



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

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



### **Performance on Fire**

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



### **Conquoring Your Toughest Jobs**

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



# ROUGH GRINDING 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"

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)

Shape: Type 27, Type 28, Type 29

#### TYPE-TO-APPLICATION RECOMMENDATION GUIDE

Wheel Type/Thickness	Applications			
TYPE 27	Type 27 wheels are essentially straight wheels that have a "depressed center/ raised hub". Different types of fiberglass reinforcement mesh give the product stability for use on the periphery, on the face, or a combination of the two.			
		90° ANGLE	30° ANGLE	
.040", .045", and 1/16" Type 27/42 RightCut	Cutting only, where fast cutting and low kerf loss are desired	•		
3/32" and .125" Type 27/42	For tough cutting and notching applications where stability is important; cutting and cleaning burr-free narrow root pass welds			
1/8" Type 27	For multiple applications ranging from cutting-off, notching and light-duty side grinding			
1/8" Pipe Notcher Type 27	2-1/2 pieces of reinforcement; durable face grinding; root pass grinding without removing pipe material			
1/8" Type 27 Flexible	For light stock/blending/finishing/polishing			
.140" and 1/8" Type 27 Foundry Notchers	Triple-reinforced for grinding steel and dirty/scale-covered castings; removing and cleaning gates and risers			
1/4" Type 27	For light- to heavy-duty grinding on the bottom/face of the wheel			
1/4" Type 27 Foundry Snaggers	Designed for cleaning parting lines, pads and slag			
1/4" Type 27 Heavy-Duty Foundry	Triple-reinforced for the most aggressive foundry applications		•	
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.			15° ANGLE
1/4" Type 28 Saucers	Smooth, gouge-free grinding at shallow angles			IS ANGLE
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.			15° ANGLE
1/8" Type 29 Flexible, AVOS	Polishing and blending applications			

# ROUGH GRINDING DEPRESSED CENTER WHEELS

#### MATERIAL/APPLICATION-TO-PRODUCT RECOMMENDATION GUIDE

BEST Highest Productivity; Lowest Total Cost	BETTER Excellent Blend of Performance & price	GOOD Consistent Performance; Low Initial Price
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Norton NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Norton NorZon Plus	Norton BlueFire	Norton Gemini INOX/SS / Norton Metal
	Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Norton NorZon Plus		Norton Gemini
		Norton Gemini Aluminum
		Norton Masonry
		Norton Masonry
Norton NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Norton NorZon Plus	Norton BlueFire	Norton Gemini INOX/SS
	Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Norton NorZon Plus	Norton BlueFire Foundry	Norton Gemini
Norton Quantum3/NorZon Plus	Norton BlueFire	Norton Gemini / Norton Metal
Norton Quantum3	Norton BlueFire INOX/SS	Norton Gemini INOX/SS
Norton Quantum3	Norton BlueFire FC/INOX/SS	Norton Gemini INOX/SS
Norton NorZon Plus	Norton BlueFire Foundry	Norton Gemini
Norton Quantum3	Norton BlueFire Foundry	Norton Gemini
		Norton Gemini Aluminum
		Norton Masonry
		Norton Gemini Flexible
	Norton NorZon Plus  Norton NorZon Plus  Norton NorZon Plus  Norton NorZon Plus  Norton NorZon Plus  Norton Quantum3/NorZon Plus Norton Quantum3  Norton Quantum3  Norton Quantum3  Norton Quantum3  Norton Quantum3  Norton Quantum3	Norton NorZon Plus Norton NorZon Plus Norton NorZon Plus Norton BlueFire Norton NorZon Plus Norton BlueFire FC/INOX/SS Norton NorZon Plus  Norton NorZon Plus  Norton BlueFire Norton NorZon Plus  Norton BlueFire Norton NorZon Plus  Norton BlueFire Norton Quantum3/NorZon Plus Norton BlueFire Norton Quantum3 Norton BlueFire FC/INOX/SS Norton Quantum3 Norton BlueFire FC/INOX/SS Norton NorZon Plus Norton BlueFire FC/INOX/SS Norton NorZon Plus Norton BlueFire Foundry

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

#### **HOW TO PICK THE RIGHT BOND TYPE**

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

### **HOW TO PICK THE RIGHT MOUNT**

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



#### **Mini-Mount Hub**

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

Standard throw-away hub size

### WHY CHOOSE DEPRESSED CENTER WHEELS?







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

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



# **ROUGH GRINDING** DEPRESSED CENTER WHEELS

### **CROSS REFERENCE GUIDES**

Type 27/42 RightCut - .040" - 1/16" TOTAL PERFORMANCE

1900 277 12	TOTAL PERFORMANCE INITIAL PRICE						SPECIALITY
	BEST	BETTER	GOOD				GOOD
NORTON	NorZon Plus	BlueFire	Gemini INOX/SS	Gemini Long Life	Gemini	Metal	Gemini Aluminum
Brilliant	_	_	_	Brill-Blade Heavy Duty	Brill-Blade Extra FC	Hornet	_
Bullard	_	ZA60T	_	TA46T, TA60T TA60U	SGA60U	A46T, A60T Comp.	AL46N
Camel	_	ZA Quickie Cut	A60-T-BF, WA60R Quickie Cut	Super Quickie Cut	A36-S-BF	_	A46 Quickie Cut
Flexovit	_	_	_	Razorblade A60SST	Razorblade A24T, 30V, 36T	_	_
Pearl	_	Redline Max Slimcut	_	Slimcut	_	Slimcut Pro-V, Silverline	_
Pferd	_	SGP-ZA-Q-INOX	SG-A-R-INOX, SGP-A-S-INOX	SG-A-S, SGP-A-T	_	PSF-A-P	S-G-N-ALU
Sait	_	Z-tech	XA46R	_	A60S, Saitech	SAIT.M.X	A46N
Spedecut	_	_	_	_	_	A46, 60 TBXX	_
Walter	_	_	A-60SS-ZIP	_	A-60-ZIP, A-30-ZIP	_	A-60-ZIP-ALU

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

TOTAL PERFORMANCI	Ε
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	TOTAL I	PERFORMA	ANCE						INITIA	AL PRICE	<b>—</b>	SPECIAL	_ITY
		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	Double-X	Allsteel	HP	_	Stainless	_	_	_	_
Weiler	-	-	-	Tiger Zirc	Tiger Inox	Tiger LL	Wolverine A24R	_	-	Wolverine A24N	-	-	-

Type 27 – Flexible 1/8"

	GOOD
NORTON	Gemini Flexible
Brilliant	Brill-Flex
Bullard	Flexlite AC
Camel	FGF, Special Wheel

	GOOD
NORTON	Gemini Flexible
Flexovit	Flexcel
Metabo	Z-Plus
Pearl	Flexible AC

	GOOD
NORTON	Gemini Flexible
Pferd	SG-Flex
Sait	Challenger II
Walter	Flexcut



### **ROUGH GRINDING**

# DEPRESSED CENTER WHEELS

# NORTON QUANTUM3 CERAMIC ALUMINA

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



NEW



- Fastest metal removal rates, with less pressure (because of more uniform grain distribution and adhesion) significantly increase production, for the lowest total grinding cost of any wheel in the market place today
- Better operator control, improved comfort, and exceptional finished part quality with a more robust, sharper, yet smoother cutting action; wheels don't grab or dig
- Contaminate-free with <0.1% iron, sulfur or chlorine for rust-free results.



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



#### **FEATURES**

· Combination of Norton SG ceramic alumina and NorZon (zirconia alumina) with an advanced bond system

#### **BENEFITS**

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

# NORTON BLUEFIRE Z/A AND A/O BLEND

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



## **FEATURES**

## **BENEFITS**

- · A blend of R&D advanced chemistry and shaped zirconia alumina abrasive and premium aluminum oxide grain
- · 2-3 times the life of aluminum oxide wheels
- · Broad utility from light-to heavy-pressure applications, on a wide range of materials
- · Excellent performance-to-price ratio for lower total grinding costs
- Contaminate-free BlueFire FC (FastCut/Inox/SS)
- · Contain <0.1% iron, sulfur, or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel
- BlueFire Foundry
- · Zirconia alumina/silicon carbide abrasive blend and an exceptionally strong reinforcement structure
- · Versatile choice for aggressive, foundry applications
- IMPROVED PERFORMANCE! RIghtCut wheels for cutting only
- Over 50% more life; the true choice for broad versatility and better value, to lower production costs.
- Less pressure required for first cut

## **ROUGH GRINDING**

# DEPRESSED CENTER WHEELS

# NORTON GEMINI ALUMINUM OXIDE

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



FEATURES	BENEFITS
Quality aluminum oxide	Consistent performance at a competitive price
Gemini Contaminate Free INOX/SS	<ul> <li>Contain &lt;0.1% iron, sulphur or chlorine for rust-free and corrosion-free results; will not contaminate stainless steel</li> </ul>
<ul> <li>1/8" and 1/4" thick Gemini XXL grinding wheels</li> </ul>	<ul> <li>Fastest 100% aluminum oxide grinding wheels in the market today</li> <li>50% more life and metal removal than standard aluminum oxide wheels</li> <li>Best on hard-grade carbon steel applications, weld repairs, flashing, and any job that requires a quick turnaround</li> </ul>
.040 an .045 ultra-thin Gemini RightCut wheels for cutting only	<ul> <li>Precise cutting; very stable, with a narrow pass</li> <li>Up to 70% longer life and 20% faster cut rate than standard aluminum oxide wheels – for substantial savings</li> <li>Require less pressure, providing increased operator comfort</li> </ul>
Gemini Aluminum wheels	Grind aluminum and soft metals without loading     Contain no wax or rubber fillers

# NORTON METAL / NORTON MASONRY

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



FEATURES	BENEFITS
Low initial price point	Ideal for small-volume jobs where performance need not be measured
Metal – aluminum oxide	Engineered for all steel/ferrous materials
Masonry – sharp silicon carbide	<ul> <li>Engineered for all masonry materials such as concrete, brick and asphalt</li> </ul>

# NORTON DIALAST DIAMOND WHEELS





#### FEATURES BENEFITS

- A combination of high-quality diamond and advanced brazed single-layer bonding technology
- Extra-long life versus conventional abrasives or other vacuum-brazed diamond tools
- Retains the diamond grains and wheel shape for full life with low sparks, while keeping a continuous grinding depth for exceptional wheel life
- · Less blade changes reduce downtime and labor costs

Environmentally mendly gri	uainí
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• Generate minimal dust for less clean-up and safer working conditions

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



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

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

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



SIZE (D x T x H)

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

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

4-1/2 x 1/8 (5/32) x 5/8-11 13,580 4-1/2 x 1/8 (5/32) x 7/8

# **ROUGH GRINDING** DEPRESSED CENTER WHEELS



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

13.580

12 225

12,225

10.185

10,185

8.600

8,600

6.600

6,600

See Type 27  $.040 - \frac{1}{4}$ " Foundry, Type 28 Saucer, Type 27 Flexible, and Type 29 Blending Wheels at the end of this section.



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

DEPRESSED CENTER WHEEL DESCRIPTION CODES									
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= Aluminum	= Foundry	= Masonry	= Stainless	= Steel / Metal					