

## FEATURED PRODUCTS



UPGRADED PERFORMANCE

### NORTON QUANTUM (5NQ)

BEST CHOICE FOR VERSATILITY, MAXIMUM PERFORMANCE AND COST SAVINGS

#### FEATURES

- Revolutionary, engineered ceramic grain shape and chemistry with proven bond technology – green
- NEW! Coolest cutting, high-speed, precise form holding Vitrium 3 VS3 Bond

#### BENEFITS

- Versatile; for all low, medium and high force applications ranging from cast iron, to stainless steel and hard-to-grind Inconel and titanium
- Perform well on old and new machines
- 33% to 100% longer life vs. competitive ceramic products
- 30%+ higher metal removal rate
- 15%+ lower threshold power
- Lowest total grinding costs
- Highest productivity; lowest cycle and process time; most accurate finished parts



UPGRADED PERFORMANCE

### NORTON SG

BEST CHOICE FOR HIGH PRODUCTIVITY, LOW TOTAL PER-PART GRINDING COST

#### FEATURES

- High-performance seeded gel ceramic aluminum oxide abrasive
- Self-sharpening abrasive
- High performance VS and VSP bonds
- NEW! coolest cutting, high-speed, precise form holding Vitrium 3 VS3 Bond
- Provide sharp edge on tools and dies
- 5SG – durable Norton SG and aluminum oxide blend – blue
- NORPOR 3SGR – Norton SG and 48A abrasive blend with VP2 porous bond – purple

#### BENEFITS

- Fast stock removal, cool, superior cutting
- 3X - 5X more life than aluminum oxide wheels
- Double rough stock removal rate versus conventional abrasives
- Less burn, less dressing; very consistent performing wheel
- Versatile; exceptional form holding
- Highest productivity; lowest cycle and process time; most accurate finished parts
- Longer life of tools and dies in production
- High stock removal rates, excellent productivity, long wheel life, low overall grinding cost
- Maximum productivity in heat-sensitive, heavy stock removal operations



### NORTON 32A

BETTER CHOICE FOR MEDIUM TO HEAVY STOCK REMOVAL

#### FEATURES

- Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive – purple

#### BENEFITS

- Free cutting on a wide range of applications and materials
- Outstanding form holding



### NORTON 38A

GOOD CHOICE FOR LIGHT GRINDING OF TOOL STEELS

#### FEATURES

- White, friable abrasive grain
- Consistent quality
- NORPOR 38A – most friable, aluminum oxide abrasive with VP2 porous bond – white
- Versatile

#### BENEFITS

- Cool and burn-free cutting; ideal for heat-sensitive applications with light to moderate feed rates
- Excellent balance and dimensional accuracy time after time
- Exceptionally cool cutting in light pressure grinding applications, or heat-sensitive applications
- Ideal for use across a broad variety of tool steels



### NORTON GEMINI ALUMINUM OXIDE

GOOD CHOICE FOR USE ON GENERAL PURPOSE APPLICATIONS; ECONOMICAL

#### FEATURES

- Durable aluminum oxide abrasive and strong vitrified bond – Blue
- Versatile, economical

#### BENEFITS

- Consistent stock removing performance on narrow to medium contact areas; cool cutting
- Ideal when numerous small jobs are run on one machine
- The choice when initial price is the main purchasing criterion

ID and Race Wheels



ID and Race Wheel FastTrack Availability

Type 01 Straight

Diameter: 0.164" thru 4.532"

Thickness: 0.150" thru 2.750"

Type 05 Recessed One Side

Diameter: 0.407" thru 4.625"

Thickness: 3/16" thru 3.100"

<b>ABRASIVE</b>	25A, 32A, 38A, 48A, 53A, 57A	5TG**	Quantum (NQ) 1SG, 3SG, 5SG	32AA
<b>GRIT</b>	46* - 120	80/1, 120/1	36 - 150	46 - 80
<b>GRADE</b>	J - P	I - M	I - N	I - M
<b>STRUCTURE</b>	6	8	6	6
<b>BOND</b>	VFL	VFL	VFL	VFL
<b>SPEED</b>	8,500 SFPM***			
<b>TREAT 22</b>	Available for Quantum (NQ) 32A, and 53A			

\* 46 GRIT ONLY AVAILABLE IN .312 DIAMETER  
 \*\* 5TG IS AVAILABLE IN /1 COMBINATION, ONLY  
 \*\*\* SPEEDS UP TO 12,500 SFPM BY REQUEST AND SAFETY APPROVAL

For more program details, ask your Norton sales representative to review the First Line VFL ID & Race Wheel Brochure #6981 with you.

Vitrified First Line (VFL) ID and Race Wheel availability encompasses over 1,000 wheel sizes and most abrasive types. These high-performance wheels are made-to-order and shipped within two weeks of receipt of your order.

Additional dimensions and grinding faces are available as made-to-order products with 4-week lead-times.

Vitrified Wheels For Steel Applications

AVAILABILITY

TIER:  
 BRAND:  
 TRADENAME:  
 ABRASIVE:



SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 01 Straight</b>									
2 x 1/2 x 3/8	16,235	10/50			32A60-KVBE	66243428214			
3 x 1/4 x 1/2	10,825	10/50			32A60-KVBE	66243528696			
3 x 1/2 x 3/8	10,825	10/50			32A60-KVBE	66243528825	10/50	38A60-JVBE	66243529032
3 x 1/2 x 1/2	10,825	10/50			32A60-KVBE	66243528828			
3 x 1 x 1/2	10,825						1/10	38A60-MVBE	66243529145
	10,825						1/10	38A80-MVBE	66243529146
4 x 1/4 x 1/2	8,120	1/10			32A60-KVBE	66243529532	1/10	38A60-KVBE	66243529777
	8,120						1/10	38A100-IVBE	66243529782
4 x 1/4 x 3/4	8,120	1/10			32A60-KVBE	66243529736			
4 x 1/2 x 1/2	8,120	1/10			32A46-KVBE	66243529845	1/10	38A60-KVBE	66243529947
	8,120						1/10	38A100-KVBE	66243529954
4 x 1/2 x 3/4	8,120	1/10			32A60-KVBE	66243529849	1/10	38A60-KVBE	66243529961
	8,120	1/10			32A80-KVBE	66243529850			
4 x 1 x 1/2	8,120						1/10	38A60-MVBE	66243530126
5 x 1/4 x 1/2	4,970	1/10			32A60-KVBE	66252830572			
6 x 1/8 x 1-1/4	4,140	1/10			32A80-KVBE	66252835361	1/10	38A150-LVBE	66252835506
6 x 1/4 x 1/2	4,140	1/10			32A60-KVBE	66252835784			
6 x 1/4 x 1-1/4	4,140	1/10			32A60-KVBE	66252835786	1/10	38A60-KVBE	66252835803
	4,140						1/10	38A80-KVBE	66252835807
	4,140						1/10	38A150-KV	66252835759
6 x 1/2 x 1/2	4,140	1/10			32A60-KVBE	66252836394	1/10	38A60-KVBE	66252836530
	4,140						1/10	38A80-KVBE	66252836548
6 x 1/2 x 1-1/4	4,140	1/10			32A46-KVBE	66252836380	1/10	38A46-KVBE	66252836520
	4,140	1/10	5SG60-KVS	66252803344	32A60-KVBE	66252836396 B	1/10	38A60-KVBE	66252836533
	4,140	1/10			32A80-JVBE	66252836405	1/10	38A80-KVBE	66252836550
	4,140						1/10	38A120-KVBE	66252836664
6 x 3/4 x 1/2	4,140	1/10			32A60-KVBE	66252837420			
6 x 3/4 x 5/8	4,140						1/10	38A60-KVBE	66252837444
6 x 3/4 x 1-1/4	4,140	1/10			32A60-KVBE	66252837421	1/10	38A60-KVBE	66252837445
6 x 1 x 1-1/4	4,140	1/10			32A60-KVBE	66252837921 B			

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS S = SINGLE PACK

Vitrified Wheels For Steel Applications CONTINUED

AVAILABILITY



TIER:  
BRAND:  
TRADENAME:  
ABRASIVE:

**BEST**  
Norton  
**QUANTUM / NORTON SG**  
Ceramic Alumina

**BETTER**  
Norton  
**32A / 48A**  
Aluminum Oxide

**GOOD**  
Norton  
**38A / GEMINI**  
Aluminum Oxide

SIZE (D x T x H)	MAX. RPM	MIN./STD. PKG.	SPEC.	PART #	SPEC.	PART #	MIN./STD. PKG.	SPEC.	PART #
<b>Type 05 Recessed One Side</b>									
1-1/2 x 1 x 3/8	21,645	5/40			32A60-KVBE	66243427937			
Recess 1/S 3/4 x 1/2									
2 x 1 x 3/8	16,235	5/40			32A60-KVBE	66243428329			
Recess 1/S 3/4 x 1/2									
2 x 1-1/2 x 5/8	16,235	10/30			32A60-KVBE	66243428332			
Recess 1/S 1 x 3/4									
7 x 3/4 x 1-1/4	3,600	1/10	5SG46-IVS	66252941976	32A46-HVBE	66252942209	1/10	38A46-IVBE	66252942222
Rec 1/S 2-3/4 x 1/4	3,600	1/10	5SG60-IVS	66252942312	32A46-IVBE	66252942211	1/10	38A60-IVBE	66252942225
	3,600	1/10			32A46-JVBE	66252942213			
	3,600	1/10			32A60-IVBE	66252942217			
	3,600	1/10			32A60-JVBE	66252942218			
	3,600	1/10			32A60-KVBE	66252942205			
7 x 3/4 x 1-1/4	3,600						10/10	Gemini 46-J	66253246826
Rec 1/S 3 x 1/4	3,600						10/10	Gemini 60-J	66253246830
7 x 1 x 1-1/4	3,600	1/10	3SGR46-HVP2	66252916228	32A46-GVBEP	66252942826			
Rec 1/S 2-3/4 x 1/2	3,600	1/10	5SG46-IVS	66252942318	32A46-HVBE	66252942688			
	3,600	1/10	5SG46-JVS	66252942427	32A46-HVBEP	66252942828			
	3,600	1/10	5SG60-JVS	66252942431	32A46-IVBE	66252942691			
	3,600	1/10			32A46-KVBE	66252942708			
	3,600	1/10			32A60-IVBE	66252942699			
	3,600	1/10			32A60-JVBE	66252942701			
	3,600	1/10			32A60-KVBE	66252942703			
	3,600	1/10			48A46-HVP2	66252916232			
7 x 1 x 1-1/4	3,600	1/10	5NQ46-IVS	66253350691	32A46-HVBE	66252942689	1/10	38A46-HVBE	66252942707
Rec 1/S 3 x 1/2	3,600	1/10	5SG46-IVS	66252901814	32A46-IVBE	66252942690	1/10	38A46-IVBE	66252942809
	3,600	1/10	5SG60-IVS	66252906907	32A60-IVBE	66252942686	1/10	38A46-KVBE	66252942793
	3,600	1/10					1/10	38A60-IVBE	66252942815
	3,600	1/10					1/10	38A60-JVBE	66252942816
	3,600	1/10					1/10	38A60-KVBE	66252942817
	3,600	1/10					10/10	Gemini 46-H	66253246831
	3,600	1/10					10/10	Gemini 46-J	66253246835
	3,600	1/10					10/10	Gemini 60-J	66253246839
7 x 1-1/4 x 1-1/4	3,600	1/5			32A46-HVBE	66252942833			
Rec 1/S 2-3/4 x 5/8	3,600	1/5			32A60-IVBE	66252942859			
	3,600	1/5			32A60-JVBE	66252942835			
7 x 1-1/2 x 1-1/4	3,600	1/5			32A46-IVBE	66252942843			
Rec 1/S 2-3/4 x 3/4	3,600	1/5			32A60-IVBE	66252942844			
8 x 3/4 x 1-1/4	3,105	1/10			32A46-IVBE	66253044213			
Rec 1/S 3-1/4 x 1/4									
8 x 1 x 1-1/4	3,105						10/10	Gemini 46-H	66253246849
Rec 1/S 3 x 1/2	3,600						10/10	Gemini 46-J	66253246850
8 x 1 x 1-1/4	3,105	1/10	5SG46-IVS	66253013543	32A46-IVBE	66253044790			
Rec 1/S 3-1/4 x 1/2	3,600	1/10	5SG46-JVS	66253003301	32A46-JVBE	66253044382			
	3,600	1/10			32A60-IVBE	66253044753			
	3,600	1/10			32A60-KVBE	66253044810			
10 x 3/4 x 2	2,485	1/-			32A60-JVBE	66253160189			
Rec Side A									
5 x 3/16 Face Bev									
Side A 75 Deg									
From 1/8" Flat									
12 x 1-1/2 x 3	2,070	1/-			32A46-IVBE	66253263186			
Rec 1/S 6 x 1/2									
12 x 1-1/2 x 5	•	1/-	3SGR46-HVP2	66253220904	32A46-HVBEP	66253263180	1/-	38A46-IVBE	66253263175
Rec 1/S 7-1/2 x 1/2	2,070	1/-	5SG46-GVSP	66253263127	32A46-IVBE	66253263166			
	2,070	1/-	5SG46-IVS	66253202883	32A46-JVBE	66253263169			
	2,070	1/-	5SG60-IVSP	66253263050	32A46-KVBE	66253263170			
	2,070	1/-			32A60-KVBE	66253263172			

• 12" TYPE 05 WHEEL MAXIMUM RPM: NORPOR VP2 WHEELS = 2,710; ALL OTHERS = 2,070

## How to Read an Abrasive Product Specification

Conventional Grinding Wheels																	
32A			46			I			8			V			BE		
ABRASIVE			GRIT SIZE			GRADE			STRUCTURE			BOND TYPE			NORTON SYMBOL		
ALUMINUM OXIDE	CERAMIC ALUMINUM OXIDE	SILICON CARBIDE	ZIRCONIA ALUMINA	COARSE	MEDIUM	FINE	SOFT	MEDIUM	HARD	RELATIVE GRAIN SPACING	Resin = B Shellac = E Plastic = P Rubber = R Vitrified = V	Designates a variation or modification to bond.					
23A	OXIDE	37C	4NZ	12	30	80	D	I	Q	↑ ↓	2						
25A	3SGP	39C	4ZF	16	46	100	F	K	S		4						
32A	3SGR	Crystolon	5ZF	20	54	120	G	L	T		5						
32AC (blend)	5SG	Masonry	AZ (blend)	24	60	150	H	M	U		6						
38A	BRG		BlueFire		70	220		N	V		8						
48A	SG		Charger					O	Y		12						
53A	SXG		(blend)					P	Z		16						
55A	NorZon Plus		NZ								19						
57A	(blend)		NZC (blend)								25						
U57A	NQ Quantum		NZIII								28						
64A	Targa		NZIV														
86A			NorZon														
90A			ZI														
Alundum																	
FabCut																	
India																	
Gemini																	
Metal																	
Vortex																	

## Shelf Life and Proper Storage of Grinding Wheels

It has always been Saint-Gobain Abrasives recommendation that resinoid bonded grinding wheels be used within 2 years from the date of manufacture. This recommendation assumes that resinoid bonded grinding wheels have been stored under ideal storage conditions. It might be true that under ideal storage conditions resinoid bonded grinding wheels can survive without any degradation in strength for well over two years. However, it is always wise to suspect any wheels over two years old and have them reinspected or re-speed tested to determine if there has been any degradation in strength. If the wheels are stored under less than ideal conditions, they might have a much shorter shelf life depending upon the severity of storage conditions. These same comments also apply to rubber and shellac bonded grinding wheels.

As for vitrified grinding wheels, the shelf life is less influenced by humidity and adverse storage conditions as compared to resinoid, rubber or shellac, but even vitrified grinding wheels do not have an infinite shelf life. The best procedure and the best rule of thumb is to have any wheel that is two years old or older re-speed tested and reinspected to ensure it is fit for use. The procedure for having this done and the charges will be explained by our Customer Service Department, but the cost of shipping as well as the cost of re-inspection is the customer's responsibility. Also, any wheels rejected or otherwise lost in the re-inspection process will also be the responsibility of the customer.

Keep in mind, however, that this procedure is good to verify the reliability of a product but must not be performed until you are ready to consume the wheel. If wheels are sent back after the two year time frame for re-inspection and re-testing and then put back on the shelf, there is no telling how long they will be fit for use after that last inspection. Therefore, these wheels must be consumed as soon as is practical.

