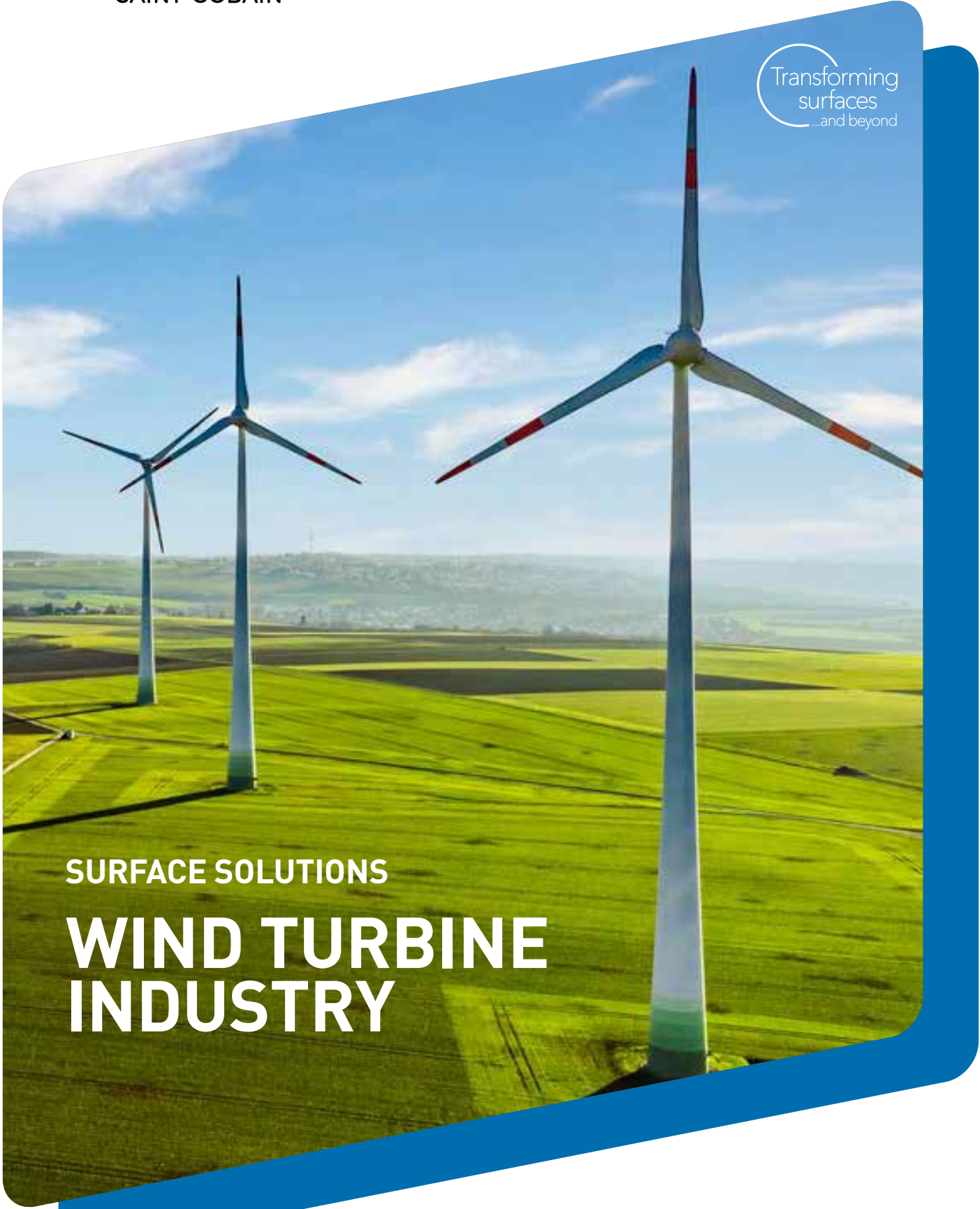




SAINT-GOBAIN

Transforming  
surfaces  
...and beyond



**SURFACE SOLUTIONS**

# **WIND TURBINE INDUSTRY**



# SURFACE SOLUTIONS FOR THE MANUFACTURING & MAINTENANCE OF WIND TURBINES

With the surge in demand for renewable energy, the production of both land and offshore wind turbines is advancing swiftly. The material requirements within this sector are constantly evolving, propelled by relentless technological innovation.

The choice of abrasives plays an essential role in the production of wind turbine components such as rotor blades, vanes, towers and nacelles. Employing high-performance abrasive tools allows for ensuring optimal quality and durability, enhancing process efficiency, and improving surface finish, all while reducing overall costs.

Norton provides powerful, precise, and user-friendly abrasive solutions engineered to cut, shape, and finish aluminium and composite materials in the most challenging applications. From cutting discs and grinding wheels to fibre discs and sanding brushes, our abrasives are designed to handle the intricate and demanding tasks of wind turbine manufacturing and maintenance, delivering the highest quality standards.

## DIFFERENTIATION IN THE RANGE

We have one of the widest selections of abrasive products to meet every customer requirement. The range is classified into four quality-tiers (good/better/best/Innovation) to help you choose the right product for your specific application.

<b>INNOVATION</b> Norton's innovative abrasive solutions offer outstanding productivity and versatility.		
<b>+++</b>	<b>++++</b>	<b>+++++</b>
<b>GOOD</b>	<b>BETTER</b>	<b>BEST</b>



## WIND TURBINE TOWER GRINDING

Grinding is a critical process in wind turbine tower manufacturing, ensuring structural integrity, precise fitting, and smooth surface finish. The key to achieving the necessary precision and durability lies in selecting the right abrasives. Norton high frequency grinding wheels and innovative fibre discs are designed to deliver unrivalled grinding performance, significantly improving overall process efficiency.

### NORTON QUANTUM3 **INNOVATION** HIGH FREQUENCY GRINDING WHEELS

- Optimised wheel for use on high frequency machines under high pressure, extra safe in all working conditions
- Self-sharpening ceramic grain technology for high material removal and less grinding time
- More comfortable to use with reduced hand fatigue from less cutting vibration
- Longer wheel life means less downtime and waste, fewer wheels needed



TYPE	DIA (mm)	TxB (mm)	SPEC	PK QTY	ART. NO.
TYPE 27	180	7.0 x 22.23	NQ 24 P	10	66253371364
	230	7.0 x 22.23	NQ 24 P	10	66253371365



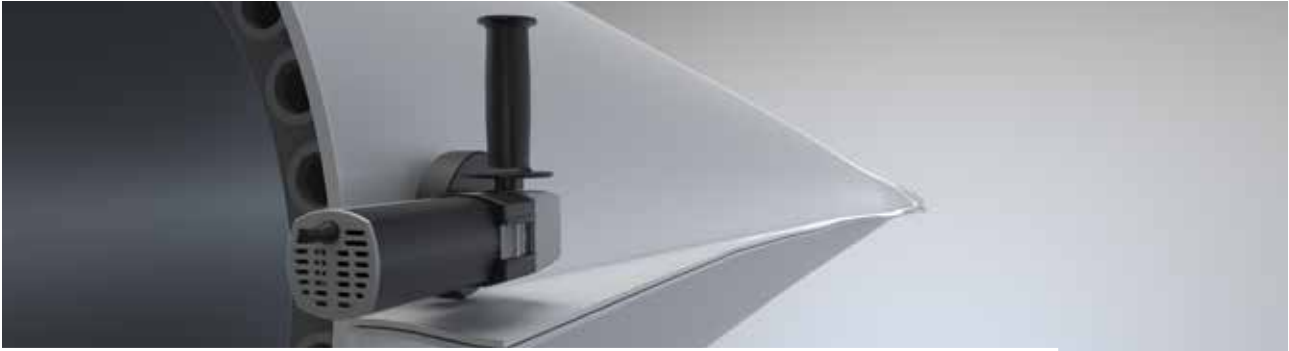
### NORTON RAZORSTAR® FIBRE DISCS **INNOVATION**

- A breakthrough innovation of razor-sharp ceramic grain with a tough microstructure cuts faster and removes more material
- Free cutting action and reduced vibration for better operator comfort
- Up to 50% higher material removal rate and longer lifespan when using an HF angle grinder



SIZE (mm)	GRIT	MAX. RPM	PK QTY	ART. NO.
115 x 22	36+	13300	25	66254434179
125 x 22	36+	12000	25	66254434181
180 x 22	36+	8500	25	66254434506





# EDGE TRIMMING AND ROOT CUTTING

After the two blade shells are joined together, the subsequent crucial step is edge trimming and joint cutting. This process is imperative to achieve a homogeneous and smooth surface, free from any interruptions or imperfections. Norton Winter electroplated diamond wheels are a top choice for wind turbine joint removal operations due to their exceptional precision and efficiency.

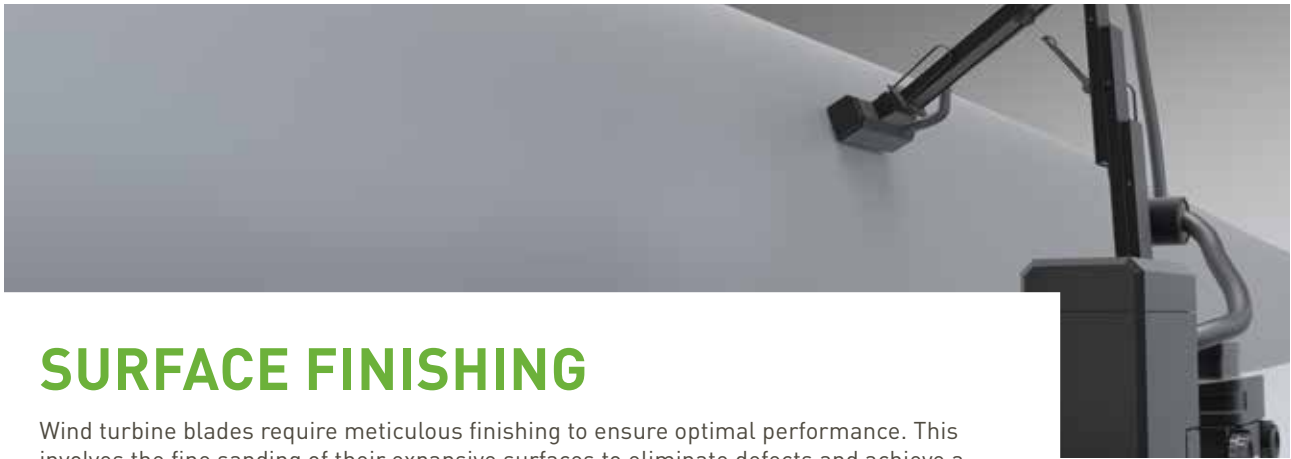
## NORTON WINTER ELECTROPLATED DIAMOND WHEELS

- Engineered diamond cutting discs provide long-lasting durability and high cutting speeds
- Maintain low operating temperatures when working with fiberglass or carbon fibers
- Discs can be regenerated multiple times at Norton Winter facilities, offering a cost-effective high-performance solution



DxLxH (mm)	ABRASIVE	GRIT	ART. NO.
550 x 5.3 x 60	D - Diamond	D851	66260268616
550 x 5.3 x 60	D - Diamond	D1001	66260268617
550 x 6.0 x 60	D - Diamond	D851	66260268609
550 x 6.5 x 60	D - Diamond	D1001	66260268610

\* Made-to-order, other sizes available on request



## SURFACE FINISHING

Wind turbine blades require meticulous finishing to ensure optimal performance. This involves the fine sanding of their expansive surfaces to eliminate defects and achieve a uniform finish. Two main techniques are employed: manual sanding with premium ceramic products on a roto-orbital machine, delivering both consistent cuts and durability, or semi-automatic sanding with diamond stripes for faster, cleaner, and more controlled results. Each method offers unique benefits, enhancing the quality and productivity of blade production. Norton offers a comprehensive array of abrasives customised for each application type.


## AUTOMATED APPLICATION

### NORTON PRIME SANDING BRUSHES


- Enhanced dust removal for a cleaner workspace
- Superior durability compared to conventional abrasives
- Faster sanding for greater efficiency
- Optimal surface prep for improved blade performance
- Precise finishing control without blade damage

#### Brush Configuration Details:

- Manual Machine: Each brush mounts 20 strips, alternating between 10mm and 17mm cuts for optimised performance
- Automatic Machine: Each brush features a mix of synthetic and abrasive strips, totalling 54 strips (27 synthetic + 27 abrasive) for versatile application

MANUAL MACHINE	SIZE (mm)	TYPE / GRIT	MOQ (kit)	ART. NO.
	100 x 45	RazorStar 36+	5	66254459697
		Snake 120	5	66260273350
		Snake 200	5	66260273354
		Ladybug 120	5	66260273355
		Ladybug 200	5	66260273356

Each kit includes 10 strips with 10mm cuts and 10 strips with 17mm cuts

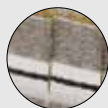
AUTOMATIC MACHINE (ENABL TYPE)	SIZE (mm)	TYPE / GRIT	MOQ (kit)	ART. NO.
	800 x 50	RazorStar 36+	1	66254459738
		Snake 120	1	66260273357
		Snake 200	1	66260273358
		Ladybug 120	1	66260273359
		Ladybug 200	1	66260273360
		Synthetic brush	1	66254459740

Each kit includes 13 strips with 10mm cuts and 14 strips with 17mm cuts, except for synthetic brushes, which include 27 strips without cuts

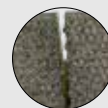
#### NORTON PRIME SANDING BRUSHES ARE AVAILABLE IN THREE ABRASIVE TYPES:



**RazorStar®:** Engineered shaped ceramic grain with a unique patented geometry and razor-sharp tips, providing unbeatable grinding performance.



**Snake:** Featuring a unique wave design with a high content of diamond abrasives, ensuring superior durability and precision.



**Ladybug:** Diamond abrasive with a dot pattern, offering increased flexibility and efficient swarf removal during cutting.

## MANUAL APPLICATION

### NORTON RAZORSTAR® FIBRE DISCS

**INNOVATION**

- Recommended for putty removal, ideal for sanding and levelling tough materials

- Razor-sharp ceramic grain with a tough microstructure cuts faster and removes more material, delivering high-quality smooth surface finishes and increasing overall process efficiency



SIZE (mm)	GRIT	MAX. RPM	PK QTY	ART. NO.
115 x 22	36+	13300	25	66254434179
125 x 22	36+	12000	25	66254434181
180 x 22	36+	8500	25	66254434506

### MULTI-AIR® BLAZE PAPER DISCS A995

**+++++**

- Ceramic aluminium oxide abrasive ensures fast cut rate and unique Norton Multi-Air hole configuration maximises dust extraction for a clean work environment and less contamination; delivers cool, fast, consistent cut rate with a long life

- Unique fibre reinforced, flexible D-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 with no colour transfer to work



SIZE (mm)	GRIT	PK QTY	ART. NO.
150	80	50	78072756402
	120	50	78072756403
	180	50	78072756405
	320	50	78072756407

### MESHPower™ CERAMIC DISCS M920

**+++++**

- Mesh backing enables excellent dust extraction, for a cleaner working environment and less clean up time
- Ceramic grain provides the highest cutting performance thanks to its microfracturing properties, meaning the abrasive stays sharper and lasts longer than aluminium oxide products

- Self-grip backing for a quick and easy disc change
- Abrasive can be used wet or dry for the perfect result
- No defined hole pattern saves time and effort aligning holes, just apply and go



SIZE (mm)	GRIT	PK QTY	ART. NO.
150	80	50	69957325723
	120	50	69957325730
	180	50	69957325731
	320	50	69957325733

## MULTI-AIR® BACK-UP PADS



SIZE (mm)	TYPE	PK QTY	ART. NO.
150	Soft	1	63642560605
	Medium HT (suitable for Festool and Rupes)	1	63642585872
	Medium HT - Fixed screw (Compatible with most common brands such as Dynabrade, Rupes, except Festool. No Adapters & spacers)	1	63642582245
	Hard	1	07660719198
	Adapter for Rupes SK2	1	66261131280

## TRANSFORM YOUR SANDING OPERATIONS WITH ISYBOT

**ISYBOT** specialises in designing and manufacturing industrial collaborative robots (CoBots) that safely work alongside human operators.

ISYBOT's innovative solutions effectively address the challenges of worker-machine collaboration by:

- **Boosting Productivity:** Increase efficiency in non-automated and unpredictable tasks, freeing skilled workers for more complex duties.
- **Streamlining Workflows:** Assign strenuous tasks to CoBots, ensuring smooth production flow and reducing the risk of musculoskeletal disorders (MSDs).
- **Enhancing Job Appeal:** Empower workers to act as CoBot pilots, restoring the appeal of manual tasks and improving job satisfaction.



### WHY CHOOSE ISYBOT?

- **High Transparency:** The mechanics allow the robot to move effortlessly without disrupting the operator's intended trajectory.
- **User-Friendly Operation:** Operators can intuitively program the CoBot using just two push buttons, with no prior robotics training required.
- **Agility:** ISYBOT provides continuous control during sanding without needing prior knowledge of the workpiece shape. It adapts to any workpiece and can be easily moved between stations.

**Contact our experts to learn more how ISYBOT and Norton can revolutionise your surface operations.**

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Sustainable European Abrasive Manufacturers