	2	1/4	8,000	1	088341 96923
2	1	1/4	11,000	1	088341 96926
2	1-1/2	1/4	8,000	1	088341 96927
2	2	1/4	6,000	1	088341 96928
3	1	3/8	3,000	1	088341 96929 NS
3	2	3/8	3,000	1	088341 96930 NS
3	3	3/8	3,000	1	088341 96931

Tapered Cone Points



Tapered cone points are strips of abrasive cloth rolled and glued to form a solid shape that is designed to break down during use and reveal the next layer of abrasive. Tapered cone points are similar to cartridge rolls but their shape lends greater accessibility to many difficult-to-reach work areas. They are used for deburring holes and in close tolerance work areas.

Applications: Used on inside surfaces and inside corners where other abrasive shapes cannot reach.

Typically these are used on high-speed air grinders and are always mounted on a mandrel. Ideal for flash removal, polishing, or removing machine tool marks, and edge breaking.

50 - 320

Abrasive Grain: Aluminum Oxide Backing: X-weight cotton

Construction: Popular sizes and mandrels are listed, with additional sizes available upon request as

made-to-order products

Ceramic alumina and silicon carbide cone points are available upon request as

made-to-order products

Maximum RPM: 1/8" to 1/2" – 23,000

5/8" to 1" - 18,000 1" to 1-1/2" - 15,000

1" to 1-1/2" – 15,0 **Machine Used:**

DIE GRINDER

Application/Grit Recommendation Guide

COARSER (GRINDING) FINER (FINISHING) 50 80 240 36 40 60 120 180 320 Blending Out Heavy Machine Marks Removing Heavy Burrs Applying Heavy Scratch Pattern Removing Flash/Parting Lines Removing Rust/Scale/Pit Marks Preparing Metal for Painting Blending Out Medium Machine Marks Blending Metal Surfaces Applying Light Scratch Pattern Fine Blending and Cleaning Metal Finishing and Polishing



Good starting specification for flash removal, polishing, or removing machine tool marks and edge breaking on all types of metal in difficult-to-reach work areas

R228 ALUMINUM OXIDE TAPERED CONE POINTS

- · Quality aluminum oxide abrasive delivers long life
- X-weight cotton cloth provides extended durability, conformability, and superior wear resistance; strong resin bond system provides good grain retention and life
- Full taper construction consisting of rolled and half-glued abrasive strips that break down to expose next layer of abrasive

		HEN.	GUUD
		TRADENAME:	R228
		ABRASIVE:	Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
3/16 x 1 x 2-1/2°	50	500	088341 86892
Use K-110 Mandrel	60	500	088341 86893
	80	500	088341 80918
	100	500	088341 82197
	120	500	088341 82199
	150	500	088341 82200
	180	500	088341 86894
	240	500	088341 86895
	320	500	088341 82855
	320	500	088341 82855

		TRADENAME:	R228 Aluminum Oxide
SIZE (D x L x H)	GRIT	STD. PKG.	PART #
5/16 x 1-1/2 x 5°	80	500	088341 80873
Use B-20 Mandrel	100	500	088341 82043
	120	500	088341 82717
	150	500	088341 86890
	180	500	088341 82535
	240	500	088341 82044
	320	500	088341 82537

320 500 088341**82855** Refer to next page for mandrels.

TIER COOD



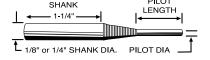
Cartridge and Spiral Roll Mandrels

MODEL #	PILOT DIA.	PILOT LENGTH	SHANK DIA.	SHANK LENGTH	OVERALL LENGTH	PART #
Cartridge and Sp	iral Roll Mandrels					
M-2E	3/32	3/4	1/4	1	3	088341 83799 NS
M-2	3/32	1	1/8	1	3	088341 81202
M-3	1/8	1/2	1/8	1	2-1/2	088341 81203
M-4	1/8	3/4	1/8	1	2-1/2	088341 81204
M-5	1/8	1	1/8	1	2-3/4	088341 81205
M-6	1/8	1-1/2	1/8	1	2-1/2	088341 81206 NS
M-7	1/8	1/2	1/4	1-1/4	2-1/4	088341 81207
M-8	1/8	3/4	1/4	1-1/4	2-1/2	088341 81208
M-9	1/8	1	1/4	1-1/4	2-3/4	088341 81209
M-10	1/8	1-1/2	1/4	1-1/4	3-1/4	088341 81210
M-11	1/8	2	1/4	1-1/4	4	088341 81211 NS
M-12	3/16	1/2	1/8	1-1/4	2-1/4	088341 81212 NS
M-13	3/16	3/4	1/8	1-1/4	2-1/2	088341 81213 NS
M-14	3/16	1/2	1/4	1-1/4	2-1/2	088341 81214 NS
M-15	3/16	3/4	1/4	1-1/4	2-3/4	088341 81215 NS
M-16	3/16	1	1/4	1-1/4	3	088341 81216
M-17	3/16	1-1/2	1/4	1-1/4	3-1/2	088341 81217
M-18	3/16	2	1/4	1-1/4	4	088341 81218
M-19	1/4	1/2	1/4	1-1/4	2-1/2	088341 81219 NS
M-20	1/4	3/4	1/4	1-1/4	2-3/4	088341 81220 NS
M-21	1/4	1	1/4	1-1/4	3	088341 81221
M-22	1/4	1-1/2	1/4	1-1/4	3-1/2	088341 81222
M-23	1/4	2	1/4	1-1/4	4	088341 81223 NS
M-24	5/16	3/4	1/4	1-1/4	2-3/4	088341 81224 NS
M-25	5/16	1	1/4	1-1/4	3	088341 81225 NS
M-26	5/16	1-1/2	1/4	1-1/4	3-1/2	088341 81226 NS
M-27	5/16	2	1/4	1-1/4	4	088341 81227 NS

NS Non-stock. Contact your Norton representative for current order quantities and lead-times. Standard Package = 1

Recommended Pilot Length for Mandrels

_	
3/4 Roll Length	Use 1/2 Pilot
1 Roll Length	Use 3/4 Pilot
1-1/2 Roll Length	Use 1 Pilot
2 Roll Length	Use 1-1/2 Pilot



Extra Shank Length Mandrels for Cartridge Rolls and Spiral Rolls

MODEL #	SHANK LENGTH	OVERALL LENGTH	PART NO.
Extras Shank	Length Mandrels		
M-8-4	4	5-1/4	088341 80116
M-8-6	6	7-1/4	088341 80122
M-9-2.5	2-1/2	4	088341 80096
M-9-3	3	4-1/2	088341 80129
M-9-4	4	5-1/2	088341 80074 NS
M-9-6	6	7-1/2	088341 80131
M-10-4	1-3/4	4	088341 80092 NS
M-10-6	3-3/4	6	088341 80145

All Extra Shank Length mandrels are 1/4" diameter

Tapered Cone Point Mandrels

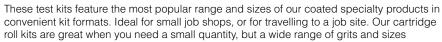
DESCRIPTION	SHANK	PART #
Cone Point Mandrels		
A-10	1/4	088341 81300
B-20	1/4	088341 81301
C-30	1/4	088341 81302
D-40	1/4	088341 81303
E-50	1/4	088341 81304
F-60	1/4	088341 81305
G-70	1/4	088341 81306
1-90	1/4	088341 81308
K-110	1/8	088341 81310





NS Non-stock. Contact your Norton representative for current order quantities and lead-times. Standard Package = 1









Ceramic Alumina Cartridge Roll Test Kit

- Part # 662610**66726**
- Kit includes a variety of our ceramic alumina cartridge rolls, spiral rolls and mandrels in popular sizes and grits.



Aluminum Oxide Cartridge Roll Test Kit "CR"

- Part # 088341**81061**
- Includes over 120 pieces of our most popular sizes, grits and shapes with their appropriate mandrels.



General Purpose Test Kit "GP"

- Part # 088341**69025**
- Includes samples of various abrasive specialties. One of these kits could be worth the cost of the entire kit by solving
 your problems in deburring, polishing and grinding.



Porting Test Kit "APK-MO"

- Part # 088341**69032**
- The samples in this kit highlight specialties for general metal and wood working polishing and finishing applications.

Non-Woven Specialties

Surface Preparation Stars



The perfect item for ID work

SURFACE PREPARATION STARS

- Star shape design is tough yet conformable to intricate shapes and contours without changing the workpiece dimension
- · Premium aluminum oxide grain for excellent cutting and finishing

TIED, DETTED

· Firm durable web for high resistance to tearing on burrs and sharp edges

		IIER: BETTER
	TRADEN	AME: SURFACE PREP
	ABRA	SIVE: Aluminum Oxide
	ATTACHN	MENT: 1/4-20 Eyelet
GRIT	STD. PKG.	PART #
С	100	088341 85923
М	100	088341 85924
VF	100	088341 85925
С	100	088341 85926
M	100	088341 85927
VF	100	088341 85928
С	100	088341 85929
M	100	088341 85678
VF	100	088341 85931
С	100	088341 85932
M	100	088341 85933
VF	100	088341 85934
	C M VF C M VF C M VF C M VF C M M VF C M M VF C M M VF C M	GRIT STD. PKG. C 100 M 100 VF 100 C 100 M 100 VF 100 C 100 M 100 VF 100 C 100 M 100 C 100 M 100 C 100 M 100

Some part number are non-stock, contact your Norton representative for status, order quantities and lead-times. 1/4-20 eyelets attach to MM20-4 mandrel, Part # 088341**83164** (See description at end of Overlap Slotted Disc Section.)

Cross Buffs



Best choice for blending, cleaning and polishing

CROSS BUFFS

- Unique design is tough yet conformable to intricate shapes and contours without changing the workpiece dimension
- · Premium aluminum oxide grain for excellent cutting and finishing
- · Firm durable web for high resistance to tearing on burrs and sharp edges

			TI	ER: BEST	BETTER
			TRADENAI	ME: HIGH STRENGTH	BUFFING
			ABRASI	VE: Aluminum Oxide	Aluminum Oxide
			ATTACHME	NT: 8-32 Eyelet	8-32 Eyelet
SIZE (D x W)	GRIT	PLY	STD. PKG.	PART #	PART #
1-1/2 x 1/2	Coarse	2	100		088341 88761
	Medium	2	100	088341 89306	088341 87312
	Very Fine	2	100	088341 89307	088341 88585
1-1/2 x 1/2	Coarse	3	100		666233 01763
	Medium	3	100	088341 89308	088341 87311
	Very Fine	3	100	088341 89309	088341 88586

8-32 eyelets: Attach to MM32-4 mandrel. Part No. 08834183163 (See description at end of Overlap lotted Disc Section)



Non-Woven Specialties

Non-Woven Disc Wheels with 1/4" Steel Shank



Best choice for all of your tough stripping needs on all kinds of surfaces

BLAZE RAPID STRIP DISCS

- · Ceramic alumina grain provides 2X cut rate, 2X life over silicon carbide products
- · Advanced resin bond does not shed on rust-encrusted pieces, and prevents gouging and rework; does not snag when used for deburring
- Leave a thoroughly cleaned surface that ensures excellent adhesion for subsequent processes such as coating, painting and soldering

Better choice for light deburring and finishing



DISC WHEELS

- Durable, longer lasting aluminum oxide abrasive leaves a more polished finish
- · Discs are ganged together to form a wheel that is tough yet conformable to intricate shapes and contours without changing the workpiece dimension
- These wheels are mounted on a 1/4 inch steel mandrel embedded in a strong epoxy core



TRADENAME: BLAZE RAPID STRIP

				ABF	RASIVE: Ceramic Alumina	
SIZE (D x W x 1/4 SHANK)	GRIT	PLY	MAX. RPM	STD. PKG.	PART #	
4 x 1/2	Extra Coarse	1 Ply	8,000	5	776960 05713	
4 x 1	Extra Coarse	2 Plv	8.000	5	666233 75051	



				HEF	BETTER
				ABRASIVE	Aluminum Oxide
SIZE (D x W x 1/4 SHANK)	GRIT	PLY	MAX. RPM	STD. PKG.	PART #
2 x 1/2	Medium	2 Ply	12,000	10	088341 31551
2 x 1	Medium	4 Ply	12,000	10	088341 31554
3 x 1/2	Medium	2 Ply	8,000	10	088341 31558
	Very Fine	3 Ply	8,000	10	088341 31560
3 x 1	Medium	4 Ply	8,000	10	088341 31496
	Fine	5 Ply	8,000	10	088341 31557
	Very Fine	5 Ply	8,000	10	088341 31497
4 x 1/2	Fine	3 Ply	6,000	10	088341 31562
4 x 1	Medium	4 Ply	6,000	10	088341 31564
5 x 1/2	Medium	2 Ply	4,000	10	088341 31567
5 x 1	Medium	4 Ply	4,000	10	088341 31570
	Fine	5 Ply	4,000	10	088341 31571
D1 1 1 1 1 1					

Disc wheels are constructed by number of plys. The actual face width will vary and will not match the listed width exactly. Face width is given for reference only.







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 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

40 - 320

Ceramic Alumina, Aluminum Oxide Blend, Aluminum Oxide







DIF **GRINDER**

GRINDER

PEDESTAL **GRINDER**

PORTABLE **GRINDER**

Shape Recommendation Guide

Shape

Description/Application

Flap Wheels with Mounted Steel Shanks

Wheels are designed with a 1/8" or 1/4" steel shank as an integral part of each wheel. These shanks run through the wheel creating better balance, a reduction of chatter, and reduced operator fatigue. They also permit quick changes on air tools when using other abrasive products.



Flap Wheels with Mounted 1/4"-20 Thread

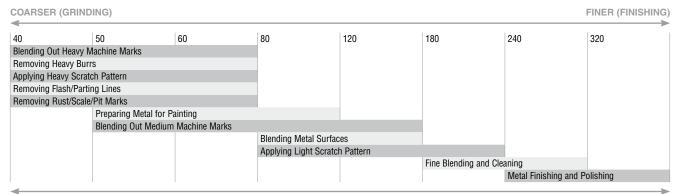
Wheels are designed with a 1/4"-20 thread and flange as an integral part of the wheel. These threads facilitate the quickest changes on air tools using flap wheels exclusively, as there are no special tools needed to change the flap wheel. Also allow extended reach with accessory mandrels.



Flap Wheels with Arbor Holes

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

Application/Grit Recommendation Guide



BLAZE, PINK, R369 HIGH PERFORMANCE See Non-Woven Flap Wheel section for Interleaf Flap Wheels R207, R265

INTERLEAF

Flap Wheels



Best choice for hard-to-grind materials, including superalloys (cobalt, inconel, and titanium) and stainless steel

BLAZE R920 CERAMIC ALUMINA

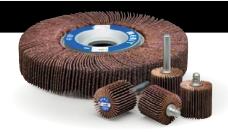
- See significantly faster, cooler, burn-free results on the toughest jobs from the next-generation of sharp, longest-lasting P-graded ceramic abrasive grains and advanced grinding aid lubricant
- · X-weight cotton flaps provide conformability and even wear
- Advanced self-lubricating grain treatment reduces heat on hard-to-grind materials



Better choice for blending, deburring and finishing on a wide range of materials

PINK R928 CERAMIC ALUMINA

- Ceramic grain provides better performance than zirconia alternatives
- Improved resin bond system provides longer life
- · Versatile X-weight poly cotton backing for flexibility and life



Good choice for more durable flap wheel applications 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 life
- · Delivers an excellent cut rate on finishing operations
- Heavy cotton/polyester blended flaps provide extended durability, conformability, and superior wear resistance



Good choice for more flexible flap wheel applications where finish is required

R207 ALUMINUM OXIDE

- · P-graded, solid-performing aluminum oxide abrasive delivers uniform stock removal and long life
- · Heavy X-weight cotton flaps provide conformability and even wear
- · Good general purpose starting specification for small deburring and cleaning jobs



Good choice when initial price is a key purchasing criteria

R265 ALUMINUM OXIDE

- · Quality aluminum oxide abrasive provides good cut rate and life
- · Heavy cotton/polyester blended flaps provide extended durability, conformability, and superior wear resistance
- Designed for all-purpose use where price is the major consideration

Flap Wheels



40,000

40,000

40,000

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60

80

120

180

240

320

60

80

120

180

240

320

SIZE (D x W x SK.)

3/8 x 3/8 x 1/8

5/8 x 5/8 x 1/8

Micro-Mini Flap Wheels with 1/8" Mounted Steel Shanks

- The smallest flap wheels, ranging from 3/8" to 1-3/16" diameter, mounted on a 1/8" diameter steel shank
- Provide fast polishing and light deburring of internal workpieces with holes or grooves as small as 1/2"





088341**37470**

088341**37471**

088341**37472**

08834137473

088341**37474** 088341**37475**

088341**37480**

08834137481

08834137482

08834137483

08834137484

088341**37485**

PART:



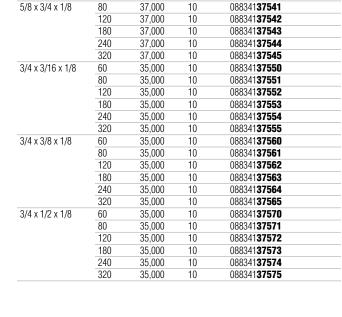
TIER: GOOD

R369

TRADENAME:

			ABRASIVE:	Premium Aluminum Oxide
			BACKING:	Y-Weight Cotton
		MAX.	STD.	
SIZE (D x W x SK.)	GRIT	RPM	PKG.	PART #
3/4 x 5/8 x 1/8	60	35,000	10	088341 37580
	80	35,000	10	088341 37581
	120	35,000	10	088341 37582
	180	35,000	10	088341 37583
	240	35,000	10	088341 37584
	320	35,000	10	088341 37585
3/4 x 3/4 x 1/8	60	35,000	10	088341 37590
	80	35,000	10	088341 37591
	120	35,000	10	088341 37592
	240	35,000	10	088341 37594
	320	35,000	10	088341 37595
1-3/16 x 1/8 x 1/8	80	30,000	10	088341 37491
	120	35,000	10	088341 37492
	180	35,000	10	088341 37493
	320	35,000	10	088341 37495
1-3/16 x 3/16 x 1/8	60	30,000	10	088341 37508
	80	35,000	10	088341 37501
	120	35,000	10	088341 37502
	180	35,000	10	088341 37503
	240	35,000	10	088341 37504
	320	35,000	10	088341 37505
1-3/16 x 3/8 x 1/8	80	30,000	10	088341 37511
	120	35,000	10	088341 37512
	180	35,000	10	088341 37513
	240	35,000	10	088341 37514
	320	35,000	10	088341 37515
Come part numbers	ara non-etoc	k: contact voi	ır Martan ran	recentative for status, order

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.







• The "MMC" kit is ideal for fast polishing and light deburring of internal holes or grooves as small as 1/2"









Mini Flap Wheels with 1/4" Mounted Steel Shanks

- Small flap wheels, ranging from 1" to 3" diameter, mounted on a 1/4" diameter steel shank
- Very durable, long-lasting mini flap wheels for demanding, heavy stock removal applications











			TIER:	BEST	BETTER	GOOD	GOOD	GOOD
		Ī	TRADENAME:	BLAZE R920	PINK R928	R369	R207	R265
			ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Premium Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
			BACKING:	X-Weight Cotton	X-Weight Poly/Cotton	Y-Weight Cotton	X-Weight Cotton	
SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
1 x 1/2 x 1/4	80	30,000	10					088341 49801
	120	30,000	10					088341 49802
1 x 5/8 x 1/4	40	30,000	10			088341 37105		
	60	30,000	10			088341 37100	636425 02576	
	80	30,000	10			088341 37101	636425 02577	
	120	30,000	10			088341 37102	636425 02578	
	180	30,000	10			088341 31536		
	240	30,000	10			088341 37104		
1 x 1 x 1/4	40	30,000	10		699573 39701	088341 31259		088341 49803
	60	30,000	10	662611 51170	699573 39702	088341 37310	636425 02580	088341 49804
	80	30,000	10	662611 51171	699573 39703	088341 37311	636425 02581	088341 49805
	120	30,000	10	662611 51172	699573 39704	088341 37312	636425 02582	088341 49806
	180	30,000	10			088341 37313		088341 49807
	240	30,000	10			088341 37114		
	320	30,000	10			088341 37315		
1-3/8 x 5/8 x 1/4	60	30,000	10			088341 37320		
	80	30,000	10			088341 37321		
	120	30,000	10			088341 37322		
	180	30,000	10			088341 37323		
	240	30,000	10			088341 37324		
1-1/2 x 1/2 x 1/4	60	25,000	10					088341 49810
	80	25,000	10					088341 49811
1-1/2 x 1 x 1/4	40	25,000	10			088341 35140		
	60	25,000	10			088341 37340	636425 02592	088341 49816
	80	25,000	10			088341 37141	636425 02593	088341 49817
	120	25,000	10			088341 37142	636425 02594	088341 49818
	180	25,000	10			088341 37343		
	240	25,000	10			088341 32101		
1-1/2 x 1-1/2 x 1/4	40	25,000	10			088341 30642		
	60	25,000	10			088341 30643		
	80	25,000	10			088341 30644		
	120	25,000	10			088341 30641		
	180	25,000	10			088341 30695		
2 x 1/2 x 1/4	60	25,000	10					088341 49821
	80	25,000	10					088341 49822
	120	25,000	10					088341 49823
2 x 3/4 x 1/4	40	25,000	10			088341 37158		
	60	25,000	10			088341 37160		
	80	25,000	10			088341 37161		
	120	25,000	10			088341 37162		
	180	25,000	10			088341 37163		

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times. Continued



Mini Flap Wheels with 1/4" Mounted Steel Shanks continued



				ACTIVITIES.	-diffica-	AND PARTY OF THE P	THE RESERVE THE PERSON OF THE	anilitata
				BEST	BETTER	GOOD	GOOD	GOOD
			TRADENAME:	BLAZE R920	PINK R928	R369	R207	R265
			ABRASIVE:	Ceramic Alumina	Ceramic Alumina	Premium Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
			BACKING:	X-Weight Cotton	X-Weight Poly/Cotton	Y-Weight Cotton	X-Weight Cotton	
SIZE (D x W x SK.)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #
2 x 1 x 1/4	40	25,000	10		699573 39705	088341 37377		088341 49824
	50	25,000	10			088341 37169		
	60	25,000	10	662611 51173	699573 39706	088341 37370	636425 02600	088341 49825
	80	25,000	10	662611 51174	699573 39711	088341 37371	636425 02601	088341 49826
	120	25,000	10	662611 51175	699573 39712	088341 37372	636425 02602	088341 49827
	180	25,000	10			088341 37373		088341 49828
	240	25,000	10			088341 37374		
	320	25,000	10			088341 37375		
2 x 1-1/2 x 1/4	40	25,000	10			088341 37183		
,	60	25,000	10			088341 37380		
	80	25,000	10			088341 37381		
	120	25,000	10			088341 37382		
	180	25,000	10			088341 37383		
2-1/2 x 1 x 1/4	40	20,000	10			088341 37408		
, =, .	60	20,000	10			088341 37410	636425 02608	
	80	20,000	10			088341 37411	636425 02609	
	120	20,000	10			088341 37412	636425 02610	
	180	20,000	10			088341 37413		
	240	20.000	10			088341 37633		
	320	20,000	10			088341 37415		
2-1/2 x 1-1/2 x 1/4	60	20,000	10			088341 37420		
- 1/2 X 1 1/2 X 1/1	80	20.000	10			088341 37421		
	120	20,000	10			088341 37422		
3 x 1/2 x 1/4	60	20.000	10			00001101122	636425 02612	088341 49834
J X 1/L X 1/ 1	80	20,000	10				636425 02613	088341 49835
	120	20,000	10				636425 02614	00001143000
3 x 3/4 x 1/4	60	20,000	10			088341 37440	00012002014	
5 X 0/ 1 X 1/ 1	80	20,000	10			088341 37441		
3 x 1 x 1/4`	40	20.000	10		699573 39713	088341 37456		088341 49836
5 X 1 X 1/ 1	60	20.000	10	662611 51176	699573 39714	088341 37450	636425 02620	088341 49837
	80	20,000	10	662611 51177	699573 39715	088341 37451	636425 02621	088341 49838
	120	20,000	10	662611 51178	699573 39716	088341 37252	636425 02622	088341 49839
	180	20,000	10	00201101110	00001000110	088341 37253	000 12002022	088341 49840
	240	20,000	10			088341 35339		00004143040
	320	20,000	10			088341 35341		
3 x 2 x 1/4	40	12,000	10			088341 37460		
J A C A 1/4	60	12,000	10			088341 37260		
	80	12,000	10			088341 37261		
	120	12,000	10			088341 37262		
	180	12,000	10			088341 37263		

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.



Mini 1/4" Steel Shank Test Kit "CMM"

- Part # 088341**38004**
- Includes ten wheels, 1" to 3" diameter in various grits mounted on a 1/4" diameter hardened steel shank



Flap Wheels



Mini Flap Wheels with 1/4"-20 Thread

- Mini flap wheels ranging from 1" to 3" diameter, mounted on a 14-20 thread that allows you to quickly spin the wheels
 on and off with no tools
- Designed for polishing and finishing intricate surfaces; cost-effective replacement for brushes, rubber points, and felt bobs







			TIER:	BETTER	GOOD	GOOD
			TRADENAME:		R369	R207
				Ceramic Alumina	Premium Aluminum Oxide	Aluminum Oxide
			BACKING:	X-Weight Poly/Cotton	Y-Weight Cotton	X-Weight Cotton
		MAX.	STD.			
SIZE (D x W x THD.)	GRIT	RPM	PKG.	PART #	PART #	PART #
1 x 5/8 x 1/4-20	60	30,000	10		088341 31001	636425 02624
	80	30,000	10		088341 31002	636425 02625
	120	30,000	10		088341 31003	636425 02626
1 x 1 x 1/4-20	40	30,000	10	699573 39718	088341 31027	
	60	30,000	10	699573 39719	088341 31008	636425 02628
	80	30,000	10	699573 39720	088341 31009	636425 02629
	120	30,000	10	699573 39721	088341 31010	636425 02630
	180	30,000	10		088341 31011	
	240	30,000	10		088341 31012	
	320	30,000	10		088341 31013	
1-3/8 x 5/8 x 1/4-20	60	30,000	10		088341 32001	636425 02632
	80	30,000	10		088341 32002	636425 02633
	120	30,000	10		088341 32003	636425 02634
1-5/8 x 1 x 1/4-20	40	25,000	10		088341 32051	
	60	25,000	10		088341 32015	636425 02638
	80	25,000	10		088341 32016	636425 02639
	120	25,000	10		088341 32017	636425 02640
	180	25,000	10		088341 32018	
	320	25,000	10		088341 32020	
2 x 1/2 x 1/4-20	80	25,000	10			636425 02643
,,	120	25,000	10			636425 02644
2 x 3/4 x 1/4-20	60	25,000	10		088341 33008	00012002011
2 X 0/ 1 X 1/ 1 20	80	25,000	10		088341 33009	
	120	25,000	10		088341 33010	
	180	25,000	10		088341 33011	
2 x 1 x 1/4-20	40	25,000	10	699573 39722	088341 33044	
2 1 1 1 1 7 20	60	25,000	10	699573 39723	088341 33015	636425 02646
	80	25,000	10	699573 39735	088341 33016	636425 02647
	120	25,000	10	699573 39736	088341 33017	636425 02648
	180	25,000	10	09937333730	088341 33018	03042302040
	240	-,				
	320	25,000	10 10		088341 33019	
0 1 1/0 1/1 00		25,000			088341 33020	
2 x 1-1/2 x 1/4-20	60	25,000	10		088341 35201	
	80	25,000	10		088341 35202	
0.1/0.1.1/1.00	120	25,000	10		088341 35203	
2-1/2 x 1 x 1/4-20	40	20,000	10		088341 34061	
	60	20,000	10		088341 34022	636425 02654
	80	20,000	10		088341 34023	
	120	20,000	10		088341 34024	
3 x 1/2 x 1/4-20	80	20,000	10			636425 02659
	120	20,000	10			636425 02660
3 x 3/4 x 1/4-20	80	20,000	10		088341 35009	
	120	20,000	10		088341 35010	
3 x 1 x 1/4-20	40	20,000	10	699573 39737	088341 35230	
	60	20,000	10	699573 39738	088341 35015	636425 02664
	80	20,000	10	699573 39739	088341 35016	636425 02665
	120	20,000	10	699573 39740	088341 35017	636425 02666
	180	20,000	10		088341 35018	
	240	20.000	10		088341 35019	

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times. For adapters for flap wheels with 1/4"-20 thread, see the end of this section



Flap Wheels



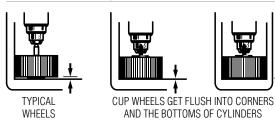
Cup-Type Mini Flap Wheels with 1/4" Mounted Steel Shanks

· Primarily used for bottom or side-wall type sanding where conventional tools do not reach

60

Cup-type mini flap wheels will not mar your workpiece while reaching flush into areas where other wheels cannot reach

TIER:	GOOD
TRADENAME:	R369
ABRASIVE:	Premium Aluminum Oxide
BACKING:	Y-Weight Cotton
D. PKG.	PART #
	08834144463



20,000



Flap Wheel Test Kits

Mini 1/4"-20 Thread Test Kit "CQ"

Part # 088341**38001**

2-1/2 x 1-1/2 x 1/4

- Includes ten, 1" to 3" diameter, 1/4"-20 thread mini flap wheels
- Each kit includes a 1/4"-20 QC-4 quick-change adapter Mini1/4" Steel Shank Test Kit "CMM"
- Part # 088341**38004**
- Includes ten wheels, 1" to 3" diameter in various grits
- The flap wheels are mounted on a 1/4" diameter hardened steel shank

Micro Mini 1/8" Steel Shank Test Kit "MMC"

- Part # 088341**31493**
- Includes 5 wheels, 3/8" to 1-3/16" in diameter
- The flap wheels are mounted on a 1/8" diameter hardened steel shank
- Ideal for fast polishing and light deburring of holes or grooves



Flap Wheels



3" - 8" Flap Wheels with Arbor Holes

- Flap wheels ranging from 3" to 8" diameter with arbor holes
- Heavy cotton backing and premium abrasive grains combine to provide superior life with aggressive cut on a wide range of polishing and finishing applications



			TRADENAME:	R369	R207
			ABRASIVE:	Premium Aluminum Oxide	Aluminum Oxide
			BACKING:	Y-Weight Cotton	X-Weight Cotton
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #	PART #
3 x 2 x 3/8	60	12,000	10	088341 35050	
	80	12,000	10	088341 35051	
	120	12,000	10	088341 35052	
3-1/2 x 1 x 5/8	40	12,000	10	088341 22001	
0 1/2 / 1 / 0/0	50	12,000	10	088341 22002	
	60	12,000	10	088341 22003	
	80	12,000	10	088341 22004	
	120	12,000	10	088341 22006	
	180	12,000	10	088341 22007	
	240	12,000	10	088341 22008	
	320	12,000	10	088341 22009	
3-1/2 x 1-1/2 x 5/8	40	12,000	10	088341 22011	
	50	12,000	10	088341 22012	
	60	12,000	10	088341 22013	
	80	12,000	10	088341 22014	
	120	12,000	10	088341 22016	
	180	12,000	10	088341 22018	
	320	12,000	10	088341 22020	
3-1/2 x 2 x 5/8	40	12,000	10	088341 22022	
	60	12,000	10	088341 22024	
	80	12,000	10	088341 22025	
	120	12,000	10	088341 22027	
	180	12,000	10	088341 22028	
4 x 1 x 5/8	40	12,000	10	088341 22032	
	50	12,000	10	088341 22033	
	60	12,000	10	088341 22034	636425 02673
	80	12,000	10	088341 22035	636425 02674
	120	12,000	10	088341 22037	636425 02675
	180	12,000	10	088341 22038	
	240	12,000	10	088341 22039	
	320	12,000	10	088341 22040	
4 x 1-1/2 x 5/8	40	12,000	10	088341 22042	
	60	12,000	10	088341 22044	
	80	12,000	10	088341 22045	
	120	12,000	10	088341 22047	
	240	12,000	10	088341 22050	
4 x 2 x 5/8	40	12,000	10	088341 22053	
	60	12,000	10	088341 22055	
	80	12,000	10	088341 22056	
	120	12,000	10	088341 22058	
	180	12,000	10	088341 22059	
	240	12,000	10	088341 22060	
	320	12,000	10	088341 22061	

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.
For flap wheel with arbor hole adapters and bushings, see the end of this section. A set of reducing bushing will be included for 1" center hole wheels at no charge when purchased with flap wheels and specified on the order.
Continued



3" - 8" Flap Wheels with Arbor Holes continued









			TIER:	BEST	GOOD	GOOD	GOOD
				BLAZE R920	R369	R207	R265
			ABRASIVE:	Ceramic Alumina	Premium Aluminum Oxide	Aluminum Oxide	Aluminum Oxide
			<i>`BACKING:</i>	X-Weight Cotton	Y-Weight Cotton	X-Weight Cotton	
SIZE (D x W x H)	GRIT	MAX. RP	M STD. PKG.	PART #	PART #	PART #	PART #
5 x 1-1/2 x 5/8	40	12,000	10		088341 22063		
	50	12,000	10		088341 22064		
	60	12,000	10		088341 22065		
	80	12,000	10		088341 22066		
	120	12,000	10		088341 22068		
	180	12,000	10		088341 22070		
	240	12,000	10		088341 22071		
	320	12,000	10		088341 22072		
6 x 1/2 x 1	40	6,000	10		088341 23001		
U	60	6,000	10		088341 23003		
	120	6,000	10		088341 23005		
	150	6,000	10		088341 22198		
	180	6,000	10		088341 23006		
244							00004100467
6 x 1 x 1	40	6,000	5		088341 23009		088341 20167
	50	6,000	5	00004440404	088341 23010	0004050000	088341 20168
	60	6,000	5	662611 46104	088341 23011	636425 02680	088341 20169
	80	6,000	5	662611 46105	088341 23012	636425 02681	088341 20170
	100	6,000	5	00001148455	000011005	00040500	088341 20171
	120	6,000	5	662611 46106	088341 23014	636425 02682	088341 20172
	150	6,000	5		088341 23015		
	180	6,000	5		088341 23016		088341 20174
	240	6,000	5		088341 23017		088341 20176
	320	6,000	5		088341 23018		088341 20177
6 x 1-1/2 x 1	40	6,000	5		088341 23020		
	50	6,000	5		088341 23021		
	60	6,000	5		088341 23022	636425 02686	
	80	6,000	5		088341 23023	636425 02687	
	120	6,000	5		088341 23025		
	180	6,000	5		088341 23027		
	240	6,000	5		088341 23028		
	320	6,000	5		088341 23029		
6 x 2 x 1	40	6,000	5		088341 23031		088341 20189
	50	6,000	5		088341 23032		
	60	6,000	5		088341 23033	636425 02691	088341 20191
	80	6,000	5		088341 23034	636425 02692	088341 20192
	100	6,000	5		00001120001	000 12002002	088341 20198
	120	6,000	5		088341 23036	636425 02694	00001120100
	180	6,000	5		088341 23038	00072002037	088341 20197
	240	6,000	5		088341 23039		088341 20199
	320	6,000	5		088341 23040		00034120199
201							
6 x 3 x 1	50	6,000	3		088341 23054		
	60	6,000	3		088341 23055		
	80	6,000	3		088341 23056		
	120	6,000	3		088341 23058		
	180	6,000	3		088341 23060		
	240	6,000	3		088341 23061		
3 x 1 x 1	40	4,500	3		088341 23070		
	50	4,500	3		088341 23071		
	60	4,500	3		088341 23072		
	80	4,500	3		088341 23073		
	120	4,500	3		088341 23075		
	180	4,500	3		088341 23077		
3 x 2 x 1	40	4,500	3		088341 23092		
	50	4,500	3		088341 23093		
	60	4,500	3		088341 23094	636425 02700	
	80	4,500	3		088341 23095	636425 02701	
	120	4,500	3		088341 23097		
	180	4,500	3		088341 23099		
	240	4,500	3		088341 23100		
	320	4,500	3		088341 23101		
	JZU	4,300	J		000341 23101		

Some part numbers are non-stock; contact your Norton representative for status, order quantities and lead-times.

For flap wheel with arbor hole adapters and bushings, see the end of this section.

A set of reducing bushing will be included for 1" center hole wheels at no charge when purchased with flap wheels and specified on the order.







10" - 16" Large Flap Wheels with Arbor Holes

Wide range of applications:

- For polishing/grinding jobs in production work as well as clean-up and maintenance jobs
- · Work on metals, plastic, rubber and wood

Easy to operate:

• No adjustments, dressing, or preparation required before or during operation

Fewer rejected parts:

- · More forgiving than other abrasive products
- Reduce the possibility of flattening, gouging and surface deformation

			TIER:	GOOD
		Т	RADENAME:	R369
		1	ABRASIVE:	Premium Aluminum Oxide
			BACKING:	
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	Y-Weight Cotton PART #
10 x 1 x 1-3/4	40	4,000	4	088341 22223
10 X 1 X 1-5/4	80	4,000	4	088341 24003
	120	4,000	4	088341 24005
		,	4	*****
	180	4,000	<u> </u>	088341 24007
	240	4,000	4	088341 22889
40 4 4 0 4 0 4	320	4,000	4	088341 24009
10 x 1-1/2 x 1-3/4	60	4,000	4	088341 24022
	80	4,000	4	088341 24023
	180	4,000	4	088341 24027
10 x 2 x 1-3/4	60	4,000	2	088341 24042
	80	4,000	2	088341 24043
	120	4,000	2	088341 24045
	180	4,000	2	088341 24047
10 x 3 x 1-3/4	60	4,000	2	088341 24077
	80	4,000	2	088341 22316
	180	4,000	2	088341 22132
12 x 1 x 1-3/4	60	3,000	4	088341 24085
	80	3,000	4	088341 22349
	120	3,000	4	088341 22311
	180	3,000	4	088341 22315
12 x 2 x 1-3/4	40	3,000	2	088341 22248
	50	3,000	2	088341 22249
	60	3,000	2	088341 22250
	120	3,000	2	088341 22269
	150	3,000	2	088341 22270
	180	3,000	2	088341 22271
	240	3,000	2	088341 22273
	320	3,000	2	088341 22275
12 x 4 x 1-3/4	180	2,400	1	088341 20017

			TRADENAME:	R369
			ABRASIVE:	Premium Aluminum Oxide
			BACKING:	Y-Weight Cotton
SIZE (D x W x H)	GRIT	MAX. RPM	STD. PKG.	PART #
4 x 1 x 1-3/4	60	2,400	1	088341 20020
	120	2,400	1	088341 20022
14 x 2 x 1-3/4	60	2,400	1	088341 20028
	80	2,400	1	088341 23215
	120	2,400	1	088341 22907
	240	2,400	1	088341 20032
14 x 3 x 1-3/4	120	2,400	1	088341 20035
14 x 4 x 1-3/4	240	2,000	1	088341 20041
6 x 1 x 1-3/4	80	2,400	1	088341 20043
	120	2,400	1	088341 20044
	240	2,400	1	088341 20046
16 x 2 x 1-3/4	60	2,400	1	088341 20047
	120	2,400	1	088341 20050
	180	2,400	1	088341 20051
	240	2,400	1	088341 20052
16 x 3 x 1-3/4	120	2,400	1	088341 20055



Adapter and Bushings for Flap Wheels with Arbor Holes

WHEEL DIAMETER	ADAPTERS	PART #
Shank Adapters		
3-1/2	1/4 Shank	088341 25001
3-1/2	3/8 Shank	088341 25007 NS
4-8	1/4 Shank	088341 25003
Threaded Mounting	Adapters	
4-8	5/8-11 Thread	088341 25027
Reducing Bushings		
6-8	1 to 3/8	088341 25016 NS
	1 to 1/2	088341 25017
	1 to 5/8	088341 25018 NS
	1 to 3/4	088341 25019 NS
	1 to 7/8	088341 25020 NS
10 – 16	1 to 5/8	088341 22069 NS

Standard packages = 1 adapter, 1 pair of bushings NS Non-stock. Contact your Norton representative for current order quantities and lead-times. For additional aluminum reducing bushings see non-woven convolute wheel section





Flap Wheels





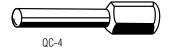


Adapters for 1/4"-20 Thread Mini and Arbor Hole Flap Wheels

MODEL #	DESCRIPTION	PART #
Adapters		
ADAPT C	Fits 3 x 2 x 3/8 arbor flap wheel	088341 37009 NS
MA-100	Fits A.H. Mini Wheel	088341 37007 NS
QC-8	1/8 x 5/8	088341 37002 NS
QC-4	1/4 SK. Dia. x 5/8 SK. L.	088341 37001
QC-44	1/4 x 4	088341 37003
QC-46	1/4 x 6	088341 37004
QC-48	1/4 x 8	088341 37005
QC-T	1/4-20 Thread	088341 37012
QC-T	3/8-24 Thread	088341 37010

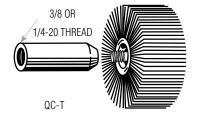
Standard package = 1 adapter

Other thread sizes available for quotation
NS Non-stock. Contact your Norton representative for current order quantities and lead-times.











Flap Wheels

TIER: GOOD







With their firm cushioning brushes, Sand-O-Flex's abrasive strips are forced into, around and over corners, hollow and fluted surfaces, and small openings. Pressure is distributed evenly over the surface to prevent loss of detail and the flattening of rounded areas; for sanding metals, woods, plastics, rubber and ceramic.

Sand-O-Flex wheels eliminate the need to hand-sand and are designed to fit most standard equipment. They load quickly and easily by turning the index knob as needed, allowing you to change grit size in minutes. Sand-O-Flex refills are available both scored (for finer, less aggressive work) and unscored. And, with the use of adapters, Sand-O-Flex wheels will fit most electric bench grinders.

Sand-O-Flex Wheel - Model 350-RP

- Diameter: 6-1/2" overall, 4" diameter high-impact plastic body
- 1" wide abrasive strips backed by 8 cushioning brushes
- 1/4" diameter steel shank
- Weight: 9-1/2 oz.
- Maximum operating speed: 2,400 RPM
- · Special adapter required for bench grinder use
- · Some assembly required



		TRADENAME:	SAND-O-FLEX
		ABRASIVE:	Aluminum Oxide
MODEL #	GRIT	STD. PKG.	PART #
Sand-O-Flex Wheel			
350-RP		1	088341 11051
Comes assembled with 80 grit A/O resin bond scored refill and brushes			
Sand-O-Flex Accessories			
Replacement Brushes for 350-RP; 8 per set		1 set	088341 13003
Resin Bond Refills			
350-RP SCORED	60	10	088341 11052
	80	10	088341 11053
	100	10	088341 12114
	120	10	088341 11054
	180	10	088341 11057
Glue Bond Refills			
350-RP SCORED	80	10	088341 12054
	100	10	088341 12055
	120	10	088341 12056
350-RP UNSCORED	80	10	088341 12044





Non-Woven Flap Wheels



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: Abrasive Grain: Machine Used: 60 - 320 Aluminum Oxide







DIE GRINDER

BENCH GRINDER

PEDESTA GRINDER

PORTABLE GRINDER

Application/Grit Recommendation Guide

INTERLEAF FLAP WHEEL

NON- WOVEN FLAP WHEEL



Good choice for fine grit cleaning and blending and finishing 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

Good choice for fine grit light cleaning and finishing

NON-WOVEN

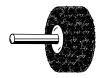
- Premium aluminum oxide grain with durable resin bond and web that wears away continually exposing fresh abrasives
- Tough yet conformable to intricate shapes and contours without changing the workpiece dimension
- Designed with a steel shank as an integral part of the wheel or with and arbor hole



PORTABLE TOOLS AND SPECIALTIES Non-Woven Flap Wheels

1/4" 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.







					TIER:	GOOD	GOOD
					TRADENAME:	INTERLEAF	NON-WOVEN
SIZE (D x W x SK.)	ABRASIVE	COATED GRIT	NON-WOVEN GRIT	MAX. RPM	STD. PKG.	PART #	PART #
2 x 1 x 1/4	A/0	60	Very Fine	12,000	10	088341 38122	
	A/0	80	Very Fine	12,000	10	088341 38123	
	A/0		Medium	12,000	20		662611 89992 *
	A/0	120	Very Fine	12,000	10	088341 44457	
	A/0	180	Very Fine	12,000	10	088341 44458	
	A/0	320	Very Fine	12,000	10	088341 44459	699573 99202
2 x 1-1/2 x 1/4	A/0	80	Very Fine	12,000	10	088341 38125	
	A/0	120	Very Fine	12,000	10	088341 38126	
	A/0	320	Very Fine	12,000	10	088341 38128	
3 x 1 x 1/4	A/0	60	Very Fine	12,000	10	088341 38129	
	A/0	80	Very Fine	12,000	10	088341 38130	
	A/0		Medium	12,000	10		088341 31921
	A/0	120	Very Fine	12,000	10	088341 38118	
	A/0	180	Fine	12,000	10	088341 38120	
	A/0	320	Very Fine	12,000	10	088341 38119	
3 x 2 x 1/4	A/0	120	Very Fine	8,000	10	088341 44460	
	A/0	180	Very Fine	8,000	10	088341 44461	
4 x 2 x 1/4	A/0	80	Very Fine	12,000	10	088341 21115	
	A/0	120	Very Fine	12,000	10	088341 20458	

^{*}Standard package quantity = 20

Arbor Hole Mounts

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





					TRADENAME:	INTERLEAF	NON-WOVEN
SIZE (D x W x SK.)	ABRASIVE	COATED GRIT	NON-WOVEN Grit	MAX. RPM	STD. PKG.	PART #	PART #
3 x 2 x 3/8	A/0	60	Very Fine	12,000	10	088341 39000	
	A/0	120	Very Fine	12,000	10	088341 39001	
	A/0	240	Very Fine	12,000	10	088341 39028	
	A/0	320	Very Fine	12,000	10	088341 39024	
4 x 2 x 5/8	A/0	60	Very Fine	12,000	10	088341 26025	
	A/0	240	Very Fine	12,000	10	088341 26014	
	A/0	320	Very Fine	12,000	10	088341 26027	
6 x 1 x 1	A/0	120	Very Fine	6,000	10	088341 26006	
	A/0	240	Very Fine	6,000	10	088341 26030	
6 x 1 x 2	S/C	-	Very Fine	3,000	4		055395 12658
6 x 2 x 1	A/0	80	Very Fine	6,000	10	088341 26009	
	A/0	180	Very Fine	6,000	10	088341 26018	
6 x 3 x 1	A/0	80	Very Fine	6,000	6	088341 26055	
8 x 2 x 3	A/0	-	Medium	2,500	2		055395 12677
12 x 2 x 5	A/0	-	High Strength	1,900	1		055395 62637

Refer to Non-Woven Convolute Wheel section for Flap Wheel Reducing Bushings.





Arbor Hole (Gangable) Discs

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 DISCS

- · 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

			TIER:	BEST
			TRADENAME:	HIGH STRENGTH
			ABRASIVE:	Aluminum Oxide
SIZE (D x H)	GRIT	MAX. RPM	STD. PKG.	PART #
6 x 1/4	VF	4,000	70	662610 07628
6 x 1/2	M	4,000	70	662610 05073
	VF	4,000	70	662610 04980
8 x 1/2	M	3,000	50	662610 05491
	VF	3,000	50	662610 04506
12 x 1-1/4	VF	1,900	25	662610 08723



FITS HOLE	FOR DISC WIDTH	FOR DISC DIAMETER	SHANK DIAMETER	OVERALL LENGTH	WASHER DIAMETER	STD. PKG.	PART #
Mandre	el Assemblies Foi	Using Discs On	Edge				
1/4"	1/2" (Standard)	up to 6"	1/4"	2-1/2"	1-1/2"	1	662610 09502
1/2"	1/2" (Standard)	Up to 8"	1/4"	3-1/8"	2-1/4"	1	662610 59420



Bore Polishers



Flaps of abrasive cloth are stacked, inserted into a holder, and then attached to a mandrel. The flaps are designed to break down during use and reveal the next layer of abrasive.

To create an interleaf bore polisher, cloth flaps are mixed with non-woven flaps.

Applications:

For deburring, sizing, cleaning and polishing the interior diameters of cylinders, tubes and hydraulic fittings. Flaps adjust automatically to inside diameter, polishing the entire surface area with each pass.

Bore polishers are self-centering, so they apply equal pressure to full wall of inside diameter. Spring action design gives faster inside diameter cleaning, deburring and polishing to cylinders, deep bores and tubes.

Interleafed bore polishers are designed to polish and finish in one easy application. The abrasive flaps cut, while the non-woven flaps apply a fine finish.

Grit Range:

60 - 240 Aluminum Oxide

Abrasive Grain: Aluminu

Application-to-Product Shape Recommendation Guide

Shape Solid Flaps

B-3 Series



Application

- For 5/8" to 1" interior diameter bores
- 3 abrasive packs 1-1/2" wide, bonded to hub
- Use with QC-5 mandrel Part # 08834154182

Solid Flaps

B-4 Series



- For 1" to 4" interior diameter bores
- 4 abrasive packs 1-1/2" wide, bonded to hub
- Use with BPM-4 mandrel Part # 08834154183

Solid Flaps

B-8 Series



- For 2" to 5-7/8" interior diameter bores
- 8 abrasive packs 1-1/2" wide, bonded to hub
- Use with BPM-8 mandrel Part # 08834154184

Scored Flaps



Available upon request as made-to-order products.

Interleaf



Cloth flaps are mixed with non-woven flapes. Interleaf bore polishers do double duty. Designed to polish and finish in one easy application, they are the ideal choice when close tolerances must be maintained, while giving an interior a polished finish.

Application/Grit Recommendation Guide

COARSER (MATERIAL REMOVAL)

FINER (FINISHING)

60	80	120	180	240
Blending Out Medium Machine	Marks			
Sizing Cylinders				
	Deburring Cylinders			
	Blending Metal Surfaces			
	Cleaning Cylinders			
	Applying Light Scratch Pattern			
			Fine Blending and Cleaning	
			Metal Finishing and Polishing	

SOLID FLAP SCORED INTERLEAF

TIER: GOOD

R369

TRADENAME:



Aluminum Oxide Bore Polishers

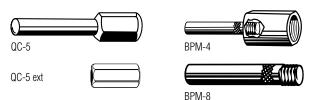
	TIER:	GOOD
	TRADENAME:	R369
	ABRASIVE:	Aluminum Oxide
	BACKING:	Y-weight Cotton/Poly
и	STD. PKG.	PART #

			BACKING:	Y-weight Cotton/Poly
DESCRIPTION	GRIT	MAX. RPM	STD. PKG.	PART #
Bore Polishers – Soli	d Flap B-	3 and B-4 Seri	ies	
B-305	60	25,000	10	088341 54190
Fits ID 5/8 to 1	80	25,000	10	088341 54191
	120	25,000	10	088341 54193
	180	25,000	10	088341 54195
	240	25,000	10	088341 54197
B-405	60	22,000	10	088341 54091
Fits ID 1 to 1-1/2	80	22,000	10	088341 54092
	120	22,000	10	088341 54093
	180	22,000	10	088341 54094
B-410	60	20,000	10	088341 54100
Fits ID 1-1/2 to 2	80	20,000	10	088341 54101
	120	20,000	10	088341 54102
	180	20,000	10	088341 54103
	240	20,000	10	088341 54104
B-415	60	16,000	10	088341 54109
Fits ID 2-1/8 to 2-1/2	80	16,000	10	088341 54110
	120	16,000	10	088341 54111
	180	16,000	10	088341 54112
B-420	60	15,000	10	088341 54118
Fits ID 2-1/2 to 3	80	15,000	10	088341 54119
	120	15,000	10	088341 54120
	180	15,000	10	088341 54121
	240	15,000	10	088341 54122
B-425	60	10,000	10	088341 54127
Fits ID 3-1/8 to 4	80	10,000	10	088341 54128
	120	10,000	10	088341 54129
	180	10,000	10	088341 54130

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

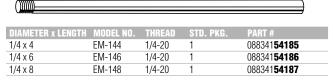
ABRASIVE. Aluminum Oxide BACKING: Y-weight Cotton/Poly DESCRIPTION Bore Polishers - Solid Flap B-8 Series 088341**54136** B-810 60 16,000 10 Fits ID 2 to 2-1/2 088341**54137** 80 16,000 10 120 16,000 10 088341**54138** 180 16,000 10 088341**54139 NS** 240 16,000 10 088341**54140** NS B-815 088341**54145** 60 15,000 10 Fits ID 2-5/8 to 3 80 15,000 10 088341**54146** 120 15,000 088341**54147** 10 180 15,000 10 088341**54148** NS 240 15,000 088341**54149** NS 10 B-820 10,000 088341**54154** 60 10 Fits ID 3-1/8 to 4 80 088341**54155** 10,000 10 120 10,000 10 088341**54156** 180 10,000 10 088341**54157** 240 10,000 10 088341**54158** NS B-825 60 8,000 08834154163 10 Fits ID 4-1/4 to 5-1/4 80 8,000 10 088341**54164** 120 8,000 10 088341**54165** 088341**54166** 180 8,000 10 8,000 240 10 08834154167 B-830 088341**54172** 60 8,000 10 Fits ID 5-1/4 to 5-7/8 088341**54173** 80 8,000 10 120 8,000 10 088341**54174** 8,000 088341**54175** 180 10 240 8,000 10 08834154176 **Bore Polishers – Scored Flaps** Available on request as made-to-order products Bore Polishers - Interleaf B-405 Interleaf 22.000 08834150271 80 10 Fits ID 1 to 1-1/2 180 22,000 10 088341**50273**

Mandrels for Bore Polishers



			-	
DESCRIPTION	MODEL NO.	THREAD	STD. PKG.	PART #
For B-3 Series	QC-5	5/16-18	1	088341 54182
For B-4 Series	BPM-4	1/2-20	1	088341 54183
For B-8 Series	BPM-8	1/4-20	1	088341 54184

Extension Mandrels for Bore Polishers



To extend a B-4 series bore polisher, attach the adapter piece of the BPM-4 mandrel to the bore polisher, then attach the desired length extension mandrel above to the BPM-4 adapter piece. To extend a B-8 series bore polisher, attach the desired length extension mandrel above directly to the bore polisher.



Bore Polisher Test Kit "BP"

- Part # 088341**54181**
- Contains ten bore polishers and two mini 1/4"-20 thread flap wheels in assorted sizes and grits for finishing 1" to 5" interior diameters, and mandrel for 1/4" chuck.



Non-Woven Unified Wheels



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:

Abrasive Grain: Grit Range: Machine Used: 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.

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

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







DIE GRINDER

PORTABLE GRINDER

GRINDER

FLEXIBLE SHAFT GRINDER

Application/Grit Recommendation Guide

MOST AGGRESSIVE

LEAST AGGRESSIVE

NORTON	Rapid Strip Wheels	Rapid Blend Unified Wheels	Non-Woven / Interleaf Flap Wheels
Scale Removal	Best Choice		
Painting/Coating Removal	Best Choice		
Stock Removal		Best Choice	
Heavy Deburring		Best Choice	
Polishing			Second Choice
Buffing			Best Choice

Surface Finish Variables

Changes in any one of many factors can affect the surface finish on the workpiece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.

Variable Factor	Rough Finish High RMS Reading	Smooth Surface Lower RMS Reading
1. Wheel Speed	Slow <	→ Fast
2. Feed Speed	Faster (Long Scratch)	➤ Slower (Short Scratch)
3. Oscillation	No Oscillation	→ Oscillation
4. Lubricants	Dry	→ Soluble Oil ← Straight Oil
		Compounds →

Non-Woven Marking System

ABRASIVE	SILICON CARBIDE			ALUMINUM OXIDE
	SHARPER, FINER/BR	IGHTER SCRATCH PATTERN	MORE DURABLE, LONGER LA	ASTING, POLISHED FINISH
GRIT SIZE	XC (50)	C (60-80)	M (100-150)	F (180-220)
	FASTER, AGGRESSIV	E CUT, ROUGHER FINISH	REDUCED	CUT RATE, FINER FINISH
DENSITY	2			9
	SOFT, OPEN, CONFO	RMABLE, LESS BURNING/LOADING	HARDER, MORE DURABLE, FASTER	CUTTING, BETTER FINISH

Cross Reference Guide

STRIPPING HEAVY/LIGHT DEBURRING LIGHT DEBURRING/BLENDING/POLISHING CLEANING/FINISHING

	BEST	BETTER	BEST	BETTER	GOOD
NORTON	Blaze Rapid Strip	Rapid Strip	Vortex Rapid Blend	Rapid Blend NEX	Non-Woven / Interleaf Flap Wheels
3M	Clean and Strip XT PRO, Clean and Strip XT PRO Extra Cut	Clean Strip	Cut & Polish Unitized, Deburr and Finish PRO	EXL Unitized	Finishing Flap Brush
Standard		Britestrip	800 & 900 Series	500 - 700 Series	Buff & Blend Flap Brush



PORTABLE TOOLS AND SPECIALTIES Non-Woven Unified Wheels

Rapid Strip Unified Wheels



Best choice for removing rust, scale and paint/coatings on a variety of substrates, such as wood, metal and plastics

BLAZE RAPID STRIP CERAMIC ALUMINA

- · Norton Blaze ceramic alumina grain provides 2X cut rate, 2X life over silicon carbide products
- Advanced resin bond does not shed on rust-encrusted pieces, and prevents gouging and rework; does not snag
 when used for deburring
- Leave a thoroughly cleaned surface that ensures excellent adhesion for subsequent processes such as coating, painting and soldering



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

RAPID STRIP SILICON CARBIDE

- Faster cutting, sharp, extra coarse silicon carbide abrasive provides a unique combination of aggressive performance, long life, and improved finish
- Advanced resin bond prevents shedding on rust-encrusted pieces and gouging and rework; does not snag when used for deburring
- Leaves a thoroughly clean surface that ensures excellent adhesion in subsequent processes such as coating, painting
 and soldering





MAX. RPM

8,000

8,000

4.000

4,000

Arbor Hole 4 x 1/4

4 x 1/2

6 x 1/4

6 x 1/2

FITS HOLE	FOR DISC WIDTH	FOR DISC DIAMETER	SHANK Diameter	OVERALL LENGTH	WASHER DIAMETER	STD. PKG.	PART #	
Mandrel Assemblies For Non-Woven Unified Wheels								
1/4"	1/2" (Standard)	up to 6"	1/4"	2-1/2"	1-1/2"	1	662610 09502	
1/2"	1/2" (Standard)	Up to 8"	1/4"	3-1/8"	2-1/4"	1	662610 59420	





PORTABLE TOOLS AND SPECIALTIES Non-Woven Unified Wheels

Rapid Blend Unified Wheels continued

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

- High-performance, medium grit, engineered aluminum oxide grain and improved resin bond system provide aggressive, fast, stock removal, reduced cycle times, and excellent part quality
- Thick nylon web delivers 2X longer life and faster finishing with minimal shedding vs competitive wheels
- · Controlled porosity ensures cool cutting and improved cut rate

			TRADENAME:	VORTEX RAPID	BLEND					
			ABRASIVE:	Aluminum Oxide						
SIZE (D x T x H)	GRIT SIZE	STD. PKG.	MAX. RPM	3 DENSITY Part #	MAX. RPM	5 DENSITY Part #	MAX. RPM	7 DENSITY Part #	MAX. RPM	9 DENSITY Part #
2 x 1/8 x 1/8	M	60			22,000	662544 25657	20,000	662544 10849		
2 x 1/8 x 1/4	M	60					22,000	662611 91446		
2 x 1/4 x 1/4	M	60	18,000	662544 28456	22,000	662544 33504	22,000	662610 80270		
2 x 1 x 1/4	M	15					22,000	662610 80269		
3 x 1/8 x 1/4	M	40			18,000	662610 93448	18,000	662611 91445		
3 x 1/8 x 3/8	M	40			18,000	662544 33503	18,000	662544 01131		
3 x 1/4 x 1/4	M	40	12,000	662544 28454	18,000	662544 14832	18,000	662611 99696		
3 x 1/4 x 3/8	M	40	12,000	662544 33505	12,000	662544 33506				
3 x 1/2 x 1/4	M	20			18,000	662544 32925	18,000	662610 80267	18,000	662544 33507
3 x 1/2 x 3/8	М	20			18,000	662544 33508	18,000	662610 80266	18,000	662544 20696



Better choice for light deburring and blending

RAPID BLEND NEX ALUMINUM OXIDE AND SILICON CARBIDE

- · Uniform construction provides extra long life and holds shape well for less wheel dressing
- Smear free resin binder formula provides smear-free finishes
- · A great option for light deburring and blending applications

				TIER:	BETTER				
				TRADENAME:	RAPID BLEND NEX				
SIZE (D x T x H)	ABRASIVE	GRIT	MAX. RPM	STD. PKG.	2 DENSITY Part #	3 DENSITY Part #	4 DENSITY Part #	6 DENSITY Part #	8 DENSITY Part #
1 x 1 x 3/16	A/0	С	30,000	50					662610 14915
	A/0	M	18,000	50	662610 14891				
	A/0	M	30,000	50				662610 14908	662610 14924
	S/C	F	18,000	50	662610 14883				
	S/C	F	30,000	50				662610 14904	662610 14923
2 x 1/8 x 1/4	A/0	M	22,000	60					662610 14927
2 x 1/4 x 1/4	A/0	M	18,000	60	662610 14892				
	A/0	M	22,000	60					662610 14926
	A/0	F	22,000	60				662610 14901	
	S/C	F	18,000	60	662610 14884				
2 x 1/2 x 1/4	A/0	M	22,000	30					662610 14925
3 x 1/4 x 1/4	A/0	С	18,000	40					662610 14919
	A/0	M	18,000	40				662610 14909	662610 14930
	S/C	F	12,000	40	662610 14886				
3 x 1/4 x 3/8	A/0	С	18,000	40					662610 14920
	A/0	M	12,000	40	662610 14895				
	A/0	M	18,000	40				662610 14910	662610 14933
	A/0	F	12,000	40			662610 14899		
	S/C	F	12,000	40	662610 14887	662610 16006			
3 x 1/2 x 1/4	A/0	M	12,000	20	662610 14893				
	A/0	M	18,000	20				662610 14928	
	S/C	F	12,000	20	662610 14885				
3 x 1/2 x 3/8	A/0	M	18,000	20					662610 14929
3 x 1 x 3/8	S/C	XC	18,000	10				662610 14914	
6 x 1/2 x 1	A/0	M	7,500	4					662610 14931
6 x 1 x 1	S/C	F	5,000	2	662610 14888				



PORTABLE TOOLS AND SPECIALTIES Non-Woven Unified Wheels

66261047584

Assemblies and Mandrels for Unified Wheels

FITS WHEEL	FOR WHEEL	FOR WHEEL	SHANK	OVERALL	WASHER	3M	STD.	
CENTER HOLE	WIDTH	DIAMETER	DIAMETER	LENGTH	DIAMETER	EQUIVALENT	PKG.	PART #
Mandrel Asser	nblies for Unified V	Wheels and Discs	On Edge					
3/16	1/8 - 1/2	1 – 2	1/4	2	7/16	994	1	662610 09852
1/4 - 5/16	Up to 1/2	Up to 2	1/4	2	5/8	932	1	662610 15146
1/4 - 5/16	Up to 1	Up to 2	1/4	2-1/2	5/8	932	1	662610 59422
	Up to 1	2 - 3	1/4	2-1/2	1	933	1	662610 59421
3/8	Up to 1/2	2 – 4	1/4	2-1/2	1	990	1	662610 09851
1/2	Up to 1	3 – 6	1/4	3-1/8	1-5/8	934	1	662610 09850
FOR OFNIER	HAE WITH	OHANIK	CHANK			011	OTD	
FOR CENTER	USE WITH	SHANK DIAMETER	SHANK I FNGTH			3M FOLLIVALENT	STD. PKG	PART #



Threaded Mandrel for Unified Wheels





1-3/4"

THREADED MANDREL 66261047584



MANDREL ASSEMBLY 662610**59422**



PORTABLE TOOLS AND SPECIALTIES

Mounted Points



Used in a multitude of operations in almost every industry and on a variety of machines, mounted points are small grinding wheels permanently fastened to its own spindle. These vitrified bond mounted points are available in a wide range of shapes.

Industries: Aerospace

Aerospace Cutlery
Tool and Die Mold Shops

Construction Stainless Steel Equipment

Metal Fabrication

Automotive

Foundries

Abrasive Grain: Shape Availability: Machine Used:

Aluminum Oxide A, B, and W





DIE AND PENCIL GRINDER

HORIZONTAL/ STRAIGHT SHAFT PORTABLE GRINDER

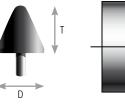
Measurement Guide

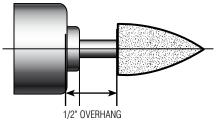
Description of Overhang

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)







Better medium grit option for blending and deburring

PINK ALUMINUM OXIDE - VITRIFIED BOND

- Sharp versatile 86A aluminum oxide grain is free cutting and resists burn
- Excellent form holding compared to more friable white aluminum oxides
- · Medium grit for blending and deburring

TIER: BETTER

			TRA	ADENAME:	PINK	
			1	ABRASIVE:	86A Alumin	um Oxide
				MIN./		
SHAPE	CIZE (D v T)	SPINDLE DIA.+	MAX. RPM*	STD. PKG.	SPEC	DADT #
	SIZE (D x T)			PNU.	SPEU	PART #
	Bond Mounted			F /0F	00400	00070045005
A1	3/4 x 2-1/2	1/4	19,800	5/25	86A80-S	690786 45335
A3	1 x 2-3/4	1/4	16,100	5/25	86A80-S	690786 45333
A5	3/4 x 1-1/8	1/4	45,000	5/25	86A80-S	690786 45339
A11	7/8 x 2	1/4	19,860	5/25	86A80-S	690786 45336
A12	11/16 x 1-1/4	1/4	48,000	5/25	86A80-S	690786 45344
A25	1" Ball	1/4	35,620	5/25	86A80-S	690786 45341
A38	1 x 1	1/4	34,500	5/25	86A80-S	690786 45345
	d Bond Mounted					
B52	3/8 x 3/4	1/8	45,370	5/25	86A80-S	690786 45334
B53	5/16 x 5/8	1/8	60,000	5/25	86A80-S	690786 45340
B81	3/4 x 3/16	1/8	50,930	5/25	86A80-S	690786 45347
B97	1/8 x 3/8	1/8	105,000	5/25	86A80-S	690786 45337
B121	1/2" Ball	1/8	45,370	5/25	86A80-S	690786 45338
B122	3/8" Ball	1/8	61,650	5/25	86A80-S	690786 45360
B135	1/4 x 1/2	1/8	60,000	5/25	86A80-S	690786 45342
Vitrifie	d Bond Mounted	Points - W	/ Shapes			
W163	1/4 x 1/2	1/8	60,000	5/25	86A80-S	690786 45346
W177	3/8 x 3/4	1/8	33,750	5/25	86A80-S	690786 45355
W185	1/2 x 1/2	1/4	61,500	5/25	86A80-S	690786 45354
W200	3/4 x 1/8	1/8	50,930	5/25	86A80-S	690786 45356
W220	1 x 1	1/4	25,500	5/25	86A80-S	690786 45359
W235	1-1/2 x 1/4	1/4	25,470	5/25	86A80-S	690786 45343



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

Refer to the Precision Offhand/Portable section for the full offering of mounted points.

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





Our double-cut style carbide burrs have stronger tooth formulation and numerous cutting edges to outperform other double-cut carbide burrs with better stock removal, granular chip break, and longer life.

Pair up these long-lasting burrs with our pneumatic die grinder to quickly and comfortably accomplish many portable applications on one machine - including jobs using specialties, small diameter flap wheels, and mounted points.

Applications: Deburring, medium-to-light surface cleaning and stock removal, weld removal and

prep, chamfering

Shapes: A, B, C, D, E, F, G, H, L, M

Shank Diameter: 1/4"

Machine Used:

DIE GRINDER

Understanding the Product

Burr Dimensions

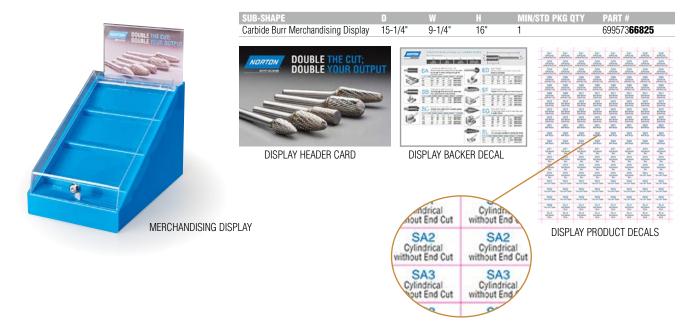
D1 L1 D2 L2 HEAD LENGTH OVERALL BURR LENGTH (OL)



Each carbide burr is packed individually in a clear, protective plastic case with Norton-blue end-caps. Each burr is marked with the burr head diameter and length for easy identification.

Carbide Burrs Merchandising Display

For those last minute point-of-purchase sales the Carbide Burr merchandiser is an ideal addition to any counter or display shelf. Holds twenty-four burrs in the lockable front display with plenty of storage in the back drawer.







Double cut burrs are a popular choice because of their universal cutting style

DOUBLE CUT CARBIDE BURRS

- Hard tungsten carbide burrs with strong tooth formulations and numerous cutting edges for extended life and less changeover downtime versus other cutting tools
- · Higher stock removal, and smaller, granular chip-break on hard-to-grind workpieces versus other carbide burrs
- Perform well at higher temperatures and can be used longer than high-speed steel tools even if your operation generates some heat

Carbide Burrs for Standard Metal Removal



SA

Cylindrical without End Cut

The ends of these burrs are flat, with no cutting edges and are used for contour finishing and to get into right-angled corners.



SUB-SHAPE	MAX. RPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SA1	25,000	1/4"	3/4"	2"	1	699573 08002
SA2	25,000	5/16"	3/4"	2-1/2"	1	699573 08003
SA3	25,000	3/8"	3/4"	2-1/2"	1	699573 08004
SA5	25,000	1/2"	1"	2-3/4"	1	699573 08005
SA5	25,000	1/2"	1"	6"	1	699573 60674



SF

Cylindrical with End Cut

The cutting edge at the end of the burr makes these burrs a good choice for contour finishing.



SUB-SHAPE	MAX. RPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SB3	25,000	3/8"	3/4"	2-1/2"	1	699573 08006
SB3	25,000	3/8"	3/4"	6"	1	699573 40156
SB5	25,000	1/2"	1"	2-3/4"	1	699573 08007
SB5	25,000	1/2"	1"	6"	1	699573 40157
SB6	25.000	5/8"	1"	2-3/4"	1	699573 08008





Ball-Nosed Cylindrical

Use these round-nosed burrs for smoother operation and better tool control.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SC1	25,000	1/4"	3/4"	2"	1	699573 08009
SC2	25,000	5/16"	3/4"	2-1/2"	1	699573 08010
SC3	25,000	3/8"	3/4"	2-1/2"	1	699573 08011
SC3	25,000	3/8"	3/4"	6"	1	699573 60678
SC5	25,000	1/2"	1"	2-3/4"	1	699573 08012
SC5	25,000	1/2"	1"	6"	1	699573 60679
SC5	25,000	1/2"	1"	12"	1	699573 60905
SC6	25 000	5/8"	1"	2-3/4"	1	699573 08013





Ball Shape

Use these carbide burrs to create a concave and to hollow out a workpiece.

SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SD1	25,000	1/4"	1/4"	2"	1	699573 08014
SD2	25,000	5/16"	1/4"	2"	1	699573 08015
SD3	25,000	3/8"	5/16"	2-1/8"	1	699573 08016
SD5	25,000	1/2"	7/16"	2-3/16"	1	699573 08017
SD5	25,000	1/2"	7/16"	6"	1	699573 60686
SD9	25,000	1"	15/16"	2-15/16"	1	699573 60865





Oval Shape

Use the oval-shaped carbide burrs for good reach and round head for shaping.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SE3	25,000	3/8"	5/8"	6"	1	699573 40158
SE5	25,000	1/2"	7/8"	6"	1	699573 40159

Carbide Burrs for Standard Metal Removal



SF

Ball-Nosed Tree

Designed to round off edges and make concave cuts.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SF1	25,000	1/4"	3/4"	2"	1	699573 08018
SF2	25,000	5/16"	3/4"	2-1/2"	1	699573 08019
SF3	25,000	3/8"	3/4"	2-1/2"	1	699573 08020
SF3	25,000	3/8"	3/4"	6"	1	699573 60689
SF5	25,000	1/2"	1"	2-3/4"	1	699573 08021
SF5	25,000	1/2"	1"	6"	1	699573 60691
SF5	25,000	1/2"	1"	12"	1	699573 60904
SF6	25,000	5/8"	1"	2-3/4"	1	699573 08022





Tree with Taper

The taper allows access to hard-to-reach areas, such as angled contours.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SG1	25,000	1/4"	3/4"	2"	1	699573 08023
SG2	25,000	5/16"	3/4"	2-1/2"	1	699573 08024
SG3	25,000	3/8"	3/4"	2-1/2"	1	699573 08025
SG5	25,000	1/2"	1"	2-3/4"	1	699573 08026
SG5	25,000	1/2"	1"	6"	1	699573 60712
SG6	25,000	5/8"	1"	2-3/4"	1	699573 08027
SG13	25,000	3/4"	1-1/2"	3/4"	1	699573 66821
SG15	25.000	3/4"	1-1/2"	1/4"	1	699573 60886





Flame Shape

Great for channel working and shaping due to its long fluted sides and rounded head.



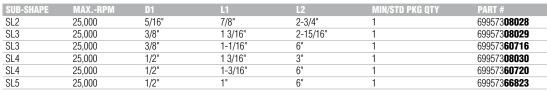
SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY
SH5	25,000	1/2"	1-1/4"	6"	1





Ball-Nosed Cone

This cone shape is excellent for imparting fine finishes.







Pointed Cone

Ideal for rounded edges or reaching difficult, tight areas.

SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SM4	25,000	3/8"	5/8"	6"	1	699573 66824
SM5	25 000	1/2"	7/8"	6"	1	699573 60767

Carbide Burr Kit



SUB-SHAPE	MIN/STD PKG QTY	PART #
Carbide Burr Kit*	1	699573 08060

^{*} Kit Includes one each of: SA5 (699573**08005**), SF3 (699573**08020**), SF5 (699573**08021**), SG5 (699573**08026**), and SL4 (699573**08030**)

69957366822

Carbide Burrs for Aluminum and Non-Ferrous Materials



SA

Cylindrical without End Cut

The ends of these burrs are flat, with no cutting edges and are used for contour finishing and to get into right-angled corners.



SUB-SHAPE	MAX. RPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SA3 NF	25,000	3/8"	3/4"	21/2"	1	699573 40148
SA5 NF	25,000	1/2"	1"	2-3/4"	1	699573 40149



SC

Ball-Nosed Cylindrical

Use these round-nosed burrs for smoother operation and better tool control.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SC3 NF	25,000	3/8"	3/4"	2-3/4"	1	699573 40150
SC5 NF	25,000	1/2"	1"	6"	1	699573 60657



SD

Ball Shape

Use these carbide burrs to create a concave and to hollow out a workpiece.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SD3 NF	25,000	3/8"	5/16"	2-1/8"	1	699573 66820
SD5 NF	25,000	1/2"	7/16"	2-3/16"	1	699573 40152



SF

Ball-Nosed Tree

Designed to round off edges and make concave cuts.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SF1 NF	25,000	1/4"	3/4"	2"	1	699573 40153
SF3 NF	25,000	3/8"	3/4"	2-1/2"	1	699573 40154
SF5 NF	25,000	1/2"	1"	2-3/4"	1	699573 60647



SG

Tree with Taper

The taper allows access to hard-to-reach areas, such as angled contours.



SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SG5 NF	25.000	1/2"	1"	2-3/4"	1	699573 60646





Ball-Nosed Cone

This cone shape is excellent for imparting fine finishes.



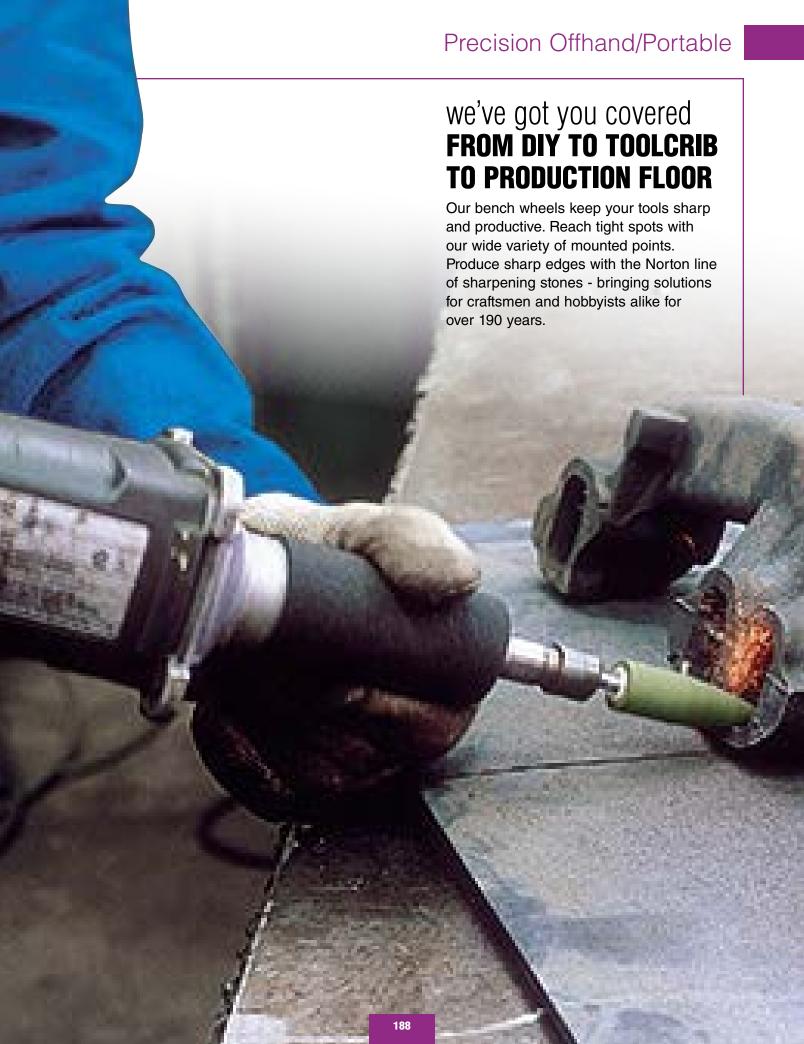




Pointed Cone

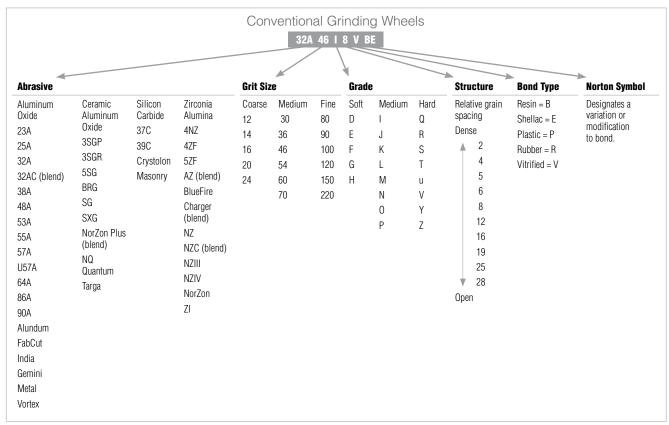
Ideal for rounded edges or reaching difficult, tight areas.

SUB-SHAPE	MAXRPM	D1	L1	L2	MIN/STD PKG QTY	PART #
SM3 NF	25,000	1/2"	7/8"	2"	1	699573 40155



Bonded Abrasives Basics

How to Read an Abrasive Product Specification

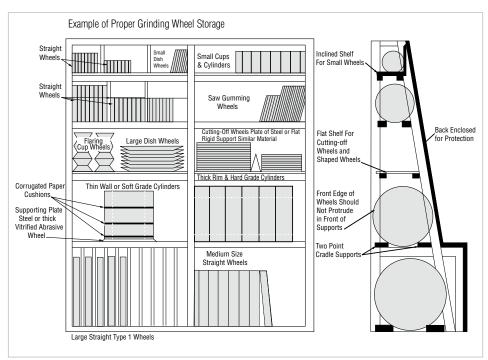


Shelf Life and Proper Storage of Grinding Wheels

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.

Bench and Pedestal Wheels



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: 24 – 1:

Bushings: Machine Used:

Premium Ceramic Alumina, Aluminum Oxide, Silicon Carbide

Telescopic arbor bushings to fit all popular grinders are packaged with the wheel



PED

BENCH GRINDER PEDESTA GRINDER

Application/Grit Recommendation Guide

COARSER (GRINDING)

24 | 36 | 46 | 60 | 80 | 100 | 150

Heavy Stock Removal | Light 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 # 61463610462



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

iGrind App

Created by Norton engineers and updated based on feedback from you, the Norton iGrind app features calculators and conversion tools designed to help optimize your grinding processes.

With Norton iGrind, you can calculate the starting parameters for traverse or plunge truing your grinding wheel, determine the ideal setup for delivering coolant to the grinding zone, and convert wheel speeds between RPM, SFPM (Surface Feet Per Minute), and M/Sec to ensure a safe grinding operation.

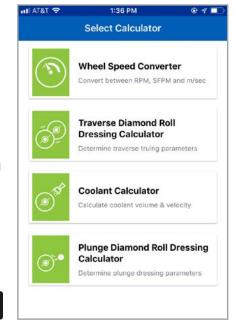
https://www.nortonabrasives.com/en-us/igrind

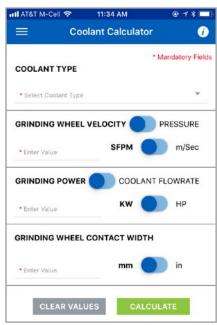
App Features:

- Wheel Speed Convertor
- · Traverse Diamond Roll Dressing Calculator
- · Coolant Calculator
- · Plunge Diamond Roll Dressing Calculator
- Stationary Tool Dressing Calculator









Bench and Pedestal Wheels



Best choice for deburring and tool sharpening on bench and pedestal grinders

PREMIUM CERAMIC ALUMINA 3SG

- Type 01 straight wheel with ceramic alumina grain has fast cut, minimal burn, and long wheel life
- High performance bond for versatility and exceptional form holding
- Especially great for hollow grinding of plane blades and chisels; telescoping bushings to fit popular arbor hole sizes



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

PREMIUM WHITE ALUMINUM OXIDE

- Type 01 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



Better choice for light to medium stock removal

57A ALUMINUM OXIDE

- Type 01 straight wheel, the better choice for the end-user that needs a specific grit size and hardness for engineered applications
- · Vitrified bond for superb shape holding and resistance to wear
- Excellent choice for deburring and tool sharpening on bench and pedestal grinders



Better choice for medium grit and grade for light to medium stock removal on carbide tooling and non-ferrous materials

39C SILICON CARBIDE

- Type 01 straight wheel with sharp, green silicon carbide; use for performance applications on carbide tooling and non-ferrous materials
- · Vitrified bond for superb shape holding and resistance to wear
- Excellent choice for deburring and tool sharpening on bench and pedestal grinders



Good choice for all general-purpose bench and pedestal applications

GEMINI ALUMINUM OXIDE

- Type 01 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



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

GEMINI SILICON CARBIDE

- Type 01 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



PRECISION OFFHAND/PORTABLE Bench and Pedestal Wheels



		TIER:	BEST		BETTER		BETTER	
		TRADENAME:	PREMIUM CE	RAMIC ALUMINA	PREMIUM ALUN	NINUM OXIDE	57A	
		ABRASIVE:	3SG Ceramic A	lumina	White Aluminum (Oxide	Brown Aluminum	Oxide
	MAX.	MIN./STD.						
SIZE (D x T x H)	RPM	PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #
6 x 3/4 x 1	4,140*	1/5	3SG-46K	076607 05411	Medium 60	076607 88246		
	4,140*	1/5	3SG-60I	076607 04684	Fine 100	076607 88247		
	4,140*	1/5	3SG-80K	076607 05412	Very Fine 150	076607 88248		
	4,140*	1/5	3SG-100I	076607 04682				
6 x 1 x 1	4,140*	1/5	3SG-46K	076607 05413	Medium 60	076607 88261		
	4,140*	1/5	3SG-80K	076607 05414	Fine 100	076607 88262		
	4,140	1/5			Very Fine 150	076607 88263		
8 x 1 x 1	3,600	1/5	3SG-46I	076607 04660	Medium 60	076607 88281		
	3,600	1/5	3SG-46K	076607 05421	Fine 100	076607 88282		
	3,600	1/5	3SG-60I	076607 04659	Very Fine 150	076607 88283		
	3,600	1/5	3SG-80K	076607 05422				
	3,600	1/5	3SG-100I	076607 04657				
10 x 1 x 1-1/4	2,485	1/5					57A46-MVBE	662531 16274
	2,485	1/5					57A60-MVBE	662531 16273
10 x 1-1/2 x 1-1/4	2,485	1/5					57A46-MVBE	662531 16280
12 x 1 x 1-1/4	2,070	1/5					57A46-MVBE	662532 20947
12 x 2 x 1-1/2	2,070	1/4					57A30-MVBE	662532 20951
	2,070	1/4					57A36-0VBE	662532 20952
	2,070	1/4					57A46-MVBE	662532 20953
	2,070	1/4					57A60-MVBE	662532 20955
14 x 2 x 1-1/2	1,800	1/3					57A24-QVBE	662533 19972
	1,800	1/3					57A36-OVBE	662533 19973
	1,800	1/3					57A46-MVBE	662533 19974
14 x 2-1/2 x 1-1/2	1,800	1/2					57A24-QVBE	662533 19976
	1,800	1/2					57A46-MVBE	662533 19975
14 x 3 x 1-1/2	1,800	1/2					57A36-0VBE	662533 19977
18 x 3 x 1-1/2	1,275	1/2					57A24-QVBE	662534 62610
		· ·						

^{*} Max. RPM for Premium Ceramic Alumina Wheels is 5,410

Bench and Pedestal Wheel Arbor Bushings

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

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



PRECISION OFFHAND/PORTABLE Bench and Pedestal Wheels







TRADENAME: GEMINI ALUMINUM OXIDE 39C (GRE

39C (GREEN) / 37C (GRAY) GEMINI SILICON C

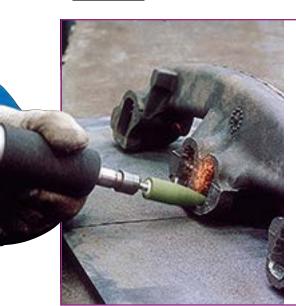
	ABRASIVE: Brown Aluminum Oxide			Silicon Carbide			Green Silicon Carbide			
		MIN./			MIN./			MIN./		
CIZE (D T II)	MAX.	STD.	CDEO	DADT #	STD.	CDEO	DART #	STD.	CDEO	DART #
SIZE (D x T x H) 5 x 1/2 x 1	RPM 4,965	PKG. 1/5	SPEC Medium 60/80	PART # 076607 88202	PKG.	SPEC	PART #	PKG.	SPEC	PART #
3 X 1/2 X 1	4,965	1/5	Fine 100/120	076607 88201						
5 x 3/4 x 1	4,965	1/5	Medium 60/80	076607 88210						
3 X 3/4 X I	4,965	1/5	Fine 100/120	076607 88205						
5 x 1 x 1	4,965	1/5	Medium 60/80	076607 88225						
6 x 1/2 x 1		1/5	Coarse 36/46	662528 36132				1 /F	Medium 60	662528 36571
0 X 1/2 X 1	4,140 4,140	1/5	Medium 60/80	662528 36131				1/5 1/5	Fine 80	662528 36572
C 0 / 4 1	4,140	1/5	Fine 100/120	662528 36133				1/5	Extra Fine 120	662528 36573
6 x 3/4 x 1	4,140	1/5	Coarse 36/46	076607 88245				1/5	Medium 60	662528 37190
	4,140	1/5	Medium 60/80	076607 88240				1/5	Fine 80	662528 37191
	4,140	1/5	Fine 100/120	076607 88235				1/5	Extra Fine 120	662528 37192
6 x 1 x 1	4,140	1/5	Coarse 36/46	076607 88260				1/5	Medium 60	662528 37187
	4,140	1/5	Medium 60/80	076607 88255				1/5	Fine 80	662528 37193
	4,140	1/5	Fine 100/120	076607 88250				1/5	Extra Fine 120	662528 37194
7 x 1 x 1	3,600	1/5	Coarse 36/46	076607 88275				1/5	Medium 60	662529 42300
	3,600	1/5	Medium 60/80	076607 88270				1/5	Fine 80	662529 42301
	3,600	1/5	Fine 100/120	076607 88265				1/5	Extra Fine 120	662529 42302
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				1/5	Medium 60	662530 44087
	3,600	1/5	Coarse 36/46	076607 88286				1/5	Fine 80	662530 44534
	3,600	1/5	Medium 60/80	076607 88285				1/5	Extra Fine 120	662530 44535
	3,600	1/5	Fine 100/120	076607 88280						
10 x 1 x 1-1/4	2,485	1/2	Very Coarse 24	662531 60788	1/5	39C60-IVK	662531 16262	1/2	Medium 60	662531 44536
	2,485	1/2	Coarse 36/46	076607 88295				1/2	Fine 80	662531 60366
	2,485	1/2	Medium 60/80	076607 88290						
	2,485	1/2	Fine 100/120	662531 60350						
10 x 1-1/4 x 1-1/4	2,485	1/2	Coarse 36/46	662531 61250						
	2,485	1/2	Medium 60/80	662531 61251						
10 x 1-1/2 x 1-1/4	2,485	1/2	Coarse 36/46	662531 61393	1/5	39C60-IVK	662531 16265			
	2,485	1/2	Medium 60/80	662531 61395						
12 x 1-1/2 x 1-1/2	2,070	1/2	Coarse 36/46	662532 63052						
	2,070	1/2	Medium 60/80	662532 63053						
12 x 2 x 1-1/4	2,070	•						1/2	Medium 60	662532 63359
•	2,070							1/2	Fine 80	662532 63360
12 x 2 x 1-1/2	2,070	1/2	Very Coarse 24	662532 63054				•		
•	2,070	1/2	Coarse 36/46	662532 63055						
	2,070	1/2	Medium 60/80	662532 63056	1/4	39C60-KVK	662532 20942			
	1,800	-,-			1/3	37C24-RVK	662533 19967			
	1.800				1/3	39C60-JVK	662533 19968			
	.,500				., -					

Bench and Pedestal Wheel Arbor Bushings

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

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

PRECISION OFFHAND/PORTABLE **Mounted Points**



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

A, B, and W

Ceramic Alumina, Zirconia Alumina, Zirconia Alumina / Aluminum Oxide Blend, Abrasive Grain:

Aluminum Oxide

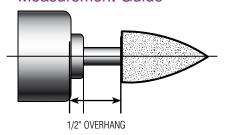
Shape Availability:

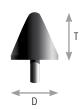
Machine Used:

40/3 DIE AND **PENCIL GRINDER**

STRAIGHT SHAFT PORTABLE GRINDER

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.

Measured by diameter (D) x thickness (T)

Cotton Fiber



Good for blending and polishing

COTTON FIBER ALUMINUM OXIDE - RESIN BOND

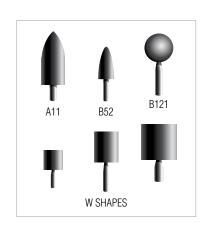
- · Aluminum oxide grain provides an excellent blend of cut rate and life
- . The cotton fibers ensure smooth, chatter-free grinding

TIER: GOOD

• Designed for blending and polishing in one step; use 80 grit for most materials and 120 for polishing and stainless steel applications

				TRADENAME:	COTTON FIBER	
				ABRASIVE:	Aluminum Oxide	
SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #
Cotton Fi	iber Mounted Po	ints				
A11	7/8 x 2	1/4	19,860	5/25	A80-HBF3	614636 22664
B52	3/8 x 3/4	1/8	45,370	5/25	A120-HBF3	614636 20242
B121	1/2" Ball	1/8	45,370	5/25	A80-HBF3	614636 22657
W163	1/4 x 1/2	1/8	60,000	5/25	A80-HBF3	614636 22655
			60,000	5/25	A120-HBF3	614636 22656
W176	3/8 x 1/2	1/8	45,370	5/25	A80-HBF3	614636 22654
W185	1/2 x 1/2	1/8	34,500	5/25	A80-HBF3	614636 22649
W187	1/2 x 1	1/8	20,620	5/25	A80-HBF3	614636 22651
W220	1 x 1	1/4	25,500	5/25	A80-HBF3	614636 22646
1.0.1	1					

[†] Spindle length is 1-1/2"



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



Center Lap



Better for Excell-O center lap and similar machines

CENTER LAP ALUMINUM OXIDE - VITRIFIED BOND

- · Specially formulated wheel treatment provides added lubricity to the wheel, minimizing risk of metallurgical damage
- The larger diameter spindle ensures minimal deflection and rigid support
- · Precise dimensional tolerances ensure accurate location of part centers

				TRADENAIVIE:	GENTEK LAP			
				ABRASIVE:	Aluminum Oxide			
SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #		
Center L	ap Mounted Po	oints						
-	1/2 x 2**	1/2	65,000	5/25	A80-VVM	614636 21421		
_	1 x 2**	1/2	15,900	5/25	A80-VVM	614636 22926		

[†] Spindle length is 1-1/4"

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

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

Resin Bond



Best choice for fast stock removal

TIER: BETTER

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

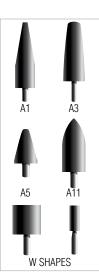
CHARGER Z/A & A/O BLEND - RESIN BOND

- 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
- Better choice for removing parting lines, fins and small risers from castings, and smoothing and blending
- Charger mounted point pre-packed in small packages are ideal for vending machines, pegboards, small jobs, and carrying to job site

				IILII.	DEGI		DETTEN	
				TRADENAME:	NORZON		CHARGER	
				ABRASIVE:	Zirconia Alumina	ì	Zirconia Alum	ina/Aluminum Oxide
SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	MIN./STD. PKG.	SPEC	PART #	SPEC	PART #
Resin Bo	nd Mounted P	oints						
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
A5	3/4 x 1-1/8	1/4	45,000	5/25			Charger	614636 16462
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		
W207	3/4 x 1-1/2	1/4	24,000	5/25			Charger	614636 16470
W208	3/4 x 2	1/4	18,750	5/25	NZ24-UBXR1	614636 16471	Charger	614636 16472
W220	1 x 1	1/4	25,500	5/25	NZ24-UBXR1	614636 17520	Charger	614636 17521
			25,500	5 V			Charger	662533 25930
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

TIFR BEST

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



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

^{**} Pointed 60°

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





Best choice for high volume operations

QUANTUM CERAMIC ALUMINA - VITRIFIED BOND

- Quantum grain with unique, engineered ceramic grain and shape, specifically developed for high-volume, high-speed alloy grinding operations
- Minimal loading and heat build-up; provide up to 33% longer life and 37% better metal removal rates versus other ceramic points
- · Versatile; optimized for all low-, medium-, and high-force vitrified applications
- Oil and Gas 36 grit mounted points; specifically engineered to efficiently grind the carbide matrix material of oil field drill heads



Better medium grit option for blending and deburring

PINK ALUMINUM OXIDE — VITRIFIED BOND

- Sharp versatile 86A aluminum oxide grain is free cutting and resists burn
- Excellent form holding compared to more friable white aluminum oxides
- Medium grit for blending and deburring



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

TECH HP

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



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





				TIER:	BEST		BETTER	(NEW)	GOOD	
				TRADENAME:	QUANTUM		PINK		GEMINI	
				ABRASIVE:	Ceramic Alum	ina	86A Alumir	num Oxide	38A Alumini	ım Oxide
		SPINDLE	MAX.	MIN./ STD.						
SHAPE	SIZE (D x T)	DIA.†	RPM*	PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #
	Bond Mounted F									
A1	3/4 x 2-1/2	1/4	19,800	25/250	Oil & Gas 36	614636 86139				
A1	3/4 x 2-1/2	1/4	19,800	5/25	3NQ80	690831 49139	86A80-S	690786 45335	38A36-T	614636 24374
A1	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	25/250	Oil & Gas 36	614636 86138				
A3	1 x 2-3/4	1/4	16,100	5/25			86A80-S	690786 45333	38A36-T	614636 24377
A3	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			86A80-S	690786 45339	38A36-T	614636 24381
A5	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	3NQ80	690831 49141			38A36-T	614636 24384
A11	7/8 x 2	1/4	19,860	5/25			86A80-S	690786 45336	38A60-P	614636 24385
A12	11/16 x 1-1/4	1/4	48,000	5/25			86A80-S	690786 45344	38A60-P	614636 24388
A13	1-1/8 x 1-1/8	1/4	33,950	5/25					38A60-P	614636 24389
A15	1/4 x 1-1/16	1/4	72,750	5/25					38A60-P	614636 24391
A21	1 x 1	1/4	34,500	5/25					38A60-P	614636 24392
A23	3/4 x 1	1/4	39,370	5/25					38A60-P	614636 24394
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			86A80-S	690786 45341	38A60-P	614636 24396
A26	5/8" Ball	1/4	61,120	5/25					38A60-P	614636 24397
A31	1-3/8 x 1	1/4	27,780	5/25					38A60-P	614636 24399
A34	1-1/2 x 3/8	1/4	25,470	5/25					38A60-P	614636 24402
A36	1-5/8 x 3/8	1/4	23,520	25/250	Oil & Gas 36	662531 45562				
A36	1-5/8 x 3/8	1/4	23,520	5/25					38A60-P	614636 24404
A37	1-1/4 x 1/4	1/4	30,560	5/25					38A60-P	614636 24405
A38	1 x 1	1/4	34,500	5/25			86A80-S	690786 45345	38A60-P	614636 24406
A39	3/4 x 3/4	1/4	47,250	5/25					38A60-P	614636 24407
A40	3/4" Ball	1/4	47,250	5/25					38A60-P	614636 24408
	rd aniadla aiza ia 1/		,	-,						

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

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





				TIER:	BEST		BETTER	NEW	GOOD	
				TRADENAME:	QUANTUM		PINK		GEMINI	
				ABRASIVE:	Ceramic Alu	ımina	86A Alumin	um Oxide	38A Alumini	um Oxide
				MIN./						
OHADE	OUTE (D., T)	SPINDLE	MAX.	STD. PKG.	0050	DADT //	ODEO	DADT #	0050	DART #
SHAPE	SIZE (D x T)	DIA.†	RPM*	PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #
	Bond Mounted I			= 10=						
B41	5/8 x 5/8	1/8	33,570	5/25					38A60-P	614636 24410
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
B45	3/16 x 5/16	1/8	104,250	5/25					38A60-P	614636 24415
B46	1/8 x 5/16	1/8	105,000	5/25					38A60-P	614636 24416
B51	7/16 x 3/4	1/8	45,370	5/25					38A60-P	614636 24418
B52	3/8 x 3/4	1/8	45,370	5/25			86A80-S	690786 45334	38A60-P	614636 24420
B52	3/8 x 3/4	1/4	81,000	5/25					38A60-P	614636 24419
B52	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			86A80-S	690786 45340	38A60-P	614636 24423
B55	1/8 x 1/4	1/8	105,000	5/25					38A60-P	614636 24425
B81	3/4 x 3/16	1/8	50,930	5/25			86A80-S	690786 45347	38A60-P	614636 24437
B91	1/2 x 5/8	1/8	34,500	5/25					38A60-P	614636 24443
B96	1/8 x 1/4	1/8	105,000	5/25					38A90-Q	614636 24449
B97	1/8 x 3/8	1/8	105,000	5/25	3NQ80	690831 49048	86A80-S	690786 45337	38A60-P	614636 24451
B121	1/2" Ball	1/8	45,370	5/25			86A80-S	690786 45338	38A60-P	614636 24466
B122	3/8" Ball	1/8	61,650	5/25	3NQ80	690831 49050	86A80-S	690786 45360	38A60-P	614636 24470
B123	3/16" Ball	1/8	104,250	5/25					38A60-P	614636 24472
B124	1/8" Ball	1/8	105,000	5/25					38A90-Q	614636 24474
B131	1/2 x 1/2	1/8	34,500	5/25					38A60-P	614636 24475
B132	3/8 x 1/2	1/8	45,370	5/25					38A60-P	614636 24479
B135	1/4 x 1/2	1/8	60,000	5/25			86A80-S	690786 45342	38A60-P	614636 24484

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

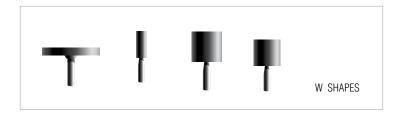
* Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.





				TIER:	BEST		GOOD	NEW	GOOD	
				TRADENAME:	QUANTUM		PINK		GEMINI	
				ABRASIVE:	Ceramic Alum	nina	86A Alumir	num Oxide	38A Alumini	um Oxide
				MIN./						
SHAPE	SIZE (D x T)	SPINDLE DIA.†	MAX. RPM*	STD. PKG.	SPEC	PART #	SPEC	PART #	SPEC	PART #
	Bond Mounted P			rnu.	SPEU	PANI#	SPEU	PANI#	SPEU	PANI#
W144	1/8 x 1/4	1/8	105.000	5/25					38A60-P	614636 24488
W144 W145	1/8 x 3/8	1/8	105,000	5/25					38A60-P	614636 24489
W145 W146	1/8 x 1/2	1/8	105,000	5/25					38A60-P	614636 24491
W140 W152	3/16 x 1/4	1/8	105,000	5/25					38A60-P	614636 24495
W152 W153	3/16 x 3/8	1/8	80.850	5/25					38A60-P	614636 24496
W153	3/16 x 3/6	1/8	70,500	5/25	3NQ80	690831 49133			38A60-P	614636 24497
W154 W162		1/8		5/25	SINUOU	09003149133			38A60-P	614636 24503
W162 W163	1/4 x 3/8 1/4 x 1/2	1/8	64,800 60,000	5/25			86A80-S	690786 45346	38A60-P	614636 24504
W164	1/4 x 1/2 1/4 x 3/4	1/8		5/25			00A0U-5	09078043340	38A60-P	614636 24505
			45,900							
W170	5/16 x 1/2	1/8	52,500	5/25					38A60-P	614636 24511
W175	3/8 x 3/8	1/8	54,000	5/25					38A60-P	614636 24516
W176	3/8 x 1/2	1/8	45,370	5/25			00400	00070045055	38A60-P	614636 24517
W177	3/8 x 3/4	1/8	33,750	5/25	0:1 0 0 00	000001=40==	86A80-S	690786 45355	38A60-P	614636 24518
W179	3/8 x 1-1/4	1/4	20,415	25/250	Oil & Gas 36	690831 54055				
W185	1/2 x 1/2	1/8	34,500	5/25	3NQ80	690831 49137			38A60-P	614636 24525
W185	1/2 x 1/2	1/4	61,500	5/25			86A80-S	690786 45354	38A60-P	614636 24526
W186	1/2 X 3/4	1/4	51,000	5/25					38A60-P	614636 24528
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	25/250	Oil & Gas 36	614636 86137				
W189	1/2 x 2	1/4	24,000	5/25					38A60-P	614636 24531
W196	5/8 x 1	1/4	35,250	5/25					38A60-P	614636 24539
W200	3/4 x 1/8	1/8	50,930	5/25			86A80-S	690786 45356	38A60-P	614636 24543
W200	3/4 x 1/8	1/8	50,930	5/25					38A90-Q	614636 24544
W204	3/4 x 3/4	1/4	42,750	5/25					38A60-P	614636 24549
W205	3/4 x 1	1/4	34,500	5/25					38A60-P	614636 24550
W208	3/4 x 2	1/4	18,750	5/25					38A60-P	614636 24553
W215	1 x 1/8	1/8	38,200	5/25					38A60-P	614636 24560
W216	1 x 1/4	1/4	38,200	5/25					38A60-P	614636 24562
W218	1 x 1/2	1/4	38,200	25/250	Oil & Gas 36	690831 54061				
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			86A80-S	690786 45359	38A60-P	614636 24566
W222	1 x 2	1/4	15,900	5/25					38A60-P	614636 24569
W230	1-1/4 x 1-1/4	1/4	20,400	5/25					38A60-P	614636 24578
W235	1-1/2 x 1/4	1/4	25,470	5/25			86A80-S	690786 45343	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
1.0.1.11.	-11-4/01 4/41		-, -,	-, -						

[†] Spindle size is 1/8" or 1/4" x 1-1/2" * Maximum RPM valid to 1/2" overhang. See package insert for other overhangs.





PRECISION OFFHAND/PORTABLE Sharpening Stones



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

For additional sharpening products not shown in this catalog, contact your Norton sales representative.

Applications: Grit Range: Abrasive Types: Machine Used: Deburring, dimensioning, sharpening, honing Coarse, Medium, Fine, Extra Fine, Ultra Fine

Aluminum Oxide (India), Silicon Carbide (Crystolon), Arkansas (Soft and Hard Translucent),



HAND SHARPENING



Better choice for economical solution for general sharpening and finishing with

COMBINATION GRIT ABRASIVE BENCHSTONES

Crystolon Combination

Coarse and fine grit sharp-cutting silicon carbide abrasive surfaces for general sharpening (to moderate tolerances) when the speed of sharpening is more important than the fineness of the cutting edges. Gray in color.

India Combination

Coarse and fine grit aluminum oxide abrasive surfaces produce strong, keen, long-lasting edges on quality tools. Orange/brown in color.

Crystolon/India Combination

Fast-sharpening, medium grit silicon carbide (Crystolon) and fine aluminum oxide (India) abrasive surfaces for keen, long-lasting edges on quality tools. Crystolon side is dark gray in color, India side is orange.

Giant Combination Stones

11-1/2" and 12" bench oil stones are used to sharpen large edge tools with long sweeping strokes.

Application-to-Product Recommendation Guide

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

			TIER:	BETTER	
A177 (1 111 111	QTY./				
SIZE (L x W x H)	CASE	SPEC.		PRODUCT #	PART #
Combination Grit Bo	enchstone	s – Crystolon (Silicon Carbide)			
4 x 1 Round	5	Coarse/Fine		JB64	614636 85435
4 x 1-3/4 x 5/8	5	Coarse/Fine		JB134	614636 85440
5 x 2 x 3/4	5	Coarse/Fine		JB45	614636 85445
6 x 2 x 1	5	Coarse/Fine with Anniversary Box		JB6	614636 85450
8 x 2 x 1	5	Coarse/Fine with Anniversary Box		JB8	614636 85455
11-1/2 x 2-1/2 x 1	2	Coarse/Fine		JUM3	614636 85840
12 x 2-1/2 x 1-1/2	2	Coarse/Fine		JUM4	614636 85855
Combination Grit Bo	enchstone	s – India (Aluminum Oxide)			
4 x 1 Round	5	Coarse/Fine		IB64	614636 85545
4 x 1-3/4 x 5/8	5	Coarse/Fine		IB134	614636 85550
5 x 2 x 3/4	5	Coarse/Fine		IB45	614636 85555
6 x 2 x 1	5	Coarse/Fine with Anniversary Box		IB6	614636 85560
8 x 2 x 1	5	Coarse/Fine with Anniversary Box		IB8	614636 85565
11-1/2 x 2-1/2 x 1	2	Coarse/Fine		IM2	614636 85851
Combination Grit Bo	enchstone	s – Crystolon/India			
6 x 2 x 1	5	Medium/Fine		IC6	614636 85643
11-1/2 x 2 x 1	2	Medium/Fine		IC11	614636 87239





PRECISION OFFHAND/PORTABLE Sharpening Stones

Better choice for specific sharpening or deburring applications



SPECIALTY STONES

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

Large Specialty Stones

Tradesmen's Utility Stones

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

Sickle and Scythe Stones

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

Utility File

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

		T	TER: BETTER	
SIZE	QTY./ Case	SPEC.	PRODUCT #	PART #
Tradesmen's Utility Stones - Crystolon (Silicon Ca	rbide)		
10 x 1-1/4 x 3/4	10	Medium	JT910	614636 87665
14-3/4 Overall (with Handle)	10	Coarse/Fine	JT930	614636 87675
	10	Medium	JT920	614636 87670
Sycle and Scythe Stones				
10 x 1-1/4 x 3/4 Crystolon (Silicon Carbide)	10	Coarse	TJ3	614636 87731
10 x 1-5/16 x 3/4 India (Aluminum Oxide)	10	Coarse	TD1	614636 87715
Utility File - Crystolon (Silicon Carbide)				
14 Overall (w/ Handle)	10	Coarse	JD2	614636 87750
All Large Chanielty Ctange are hully peoled				



All Large Specialty Stones are bulk packed.

Specialty Stones for Machine Tools

Machine Knife Stone

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

		TIER	BETTER						
0.75	QTY./ Case	0050	DDODUOT "	DADT #					
SIZE	UNUL	SPEC.	PRODUCT #	PART #					
Machine Knife Stone – Crystolon (Silico	Machine Knife Stone – Crystolon (Silicon Carbide)								
4" Diam. x 1-1/2" Thick	5	Coarse/Fine	JB74	614636 87570					





Better choice for improving sharpening stone performance

SHARPENING STONE OIL

- · Highly refined lubricating oil which is specifically formulated for sharpening stone use
- Will not load or "gum-up" sharpening stones, meets U.S. Pharmacopoeia standards for mineral oil purity; may be used around food preparation operations
- · Equally ideal for all lubricating jobs

TIER: BETTER								
	SIZE	QTY./ CASE	SPEC.	PRODUCT #	PART #			
	Sharpening Stone Oil							
	4-1/2 oz.	20	Oil	XB1	614636 87760			
	1 Pint	20	Oil	XB5	614636 87770			
	1 Quart	5	Oil	XB2	614636 87775			
	1 Gallon	4	Oil	XB6	662534 57631			

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

Instructional Videos



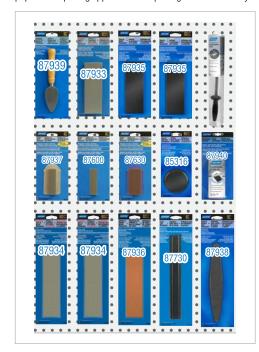
YouTube Find the latest instructional sharpening stone videos on our youtube channel at https://nortonsga.us/kb542

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

PRECISION OFFHAND/PORTABLE Retail Sharpening Stones

Retail Packaged Sharpening Products

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



		TIER:	BETTER
SIZE (L x W x H)	SPEC.	QTY./ Case	PART #
Axe and Hatchet Sharpe	ener		
3 x 5/8 round	Coarse/Fine Crystolon (Silicon Carbide)	10	076607 85316
Pocket Knife Sharpene	•		
3 x 7/8 x 3/8	Fine Crystolon (Silicon Carbide)	5	076607 87600
3 x 7/8 x 3/8 with case	Medium India (Aluminum Oxide)	5	076607 87937
3 x 1-1/2 x 1/2 with case	Coarse/Fine India (Aluminum Oxide)	5	076607 87630
Economy Tool & Knife E	Benchstone		
6 x 2 x 3/4	Coarse/Fine Crystolon (Silicon Carbide)	5	076607 87933
8 x 2 x 3/4	Coarse/Fine India (Aluminum Oxide)	10	076607 87934
8 x 2 x 1	Coarse/Fine India (Aluminum Oxide)	10	614636 85755
High Quality Tool & Kni	fe Benchstone		
6 x 2 x 3/4	Coarse/Fine Crystolon (Silicon Carbide)	5	076607 87935
Chisel & Planer Blade S	Sharpener		
8 x 2 x 3/4	Coarse/Fine India (Aluminum Oxide)	10	076607 87936
Household Knife & Tool	Sharpener		
7-1/2	Fine Crystolon (Silicon Carbide)	5	076607 87939
Farm Tool Sharpener			
10 x 1-1/4 x 3/4	Coarse Crystolon (Silicon Carbide)	10	076607 87730
Lawn & Garden Tool Sha	arpener		
9-1/2 x 1-3/8 x 1/2	Medium Crystolon (Silicon Carbide)	10	076607 87938
Sharpening Stone Oil			
4-1/2 oz.	Oil	5	076607 87940
Sharpening Steel			
1/2 x 10	Round file with rubber handle	8	662532 40433
Vitrified Dressing Stick			
1 x 1 x 6	Medium Silicon Carbide	5	076607 10466



Knife and Scissor Sharpener

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

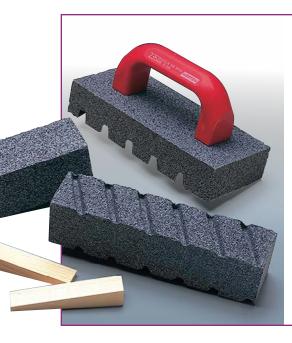
SPECIFICATION	QTY./ CASE	PART #
Knife and Scissor Sharpener		
Carbide	6	076607 87520

Norton Professional Sharpening Products and Dressing Sticks

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



Rubbing Bricks



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

Applications:

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

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

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

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

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

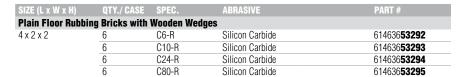
Grit Range: Abrasive Type: Machine Used: 6 – 120 Silicon Carbide













SIZE (L x W x H)	QTY./ CASE	PART #
Wooden Wedges		
	6	614636 85297



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PRODUCT #	PART #
Plain Hand Rubbing	Bricks				
8 x 2 x 2	5	C24	Silicon Carbide	BP28	614636 87830



SIZE (L x W x H) QTY./ CASE	SPEC.	ABRASIVE	PRODUCT #	PART #
Fluted Hand F	Rubbing Bricks				
6 x 2 x 2	5	C20	Silicon Carbide	BF26	614636 87840
8 x 2 x 2	5	C20	Silicon Carbide	BF28	614636 87845



SIZE (L x W x H) Fluted Hand Rubb		ASE SPEC. with Handle	ABRASIVE	PRODUCT #	PART #
6 x 3 x 1	5	C20	Silicon Carbide	BFH6	614636 87800
8 x 3-1/2 x 1-1/2	5	C20	Silicon Carbide	235	614636 87795



SIZE (L x W x H)	QTY./ CASE	SPEC.	ABRASIVE	PART #
Griddle Brick				
4-1/2 x 3 x 2	5	Medium	Alundum	614636 87870





CONSTRUCTION PRODUCTS Diamond Blades



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

Applications: Cutting concrete, stone, tile, and other building materials

Size Range: 4" - 18"Thickness Range: .080" - .375".210" - .550" **Segment Height:**

Range: **Abrasive Grain: Mounting Options:**

Shape: **Machines Used:** Diamond

1"/20mm universal arbor, 7/8"-5/8"-20mm, DM-7/8"-5/8", 5/8"-11

Type 01









OR ELECTRIC SAW

RIGHT-ANGLE **GRINDER**

Diamond Blade Rim Types

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



Segmented

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



Turbo

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



Continuous

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

Material / Application-to-Product Recommendation Guide

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

Diamond Performance Tiers







Better High Performance

Best Performance











Value and Good Consistent Performance

TECH TIP

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



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

CONSTRUCTION PRODUCTS - DIAMOND BLADES

High-Speed Saw Blades

For Reinforced Concrete and Harder Building Materials

DRY – Segmented Rim (1)+(2)



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
12 x .110 x 1"/20mm	.590"	6,300	DU0EV012110	701846 84217	
14 x .118 x 1"/20mm	.590"	5,460	DU0EV014118	701846 84218	
16 x .125 x 1"/20mm	.590"	4,500	DU0EV016125	701846 93356	



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

culling debris. Maximum	general purpose periornance	when culling medium	to low reilliorcement, naru materi	ais.	
SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
12 x .110 x 1/20mm	.393"	6,300	DU012110	701846 83611	
14 x .110 x 1/20mm	.393"	5,460	DU014110	701846 83612	
14 x .110 x 1/20mm	.393"	5,460	DU014110 6PK	701846 84430	
14 x .110 x 1/20mm	.393"	5,460	DU014110 12PK	701846 84431	
14 x .125 x 1/20mm	.393"	5,460	DU014125	701846 83613	
14 x .125 x 1/20mm	.393"	5,460	DU014125 6PK	701846 84432	
14 x .125 x 1/20mm	.393"	5,460	DU014125 12PK	701846 84433	
16 x .125 x 1/20mm	.393"	4,500	DU016125	701846 83798	



For Asphalt and Abrasive Materials

DRY – Segmented Rim



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6,300	DUOASP12125	701846 84543
14 x .125 x 1/20mm	.393"	5,460	DUOASP14125	701846 84315
16 x .125 x 1/20mm	.393"	4,500	DU0ASP16125	701846 84544



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

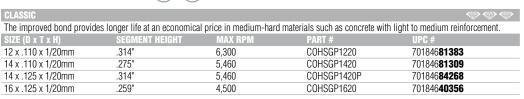
'		0 1 0			
SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
14 x .110 x 1/20mm	.393"	5,460	DUOAB14110	701846 84291	
14 x 125 x 1/20mm	393"	5 460	DH0AB14125	701846 84292	



For General-Purpose and Masonry Building Materials

DRY – Segmented Rim ()+()







VALUPLUS				$\Leftrightarrow \Leftrightarrow$
For value and performance	on small- to medium-size jo	bs. The sintered blade	cuts unreinforced soft-to-medium	concrete fast on saws up to 13 HP.
SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6,300	VPHSGP1220	701846 84180
14 x .110 x 1/20mm	.393"	5,460	VPHSGP1420	701846 84181
14 x .110 x 1/20mm	.393"	5,460	VPHSGP1420 20PK	701846 84428







CONSTRUCTION PRODUCTS - DIAMOND BLADES

High-Speed Saw Blades

Multi-Purpose, For All Materials

Dry – Segmented Rim (A)+(B)



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
12 x .118 x 1/20mm	.472"	6,300	4X4MC12118	701846 45927	
14 x .125 x 1/20mm	.472"	5,460	4X4MC14125	701846 45926	

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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
12 x .110 x 1/20mm	.393"	6,300	4X412110	701846 84548
14 x .125 x 1/20mm	.393"	5,460	4X414125	701846 84547
16 x .125 x 1/20mm	.393"	4,500	4X416125	701846 45306

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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
12 x .118 x 1/20mm	.314"	6,300	3X312118	701846 47500	
14 x 118 x 1/20mm	314"	5 460	3X314118	701846 47499	









Hand-Held Saw Blades

For Reinforced Concrete and Harder Building Materials

DRY - Crack Chasing



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .375 x 7/8-5/8-20mm	.550"	15,000	CGCC0400	701846 83856
7 x .250 x 7/8-5/8-20mm	.550"	8,730	CGCC0700	701846 83859



For Asphalt and Abrasive Materials

Dry - Tuck Pointing



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-		-	

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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .250 x 7/8-5/8	.275"	15,000	CHTUCK0400	701846 81776
4-1/2 x .250 x 7/8-5/8	.275"	13,300	CHTUCK0450	701846 81777
5 x .250 x 7/8-5/8	.275"	12,225	CHTUCK0500	701846 81778
7 x .250 x 7/8-5/8	.275"	8,730	CHTUCK0700	701846 81779
8 x .250 x 7/8-5/8	.275"	7,640	CHTUCK0800	701846 81780



For General-Purpose and Masonry Building Materials

Dry – Segmented Rim ()+()



CHARGER High-performance dry cutting of a va	riety of materials. The segme	nt specification allo	ows extended life and fas	t cut for medium to large jobs.
SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.393"	15,000	CGDSEG0400	701846 81505
4-1/2 x .080 x 7/8-5/8-20mm	.393"	13,300	CGDSEG0450	076607 04021
5 x .080 x 7/8-5/8-20mm	.393"	12,225	CGDSEG0500	701846 82851
6 x .080 x 7/8-5/8-20mm	.393"	10,185	CGDSEG0600	701846 83820

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.393"	15,000	CGDSEG0400	701846 81505
4-1/2 x .080 x 7/8-5/8-20mm	.393"	13,300	CGDSEG0450	076607 04021
5 x .080 x 7/8-5/8-20mm	.393"	12,225	CGDSEG0500	701846 82851
6 x .080 x 7/8-5/8-20mm	.393"	10,185	CGDSEG0600	701846 83820
7 x .090 x DM-7/8-5/8	.393"	8,730	CGDSEG0700	076607 04020
8 x .090 x DM-7/8-5/8	.393"	7,640	CGDSEG0800	701846 81513
9 x .090 x 7/8-5/8"	.393"	6,600	CGDSEG0900	701846 69483



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

and good inc.					
SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
4 x .080 x 7/8-5/8-20mm	.315"	15,000	VPSEG0400	701846 84098	
4-1/2 x .080 x 7/8-5/8-20mm	.315"	13,300	VPSEG0450	701846 84099	
7 x .090 x DM-7/8-5/8	.315"	8.730	VPSEG0700	701846 84100	



Dry – Turbo Rim



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

better borid and diamond concentration for maximum cutting speed, the and quanty of cut.							
SEGMENT HEIGHT	MAX RPM	PART #	UPC #				
.393"	15,000	CGTURB0400	076607 05475				
.393"	13,300	CGTURB0450	076607 04023				
.393"	12,225	CGTURB0500	701846 82853				
.393"	8,730	CGTURB0700	076607 04022				
.393"	7,640	CGTURB0800	701846 81512				
	393" .393" .393" .393" .393"	SEGMENT HEIGHT MAX RPM .393" 15,000 .393" 13,300 .393" 12,225 .393" 8,730	SEGMENT HEIGHT MAX RPM PART # .393" 15,000 CGTURB0400 .393" 13,300 CGTURB0450 .393" 12,225 CGTURB0500 .393" 8,730 CGTURB0700				



For Natural Stone and Tiles

Dry – Continuous Rim (A)+(B)



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x .080 x 7/8-5/8-20mm	.275"	15,000	CON4DT	076607 02793
4-1/2 x .080 x 7/8-5/8-20mm	.275"	13,300	CON45DT	076607 01194
7 x .090 x DM-7/8-5/8	.275"	8,730	CON7DT	076607 02788





CONSTRUCTION PRODUCTS - DIAMOND BLADES

Walk-Behind Saw Blades

For Reinforced Concrete and Harder Building Materials

WET – Medium Aggregates

with up to 35 HP walk-behind saws.



The steel core is designed to keep the cut straight while the .410" segment height prolongs cutting wear. Suitable for cutting medium aggregates

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.410"	4,365	35hp	CGWCMD1412	701846 81366
18 x .125 x 1	.410"	3,395	35hp	CGWCMD1812	701846 81368



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.326"	4,365	35hp	CHWCGP1412	701846 81359
18 x .125 x 1	.326"	3,395	35hp	CHWCGP1812	701846 81361



For Asphalt and Abrasive Materials

DRY – Green/Cured Concrete (A)+(B)



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

SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
8 x .095 x 7/8-5/8	.372"	8,730	6hp	NXDGRN0895	701846 83758
9 x .110 x 7/8-5/8	.372"	6,600	6hp	EE9110	701846 75125
10 x .110 x 1-7/8-5/8	.372"	6,115	6hp	EE10110	701846 84508





WET - Asphalt

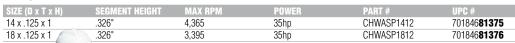


For large road and construction jobs with saws up to 35 HP. Higher diamond content increases productivity and offers faster cutting and longer life in asphalt and green concrete applications

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SIZE (D x T x H)	SEGMENT HEIGHT	MAX RPM	POWER	PART #	UPC #
14 x .125 x 1	.327"	4,365	35hp	CGWASP1412	701846 81478
18 x .125 x 1	.307"	3,395	35hp	CGWASP1812	701846 81479



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







TECH TIP

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

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

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



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

CONSTRUCTION PRODUCTS Diamond Cup Grinders



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

Applications: Used on right angle grinders to grind concrete, stone and masonry materials.

Size Range: 4" - 7" .177", .210" **Segment Height:**

Range:

Options:

Abrasive Grain: Diamond **Mounting Options:**

5/8"-11 attachment optimized for all popular angle grinders, 7/8-5/8"-20mm

Standard – single row or double row available

iHD (Infiltrated High-Density) has thicker body, larger ventilation holes for better cooling

Machines Used:

RIGHT-ANGLE **GRINDER**

General-Purpose and Masonry Building Materials

Dry - Cup Grinder + Ch



3X3 WITH IHD TECHNOLOGY

The 3X3 cup grinder ensures very high material removal rate, extreme comfort while working without vibrations and a self-sharpening feature. These

new iHD cups offer the best finishing and longest life even on softer, more abrasive materials. 3X3CG0400 4 x 5/8"-11 15,000 70184601763



CHARGER WITH IHD TECHNOLOGY

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

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #	
4 x 5/8"-11	.177"	15,000	CGCG0400	701846 01762	
5 x 5/8"-11	.177"	12,225	CGCG0500	701846 01765	
7 x 5/8"-11	.177"	8,730	CGCG0700	701846 01768	

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

SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
4 x 5/8"-11	.177"	15,000	CCCG0400	701846 01761
5 x 5/8"-11	.177"	12,225	CCCG0500	701846 01764
7 x 5/8"-11	.177"	8,730	CCCG0700	701846 01767

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

ziron, ziroon, comercio ame		3 - 1		
SIZE (D x H)	SEGMENT HEIGHT	MAX RPM	PART #	UPC #
Single Row for Fast S	tock Removal			
4 x 7/8-5/8-20mm	.210"	15,000	CHSCPH0400	701846 82585
5 x 7/8-5/8-20mm	.210"	12,225	CHSCPH0500	701846 84035
7 x 7/8-5/8-20mm	.210"	8,730	CHSCPH0700	701846 82594
4 x 5/8"-11	.210"	15,000	CHSCPT0400	701846 82555
5 x 5/8"-11	.210"	12,225	CHSCPT0500	701846 84036
7 x 5/8"-11	.210"	8,730	CHSCPT0700	701846 82593
ouble Row for Long l	Life, Smooth Finish			
1 x 7/8-5/8-20mm	.210"	15,000	CHDCPH0400	701846 82588
5 x 7/8-5/8-20mm	.210"	12,225	CHDCPH0500	701846 84037
7 x 7/8-5/8-20mm	.210"	8,730	CHDCPH0700	701846 82596
4 x 5/8"-11	.210"	15,000	CHDCPT0400	701846 82586
5 x 5/8"-11	.210"	12,225	CHDCPT0500	701846 84038
7 x 5/8"-11	.210"	8,730	CHDCPT0700	701846 82595

Accessories

VACUUM SHROUD KIT

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

Kit includes: one shroud, five different adapter rings to fit most popular right-angle grinders, and 70184641039 one 7" Norton Clipper Classic single row cup wheel

















CONSTRUCTION PRODUCTS Diamond Core Bits



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

Applications: Used on core drills in materials such as concrete, stone and other hard materials

Size Range: 2" - 10" Segment Height Range: .254", .393" **Abrasive Grain:** Diamond **Mounting Options:** 1-1/4"-7 threads

Machines Used:



Reinforced Concrete and Harder Building Materials

WET – Hard Aggregates

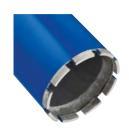




ilicieaseu periorii	increased performance. The 14 tube length with 1-1/4-7 timeads his a wide range of core unit mounting abouts.							
SIZE IN INCHES	SIZE IN MM	SEGMENT HEIGHT	MAX RPM	PART #	UPC #			
2"	51mm	.490"	2,000	PDBIT0200	701846 01410			
2-1/2"	64mm	.490"	1,300	PDBIT0250	701846 01411			
3"	76mm	.490"	1,300	PDBIT 0300	701846 01412			
3-1/2"	89mm	.490"	1,300	PDBIT0350	701846 01413			
4"	102mm	.490"	1,000	PDBIT0400	701846 01414			
4-1/2"	114mm	.490"	800	PDBIT0450	701846 01415			
5"	127mm	.490"	800	PDBIT0500	701846 01416			
6"	152mm	.490"	665	PDBIT0600	701846 01417			
7"	178mm	.490"	600	PDBIT0700	701846 01418			
8"	203mm	.490"	500	PDBIT0800	701846 01419			
10"	254mm	.490"	400	PDBIT1000	701846 01706			



CLASSIC					$\Leftrightarrow \Leftrightarrow \Leftrightarrow$				
Economical choice for use in harder concrete with heavy reinforcement and masonry materials with good performance.									
SIZE IN INCHES	SIZE IN MM	SEGMENT HEIGHT	MAX RPM	PART #	UPC #				
2"	51mm	.350"	2,000	CHBIT0200	701846 82762				
3"	76mm	.350"	1,300	CHBIT0300	701846 82765				
4"	102mm	.350"	1,000	CHBIT0400	701846 82767				
6"	152mm	.350"	665	CHBIT0600	701846 82771				
8"	203mm	.350"	500	CHBIT0800	701846 82773				
10"	254mm	.350"	400	CHBIT1000	701846 82774				





TECH TIP

Core Bits - Minimum and Maximum Recommended Operating Speeds

BII DIAN	IETEK MINIMUM KPM	IDEAL SPEED (RPM)	MAXIMUM RPM
1"	2,400	3,200	4,000
2"	1,200	1,600	2,000
3"	800	1,050	1,300
4"	600	800	1,000
5"	475	640	800
6"	400	530	665
7"	340	450	600
8"	300	400	500
10"	240	320	400
Mata. Fas	Jack to the transport of the sector	the mount leaves a bit alience	4

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



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

Equipment



High-Speed Gas Saws

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

Walk-Behind Saws

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

Masonry Saws

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

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

High-Speed Gas Saws

CP500 SERIES HIGH-SPEED SAWS

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

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

indicate a for on love and adjust the origine to fall to provent origine damage.									
DESCRIPTION	SHAFT RPM	PART #	UPC #						
12" Standard High-Speed Cut-Off Saw	4,500	CP512-300	701846 47559						
12" iLube High-Speed Cut-Off Saw	4,500	CP512-300i iLube	701846 47561						
14" Standard High-Speed Cut-Off Saw	4,500	CP514-350	701846 47563						
14" iLube High-Speed Cut-Off Saw	4,500	CP514-350i iLube	701846 47565						
ACCESSORIES									
High-Speed Saw Wheel Kit			005101 09845						
High-Speed Saw Tool Kit			005101 09846						









Walk-Behind Push Saws



GC55 FARIY ENTRY/GREEN SAW

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

UPC #	MOTOR	WEIGHT	GUARD
701846 30005	Honda GX160	115 lbs	10"



C1318P GASOLINE SAW

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

UPC #	MOTOR	WEIGHT	GUARD
701846 42453	Honda GX390	220 lbs	18"



C13PE GASOLINE SAW

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

UPC #	MOTOR	WEIGHT	GUARD	
701846 47524	Honda GX390	220 lbs	18"	

CONSTRUCTION PRODUCTS Equipment

Large Masonry Saws

BBL BLOCKBUSTER LARGE MASONRY SAWS

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

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

DESCRIPTION	HP	PART #	UPC #
BBL547 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	5	BBL547	701846 83211
BBL527 Blockbuster Saw with Baldor electric motor; 20" blade guard capacity	5	BBL527	701846 83150
ACCESSORIES			
Electric Water Pump – PE-1			701846 68392
Conveyor Cart Replacement for BBL			003100 07390
Controj or Care Hopiacomone for BBE			00010001000







Compact Masonry Saws

BBC BLOCKBUSTER COMPACT MASONRY SAWS

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

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

DESCRIPTION	HP	PART #	UPC #
BBC157 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	1.5	BBC157	701846 82488
BBC207 Blockbuster Saw with Baldor electric motor; 14" blade guard capacity	2	BBC207	701846 82501
BBC207 Blockbuster Saw with Baldor electric motor; 20" blade guard capacity	3	BBC307	701846 30011
BBC547 Blockbuster Saw with Honda gasoline motor; 14" blade guard capacity	5.5	BBC547	701846 82175
BBC507 Blockbuster Saw with Honda gasoline motor; 20" blade guard capacity	5.5	BBC507	701846 30012
ACCESSORIES			
Electric Water Pump – PE-1			701846 68392
Conveyor Cart Replacement for BBC			003100 07367



Mini Masonry Saws

RRM RI OCKRUSTER MINI MASONRY SAWS

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

9 р р		,	
DESCRIPTION	HP	PART #	UPC #
Blockbuster Mini Masonry Saw with AC universal motor; gear drive	3	BBM307	701846 00684
Blockbuster Mini Masonry Saw with Induction motor; belt drive	2	BBM158	701846 26327
ACCESSORIES			
Vacuum Adaptor Kit (includes: back splash, adaptor and hardware)			701846 00753
Wet Kit			701846 00704
Stand			701846 00691







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



WIRE BRUSHES Wire Brush Basics



Our Norton wire brush broad offering includes all the basic shapes and configurations. Informative, attractive packaging clearly explains dimensions, structure, safety and machine usage. All brushes are individually clamshell packaged unless otherwise noted. When using wire brushes, be sure to comply with ANSI B165 "Power-Driven Brushing Tools: Safety Requirement for the Design, Care and Use." and safety documents on www.nortonabrasives.com website.

Applications:

Wire Design:

Shapes:

Other: **Machine Used:** Cleaning rust, scale and dirt; light deburring; edge blending; roughening for adhesion;

finishing for appearance; finish preparation prior to plating or painting

Cup, saucer cup, wheel, joint/crack, end brush, hand brush

Ttwist knot, crimped, and stringer bead

Color-coded for easy identification: STEEL/METAL STAINLESS















MINI DIE **GRINDER**

RIGHT-ANGLE RIGHT-ANGLE **CUP GRINDER GRINDER**

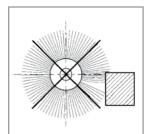
BENCH GRINDER

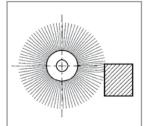
PEDESTAL **GRINDER**

WALK-BEHIND HAND SAW APPLICATION

Why Use Wire Brushes vs. Other Brushes, Coated Abrasive, and Surface-Cleaning Products

Norton Wire brushes remove rust and oxidations, paint, slag, weld spatter and other unwanted surface contaminants, without removing any base material. Other products can remove base material along with the surface contaminant. Our flexible wire brushes are able to clean hard-to-reach places and conform to irregular surfaces, which more rigid products cannot do.





Let the tip of the wire brush do the work - operate the brush with the lightest pressure. If heavy pressure is used, wires will be overstressed, resulting in a wiping action, which, if continued, creates wire fatigue and will shorten brush life. Reversing the rotation periodically sharpens the wire tips for faster cutting action and longer life. Use finest suitable wire size.







Standard Twist Knot



Stringer Bead Twist Knot

TECH TIP

When to Use Crimped Wire vs. Standard Twist Knot vs. Stringer Bead Twist Knot Brushes

Crimped Wire Brushes

Crimped wire brushes' individual filaments are supported only by each other - creating extra flexibility.

Ideal for work on irregular surfaces, finer surface finishing, and light- to medium-duty contaminant removal applications.

Standard Twist Knot Wire Brushes

Ensuring longer life, making them the choice for more aggressive applications requiring higher-impact action, and a rougher surface finish.

Standard twist knot brushes are made with straight wire filaments that are twisted together to make more rigid rope- or cable-like pieces.

Stringer Bead Twist Knot Wire Brushes

Stringer bead twist knots (vs. standard twist knots) are more tightly twisted to the end of the knot, creating a narrower face and highest-impact action.

The choice for tough weld scale cleaning, removing the bead scale that occurs at the initial joining of two sections of pipe, root and hot weld pass cleaning, and the most aggressive brushing applications.



Wire Diameter

Choose the appropriate wire brush wire diameter for the job

- Very fine to fine wire for light-duty applications
- Medium to coarse wire for heavy-duty applications

Wire	Coarse		Medium to Coarse		Medium		Fine		Very Fine	
DIAMETER IN INCHES	.032	.020	.020	.015	.012	.0104	.010	.008	.006	.005
DIAMETER IN MM	.80	.50	.50	.37	.30	.26	.25	.20	.15	.13

TECH TIP

Trim Length

Choose the appropriate trim length for the job. "Trim Length" equals the amount of usable filament:

- Longer trim lengths are more flexible, making them the choice for irregular surfaces
- Shorter trim lengths are fast acting and more rigid, so better for more severe applications

TECH TIP

Filament Do's and Don'ts

Excessive pressure bends and could break brush filaments. Instead of increasing the pressure applied, consider:

- A more aggressive brush:
- · Increasing wire diameter
- · Shorter trim length
- · Different brush type, e.g. twist knot versus crimped wire
- . Increasing RPM without exceeding the MAX RPMs marked on the brush



To learn which wire style is the best choice for your job and see what makes Norton Wire Brushes the ultimate power tool accessories visit https://nortonsga.us/wgazw

We also offer Norton Blaze ceramic alumina nylon abrasive brushes which are custom-made to your exact requirements. For more information download our Blaze Nylon Brushes Brochure #8571 or contact your Norton representative.

Norton representative would be pleased to review availability, quotations, and lead-times with you.



Better choice for deburring, removing rust, paint, corrosion and weld spatter from metal surfaces

BLUEFIRE WIRE BRUSHES

- · Perfect for removing rust, scale, paint, and dirt from metal and other surface
- Available in a variety of brush types and sizes for large flat areas to small, tight spaces
- Durable design provides a uniform finish while offering the longest life

Good choice for removing rust oxidation, paint, slag and weld spatter without removing base material



GEMINI WIRE BRUSHES

- Ideal low-impact solution for refining surfaces without removing any base material
- Flexible design for cleaning hard-to-reach places and conforming to irregular surfaces, which more rigid products cannot do
- Economically priced yet solid-performing to complement your projects perfectly while bringing real savings to the bottom line



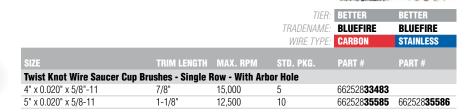


Deburring; roughing; cleaning rust, scale, paint and oxidation; cleaning corners, recesses, and other hard-to-reach areas and removing concrete and large surfaces

WIRE CUP BRUSHES

- · Used on right angle cup grinders
- · Twist Knot style for heavy-duty applications
- · Crimped cup for light- to medium-duty applications





Twist Knot Wire Cup Brushes

- . Their more rigid structure allows efficient, high-impact cutting and cleaning on more demanding applications.
- · Single row const corners and angl

Twist Knot Wire Cup Brushes - Double Row - With Arbor Hole

1-3/8"

6" x 0.020" x 5/8"-11

culling and citaring on more ut	inanung appiloat	10113.		ALCOHOL: NAME OF PERSONS ASSESSED.	ACRES OF		- Charles and Char	ACCESSED TO	AND THE PERSON
Single row construction limits fl	aring of the brush	on	TIER:	BETTER	BETTER	BETTER	BETTER	GOOD	GOOD
corners and angles	Ü		TRADENAME:	BLUEFIRE	BLUEFIRE	BLUEFIRE	BLUEFIRE	GEMINI	GEMINI
ŭ			WIRE TYPE:	CARBON	STAINLESS	CARBON	CARBON	CARBON	STAINLESS
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #	PART #	PART #
Twist Knot Wire Cup Brushes -	– Single Row – V	Nith Arbor H	ole						
2-3/4" x 0.014" x 5/8"-11	1"	14,000	5					662528 39109	
2-3/4" x 0.014" x 5/8"-11	7/8"	14,000	5					662528 38870	662528 3887 1
2-3/4" x 0.020" x 5/8"-11	3/4"	14,000	5	699366 53336	699366 53340				
2-3/4" x 0.020" x 5/8"-11	1"	14,000	10					662528 39033	662528 38812
2-3/4" x 0.020" x 5/8"-11	7/8"	14,000	5					662528 38872	
3" x 0.020" x 5/8"-11	7/8"	14,000	5					662528 38835	662528 39127
3" x 0.020" x M10	7/8"	14,000	5					662528 39075	
3-1/2" x 0.020" x 5/8"-11	1-3/8"	13,000	5					662528 38868	
3-1/2" x 0.020" x 5/8"-11	7/8"	13,000	5					662528 38813	
4" x 0.014" x 5/8"-11	1-1/4"	9,000	5					662528 39060	
4" x 0.020" x 5/8"-11	1-1/8"	9,000	10					662528 39103	
4" x 0.020" x 5/8"-11 with bridle	1-1/16"	9,000	5	699366 53345	662528 33947				
4" x 0.023" x 5/8"-11	1-1/4"	9,000	5					662528 39090	
6" x 0.014" x 5/8"-11	1-3/8"	6,600	5					662528 39037	
6" x 0.020" x 5/8"-11	1-3/8"	6,000	5	699366 05965	662533 71115			662528 39104	
6" x 0.023" x 5/8"-11	1-3/8"	6,000	5					662528 39091	
6" x 0.035" x 5/8"-11	1-3/8"	6,000	5	699366 02003					
Twist Knot Wire Cup Brushes -			le and Prote	ctive Guard					
2-3/4" x 0.020" x 5/8"-11	3/4"	15,000	5			662528 33492			
4" x 0.020" x 5/8"-11	1-1/8"	9,000	5			662528 33496			
5" x 0.020" x 5/8"-11	1-1/8"	6,500	5			662528 33497			

699366**53346**

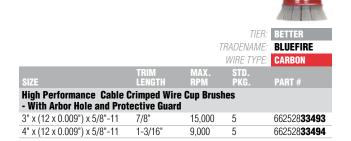
WIRE BRUSHES Wire Cup Brushes

Crimped Wire Cup Brushes

For light- to medium-duty brushing applications on flat or irregular surfaces, and bevel buffing where added flexibility is needed; fast-cutting and flexible, with heavy wire fill

- Machine for cups with arbor holes: right angle cup grinder
- Machine for shank mounted cups: straight in-line grinder, pencil grinder







			TIER:	BETTER	BETTER	GOOD
		TF	RADENAME:	BLUEFIRE	BLUEFIRE	GEMINI
			WIRE TYPE:	CARBON	STAINLESS	CARBON
	TRIM		STD.			
SIZE	LENGTH	MAX. RPM	PKG.	PART #	PART #	PART #
Crimped Wire Cup Brush	es – With Arb	or Hole				
2-3/4" x 0.014" x 5/8"-11	1"	14,000	5			662528 38856
2-3/4" x 0.020" x 3/8"-24	1"	14,000	5			662528 39080
3" x 0.014" x 5/8"-11	13/16"	14,000	5			662528 39076
3" x 0.014" x 5/8"-11	7/8"	14,000	5	699366 53341	662528 36362	
3" x 0.014" x 5/8"-11	1"	14,000	10			662528 39034
4" x 0.014" x 5/8"-11	1-3/16"	9,000	5	699366 53347		
4" x 0.014" x 5/8"-11	1-1/8"	9,000	10			662528 39121
4" x 0.020" x 5/8"-11	1-3/16"	9,000	5		662528 43844	
5" x 0.014" x 5/8"-11	1-3/8"	8,000	5			662528 39105
6" x 0.014" x 5/8"-11	1-1/8"	6,000	5	699366 53348		
6" x 0.020" x 5/8"-11	1-1/8"	6,000	5	699366 53349		



				And the second	Angust .	()
			TIER:	GOOD	GOOD	GOOD
			TRADENAME:	GEMINI	GEMINI	GEMINI
			WIRE TYPE:	CARBON	STAINLESS	BRASS
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #	PART #
Crimped Wire Cup Brus	hes - Shank M	ounted				
5/8" x 0.005" x 1/8"	1/4"	37,000	100			662528 39087
1-3/4" x 0.006" x 1/4"	1/2"	13,000	10	662528 38857		
1-3/4" x 0.012" x 1/4"	1/2"	13,000	10	662528 38858		
1-3/4" x 0.012" x 1/4"	3/4"	13,000	12	662528 39028		
2" x 0.010" x 1/4"	5/8"	10,500	12		662528 38859	
2" x 0.012" x 1/4"	5/8"	13,000	12	662528 39110		
2-1/4" x 0.014" x 1/4"	5/8"	4,500	10	662528 38860		

WIRE BRUSHES Wire Wheel Brushes



Applications range from the toughest, more aggressive surface cleaning applications, including removing weld scale, spatter, extra-heavy rust and corrosion, cleaning pipe joints, or surface roughening to light- to medium- duty surface cleaning and contaminant removal

WIRE WHEEL BRUSHES

- Available in Standard Twist Knot, Stringer Bead Twist Knot, and Crimped
- · See specific machines for each wire wheel below



Standard Twist Knot Wire Wheel Brushes

Our twist knot wire design provides added rigidity for extra cutting and cleaning power, and a rougher surface finish.

- Wheel brushes with arbor holes perform well on more aggressive applications requiring high-impact action: tough
 welding and metal fabrication applications, including removing weld scale, spatter, extra-heavy rust.
- These shank-mounted wheel brushes are used for small-to medium-duty jobs requiring some flexibility and lighter brushing action for corrosion, or surface roughing applications. These brushes are used on straight shaft, die, pencil grinders, drills and right angle grinders.

The state of the s				TIER:	BETTER	BETTER	BETTER	GOOD	GOOD
			7	RADENAME:	BLUEFIRE	BLUEFIRE	BLUEFIRE	GEMINI	GEMINI
				WIRE TYPE:	CARBON	STAINLESS	PIPELINE	CARBON	STAINLESS
	FACE	TRIM	MAX.	STD.					
SIZE	WIDTH	LENGTH	RPM	PKG.	PART #				
Standard Twist Knot Wire Wheel	Brushes –	With Arbo	r Hole						
3" x 0.15" x 1/2"-3/8"	3/8"	5/8"	20,000	6	699366 53314				
3" x 0.014" x 3/8"	3/8"	5/8"	25,000	1				662528 39021	
4" x 0.014" x 5/8"-11	5-16"	7/8"	20,000	5				662528 39011	
4" x 0.014" x 5/8"-11	1/2"	7/8"	20,000	10				662528 39052	
4" x 0.020" x 5/8"-11	1/4"	3/4"	20,000	10					662528 39132
4" x 0.020" x 5/8"-11	1/2"	3/4"	20,000	5	662528 38300				
4" x 0.020" x 5/8"-11	1/2"	7/8"	20,000	10				662528 39035	662528 39020
4" x 0.020" x 5/8"-11	1/2"	7/8"	20,000	5				662528 39078	
4" x 0.020" x 5/8"-11	9/16"	7/8"	20,000	10				662528 39019	
4-1/2" x 0.020" x 5/8"-11	1/2"	1"	20,000	5	699366 06275				
4-1/2" x 0.020" x 5/8"-11 (black hub)	1/2"	1"	20,000	6			662528 40466		
4-1/2" x 0.020" x 5/8"-11	1/2"	1"	20,000	6	699366 53331				
4-1/2" x 0.020" x 5/8"-11	1/2"	1"	20,000	5		699366 53333			
5" x 0.020" x 5/8"-11	1/2"	1"	12,500	5	662528 33487	662528 33488			
6" x 0.014" x 5/8"-11	1/2"	1-1/2"	12,000	5				662528 39014	
6" x 0.020" x 5/8"-11	1/2"	1-3/8"	12,000	5	699366 53352	662533 71540			
6" x 0.020" x 5/8"-11	5/8"	1-1/4"	12,000	5				662528 39107	662528 39594
6" x 0.020" x 5/8"-11	1/2"	1-3/8"	12,000	5	699366 53327				
6" x 0.025" x 5/8"-11	5/8"	1-1/4"	9,000	5				662528 39593	



				TIE	R: GOOD
				TRADENAM	E: GEMINI
				WIRE TYP	E: CARBON
SIZE	FACE WIDTH	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Standard Twist Knot Wi	ire Wheel Brushes	s - Shank Mount	ed		
3" x 0.014" x 1/4"	1/4"	5/8"	25,000	12	662528 39015
3-1/4" x 0.014" x 1/4"	3/8"	5/8"	25,000	10	662528 39031
4" x 0.014" x 1/4"	1/2"	7/8"	25,000	8	662528 39032





Stringer Bead Twist Knot Wire Wheel Brushes

The choice for toughest weld scale cleaning; removing the bead scale that occurs at the initial joining of two sections of pipe; root, and hot weld pass cleaning, and the most aggressive brushing applications. Stringer Bead Twist Knot Wire Wheel Brushes are best used on right angle grinders for difficult jobs.

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				TIER:	BETTER	BETTER	BETTER	BETTER	BETTER	GOOD	GOOD
			TRAD	ENAME:	BLUEFIRE	BLUEFIRE	BLUEFIRE	BLUEFIRE	BLUEFIRE	GEMINI	GEMINI
			WIF	RE TYPE:	CARBON	CARBON	CARBON	STAINLESS	STAINLESS	CARBON	STAINLESS
				OTHER:		Pipeline	Heavy-Duty		Pipeline		
	FACE	TRIM	MAX.	STD.							
SIZE	WIDTH	LENGTH	RPM	PKG.	PART #						
Stringer Bead Knot Wir	e Wheel	Brushes -	– With Aı	bor Hol	e						
3" x 0.020" x 1/4"		1"	20,000	10						662528 39096	
4" x 0.020" x 5/8"-11	3/16"	7/8"	20,000	5	699366 06277						
4" x 0.020" x 5/8"-11	3/16"	7/8"	20,000	6*	662528 33489	662528 40467		699366 06278	662528 42233		
4" x 0.020" x 5/8"-11	3/16"	7/8"	20,000	10*	662533 70022						
4" x 0.020" x 5/8"-11	3/16"	7/8"	20,000	10						662528 39036	662528 39039
4" x 0.020" x 5/8"-11	1/4"	7/8"	20,000	5						662528 38997	
4" x 0.020" x 5/8"-11	1/2"	7/8"	20,000	10						662528 39130	
4" x 0.020" x 5/8"-11	1/2"	1"	20,000	10						662528 39106	
4" x 0.020" x M10	3/16"	7/8"	20,000	10						662628 39038	
4-1/2" x 0.020" x 5/8"-11	3/16"	1-1/8"	20,000	6			662528 44886				
4-1/2" x 0.020" x 5/8"-11	3/16"	1-1/8"	20,000	6*		662528 42299					
4-1/2" x 0.020" x 5/8"-11	3/16"	3/16"	15,000	5						662528 39111	
5" x 0.020" x 5/8"-11	3/16"	7/8"	12,500	10*	662528 33490			662528 33491			
5" x 0.020" x 5/8"-11	1/2"	7/8"	12,500	5						662528 39133	
6" x 0.020" x 5/8"-11	3/16"	1-3/8"	9,000	10	699366 53350		662528 44887	699366 53351			
6" x 0.020" x 5/8"-11	3/16"	1-3/8"	9,000	10*		662528 40469					
6-7/8" x 0.020" x 5/8"-11	3/16"	1-1/8"	9,000	10*	699366 53329	662528 40468	662528 43919	662533 71116			
6-7/8" x 0.020" x 5/8"-11	3/16"	1-1/8"	9,000	5						662528 39026	
6-7/8" x 0.020" x 5/8"-11	3/16"	1-1/8"	9,000	6	662528 10992						
Double Hub											
9" x 0.020" x 5/8"-11	3/16"	2-1/8"	6,000	6	662528 37993						
Stringer Bead Knot Wir						lachines					
12" x 0.035" x 1"-DP	3/8"	3-1/4"	4,500	2	699366 06280						
*Bulk Packed Item											



Radial Wheel

Nylon Radial Wheel Brushes are best used for deburring, surface and light cleaning, adding an edge radius, on ferrous and non-ferrous parts. The long trim length is ideal when used on intricate or irregular parts.

 Machine: Bench and Pedestal, Automated CNC, Inline Grinders

				TRADENAME:	GEMINI
				WIRE TYPE:	NYLON
SIZE	FACE WIDTH	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Radial Wheel					
3" x 3/8" x 5/8"	3/8"	15/16"	15,000	12	662528 38842



WIRE BRUSHES Wire Wheel Brushes



TRADENAME: BLUEFIRE



GEMINI



GEMINI

Crimped Wire Wheel Brushes

Shank-mounted wheel brushes are used on straight shaft, die, and pencil grinders, and drills. Wheel brushes with arbor holes are used on bench and pedestal grinders. Their extra flexibility and lower impact makes these brushes an excellent choice for cleaning irregular surfaces and finer surface finishing, and light to medium duty surface contaminant removal applications. May be used individually or stacked on a shaft.

- Narrow-faced brushes are ideal for general-purpose brushing of uneven or difficult-to-reach surfaces.
- Medium-faced brushes clean larger surface areas and have longer life.



Crimped Wire Narrow Face -Carbon Steel - with Arbor hole



Crimped Wire - Carbon Steel - Shank Mounted

				WIRE TYPE:	CARBON	CARBON	STAINLESS
O. T. T.	FACE	TRIM	MAX.	STD.	D. D	D. D	DADE //
SIZE	WIDTH	LENGTH	RPM	PKG.	PART #	PART #	PART #
Crimped Wire Wheels B	rushes w	ith Narrow	Face -	With Arbor	Hole		
1" x 0.008" x 5/16"	5/32"	3/16"	20,000	20		662528 38949	
2" x 0.014" x 1/2"	3/8"	1/2"	20,000	12		662528 39023	
3" x 0.005" x 1/2"	1/4"	1"	20,000	20			662528 38960
3" x 0.014" x 1/2"	5/8"	1"	20,000	10		662528 39024	
4" x 0.014" x 5/8"-11	7/16"	7/8"	15,000	5		662528 39001	
6" x 0.014" x 1/2"-2	3/4"	1-1/8"	6,500	5	699366 53306		
6" x 0.014" x 5/8"	3/4"	1-1/8"	6,000	5		662528 39097	
6" x 0.014" x 5/8"	3/4"	1-7/16"	6,000	5		662528 39088	
8" x 0.014" x 5/8"	3/4"	1-9/16"	4,000	5		662528 39099	
8" x 0.014" x 5/8"	3/4"	2-1/16"	6,000	5		662528 39089	
8" x 0.014" x 1-1/4"	5/8"	1-1/2"	4,000	5		662528 38978	
Crimped Wire Wheels B	rushes w	ith Mediu	m Face	- With Arbor	Hole		
4-1/2" x 0.014" x 5/8"-11		1"	13,000	6	662533 70278		
6" x 0.014" x 1/2"-2	1"	1-1/8"	6,500	5	699366 53324		
6" x 0.014" x 5/8"	1"	1-1/8"	6,500	5		662528 39098	
8" x 0.014" x 1/2"-2	1-1/16"	1-5/8"	4,500	5	699366 53326		
8" x 0.014" x 5/8"	1"	1-9/16"	4,000	5		662528 39100	
8" x 0.014" x 2"	1"	1-3/8"	4,500	5		662528 39025	
10" x 0.014" x 3/4"	1-9/16"	2-1/2"	3,600	1		662528 39102	
12" x 0.012" x 2"	2"	3-1/4"	3,600	1		662528 39006	







				TRADENAME:	GEMINI	GEMINI	GEMINI
				WIRE TYPE:	CARBON	STAINLESS	BRASS
	FACE	TRIM	MAX.	STD.			
SIZE	WIDTH	LENGTH	RPM	PKG.	PART #	PART #	PART #
Crimped Wire Wheels	Brushes v		v Face ·	· Shank-Mou	nted		
3/4" x 0.005" x 3/16"	1/32"	3/16"	37,000		662528 39084		
1" x 0.005" x 1/8"	1/8"	5/16"	37,000	100			662528 39085
1-1/2" x 0.008" x 1/4"	1/4"	1/4"	25,000	20	662528 38962		
1-1/2" x 0.0118" x 1/4"	7/16"	3/8"	20,000	12	662528 38999		
1-1/2" x 0.014" x 1/4"	1/4"	1/4"	25,000	20	662528 38963		
2" x 0.006" x 1/4"	3/8"	1/2"	20,000	20	662528 39029		
2" x 0.008" x 1/4"	3/8"	7/16"	25,000	20	662528 38964		
2" x 0.0118" x 1/4"	3/8"	1/2"	20,000	20	662528 39030		
2" x 0.014" x 1/4"	3/8"	7/16"	25,000	12	662528 38965		
2" x 0.020" x 1/4"	3/8"	7/16"	25,000	20	662528 38966		
2-1/2" x 0.008" x 1/4"	7/16"	11/16"	25,000	10	662528 38967		
2-1/2" x 0.014" x 1/4"	7/16"	11/16"	25,000	12	662528 38968		
3" x 0.008" x 1/4"	1/2"	1"	20,000	10	662528 39092		
3" x 0.008" x 1/4"	7/16"	3/4"	25,000	10	662528 38969		
3" x 0.008" x 1/4"	7/16"	3/4"	25,000	12		662528 38972	
3" x 0.0118" x 1/4"	1/2"	1"	20,000	10	662528 39093		
3" x 0.014" x 1/4"	3/8"	1/4"	20,000	12	662528 39000		
3" x 0.014" x 1/4"	7/16"	3/4"	25,000	10	662528 38970		
3" x 0.014" x 1/4"	7/16"	3/4"	25,000	12		662528 38973	
3" x 0.014" x 1/4"	1/2"	1"	20,000	20		662528 39048	
3" x 0.020" x 1/4"	7/16"	3/4"	25,000	12	662528 38971		
3" x 0.020" x 1/4"	1/2"	1"	20,000	12	662528 39096		
4" x 0.014" x 1/4"	1/2"	1"	25,000	12	662528 38974		





Clean and deburr recessed areas or inside diameters of tubes and pipes to proper surface finish; rubber and plastic flash removal; paint and rust removal, and mold and tool polishing

END BRUSHES

- Used on CNC, Robotic, die grinders, and drill presses
- · Twist knot wire end brushes for more aggressive cutting
- · Crimped wire end brushes for lighter brushing action and contoured surfaces



Twist Knot Wire End Brush

Their added wire rigidity makes these brushes the choice for more aggressive cutting.

for more aggressive cutting.			TRADENAME:	BLUEFIRE	GEMINI	GEMINI
ioi more aggreeorre caumg.			WIRE TYPE:	CARBON	CARBON	STAINLESS
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #	PART #
Twist Knot Wire End Brushes	- Shank-Mounted					
1/2" x 0.006" x 1/4"	1-1/8"	22,000	20		662528 38876	
1/2" x 0.014" x 1/4"	1-1/8"	22,000	20		662528 38877	
3/4" x 0.014" x 1/8"	7/8"	22,000	20		662528 39056	
3/4" x 0.014" x 1/4"	7/8"	22,000	20		662528 38879	
3/4" x 0.020" x 1/4"	7/8"	22,000	20		662528 39057	
3/4" x 0.020" x 1/4"	7/8"	22,000	10*	699366 53316		
3/4" x 0.020" x 1/4"	1"	22,000	20		662528 39116	662528 39118
3/4" x 0.020" x 1/4"	1-1/8"	22,000	20		662528 38878	
1" x 0.006" x 1/4"	1-1/8"	22,000	20			662528 38885
1" x 0.010" x 1/4"	1-1/8"	22,000	25			662528 38886
1" x 0.014" x 1/4"	7/8"	22,000	10*	699366 06279		
1" x 0.014" x 1/4"	1"	22,000	20		662528 38882	662528 38887
1" x 0.020" x 1/4"	7/8"	22,000	10*	699366 53310		
1" x 0.020" x 1/4"	1"	22,000	25		662528 39117	
1" x 0.020" x 1/4"	1"	22,000	20			662528 39119

^{*} Bulk Packed Item



Insert Circular Flared Crimped Wire End Brush

The flared end configuration facilitates interior side cleaning and will not harm the bottom of the hole.



Encapsulated Hollow Center Crimped Wire End Brush

Their hollow centers effectively allow these brushes to clean around protrusions and also prevent the wires from meshing together. Encapsulating a portion of the wires' length shortens the free wires, increasing the wires' stiffness, thereby creating greater control of the brush.



			77771227771	ME: Gemini
			WIRE TY	PE: CARBON
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Circular Flared Crimped En	d Brushes – Shank-Mo	unted		
1-1/2" x 0.006" x 1/4"	7/8"	20,000	12	662528 39108
1-12" x 0.020" x 1/4"	1"	15,000	12	662528 38898
2" x 0.010" x 1/4"	1-1/8"	15,000	10	662528 38899
3" x 0.008" x 1/4"	7/8"	16,000	12	662528 39047



			V V I I I L L I I	I L. UAIIDUN					
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #					
Encapsulated Hollow Center Crimped Wire End Brush – Shank-Mounted									
1/2" x 0.010" x 1/4"	1"	18,000	20	662528 38907					

GEMINI





Crimped Wire End Brushes

Designed to generate lighter brushing action and reach into contoured surfaces.



GEMINI

BLUEFIRE

into contourca suriaces.			WIRE TY	PE: CARBON	STAINLESS	CARBON	STAINLESS
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #	PART #	PART #
Crimped Wire End Brushes	– Shank-Mounted						
1/4" x 0.005" x 1/8"	7/16"	37,000	12				662528 39086
1/2" x 0.005" x 1/4"	1"	25,000	20				662528 38902
1/2" x 0.006" x 1/4"	3/8"	25,000	20			662528 39040	
1/2" x 0.006" x 1/4"	1"	25,000	20			662528 38889	662528 39043
1/2" x 0.010" x 1/4"	1"	25,000	20			662528 38890	662528 39044
1/2" x 0.014" x 1/4"	7/8"	25,000	20			662528 39042	
1/2" x 0.014" x 1/4"	1"	25,000	20				662528 38888
1/2" x 0.020" x 1/4"	1"	25,000	20			662528 38891	
3/4" x 0.006" x 1/4"	1"	22,000	10*		699366 06145		
3/4" x 0.010" x 1/4"	3/8"	22,000	20			662528 39053	
3/4" x 0.014" x 1/4"	1"	22,000	10*	699366 53317			
3/4" x 0.020" x 1/4"	7/8"	22,000	20			662528 39112	
3/4" x 0.020" x 1/4"	1"	22,000	20			662528 38892	
1" x 0.005" x 1/4"	1"	22,000	20				662528 38896
1" x 0.006" x 1/4"	1"	22,000	25			662528 39045	662528 38838
1" x 0.010" x 1/4"	3/8"	22,000	20			662528 39054	
1" x 0.010" x 1/4"	1"	22,000	25				662528 39055
1" x 0.010" x 1/4"	1"	22,000	20				662528 38897
1" x 0.014" x 1/4"	3/4"	20,000	20			662528 39094	
1" x 0.014" x 1/4	1"	22,000	20			662528 39046	
1" x 0.020" x 1/4	7/8"	22,000	20			662528 39095	
1" x 0.020" x 1/4	1"	22,000	20			662628 39113	662528 39115
1" x 0.020" x 1/4	1-3/16"	20,000	10*	699366 53309			

TRADENAME: BLUEFIRE

^{*} Bulk Packed Item



Wire End Brush

These brushes are designed to clean counter bores, slots, blind holes, and small crevices; and light spot facing of aluminum or iron sand castings.

			HER:	GUUD				
			TRADENAME:	GEMINI				
			WIRE TYPE:	STAINLESS				
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #				
Pencil Crimped Wire End Brush – Shank-Mounted								
1/4" x 0.010" x 5/16"	3/8"	10,000	12	662528 38906				



Pilot End Brush

Specially designed to clean around rivet or bolt holes; the pilot guides the brushes.

1/2" x 0.004" x 1/4"	3/8"	25,000	20	662528 38904				
Pilot Crimped Wire End Brush – Shank-Mounted								
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #				
			WIRE TY	PE: CARBON				
			TRADENAI	ME: GEMINI				
			TI	ER: GOOD				

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Cleaning, polishing, reaming, finishing and removing debris, burrs, rust, residues, and surface contaminants inside cylindrical items, including tubes, pipes, bottles, smooth-sided and threaded holes, and other industrial components

TUBE BRUSHES

- Use manually or fastened to portable or fixed machines (including drills, drill presses, and CNC machines)
- · Available in single and double stem providing firm support when working internally

TIER: GOOD

TRADENAME: GEMINI

A wide selection of shapes and filament variations to achieve the best results on many different applications

GEMINI

GEMINI

GEMINI

Single Stem, Single Spiral Tube Brush – With Eye Loop

ALLERALLE COM

These spiral brushes have a single layer of filament twisted around a stem wire to create additional strength and higher density fill brushes. This spiral configuration ensures consistent and constant abrasive contact with the tube. Formed eye loop at the end of the stem for convenient hand use.

stem for convenient hand use.				WIRE TYPE:	CARBON	STAINLESS	BRASS	NYLON
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.		PART #	PART #	PART #	PART #
Single Stem, Single Spiral Tube	Brush – With	Eye Loop						
3/16" x 0.003" x 0.094"	1-1/2"	2,000	12		662528 38822			
3/16" x 0.004" x 0.094"	5/64"	3,000	12		662528 38913			
1/4" x 0.003" x 0.094"	1-1/2"	2,000	12		662528 38823	662528 38824	662528 38840	
1/4" x 0.004" x 0.115"	5/64"	3,000	12		662528 38914			
1/4" x 0.006" x 0.115"	5/64"	3,000	12		662528 38915			
3/8" x 0.004" x 0.125"	2"	2,000	12			662528 38825	662528 38826	
3/8" x 0.004" x 0.132"	1/8"	3,000	12		662528 38916			
3/8" x 0.006" x 0.168"	1/8"	3,000	12		662528 38917			
3/8" x 0.006" x 0.168"	1-1/2"	3,000	12			662528 38946		
7/16" x 0.010" x 0.125"	7/64"	3,000	12					662528 38947
1/2" x 0.008" x 0.221"	9/64"	3,000	12		662528 38918			



Single Stem, Single Spiral Tube Brush

Similar to the single stem, single spiral tube brushes, but without eye loop. These brushes are ideal for complete internal cleaning and deburring of tubes and pipes and intricate area ensuring constant filament to surface contact.

			TRADENA	ME: GEMINI
			WIRE T	YPE: CARBON
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Single Stem, Single Spiral	Tube Brush			
7/16" x 0.005" x 0.125"	11/64"	3,000	12	662528 38911 *
1" x 0.010" x 0.250"	2-1/2"	2,000	12	662528 39074 *
+ M I				

^{*} No eye loop



Double Stem, Single Spiral Tube Brush – with Stem

These brushes have two stem wires. This results in a brush with high strength and one with consistent and constant abrasive contact with the tube.

				manuall.	and the same
			TIER:	GOOD	GOOD
			TRADENAME:	GEMINI	GEMINI
			WIRE TYPE:	BRASS	NYLON
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #
Double Stem, Single Spiral	Tube Brush – With	Stem			
1/2" x 0.006" x 0.188"	2"	2,000	12	662528 38839	
3/4" x 0.040" x 0.238"	3/8"	3,000	12		662528 38850

wire Brushes Tube Brushes



Power Burr, Single Spiral Tube Brush – with Stem

Power burr brushes are used to remove burrs resulting from previous operations. They are designed to remove burrs without creating secondary burrs or leaving sharp edges.

			TIER:	GOOD	GOOD
			TRADENAME:	GEMINI	GEMINI
			WIRE TYPE:	CARBON	STAINLESS
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #	PART #
Power Burr Single Spiral	l Tube Brushes – With	Stem			
1/4" x 0.004" x 0.125"	1"	2,000	12	662528 39061	662528 39081
3/8" x 0.004" x 0.125"	1"	2,000	12	662528 39062	662528 39050
3/8" x 0.005" x 0.125"	9/64"	2,000	12	662528 38910	
1/2" x 0.005" x 0.188"	1"	2,000	12	662528 39063	662528 39051
5/8" x 0.005" x 0.188"	1"	2,000	12	662528 39064	
3/4" x 0.006" x 0.219"	1"	2,000	12	662528 39065	662528 39082
1" x 0.005" x 0.125"	15/32"	2,000	12	662528 38912	
1" x 0.005" x 0.250"	1"	2,000	12	662528 39066	662528 39083



Double Stem, Double Spiral Tube Brush – With Stem

Brush filaments are twisted between two stem wires with two layers of filament bristles. Each layer is perpendicular to the other with a single stem wire in each of the brush's four sections. This configuration ensures consistent and constant abrasive contact with the tube.

			TIER:	GOOD	GOOD
			TRADENAME:	GEMINI	GEMINI
			WIRE TYPE:	CARBON	STAINLESS
SIZE	BRUSH LENGTH	MAX. RPN	1 STD. PKG.	PART #	PART #
Double Stem, Double Spira	l Tube Brush – With	Stem			
3/8" x 0.060" x 0.125"	1-1/2"	2,000	12	662528 38827	
1/2" x 0.004" x 0.156"	2"	2,000	12	662528 38828	
1/2" x 0.004" x 0.187"	5/32"	3,000	12	662528 38919	
1/2" x 0.006" x 0.156"	2"	2,000	12	662528 39067	662528 38829
1/2" x 0.006" x 0.187"	5/32"	3,000	12	662528 38920	
5/8" x 0.005" x 0.187"	2"	2,000	12	662528 39068	
5/8" x 0.006" x 0.208"	2"	3,000	12	662528 38921	
5/8" x 0.008" x 0.219"	2"	2,000	12	662528 38831	
5/8" x 0.010" x 0.208"	13/64"	3,000	12	662528 38922	662528 38930
3/4" x 0.004" x 0.250"	2-1/2"	2,000	12	662528 39072	
3/4" x 0.006" x 0.238"	1/4"	3,000	12	662528 38923	
3/4" x 0.006" x 0.250"	2-1/2"	2,000	12	662528 39069	
3/4" x 0.006" x 0.250"	2-1/2"	2,000	12	662528 38832	
3/4" x 0.010" x 0.238"	1/4"	3,000	12	662528 38924	
7/8" x 0.004" x 0.250"	2-1/2"	2,000	12	662528 39073	
7/8" x 0.006" x 0.238"	2"	3,000	12	662528 38925	
7/8" x 0.006" x 0.250"	2-1/2"	2,000	12	662528 39070	
1" x 0.006" x 0.238"	25/64"	3,000	12	662528 38926	
1" x 0.006" x 0.250"	2-1/2"	2,000	12	662528 39071	
1" x 0.010" x 0.238"	2"	3,000	12	662528 38927	
1-1/4" x 0.004" x 0.250"	2-1/2"	2,000	12	662528 38833	
1-1/4" x 0.010" x 0.238"	1/2"	3,000	12	662528 38928	
2" x 0.010" x 0.238"	7/8"	3,000	12	662528 38929	



Encapsulated Double Stem, Double Spiral Tube Brush – With Stem

Encapsulating a portion of the wires' length shortens the free wires, increasing their stiffness, thereby creating greater control of the brush and a brush with the highest filament density and highest strength.

				•			
			7	TER: GOOD			
			TRADENA	ME: GEMINI			
			WIRE T	/PE: CARBON			
SIZE	BRUSH LENGTH	MAX. RPM	STD. PKG.	PART #			
Encapsulated Double Stem, Double Spiral Tube Brush – With Stem							
7/8" x 0.010" x 0.250"	2-1/4"	3,000	20	662528 38948			





Flue Double Spiral Tube Brushes – With 1/4" x 2" NPT Pipe Nipple with Stem

These aggressive brushes are designed specifically for efficient pipe and boiler cleaning.

			TRADENAM	E: GEMINI				
			WIRE TYP	E: CARBON				
SIZE	TRIM ENGTH	MAX. RPM	STD. PKG.	PART #				
Flue Double Spiral Tube Brushes – With 1/4" x 2" NPT Pipe Nipple – With Stem								
3/4" x 0.010" x 0.238"	1/4"	3,000	12	662528 38931				
1" x 0.010" x 0.313"	25/64"	3,000	12	662528 38932				
1-1/4" x 0.012" x 0.313"	1/2"	3,000	12	662528 38933				
1-3/4" x 0.012" x 0.313"	1/2"	3,000	12	662528 38934				
2-1/4" x 0.012" x 0.313"	1/2"	3,000	12	662528 38935				
2-3/4" x 0.014" x 0.313"	1/2"	3,000	12	662528 38936				



Side-Action Tube (Burrite) Crimped Wire Tube Brushes – with Stem

Their dense side filament configuration creates increased bristle rigidity with minimal flexing, to aggressively clean the tube without changing its geometry or surface finish.

			T	IER: GOOD
			TRADENA	ME: GEMINI
			WIRE TY	PE: CARBON
SIZE	TRIM ENGTH	MAX. RPM	STD. PKG.	PART #
Side-Action (Burrite) Crimp	oed Wire Tube Brush –	With Stem		
1/4" x 0.003" x 0.094"	5/64"	3,000	12	662528 38908
5/16" x 0.005" x 0.094"	9/16"	2,000	10	662528 38834
5/8" x 0.005" x 0.125"	1/4"	3,000	12	662528 38909



Internal Finishing Crimped Wire Tube Brush

This square-trimmed crimped wire brush is used to clean internal surfaces in a single operation because it can simultaneously brush both the sides and bottom of a hole.

				TI	ER: GOOD			
				TRADENAI	ME: GEMINI			
				WIRE TY	PE: CARBON			
SIZE	TRIM LENGTH	FACE WIDTH	MAX. RPM	STD. PKG.	PART #			
Internal Finishing Crimped Wire Tube Brushes – With Stem								
1-1/4" x 0.006" x 0.250"	1/2"	3/8"	4,500	10	662528 38945			



Micro Abrasive Single Spiral Nylon Tube Brush – With Stem

Micro brushes are ideal for ultra-fine deburring, cleaning, polishing and finishing applications.

			IIER:	GOOD
			TRADENAME:	GEMINI
			WIRE TYPE:	NYLON/AO 600 GRIT
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Micro Abrasive Single Spira	l Nylon Tube Brushe	s – With Stem		
3/16" x 0.012" x 0.093"	3/64"	3,000	12	662528 38853
0.190" x 0.012" x 0.087"	1"	1,500	12	662528 38814
0.260" x 0.012" x 0.115"	1"	1,500	12	662528 38815
0.325" x 0.012" x 0.115"	1"	1,500	12	662528 38816
0.325" x 0.012" x 0.121"	1"	3,000	12	662528 38854
33/64" x 0.012" x 0.175"	3/16"	3,000	12	662528 38855
33/64" x 0.022"x 0.175"	3/16"	3,000	12	662528 38851
1-1/64" x 0.022" x 0.255"	3/8"	3,000	12	662528 38852

wire Brushes Hand Brushes



Single Spiral Nylon Hand Tube Brush – With Eye Loop

These brushes are made with larger stem wires to give them the strength and rigidity needed for manual cleaning applications.

			IKADENA	ME: GEMINI
			WIRE T	PE: NYLON
SIZE	TRIM LENGTH	MAX. RPM	STD. PKG.	PART #
Single Spiral Nylon Hand Tub	e Brush – With Eye L	.оор		
1/4" x 0.005" x 0.094"	9/64"	3,000	12	662528 38937
1/4" x 0.005" x 0.094"	2"	2,000	12	662528 38818
3/8" x 0.005" x 0.094"	2"	2,000	12	662528 38819
3/8" x 0.005" x 0.094"	9/64"	3,000	12	662528 38938
1/2" x 0.008" x 0.094"	3"	3,000	12	662528 38939
1/2" x 0.010" x 0.125"	3"	2,000	12	662528 38820
3/4" x 0.012" x 0.125"	21/64"	3,000	12	662528 38940
3/4" x 0.012" x 0.125"	3"	2,000	12	662528 38821
1" x 0.010" x 0.156"	25/64"	3,000	12	662528 38941
1" x 0.022" x 0.156"	2-1/2"	1,500	12	662528 38817
1-1/4" x 0.010" x 0.156"	1/2"	3,000	12	662528 38942
1-1/4" x 0.010" x 0.219"	1/2"	3,000	12	662528 38943
2" x 0.010" x 0.219"	1/2"	3,000	12	662528 38944

Hand Brushes

Hand brushes come in a variety of handle and filament shapes and styles for most hand scratching applications. They are favored by many in removing scale, surface coatings, or removing weld debris.

The state of the s

For steel/stainless

HAND BRUSHES

- Long handle and shoe handle brushes are made with a high-carbon, brass-coated steel; stainless steel is made with a 304L stainless
- Plastic ergonomic handle scratch brush with curved face to access hard-to-reach places. Crimped wire for longer life. Wires are wrapped up and around the metal post so they never come out.
- · Narrow brush allows access into tight areas and slots













Norton masking tapes feature a special solvent-based, rubber adhesive system and strong holding properties. These tapes adhere and release cleanly while providing clean edges on a variety of flat, contoured, and irregular surfaces. Norton sheetings provides superior solvent, paint, and contaminant penetration resistance. Use them during paint preparation and anywhere you need work area protection. Tear-resistant properties allow movement without ripping.

Products: Machine Used: Attachment Tape, Masking Tape, Masking Film, Sheeting, Masking Paper



HAND APPLICATION



Best choice for general industrial application replacing permanent fastening systems (rivets, welds and liquid adhesives)

NORTON ATTACHMENT TAPE

- Double sided, gray foam tape used in bonding performance for many interior and exterior commercial applications.
- · Incredible conformability and application stretching
- · Weather degradation resistance from UV and high temperatures
- Outstanding static shear adhesion
- · Excellent performance in T-Block and dynamic shear
- · Durable adhesion at elevated temperature
- · High shock and stress absorption

DESCRIPTION	THICKNESS	1/4" x 108"	1/2" x 108"	3/4" x 108"	7/8" X 108"	1" X 108"	1-1/2" X 108"
Blue Liner							
Gray Double-Sided Acrylic Foam Tape	.43" (1.1mm)	636425 06044	636425 06045	636425 06046	636425 06047	662611 75888	662611 51041
Rolls/Case		40/1	20/1	10/1	10/1	10/1	6/1
DESCRIPTION	THICKNESS	1/4" X 20 YDS	1/2" X 20 YDS		7/8" X 20 YDS		
Red Liner							
Gray Double-Sided Acrylic Foam Tape	.43" (1.1mm)	636425 05620	636425 05621	_	636425 05622	_	_
Rolls/Case		12/1	12/1		12/1		
Adhesion Promoter							
Brush-Top Can - 220ml		636415 05623					
Rolls/Case		12					

Technical Data

Performance tests are run using standard test procedures. The values presented are typical values and should not be used for specification purposes.

THICKNESS in. (mm)	90	0° PEEL ADHESION lb/in (N		LL)	T-BLOCK ² lb/in (N/cm)	DYNAMIC SHEAR ³ lb/in (N/cm)	STATIC SHEAR ⁴ 7 Days /1 kg	SERVICE TEMPERATURE
WITHOUT LINER	GLASS	ALUMINUM	S/S	PMMA	ALUMINUM	S/S	S/S	
.43 (1.1)	20 (35)	33 (57)	20 (34)	17 (29)	100 (29)	48 (33)	Pass and Exceeds	-35°F to 200°F (-35°C to 93°C)

¹ Based on ASTM D3330 ² Based on ASTOM D897 ³ Based on ASTM D1002 ⁴ Based on ASTM D3654





Best choice for high temperature applications including high-heat curing

PREMIUM HIGH TEMPERATURE GREEN MASKING TAPE

- Ideal for conditions that include exposure to the high-heat curing temperatures found in automobile, truck, bus, and
 other transportation assembly operations, as well as aerospace manufacturing applications
- · Superior strength and excellent cornering ability
- Ideal for high temperatures; can be effectively used up to 250°F (120°C) for 30 minutes without any significant loss
 of properties or adhesive transfer
- Can also be used up to 175°F (80°C) for one hour without leaving residues after exposure
- · UV resistance for 2 days
- · Can be exposed to wet sanding without adhesive transfer



Better choice for medium-temperature applications

MEDIUM TEMPERATURE MASKING TAPE

- · Designed for excellent performance in moderate-temperature applications
- Can be used up to 220 °F (105°C) for 30 minutes and 175°F (80°C) for one hour without any significant loss of properties; removes cleanly without leaving residues after exposure



Good general-purpose choice

GENERAL PURPOSE MASKING TAPE

- Ideal for splicing, holding, packaging, and general purpose masking
- Good adhesion onto a wide variety of surfaces
- Good performance up to 175°F (80°C) for one hour without any significant loss of properties; removes cleanly without leaving residues after exposure



It delivers very sharp, clean edges on smooth- to moderately-textured surfaces

BLUE CORE 14-DAY TAPE

- Our paint masking tape has a specially formulated adhesive system that provides optimum low- to medium-tack adhesion and clean removal from a variety of surfaces, for up to 14 days
- Blue Core masking tape can be used indoors or out
- The crepe paper backing is designed to enable easy unrolling and to minimize slivering

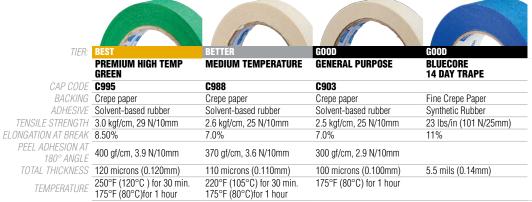


Better choice for fine line masking needs

FINE LINE BLUE MASKING TAPE

- Masking color separation on plastic (TPO and RIM) automotive fascia, trim, and finished metals in high-temperature OEM bake cycles, aircraft and clean room paint operations
- Thermally-stabilized PVC backing with a rubber-based pressure sensitive adhesive
- Highly conformable, waterproof, and solvent-resistant
- Can be used from 40°F (4.4°C) to 280°F (138°C) without any significant loss of properties; removes cleanly without leaving residues after exposure



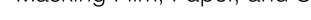


BETTER	
FINE LINE Blue	
PVC	
Natural Rubber	
15 lb/in. of widtl	h, 65.6N/25mm
150%	
23 oz./in. of wid	th, 6.3N/25mm
5.4mils (.14mm)
40°F (4.4°C) to 2	

METRIC	IMPERIAL	ROLLS/CASE	PART #
Premium High-To	emp Green Tape		
12mm x 50m	0.47 inches x 54.7 yards	72	699573 10320
18mm x 50m	0.71 inches x 54.7 yards	48	666233 09768
24mm x 50m	0.94 inches x 54.7 yards	36	666233 27752
36mm x 50m	1.42 inches x 54.7 yards	24	699573 10323
48mm x 50m	1.89 inches x 54.7 yards	20	666233 09770
72mm x 50m	2.83 inches x 54.7 yards	12	699573 10325
100mm x 50m	3.93 inches x 54.7 yards	8	699573 45060
200mm x 50m	7.87 inches x 54.7 yards	4	699573 45063
Medium-Temper	ature Tape		
12mm x 50m	0.47 inches x 54.7 yards	72	699573 10326
18mm x 50m	0.71 inches x 54.7 yards	48	055395 44799
24mm x 50m	0.94 inches x 54.7 yards	36	699573 10327
36mm x 50m	1.42 inches x 54.7 yards	24	662610 70829
48mm x 50m	1.89 inches x 54.7 yards	20	055395 44800
General-Purpose	e Tape		
18mm x 40m	0.71 inches x 43.7 yards	48	662611 03314
24mm x 40m	0.94 inches x 43.7 yards	36	662611 03315
36mm x 40m	1.42 inches x 43.7 yards	24	699573 45064
48mm x 40m	1.89 inches x 43.7 yards	20	662611 03317
72mm x 40m	2.83 inches x 43.7 yards	12	699573 45065
Blue Core 14-Da	y Tape		
36mm x 54.8m	1-1/2" x 60 yards	24	076607 21954
48mm x 54.8m	2" x 60 yards	24	076607 21955
Bulk packed as inc			
Fine Line Blue T			
3.17mm x 32.9m	-	360*	662611 82688
6.35mm x 32.9m	1/4 inches x 36 yards	168*	662611 82686
12.7mm x 32.9m	1/2 inches x 36 yards	78*	662611 82685
* Montor again quar		-	

^{*} Master case quantity

Masking Film, Paper, and Sheeting





Good masking choice for multiple transportation applications

ANCHOR BRAND HAND MASK

- IPG's Anchor® brand Hand Mask is a pre-folded, high density polyethylene masking film designed for multiple transportation applications
- The thick and durable 12 micron film is corona treated to resist overspray flaking during paint applications
- This special film is designed with a reinforced top edge formulated to prevent the underlying film from sticking
- Designed to work with multiple hand dispensers and the 1" core fits most masking machines.

	54.8M (60YD) Roll	90' Roll	180' R o ll
WIDTH	ROLL HEIGHT	PART #	PART #
24"	5.35"	_	087143 00214
48"	8.78"	_	087143 00216
72"	9.57"	087143 00217	_
99"	13.0"	087143 00218	_
Case		12	12



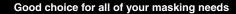
Good multi-purpose choice provides durability and excellent protection

HIGH DENSITY SHEETING (HDPE)

Our multi-purpose painters' plastic sheeting protects virtually any area from sanding dust and paint overspray with ease — even after repositioning. Our High Density Plastic Sheeting (HDPE) is designed to be one of the strongest most durable products on the market.

- Resists tearing and solvent bleed-through with light weight .31 mil High Density Polyethylene plastic (HDPE)
- · Holds in place as it clings to horizontal or vertical surfaces during taping with its natural electrostatic properties
- · Attracts and holds sanding debris for a dust-free finish
- · Drapes easily over furniture

SIZE	THICKNESS	COLOR	QTY/PACK	PACKS/CASE	PART #
9' x 400'	.31 mil	Clear	1	1	076607 68142
12' x 400'	.31 mil	Clear	1	1	076607 68143
Also available	by the pallet.				



GREEN MASKING PAPER

- · Made from recyclable virgin wood pulp fiber, recycled fiber, or a combination of the two
- These fibers provide a machine finish kraft paper with non-contaminating cleanliness, sustainability, and superior strength properties
- · Smooth paper surface ensures no fiber linting leading to rework
- · Flexible, easy to work with and shape; conforms to uneven surfaces

SIZE	3"	6"	12"	18"	20"	24"	36"	46"	69"
DESCRIPTION	PART #								
(750' boxed)	699573 13146	699573 13147	699573 13148	699573 13149	699573 13151	699573 13152	699573 13153	699573 13154	699573 13155
Logs/Case	12/1	6/1	3/1	2/1	1/1	1/1	1/1	1/1	1/1

Order per number of logs:

Each "log" is a total of 36" wide – comprised of the width of the individual roll in inches x the number of rolls/box,

e.g. 6" roll x 6 rolls in the box = one 36" wide log; 12" roll x 3 rolls in the box = one 36" wide log, etc., except for the 24" and 36" rolls which are single logs.



MASKING PRODUCTS Micro-Fiber Cloths



A micro-fiber is a single fiber with a thickness less than a human hair that has been split 16 times and woven into various products. The surface area of a micro-fiber product is increased over 15 times, creating millions of spaces between the fibers which trap dirt, grime or liquids, making this product one of the most absorbent materials. These cloths save you labor, time, and additional costs of multiple cleaning products and chemicals.

Applications: Cleaning Cloth: Used for general-purpose wet or dry applications. Works best when sprayed

with a light water mist to deep clean.

Dry Tack Cloth: This woven terry cloth has a low profile to resist snagging and help pick up

embedded debris.

Polishing Cloth: Streak-free cleaning of mirrors, optical lens and highly-polished items.

Color-coded for easy identification

Cleaning Cloth: Blue Dry Tack Cloth: Red Polishing Cloth: Yellow

Machine Used:

Other:

HAND APPLICATION

TECH TIP

- · Use these micro-fiber cloths dry for general cleaning
- To remove spills, stains or grime, lightly dampen the cloth for best results
- · All micro-fiber cloths can be used with or without chemicals
- Micro-fiber cloths can be washed up to 300+ times without losing cleaning and trapping abilities
- · Clean often for best results



It is the user's responsibility to refer to and comply with all safety regulations.



DESCRIPTION	COLOR	STD. PKG.	PART #
Micro-Fiber Cleaning Cloth			
16" x 16"	Blue	20	076607 05300
Micro-Fiber Dry Tack Cloth			
16" x 16"	Red	20	076607 04025
Micro-Fiber Polishing Cloth			
16" x 16"	Yellow	20	076607 05301



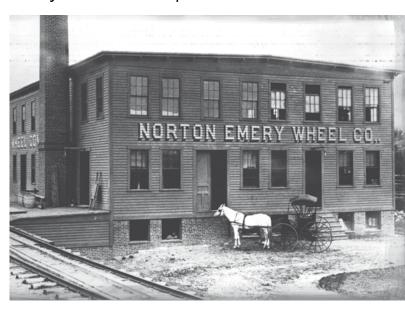
Safety Leadership / References

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 quard against recurrence.





It is the user's responsibility to refer to and comply with ANSI B7.1 and B7.7 - Contact us for a free copy.



Safety Poster (Form # 7868-English, 7868-French, 7868-Spanish)

To order this poster for your shop, mailto:nortonliterature@saint-gobain.com

Abrasive Safety References



Safety Information on the Web

Norton website nortonsga.us/safety

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



Safety Videos

Watch our videos on: 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



Safety Icon Meanings

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 EXAMPLI

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
Etc.	Improper use may break wheel and cause serious injury or death.		Always use wheel guard for angle grinder.
	No side grinding. Cutting only.	GUARD	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.

Safety Icon Meanings

UAMA Approved Safety Icons continued

ing.
and face.
and hearing. Combined icon.
, ears and lungs.
ds.
meter, relieved flanges.





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

INSPECT / STORAGE / SPEED





- . **DO** read all manuals, operating instructions and warnings
- **DO** read SDS for the disc/wheel and the work-piece material.
- D0 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 $60 - 80^{\circ}$ F.

- 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





- **DO** use the wheel guard provided with machine. Position it so it **DON'T** remove or modify any guard. ALWAYS use a 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).
- D0 run discs/wheels in a protected area for one minute before grinding.
- proper guard.
- . DON'T use excessive pressure when mounting a wheel. Tighten enough only to hold wheel firmly.

PROTECT





- DO wear ANSI Z87+ safety glasses and face protection, if required.
- **DO** wear safety shoes, arm guards, leather gloves and aprons.
- D0 employ dust controls and/or protective measures appropriate to the material being ground.
- DON'T use products near bystanders if they are not wearing protective equipment.

OPERATE



- . **DO** support work-piece firmly.
- D0 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.
- . 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

Portable Grinding Safety Do's and Don'ts

INSPECT / SPEED





- D0 read all manuals, operating instructions and warnings.
- **DO** read SDS for the wheel and workpiece material.
- D0 check all wheels for cracks or other damage
- **DO** make sure the machine does not exceed the maximum operating speed marked on the wheel.
- D0 store according to ANSI B7.1.

- DON'T use wheels that have been dropped or damaged.
- DON'T use on grinders that do not show a MAX RPM.

MOUNT / GUARD





- **DO** use an ANSI B7.1 wheel guard. Position it so it protects
- **DO** be sure wheel hole oR threads fit machine properly and that the flanges are clean, flat, undamaged and the proper type.
- . 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.
- DO run wheel in a protected area for one minute before grinding. DON'T use excessive pressure when mounting a wheel. Tighten enough only to hold wheel firmly.

PROTECT





- **DO** wear ANSI Z87+ safety glasses and face protection, if required.
- D0 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.
- **DON'T** use wheels near bystanders if they are not wearing protective equipment.

OPERATE



- D0 support work-piece firmly.
- D0 hold grinder firmly with two hands.
- . 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
- DON'T twist, bend or jam any wheel.
- DON'T force or bump wheel so that the tool motor slows
- **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.

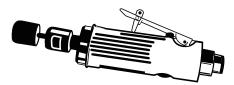
GUARD

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.



Die Grinder



Portable Cut-off Tool

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.



Starting a Grinding Wheel / Ring Test



Pistol Grip Air Sander

A Deadly Equation

Pistol Grip Air Sander + Grinding Wheel = Certain Injury!

- Never use a high-speed air sander as a portable grinder
- Use only sanding discs specifically designed for sanders
- Because the speed of these sanders far exceeds the maximum rated speeds for grinding wheels, a potentially lethal wheel breakage might occur

Starting a Grinding Wheel

ANSI's Procedure for Starting an Abrasive Wheel

This article is designed to remind users of the proper procedure when starting a machine with a new abrasive wheel mounted on it, starting a machine after the machine and wheel have been stored for a period of time, or remounting a wheel. ANSI B7.1 requires the following procedure when starting a newly mounted grinding wheel.

9.8 Starting the Wheel (Requirements)

All abrasive wheels shall be run at operating speeds with the safety guard in place or in a protected enclosure for at least one minute before applying work. During this time no one shall stand in front of or in line with the wheel. (See section 4, for safety guard requirements.) This provision shall apply each time one of the following conditions occur: a) a new wheel has been mounted; or b) a used wheel has been remounted.

E 9.8 Starting the Wheel (Explanatory Information)

An abrasive wheel may be damaged in shipment or storage, or the wheel may be subjected to improper, excessive stresses during mounting. Wheels which have been damaged or are under excessive stress, are likely to fracture within the first minute of rotation at operating speed. While this procedure is most important at the time when an abrasive wheel is mounted or remounted, damage may also occur to a wheel during a shut down of the machine on which it is mounted. The user should evaluate the circumstances and length of machine shut down to determine additional times that the operating rule should be followed.

Improper wheel mounting is a major cause of wheel breakages. Always use proper mounting procedures as outlined in ANSI B7.1, machine manufacturer's instructions and those supplied with the abrasive wheel. Be safe. know and follow the rules!



How to Perform a Ring Test on a Grinding Wheel

One method of grinding wheel inspection is called ring testing. OSHA, ANSI and the grinding wheel manufacturers require this method of grinding wheel inspection. It must be performed BEFORE the wheel is mounted on a grinding machine. Ring testing depends on the damping characteristics of a cracked wheel to alter the sound emitted when the wheel is tapped lightly. It is subject to interpretation by the inspector and is primarily applicable to vitrified bonded wheels. To perform the ring test, wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screw driver for light wheels, or a wooden mallet for heavier wheels.

- Tap wheels about 45 degrees each side of the vertical line and about 1" or 2" from the periphery. Rotate the wheel 45 degrees and repeat the test.
- Large and thick wheels may be given the ring test by striking the wheel on the periphery rather than the side of the wheel.
- A sound and undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring and the wheel should not be used.
- Wheels must be dry and free of sawdust when applying the ring test, otherwise the sound may be deadened. The ring test is not applicable to certain wheels because of their size, shape or composition.





Conversion Table – Wheel Speeds

REVOLUTIONS PER MINUTE FOR VARIOUS DIAMETERS OF GRINDING WHEELS TO GIVE SURFACE SPEED IN FEET PER MINUTE AS INDICATED (FOR WHEEL MARKING PURPOSES THE CALCULATED RPM FIGURES LISTED BELOW ARE ROUNDED OFF TO THE NEXT 5)

Surface Speed in Feet Per Minute (SFPM)

Purpher Same)			5							
	47,745 54,240 61,116 63,025 64,935 75,190 23,875 27,120 30,568 31,510 32,465 37,595 11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 10,186 10,505 10,820 12,530 6,820 6,780 7,640 7,880 8,115 9,400 5,970 6,782 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265	neter Theel ches		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
8 26,737 28,647 34,577 36,287 38,196 47,745 54,240 61,116 63,025 64,395 4 13,388 14,328 16,289 17,188 18,483 17,188 18,483 17,189 18,485 12,986 31,510 32,465 31,510 32,485 41,489 17,889 18,985 18,918 31,560 18,278 18,178 18,485 18,485 18,288 18,289 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 18,489 <t< td=""><td>47,745 54,240 61,116 63,025 64,335 75,190 23,875 27,120 30,558 31,510 32,465 37,595 15,915 18,080 20,372 21,010 21,645 25,065 11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,965 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,240 10,740 6,820 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,640 7,880 8,115 9,400 5,985 3,305 6,112 6,300 6,495 7,520 2,985 3,305 3,820 3,760 2,</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Revolu</td><td>utions Per Mi</td><td>nute (RPM)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	47,745 54,240 61,116 63,025 64,335 75,190 23,875 27,120 30,558 31,510 32,465 37,595 15,915 18,080 20,372 21,010 21,645 25,065 11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,965 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,820 15,040 7,960 9,040 10,186 10,505 10,240 10,740 6,820 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,640 7,880 8,115 9,400 5,985 3,305 6,112 6,300 6,495 7,520 2,985 3,305 3,820 3,760 2,								Revolu	utions Per Mi	nute (RPM)							
4 13.388 14,328 14,328 16,278 16,738 18,148	23,875 27,120 30,558 31,510 32,465 37,595 15,915 18,080 20,372 21,010 21,645 25,065 11,340 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,640 7,880 8,115 9,400 5,970 6,780 7,215 8,355 4,700 2,520 3,980 4,520 5,092 5,250 5,410 6,285 2,380 3,815 3,940 4,640 5,370 <td></td> <td>24,828</td> <td>26,737</td> <td>28,647</td> <td>30,558</td> <td>32,467</td> <td>34,377</td> <td>36,287</td> <td>38,196</td> <td>45,836</td> <td>47,745</td> <td>54,240</td> <td>61,116</td> <td>63,025</td> <td>64,935</td> <td>75,190</td> <td>76,395</td>		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
813 9,549 10,186 10,822 11,469 12,732 15,778 18,080 20,372 21,010 21,645 6 688 7,162 7,640 8,116 8,556 9,072 8,549 11,490 13,560 15,278 15,758 16,258 16,285 8,344 6,720 6,112 6,494 6,876 7,280 11,490 11,360 12,224 12,600 12,285 16,285 16,285 3,342 3,580 3,820 4,036 4,583 4,911 5,183 5,666 6,880 7,790 8,722 10,505 11,505 2,870 3,820 3,820 4,026 4,786 6,880 7,750 8,732 10,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,505 11,605 11,605 11,505 11,505 11,505 11,505	15,915 18,080 20,372 21,010 21,645 25,065 11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,022 5,250 5,410 6,265 3,980 4,520 5,020 5,250 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,176 2,465 2,655 2,950 3,420		12,414	13,368	14,328	15,278	16,238	17,188	18,143	19,098	22,918	23,875	27,120	30,558	31,510	32,465	37,595	38,195
6 68 6 7,162 7,640 8,116 8,596 9,072 9,549 11,459 11,360 15,780 15,785 16,285 5,348 5,730 6,112 6,494 6,876 7,289 7,690 10,860 12,224 12,085 12,985 3,820 4,086 4,911 5,729 6,048 6,846 6,840 10,486 10,280 10,280 3,820 4,086 4,911 5,729 6,048 6,846 6,820 7,750 8,732 9,040 10,186 10,580 10,280 3,820 4,086 4,911 5,188 3,466 6,820 5,970 6,780 7,760 7,800 8,275 9,775 8,780 8,070 8,780 8,275 8,780 6,780 8,780 <td< td=""><td>11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,410 6,265 3,70 2,985 3,390 3,820 3,40 4,600 4,70 2,985 3,015 3,396 3,500 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,390 2,776 2,865 2,455 2,890 1,940</td><td></td><td>8,276</td><td>8,913</td><td>9,549</td><td>10,186</td><td>10,822</td><td>11,459</td><td>12,096</td><td>12,732</td><td>15,278</td><td>15,915</td><td>18,080</td><td>20,372</td><td>21,010</td><td>21,645</td><td>25,065</td><td>25,465</td></td<>	11,940 13,560 15,278 15,755 16,235 18,800 9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,410 6,265 3,70 2,985 3,390 3,820 3,40 4,600 4,70 2,985 3,015 3,396 3,500 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,985 3,390 3,820 3,500 4,640 5,370 2,390 2,776 2,865 2,455 2,890 1,940		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
5.3.46 5,7.30 6,112 6,494 6,876 7.258 7,640 9,168 9,550 10,280 12,244 12,605 12,805 12,244 12,605 12,805 12,244 12,605 12,805 10,606 10,505 10,800 10,505 10,505 10,800 10,505 10,505 10,800 10,505 10,505 10,800 10,505 10,505 10,800 10,505 10,505 10,505 10,800 10,505	9,550 10,850 12,224 12,605 12,985 15,040 7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,370 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,485 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,660 4,70 2,985 3,390 3,820 3,940 4,660 4,70 2,390 2,715 3,056 3,150 3,245 3,76 2,390 2,715 2,865 2,950 3,420 2,300 1,900 2,7465 2,765 2,495 2,890 <		6,207	6 685	7,162	7,640	8,116		9,072	9,549	11,459	11,940	13,560	15,278	15,755	16,235	18,800	19,100
4456 4775 5,082 5,411 5,729 6,046 6,366 7,590 9,040 10,186 10,505 10,820 3,820 4,092 4,356 4,638 4,911 5,183 5,466 6,648 6,820 7,750 8,732 9,005 9,275 3,342 3,860 3,820 4,658 4,775 5,720 6,790 6,790 6,790 9,775 9,005 9,275 2,970 3,182 3,820 3,820 4,584 4,775 5,870 6,792 7,000 7,215 6,495 8,115 8,870 6,790 6,790 9,005 9,275 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175 9,005 9,175	7,960 9,040 10,186 10,505 10,820 12,530 6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,660 4,700 2,985 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,390 2,776 2,865 2,950 3,420 1,940 2,786 2,625 2,705 3,430 1,595 1,840 2,056 2,100 2,165 2,950 1,405		4,966	5,348	5,730	6,112	6,494	9/8/9	7,258	7,640	9,168	9,550	10,850	12,224	12,605	12,985	15,040	15,280
3.820 4.092 4.366 4.638 4.911 5,456 6,548 6,820 7,750 8,722 9,006 9,275 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 2,970 3,182 3,860 3,806 3,820 4,024 4,244 5,092 5,305 6,030 6,792 7,000 7,215 2,970 3,182 3,806 3,820 4,024 4,244 5,092 5,305 6,030 6,792 7,000 7,215 2,278 3,182 3,820 4,624 4,775 5,425 6,112 6,300 6,486 8,10 1,11 6,300 6,485 8,10	6,820 7,750 8,732 9,005 9,275 10,740 5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,3015 3,396 3,500 4,640 5,370 2,985 3,015 3,396 3,500 4,640 5,370 2,985 3,015 3,396 3,500 4,640 5,370 2,985 3,015 3,396 3,500 4,640 5,370 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,766 2,425 2,950 3,420 1,940 2,182 2,250 2,495 2,980 1,495 1,9		4,138	4,456	4,775	5,092	5,411	5,729	6,048	998'9	7,639	2,960	9,040	10,186	10,505	10,820	12,530	12,730
3.342 3.580 3.820 4,058 4,297 4,755 5,729 5,970 6,780 7,640 7,880 8,115 2.970 3,182 3,860 3,606 3,820 4,624 5,025 5,305 6,030 6,792 7,000 7,215 2.970 3,182 3,666 3,820 4,624 5,025 5,305 6,030 6,792 7,000 7,215 2.278 2,865 3,066 3,247 3,488 3,629 3,820 3,805 6,112 6,300 6,495 7,215 2,288 2,866 2,864 3,023 3,820 3,800 4,640 7,215 1,400 2,646 2,685 3,800 4,640 4,600 4,676 4,640 4,676 3,805 4,640 4,676 4,640 4,676 4,686 4,670 4,640 4,676 4,676 4,676 4,686 4,600 4,640 4,676 4,625 5,425 5,425 5,425 5,410 4,600	5,970 6,780 7,640 7,880 8,115 9,400 5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,060 4,700 2,985 3,015 3,396 3,500 3,605 4,175 2,985 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,390 2,716 2,865 2,950 3,420 1,900 2,266 2,625 2,705 3,135 1,705 1,940 2,182 2,250 2,165 2,890 1,705 1,940 2,182 2,250 2,165 2,990 1,405 1,940		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
2,970 3,182 3,866 3,820 4,032 4,244 5,092 5,306 6,792 7,000 7,215 2,674 2,865 3,269 3,820 4,584 4,775 5,426 6,112 6,300 6,485 2,228 2,386 2,546 2,705 2,864 3,023 3,183 3,820 4,520 6,112 6,300 6,485 1,910 2,046 2,182 2,592 2,728 2,784 3,410 3,875 4,640 4,640 1,910 2,029 2,149 2,686 2,387 2,885 2,985 3,390 3,820 3,940 4,640 1,672 1,910 2,029 2,149 2,268 2,387 2,885 3,990 3,800 3,990 3,440 1,672 1,910 2,029 2,149 2,169 2,122 2,546 2,655 3,990 3,990 3,990 3,445 1,745 1,337 1,482 1,591 1,791 1,79	5,305 6,030 6,792 7,000 7,215 8,355 4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,060 4,700 2,585 3,015 3,396 3,500 4,700 2,390 2,715 3,056 3,150 3,245 3,760 2,390 2,715 3,056 3,150 3,245 3,760 2,390 2,715 3,056 3,150 3,245 3,760 1,990 2,260 2,765 2,705 3,135 1,140 1,705 1,940 2,786 2,250 2,890 2,890 1,705 1,940 2,182 2,250 2,890 2,890 1,705 1,940 2,056 2,100 2,165 2,890 1,495		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
2,674 2,865 3,056 3,247 3,438 3,629 3,820 4,526 6,125 6,102 6,495 6,495 2,228 2,286 2,546 2,705 2,864 3,023 3,183 3,820 4,520 5,092 5,290 5,410 1,910 2,046 2,182 2,582 2,728 2,749 3,410 3,875 4,500 4,600 4,600 1,672 1,791 1,910 2,029 2,149 2,286 2,386 3,390 3,820 3,900 4,600 4,600 1,672 1,791 1,910 2,029 2,149 2,286 2,386 2,986 3,390 3,820 3,400 4,600	4,775 5,425 6,112 6,300 6,495 7,520 3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,060 4,700 2,985 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,765 2,135 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,705 1,810 2,056 2,100 2,165 2,100 1,595 1,940 2,182 2,250 2,320 2,685 1,495 1,595 1,796 1,865 1,910 2,100 1,300		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
2,228 2,386 2,546 2,055 2,684 3,023 3,183 3,820 3,990 4,520 5,250 5,410 1,910 2,046 2,182 2,455 2,592 2,728 3,274 3,410 3,875 4,560 4,500 4,640 1,672 1,791 1,910 2,029 2,149 2,288 2,387 2,865 2,885 3,390 3,820 3,940 4,640 1,485 1,591 1,910 2,122 2,546 2,685 3,390 3,880 3,500 3,605 1,485 1,591 1,910 2,122 2,546 2,685 3,390 3,880 3,500 3,605 1,485 1,486 1,649 1,736 2,846 2,170 2,465 2,596 2,405 3,406 4,600 1,102 1,132 1,432 1,549 1,736 2,846 2,106 2,465 2,705 2,465 2,405 2,405 2,405 2,405 2,405	3,980 4,520 5,092 5,250 5,410 6,265 3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,060 4,700 2,655 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,776 2,865 2,950 3,420 1,940 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,940 2,056 2,100 2,165 2,505 1,495 1,940 2,056 2,100 2,165 2,505 1,495 1,940 1,940 2,050 2,165 2,030 1,405		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
1,910 2,046 2,182 2,455 2,728 3,274 3,410 3,875 4,366 4,500 4,640 1,672 1,791 1,910 2,029 2,149 2,268 2,387 2,865 2,985 3,390 3,820 3,940 4,600 1,485 1,591 1,688 1,803 1,910 2,029 2,122 2,546 2,655 3,015 3,396 3,500 3,605 1,485 1,432 1,528 1,673 1,719 1,814 1,910 2,292 2,390 2,715 3,966 3,500 3,465 1,215 1,388 1,476 1,649 1,736 2,846 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,950 2,776 2,865 2,950	3,410 3,875 4,366 4,500 4,640 5,370 2,985 3,390 3,820 3,940 4,660 4,700 2,655 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,625 2,705 3,135 1,840 2,362 2,485 2,890 1,595 1,810 2,165 2,320 2,685 1,595 1,940 2,182 2,250 2,165 2,505 1,495 1,910 1,970 2,165 2,505 1,495 1,910 1,970 2,030 2,350 1,405 1,595 1,790 1,085 2,090 1,200 1,595 1,790 1,085 2,090 1,200 1,510 1,710 1,980 1,105 1,464 1,500 <td></td> <td>2,069</td> <td>2,228</td> <td>2,386</td> <td>2,546</td> <td>2,705</td> <td>2,864</td> <td>3,023</td> <td>3,183</td> <td>3,820</td> <td>3,980</td> <td>4,520</td> <td>5,092</td> <td>5,250</td> <td>5,410</td> <td>6,265</td> <td>6,365</td>		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
1,672 1,791 1,910 2,029 2,149 2,268 2,387 2,865 3,390 3,820 3,940 4,060 1,485 1,591 1,698 1,910 2,122 2,546 2,655 3,015 3,396 3,500 3,605 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 1,215 1,322 1,649 1,736 2,084 2,170 2,465 2,776 2,865 2,960 1,115 1,194 1,274 1,581 1,716 1,780 1,780 1,762 1,840 2,090 2,776 2,865 2,965 1,028 1,022 1,032 1,784 1,581 1,762 1,840 2,090 2,320 2,495 1,028 1,092 1,146 1,210 1,274 1,528 1,940 2,182 2,495 1,910 896 954 1,014 1,04 <td>2,985 3,390 3,820 4,060 4,700 2,655 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,546 2,625 2,705 3,135 1,705 1,940 2,182 2,250 2,320 2,685 1,705 1,940 2,182 2,250 2,165 2,505 1,705 1,940 2,182 2,250 2,165 2,505 1,495 1,910 1,970 2,165 2,505 1,495 1,910 1,970 2,030 2,350 1,330 1,510 1,608 1,750 1,085 2,090 1,330 1,510 1,608 1,660 1,710 1,980 1,196 1,528 1,568 1,750 1,780 1,780 1,140 1,295 1,464</td> <td></td> <td>1,773</td> <td>1,910</td> <td>2,046</td> <td>2,182</td> <td>2,319</td> <td>2,455</td> <td>2,592</td> <td>2,728</td> <td>3,274</td> <td>3,410</td> <td>3,875</td> <td>4,366</td> <td>4,500</td> <td>4,640</td> <td>5,370</td> <td>5,455</td>	2,985 3,390 3,820 4,060 4,700 2,655 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,546 2,625 2,705 3,135 1,705 1,940 2,182 2,250 2,320 2,685 1,705 1,940 2,182 2,250 2,165 2,505 1,705 1,940 2,182 2,250 2,165 2,505 1,495 1,910 1,970 2,165 2,505 1,495 1,910 1,970 2,030 2,350 1,330 1,510 1,608 1,750 1,085 2,090 1,330 1,510 1,608 1,660 1,710 1,980 1,196 1,528 1,568 1,750 1,780 1,780 1,140 1,295 1,464		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
1,485 1,591 1,688 1,803 1,910 2,122 2,546 2,655 3,015 3,396 3,605 3,605 1,337 1,432 1,528 1,623 1,719 1,814 1,910 2,292 2,390 2,715 3,065 3,150 3,245 1,215 1,322 1,363 1,649 1,736 2,084 2,170 2,465 2,776 2,865 2,950 1,115 1,194 1,274 1,562 1,649 1,786 1,990 2,260 2,776 2,865 2,950 1,028 1,104 1,274 1,591 1,910 1,990 2,776 2,655 2,705 955 1,024 1,228 1,528 1,762 1,840 2,185 2,250 2,250 2,705 891 955 1,014 1,210 1,274 1,532 1,495 1,695 1,910 1,910 2,195 1,910 2,105 2,105 2,105 2,105 2,105 2,105<	2,655 3,015 3,396 3,500 3,605 4,175 2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,546 2,625 2,705 3,135 1,705 1,940 2,182 2,250 2,320 2,685 1,705 1,810 2,056 2,100 2,165 2,505 1,495 1,695 1,910 1,970 2,165 2,090 1,405 1,595 1,796 1,865 1,910 2,210 1,330 1,510 1,608 1,750 1,085 2,090 1,260 1,430 1,608 1,600 1,710 1,980 1,140 1,295 1,464 1,500 1,545 1,790		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
11 1,337 1,422 1,528 1,623 1,719 1,814 1,910 2,292 2,390 2,715 3,150 3,245 88 1,215 1,302 1,388 1,476 1,562 1,649 1,736 2,084 2,776 2,865 2,950 4 1,115 1,194 1,274 1,523 1,432 1,591 1,910 2,260 2,546 2,625 2,950 4 1,115 1,104 1,274 1,512 1,591 1,990 2,260 2,645 2,625 2,950 955 1,01 1,176 1,228 1,596 1,705 1,940 2,182 2,625 2,705 2,950 955 1,018 1,228 1,274 1,528 1,840 2,080 2,165 2,105 2,165 896 954 1,014 1,074 1,134 1,432 1,495 1,596 1,590 1,590 1,590 1,990 2,666 2,100 2,100	2,390 2,715 3,056 3,150 3,245 3,760 2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,546 2,625 2,705 3,135 1,840 2,090 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,910 1,970 2,030 2,350 1,405 1,595 1,796 1,865 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,140 1,295 1,464 1,500 1,545 1,790		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
8 1,215 1,302 1,368 1,476 1,649 1,736 2,084 2,170 2,465 2,776 2,865 2,950 4 1,115 1,94 1,274 1,353 1,512 1,591 1,910 1,990 2,260 2,546 2,625 2,950 4 1,115 1,274 1,322 1,512 1,591 1,910 2,260 2,546 2,625 2,705 1,028 1,028 1,228 1,286 1,784 1,762 1,940 2,182 2,250 2,320 836 955 1,014 1,274 1,528 1,595 1,810 2,056 2,100 2,165 836 895 954 1,014 1,194 1,435 1,495 1,595 1,796 1,595 1,796 1,990 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100 2,100	2,170 2,465 2,776 2,865 2,950 3,420 1,990 2,260 2,546 2,625 2,705 3,135 1,840 2,090 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,910 1,970 2,030 2,350 1,405 1,595 1,796 1,865 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,600 1,710 1,980 1,195 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
4 1,15 1,194 1,274 1,353 1,512 1,591 1,910 2,260 2,546 2,625 2,705 1,028 1,101 1,176 1,248 1,322 1,395 1,468 1,762 1,840 2,090 2,352 2,425 2,495 955 1,023 1,092 1,159 1,228 1,296 1,574 1,578 1,795 1,940 2,182 2,250 2,320 891 955 1,014 1,210 1,274 1,528 1,940 2,056 2,100 2,165 786 895 954 1,014 1,074 1,124 1,348 1,495 1,595 1,910 1,910 742 786 848 965 1,011 1,067 1,124 1,273 1,595 1,796 1,875 1,910 742 786 848 902 954 1,007 1,061 1,273 1,595 1,598 1,750 1,790 1,790 1,790	1,990 2,260 2,546 2,625 2,705 3,135 1,840 2,090 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,695 1,910 1,970 2,030 2,350 1,405 1,595 1,796 1,855 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
1,028 1,101 1,176 1,228 1,325 1,468 1,762 1,840 2,090 2,352 2,425 2,495 955 1,023 1,092 1,159 1,228 1,364 1,637 1,705 1,940 2,182 2,250 2,200 2,320 891 955 1,018 1,024 1,214 1,274 1,528 1,940 2,182 2,250 2,200 2,320 786 895 954 1,014 1,134 1,134 1,485 1,495 1,695 1,910 1,970 2,030 742 958 848 902 954 1,007 1,061 1,273 1,330 1,510 1,750 1,085 704 754 804 955 1,007 1,061 1,273 1,330 1,510 1,750 1,085 704 754 804 955 1,006 1,206 1,206 1,430 1,698 1,750 1,760 809 <t< td=""><td>1,840 2,090 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,910 1,970 2,165 2,505 1,405 1,595 1,796 1,865 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,258 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790</td><td></td><td>1,034</td><td>1,115</td><td>1,194</td><td>1,274</td><td>1,353</td><td>1,433</td><td>1,512</td><td>1,591</td><td>1,910</td><td>1,990</td><td>2,260</td><td>2,546</td><td>2,625</td><td>2,705</td><td>3,135</td><td>3,185</td></t<>	1,840 2,090 2,352 2,425 2,495 2,890 1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,910 1,970 2,165 2,505 1,405 1,595 1,796 1,865 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,258 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
955 1,023 1,159 1,228 1,296 1,364 1,637 1,705 1,940 2,182 2,250 2,320 891 955 1,018 1,082 1,146 1,274 1,528 1,595 1,810 2,056 2,100 2,165 836 895 954 1,014 1,134 1,134 1,432 1,495 1,595 1,796 1,910 2,030 742 785 848 902 954 1,007 1,061 1,273 1,330 1,510 1,698 1,750 1,085 704 754 804 955 1,006 1,206 1,206 1,430 1,608 1,750 1,085 898 848 902 954 1,007 1,061 1,206 1,206 1,596 1,698 1,750 1,085 704 754 804 854 908 956 1,106 1,206 1,260 1,430 1,669 1,710 1,710 <t< td=""><td>1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,695 1,910 2,165 2,505 1,405 1,595 1,790 2,030 2,350 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,258 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790</td><td></td><td>955</td><td>1,028</td><td>1,101</td><td>1,176</td><td>1,248</td><td>1,322</td><td>1,395</td><td>1,468</td><td>1,762</td><td>1,840</td><td>2,090</td><td>2,352</td><td>2,425</td><td>2,495</td><td>2,890</td><td>2,940</td></t<>	1,705 1,940 2,182 2,250 2,320 2,685 1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,695 1,910 2,165 2,505 1,405 1,595 1,790 2,030 2,350 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,258 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
891 955 1,018 1,082 1,146 1,274 1,524 1,586 1,810 2,056 2,100 2,165 836 895 954 1,014 1,074 1,134 1,194 1,432 1,495 1,695 1,910 1,970 2,030 786 843 955 1,011 1,067 1,124 1,348 1,405 1,595 1,796 1,910 2,030 742 795 848 902 954 1,007 1,061 1,273 1,330 1,510 1,698 1,750 1,085 704 754 804 854 904 955 1,006 1,206 1,260 1,430 1,608 1,660 1,710 80 716 764 1,196 1,146 1,195 1,558 1,575 1,710	1,595 1,810 2,056 2,100 2,165 2,505 1,495 1,695 1,910 1,970 2,030 2,350 1,405 1,595 1,796 1,855 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
836 895 954 1,014 1,134 1,194 1,432 1,495 1,695 1,910 1,970 2,030 786 843 955 1,011 1,067 1,124 1,348 1,405 1,595 1,796 1,855 1,910 742 795 848 902 954 1,007 1,061 1,273 1,330 1,510 1,698 1,750 1,085 704 754 804 854 904 955 1,006 1,206 1,206 1,430 1,608 1,609 1,710 669 716 764 812 860 908 956 1,146 1,195 1,355 1,528 1,575 1,625	1,495 1,695 1,910 1,970 2,030 2,350 1,405 1,595 1,796 1,855 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
786 843 898 955 1,011 1,067 1,124 1,348 1,405 1,595 1,796 1,855 1,910 742 795 848 902 954 1,007 1,061 1,273 1,330 1,510 1,698 1,750 1,085 704 754 804 955 1,006 1,206 1,260 1,430 1,608 1,660 1,710 669 716 764 812 860 908 956 1,146 1,195 1,355 1,575 1,575 1,626	1,405 1,595 1,796 1,855 1,910 2,210 1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,600 1,710 1,980 1,195 1,355 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		922	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
742 754 848 902 954 1,007 1,061 1,273 1,330 1,510 1,698 1,750 1,085 704 754 804 854 904 955 1,006 1,206 1,260 1,430 1,608 1,710 669 716 764 812 860 908 956 1,146 1,195 1,355 1,528 1,575 1,625	1,330 1,510 1,698 1,750 1,085 2,090 1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		730	786	843	868	955	1,011	1,067	1,124	1,348	1,405	1,595	1,796	1,855	1,910	2,210	2,245
704 754 804 854 904 955 1,006 1,206 1,260 1,430 1,608 1,608 1,710 669 716 764 812 860 908 956 1,146 1,195 1,528 1,575 1,525	1,260 1,430 1,608 1,660 1,710 1,980 1,195 1,355 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		069	742	795	848	902	954	1,007	1,061	1,273	1,330	1,510	1,698	1,750	1,085	2,090	2,120
669 716 764 812 860 908 956 1,146 1,195 1,355 1,528 1,575 1,625	1,195 1,355 1,528 1,575 1,625 1,880 1,140 1,295 1,464 1,500 1,545 1,790		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
	1,140 1,295 1,464 1,500 1,545 1,790		620	699	716	764	812	098	808	926	1,146	1,195	1,355	1,528	1,575	1,625	1,880	1,910
636 682 732 775 818 863 908 1,090 1,140 1,295 1,464 1,500 1,545	intermediate diameters not listed use the formula listed in Section 1.2.10 of ANSL B.7.1		591	929	682	732	775		863	808	1,090	1,140	1,295	1,464	1,500	1,545	1,790	1,820

For intermediate diameters not listed use the formula listed in section 1.2.10 of ANSI SFPM = .262 x wheel diameter in inches x RPM.

To convert meters per second (m/s) to SFPM: m/s \times 196.85 = SFPM

To convert SFPM to m/s: SFPM/196.85 = m/s. To convert RPM to SFPM: Wheel Diameter \times RPM \times 0.262 = SFPM



Silica and What You Need to Know

Background and Health impacts

Silica (SiO2) is one of the most common minerals in the earth's crust. Glass, beach sand, silicone and granite are all "silica" materials. Products containing silica have been used for thousands of years in building and is a key ingredient in many products we use every day. There are two forms of silica; crystalline and non-crystalline. Crystalline silica is a mineral that occurs in several forms. Quartz, the most common form, is a component of sand, stone, rock concrete, brick, block and mortar. Non-crystalline silica is found in glass, silicon carbide and silicone.

When rocks containing crystalline silica are cut, crushed, ground, drill or used in similar industrial processes, dust particles are produced. These particles are very fine, at least 100 times smaller than ordinary beach sand — known as respirable crystalline silica or RCS. Inhaling very small or respirable crystalline silica particles is most hazardous and may cause multiple diseases such as silicosis, followed in severe cases by lung cancer.

Who is at risk from exposure to crystalline silica?

It is estimated that 2.3 million workers are exposed to crystalline silica on the job. The majority of the workers, about 2 million, are in the construction industry. The hazard exists when specific activities create respirable dust that is released into the air.

The New OSHA Standard

OSHA's recently implemented silica standards for Construction "29 CFR 1926.1153" and General Industry "29 CFR 1910.1053" suggests procedures applicable for work in these environments. This new standard affects all activities that generate silica dust on a jobsite. Trades involving brick, stone, concrete and other materials that are difficult to replace must comply with the standard. This is a change around "process", not specific products.

Impacts on Industry

Industries affected by this regulation include Construction, Glass manufacturing, Pottery products, Structural clay products, Concrete products, Foundries, Cut stone and Stone products, Railroads, Refractory products and Asphalt products manufacturing to name a few. Always read the Safety Data Sheet for the workpiece and abrasive before use.

The Occupational Safety and Health Administration (OSHA) has a number of available resources to help companies understand the general information and requirements to explain the new regulations including:

OSHA's Crystalline Silica Rule: Construction https://www.osha.gov/Publications/OSHA3681.pdf

OSHA Fact Sheet

https://www.osha.gov/publications/OSHA3682.pdf

Small Entity Compliance Guide for Respirable Crystalline Silica Standard for Construction

https://www.osha.gov/publications/OSHA3902.pdf

Small Entity Compliance Guide for Respirable Crystalline Silica Standard for General Industry and Maritime

https://www.osha.gov/publications/OSHA3911.pdf





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