

Xebec Deburring and Finishing Solutions – A Guide to Choosing the Right Tool, Optimizing Performance and Maximizing Tool Life

Xebec: It’s More than a Brush – It’s a Cutting Tool

Automating deburring and finishing [in your CNC machine, with a robotic arm or in another application](#) can have noticeable – and even unexpected – benefits. That is, if you choose the right tools for your applications, use them properly and optimally, and take measures to preserve and maximize their expected life.

Sounds simple, right? Unfortunately, there are instances where manufacturers aren’t realizing the full potential of their advanced tools due to underutilization, misuse or under-optimized processes. They’ve invested in a tool that can offer great returns, but they’re only receiving a fraction of those returns.

To provide the best solution for your application, our experienced representatives work side-by-side with manufacturers to ensure success with our unique deburring and finishing tools, making suggestions and offering expert guidance. With this critical support, we’ve seen manufacturers achieve optimal results and maximum returns.

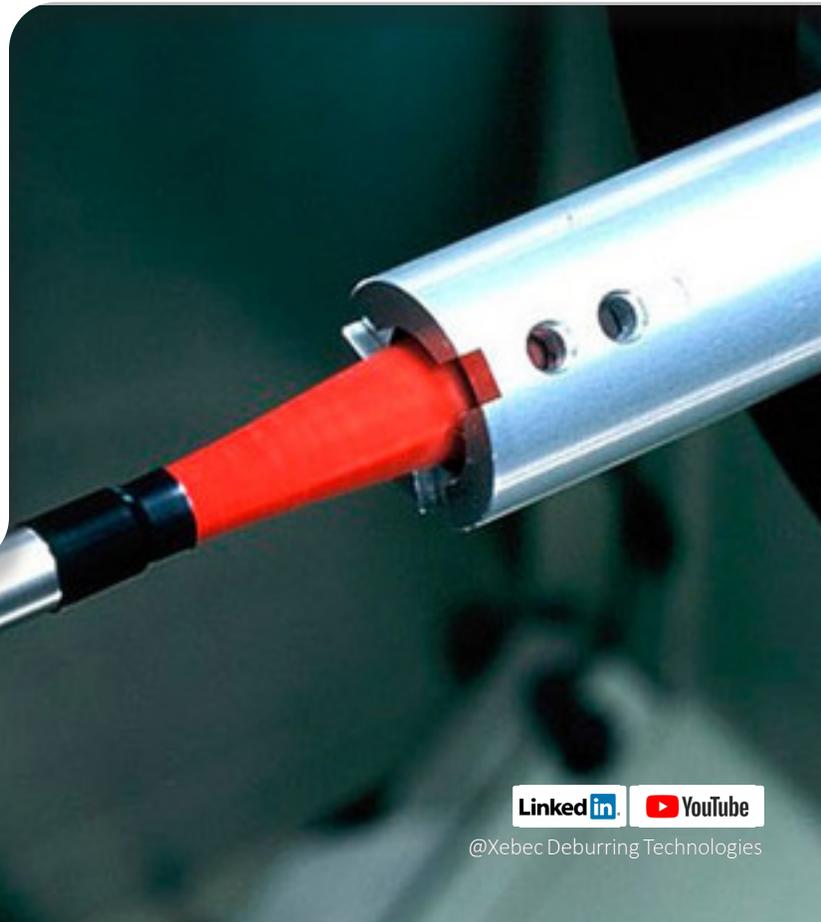
Xebec solutions are optimally suited for [industries where consistent high quality, tight tolerance finishes are critical](#), such as:

- Aerospace
- Energy
- Firearms
- Medical
- Powertrain

Automated Deburring and Finishing in One Step with Xebec Solutions

So why is Xebec different from other commonly used deburring products? [A Xebec brush performs more like a cutting tool](#), especially compared to alternatives like impregnated nylon brushes. Xebec brushes are made of proprietary ceramic fibers that have been manufactured into “bristles,” or rods, of different thickness. The continuous ceramic fiber gives Xebec brushes **60 times more grinding power compared to nylon brushes**. It also makes them more durable, long-lasting, efficient and consistent. They won’t deform, and they can work hard metals. You’ll get high-quality results and be able to perform high-precision work – faster and more reliably.

However, if you aren’t using the brush optimally and as intended, you’re likely selling yourself short on the full extent of benefits these tools can offer.



Optimize Performance and Maximize Tool Life of Xebec Tools

[Xebec ceramic fiber brushes are top-tier deburring tools](#) that stand to provide tremendous returns on investment (ROI). They:

- Are easily automated.
- Can deburr and edge finish, remove cutter marks [and polish surfaces simultaneously](#).
- Can be used in CNC machining centers, robots, additive manufacturing, custom machines and drilling machines.
- Have the longest tool life on the market.
- Have proprietary continuous ceramic fiber bristles

- with significant cutting and grinding power.
- Won't deform but have flexibility to conform to part features.
- Have a patented Xebec sleeve to allow for strength and consistency.
- [Perform more like cutting tools](#), with 60 times more grinding power than nylon brushes.

For a manufacturer or machining center to realize the full potential of Xebec tools, [they must use the tools correctly to maximize their tool life](#).

Start by Choosing the Right Tool

The brushes are available in a variety of sizes and colors [to fit different manufacturing applications](#), processes and material conditions.

Brush Types

- **Surface Brush:** Ideal for simultaneously deburring & finishing edges.
- **Extra Large Surface Brush:** Ideal for minimizing cycle time by reducing number of passes.
- **Crosshole Brush:** Ideal for horizontal holes or deep parts.
- **Wheel Type:** Ideal for deburring & polishing of side surfaces and inner diameters.
- **End Type Brush:** Ideal for flat and curved surface by preventing undulation.

Brush Colors

- **Pink:** Pink is the least aggressive brush type and won't change a part's dimensions or features.
- **Red:** Red is the next-least aggressive brush and will conform to slight workpiece variations.
- **White:** White is a more aggressive brush that can run at high speeds.
- **Blue:** Blue is 3 to 4 times more aggressive than white.

Selection Criteria

- **Target material:** [What material are you working with?](#)
- **Target burr size:** What burr root thickness are you working with?
- **Target finish:** [What surface roughness spec do you need to meet?](#)

Choosing a Brush

- **Aggressiveness:** Thicker bristles will have more aggressive cutting action.
- **Flexibility:** Your brush needs to be able to conform to the workpiece you're applying it to.
- **Size:** For optimal grinding power and efficiency, you need a brush that's 1.5 to 2 times wider than the width of the workpiece surface.

Use the Tool Optimally

Xebec’s one-of-a-kind brushes act like cutting tools and it’s important to follow parameters for brush projection, workpiece engagement and other specs.

Brush Projection: The brush projection from the sleeve should be set according to the brush size you use. Below 0.2”, grinding power will increase and finish may be affected.

Workpiece Engagement: The workpiece setup and how brushes are engaged makes a difference. It’s critical to operate within the recommended range of maximum speed of rotation, depth of cut and feed rate.

- Depth of cut
- Direction of feed
- Feed rate
- Rotational speed
- Rotational direction

Maximize Tool Performance

Xebec brushes are top performers – if you maximize that performance. Here are our tips for doing so:

Initial Deburring Operation

- Processing is the most effective using the tips of the ceramic fiber rod (not the sides).
- For the depth of cut, use 0.5mm to 1.0mm as a guideline, up to 1.5mm.
- Increase RPM up to the maximum allowed.
- Decrease feed rate in 10% increments.
- Do not change original parameters but increase number of passes.
- Try a more aggressive brush that will increase grinding power.

Adjustments for Improved Results

- Attaching the Xebec Brush to the Xebec Brush Sleeve allows the projection of ceramic fiber rods to be adjusted for fine tuning, flexibility and trackability. Longer projection increases trackability and flexibility, while shorter projection decreases it.
- Increase rotational speed in increments of 25%. Do not exceed Maximum RPM.
- Increase the number of passes. Each pass will improve finish by approximately one half.
- Decrease feed rate in increments of 10 to 20%.
- Use a more aggressive color of brush.

Adjustments to Increase Grinding Power

- Decrease feed rate
- Increase rotational speed
- Increase depth of cut

Adjustments to Decrease Grinding Power

- Increase feed rate
- Decrease rotational speed
- Decrease depth of cut



Maximize Tool Life for Greater ROI

When used properly, like a cutting tool, Xebec brushes have the longest tool life in the market. Here are our expert tips for ensuring longevity and getting the most out of your investment.

- Securely install the brush into the chuck of the machine and confirm there is no clearance between the end face of the sleeve flange and the chuck.
- Use coolants or oil to extend tool life.
- Don't use under excessive depth of cut or grind load.
- Don't use beyond the projection range of the brush beyond the sleeve.
- Collect any dust and keep the equipment clean when using on high-precision processing equipment.
- Use a dust collecting device to collect the dust produced during dry processing.
- Do not use the tool at an unreasonable angle or under excessive pressure.
- If the brush deforms, stick polishing paper onto a board and gently rub onto the tip to adjust the form of the brush. You can do the same for the dressing.

