3M Science. Applied to Life.™

Shaping the future

New Local Belt Model

- Improved lead times
- Reduced order quantities
- New 3M™ Cubitron™ II material & grades

CUBITRON™ II Scotch-Brite™ Trizact™

CUBITRON™ II

Forget everything you know about grinding with abrasive belts

3M™ Cubitron™ II Abrasive Belts have set the world standard for cutting speed and belt life. Now, our expanded lineup of Cubitron II belts gives you more choices of grades, sizes and constructions – so you can enjoy the same world-class performance in applications ranging from high pressure automated grinding to low and medium pressure offhand applications.

Cubitron II belts continue to raise the bar for grinding performance and productivity – thanks to a breakthrough 3M technology that re-writes the rules for speed, consistency and belt life.

- Average up to 30% faster cutting on hard-to-grind metals than the next-best competitive belt.
- Cuts cooler – diverts heat from the workpiece and belt to the swarf.
- Helps eliminate burnishing and heat stress.
- Lasts up to 4 times as long as conventional ceramic aluminum oxide belts.
- Now available in more belt sizes, grades and constructions, for applications ranging from high pressure, automated grinding to low and medium pressure offhand operations.

Improved Productivity

"With Cubitron II belts, we've reduced belt changeover time by over 50%."

– Casting House

Shaping a new era

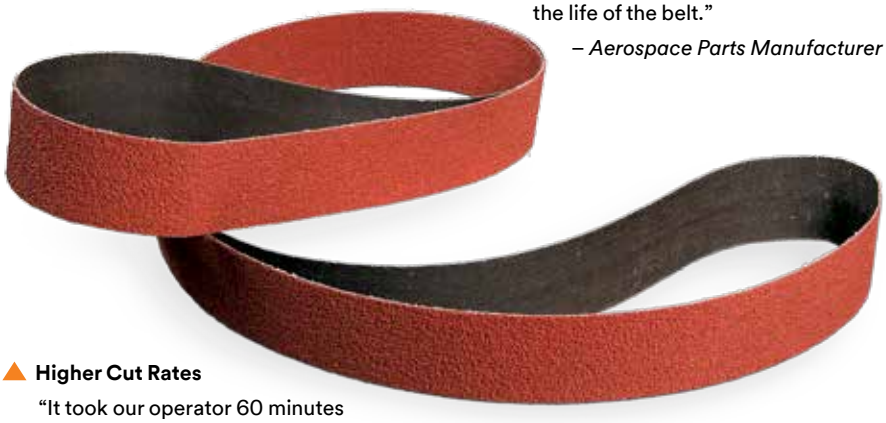
As shown by the sparks in this photo, Cubitron II abrasives divert heat to the swarf, keeping both the workpiece and the belt cooler.

The secret behind the revolutionary performance of new Cubitron II belts lies in their proprietary triangular-shaped abrasive grain. These self-sharpening triangles are designed to fracture as they wear, continuously forming new, super-sharp points and edges that slice cleanly through the metal like a knife, instead of gouging or plowing. This prevents heat from building up in the workpiece – reducing heat-related stress cracks and discoloration. And, because the abrasive itself stays cooler and sharper, it lasts up to four times as long as conventional ceramic grain belts!

Less Operator Fatigue

"Because Cubitron II belts cut faster, nearly all operators report that much less pressure is required throughout the life of the belt."

– Aerospace Parts Manufacturer



Higher Cut Rates

"It took our operator 60 minutes to complete a work order using a competitor's belt. He completed the same size work order in just 45 minutes, using a Cubitron II belt."

– Precision Casting Company

Longer Belt Life

"I was able to get three times the life with the 994F 36+ versus the competitive ceramic belt. Not only did this increase my productivity but it also reduced the hassle of belt changeover."

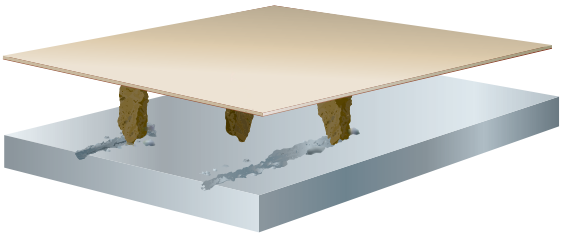
– Foundry Operator

▲ Cuts Cooler, for Improved Part Quality

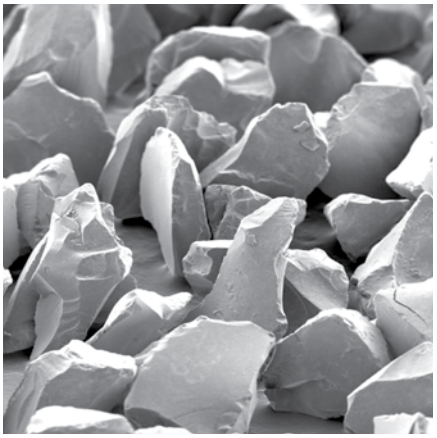
"We processed 24 parts with no heat stress using a single Cubitron II belt, versus a competitive belt that showed signs of heat stress on the very first part."

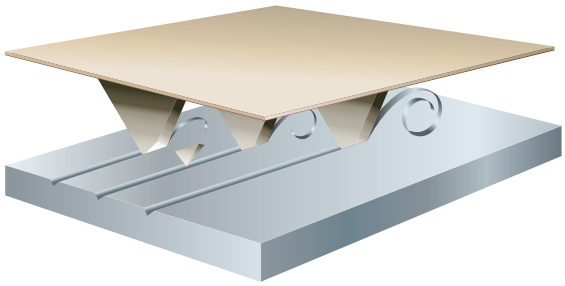
– Investment Casting Company

# of grinding performance

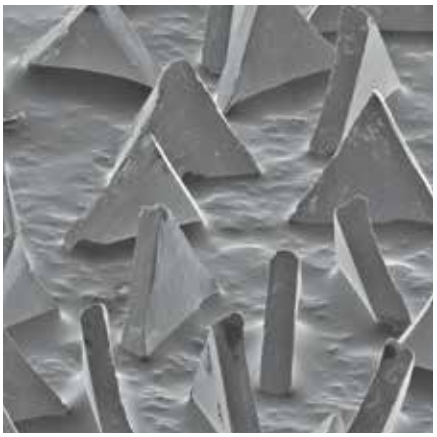


Conventional ceramic abrasive grain is irregular and blocky in shape. Instead of a clean, machining action, the grain tends to "plow" through the metal, causing heat to build up in the workpiece and the abrasive – resulting in a slower cut, shorter belt life and undesirable effects, such as burnishing.





The new precision-shaped grain found in 3M™ Cubitron™ II Belts combines the advanced material properties of our original Cubitron grain with the precise microreplicated structures pioneered in 3M™ Trizact™ Abrasives. As the triangular shaped grain wears, it continuously fractures to form sharp points and edges. The result is a belt that cuts faster, stays cooler and lasts up to 4 times longer than the next best competitive belt.



How cool is this?

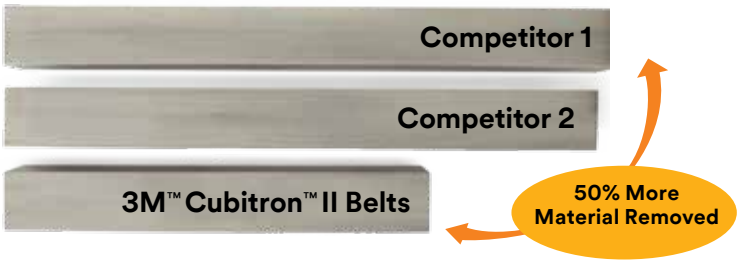
3M™ Cubitron™ II Belts are engineered to run cooler, eliminating metal discoloration/ oxidation and reducing the chance of heat-related stress cracks.

3M Cubitron™ II 984F 36+ | Competitive Belt 1 | Competitive Belt 2 | Competitive Belt 3

This photo shows four identical 304 stainless steel bars after nine grinding cycles of ten seconds each. While the three bars that were ground using conventional ceramic abrasive belts show varying degrees of oxidation, the bar ground with a Cubitron II belt is free of burnishing.

No contest

Cubitron II vs. Conventional Grain Competitors



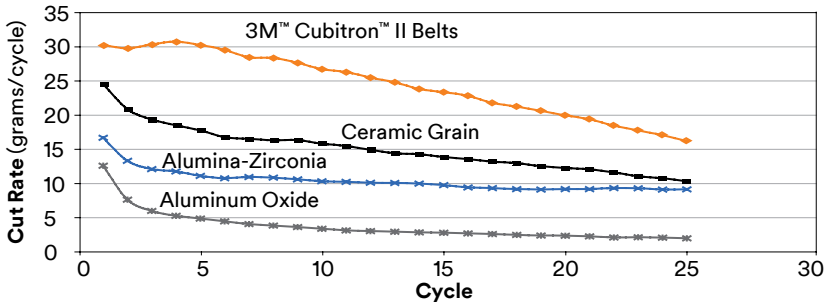
This photo shows three identical 304 stainless steel bars after nine grinding cycles of ten seconds per cycle using equal pressure. In that time, the Cubitron II belt removed more than 50% more metal than the so-called “next-generation” ceramic grain abrasive.

Taking productivity to the next level

3M™ Cubitron™ II Belts not only last up to four times longer than conventional ceramic abrasive belts, but also cut faster throughout their life. This translates to more finished parts per belt per hour – and more profit to your bottom line.
But no belt can live up to its full potential – unless your employees see the benefit. That’s where Cubitron II belts can really push your productivity over the top.

For example, many operators report that Cubitron II belts run smoother, and cut fast with less pressure. This can mean less operator fatigue and greater comfort – which in turn can lead to fewer errors, greater consistency and improved employee morale.

3M™ Cubitron™ II Abrasive Belts cut faster!

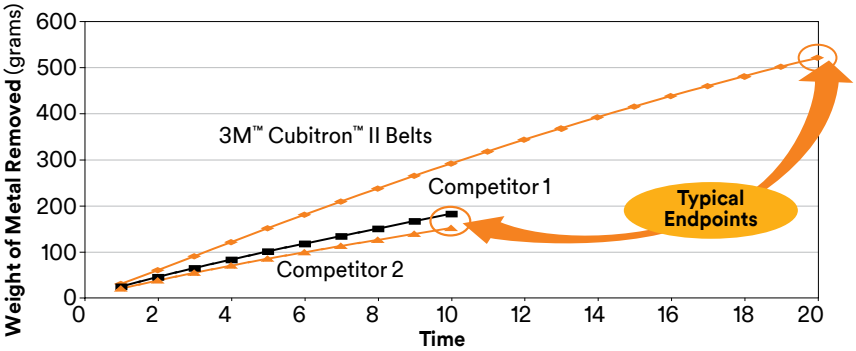


The evolution of high-performance grinding abrasives

In their day, each of the three competitive abrasive technologies shown on this graph represented a major advance in grinding performance. Now, in side-by-side comparisons of cutting rates on stainless steel, Cubitron II sets a new standard in productivity.

3M™ Cubitron™ II Abrasive Belts last longer!

Cumulative Cut, SS304: Typical End Point

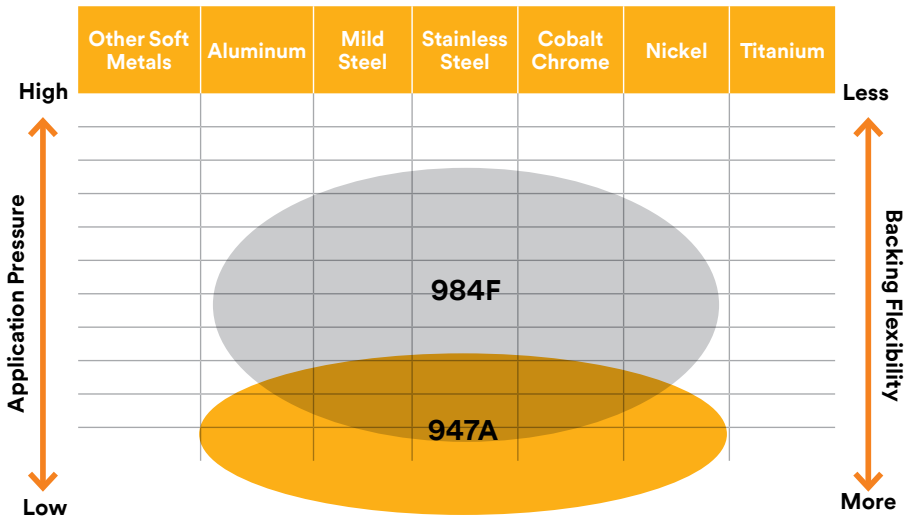


3M surveys indicate that most operators stop using a belt when performance drops to 2/3 of its initial cut rate. As this graph shows, Cubitron II belts take twice as long to reach that end point as conventional ceramic abrasive belts. In addition, Cubitron II belts cut faster throughout their entire life. Bottom line? Not only is more work done per unit of time, but also much more total work per belt.

Our new lineup of 3M™ Cubitron™ II Abrasive Belts

984F YF-weight backing excels in medium/high pressure stainless, cobalt chrome and nickel alloy applications

947A X-weight poly-cotton backing provides greater flexibility – optimized for low/medium pressure applications on stainless, mild steel and aluminum



The new world standard for cutting speed and belt life

3M™ Cubitron™ II Abrasive Belt Selection Guide

Because of the enhanced efficiency and durability of Cubitron II belts, you can use a similar or finer grade than your current belt, while enjoying significantly faster cut rates and longer belt life. And in many cases, by switching to a Cubitron II belt, you can reduce the number of steps in your sequence, without sacrificing surface finish.

Substrate	Portable/File Tool	Slack of Belt Sander	Stroke Sander	Benchtop Belt Machine	Backstand Offhand	Centerless and Roll Grinding	Flat Finishing
Mild Steel	947A/984F	947A	947A	947A/984F	947A/984F	984F	984F
Stainless Steel	947A/984F	947A	947A	947A/984F	947A/984F	984F	984F
Cobalt & Nickel Alloys	947A/984F	947A	–	947A/984F	947A/984F	984F	984F
Aluminum, Brass, Bronze	947A/984F	947A	947A	947A	947A	984F	984F

Product ID	Grades	Backing	Stiff/Flexible	Pressure	Wet/Dry
947A	40+, 60+, 80+, 120+	X Wt Poly/Cotton	Flexible	Low/Medium	Dry
984F	36+, 60+, 80+, 120+	YF Wt Polyester	Stiff	Medium/High	Wet/Dry

All belts will be converted locally to any width up to 300mm.
Minimum order quantity is based on 300mm divided by the width (300mm / 50mm wide belt = 6 Belts).

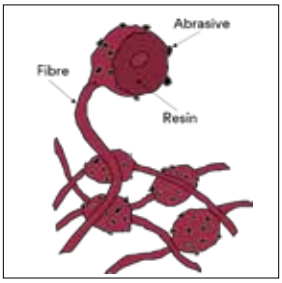
Scotch-Brite™

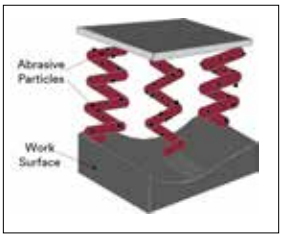
Non-woven technology

3M first invented the category of “non-woven abrasives”. Our Scotch-Brite™ Non-woven Web binds together synthetic (nylon) fibres and abrasive particles to create three-dimensional material. This web has a spring-like action allowing conformance to contours, edges and corners. What’s more, our non-woven web is engineered to continually expose fresh abrasive to the work surface.

The uniform mineral gives consistent performance throughout its life and improves the quality of your work piece. As a result it will provide a consistent, smooth finish to various surface types and not alter the geometry of the workpiece.

The web is free from metal residues and will not contaminate the workpiece surface. It also resists chemical attacks providing a longer life. The open weave of the web provides ventilation which dissipates heat so avoids burning, warping, discolouring and reduces loading (clogging).





Surface Conditioning Belts

The easiest way to a perfect finish. Choose Scotch-Brite Surface Conditioning Belts for cleaning, finishing, blending and deburring. The reinforced backing offers good flexibility whether working on a file belt or backstand. An ideal way to add a great finish or remove burrs without gouging or undercutting the work piece.

Trust Scotch-Brite Belts to deliver fantastic finishes.

FEPA (P-Grade)	Micron Grade	SC Belts/ Discs
P1500		Super Fine
P1200	15	
P1000	20	
P800		Very Fine
P600		
P500	30	
P400		
P360	40	
P320		
P280	50	
P240	60	Medium
P220		
P180	80	
P150	100	Coarse
P120	120	

Versatile Abrasive:

Tackling Metals and Wood

Scotch-Brite™ Surface Conditioning belts work well to remove coarse grindlines, mill marks, or small burrs left by cutting tools or conventional abrasives. Abrasive belts come in many different widths and lengths and are used on a variety of different belt sanding tools for many different applications on both metal and wood.

Hard-Working Minerals:

Aluminium Oxide and Silicon Carbide

We manufacture Scotch-Brite™ Surface Conditioning Belts with a choice of silicon carbide or aluminium oxide abrasive mineral. Silicon carbide is a synthetic mineral that is very sharp and commonly used for low-pressure applications such as paint prep and finishing. Aluminium oxide is a hard, blocky mineral that provides high cut-rate and long life. While silicon carbide breaks down faster than aluminium oxide, it produces a finer finish.

Product ID	Grades	Backing	Stiff/Flexible	Pressure	Wet/Dry
3M™ Scotch-Brite™ Belt	A-CRS	Scrim	Flexible	Low/Medium	Dry
	A-MED				
	A-VFN				
	S-SFN				

All belts will be converted locally to any width up to 300mm.
Minimum order quantity is based on 300mm divided by the width (300mm / 50mm wide belt = 6 Belts).

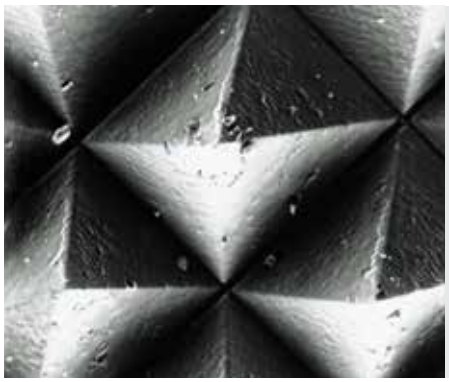
Microreplicated technology

3M invented microreplication technology, which is the science of creating small, precisely shaped three-dimensional structures and then reproducing them on a variety of surfaces. The unique microreplicated contsruction used in 3M™ Trizact™ can deliver consistent, predictable finishes, more even rates of cut, cooler grinding and finishing temperatures and reduced processing steps.

Trizact abrasives were developed with polishing in mind.

The difference is in the construction

Trizact abrasives allow you to say “goodbye” to erratic, inconsistent finishes generated by conventional coated abrasives. Here’s why:



Three-dimensional structures uniformly distributed over the entire surface of 3M™ Trizact™ Abrasives (shown left) ensure cocnsistent performance and eliminate belt-to-belt variation. Conventional abrasives, which feature randomly arranged minerals, wear and finish unevenly.

Trizact™

3M™ Trizact™ 237AA

3M™ Trizact™ Cloth 237AA is a good match for finishing and polishing on stainless steel, mild steel, high nickel alloys, titanium and aluminum and is designed to usher in those final touch-ups and refinements that come at the end of an abrasive sequence.

We chose an X-weight cloth backing for 3M™ Trizact™ Cloth 237AA because of its strength and rigidity. This cloth stays tough when bent or rolled and won’t tear or shell. It’s desirable for workpieces that have already been shaped and prepped by grinding and deburring, because, at this stage in the process, parts often require an abrasive that won’t yield or deflect when run. Aluminum oxide mineral cuts sharp but leaves a soft scratch pattern, ultimately producing a smooth, brushed finish. We offer 3M™ Trizact™ Cloth 237AA in a variety of grades, so operators can choose the right grade for their unique application.

Trizact Abrasive Grade	FEPA (P-Grade)
A5	P2000
A6	–
A10	P1500
A16	P1200
A20	P1000
A30	P600
A35	–
A45	P400
–	P320
A60	–
A65	–
A75	P240
A80	–
A90	P220
A100	P180
A110	P180
A130	P150
A160	P120

Trizact Abrasive Grading System

The unique construction of Trizact abrasives requires a different grading system. Grade is defined by the average particle size in microns an begins with an “A”.

Product ID	Grades	Backing	Stiff/Flexible	Pressure	Wet/Dry
3M™ Trizact™ Belt 237AA	A160	X-Weight Cloth	Flexible	Low/Medium	Dry
	A100				
	A65				
	A45				
	A30				
	A16				
	A6				

All belts will be converted locally to any width up to 300mm.
Minimum order quantity is based on 300mm divided by the width (300mm / 50mm wide belt = 6 Belts).

At 3M, product innovation is just the beginning.

All belts will be converted locally to any width up to 300mm.
Minimum order quantity is based on 300mm divided by the width (300mm / 50mm wide belt = 6 Belts).

Please contact your local 3M Authorised Partner for additional information

3M

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