

EDU[**CAD**]TION **STUDY GUIDE**

How to Improve Edge Quality with Tumbling and Deburring

Chapter 5, Lesson 13

SendCutSend

What is Deburring?

- Deburring is the process of removing sharp edges, burrs, or slag left behind after laser cutting.
- The goal isn't to achieve a perfect finish, but rather to create a safe, smooth, and ready-for-use part that's also prepared for later finishing processes like anodizing or powder coating.
- SendCutSend offers two primary deburring options:
 1. **Tumbling**
 2. **Linear Deburring**

Linear Deburring

- Deburring removes burrs using a belt sanding process, feeding flat parts through a machine equipped with abrasive belts. While the belt creates a directional grain, this is not the same as linear graining, which is a true finishing process.

Key Notes:

- Removes sharp burrs but does not roll edges
- Not designed for deep surface finishing.
- Slight blemishes may remain; the focus is strictly on removing laser slag.
- Minimum part size is critical, parts must maintain roller contact throughout the process.

Part Size Limitations:

- **Minimum Length:** Must stay in contact with both rollers during processing.
- **Maximum Width:** Limited by the belt width of the machine.
- Manufacturers like SendCutSend define safe size limits automatically during checkout.



Figure 1.1

Tumbling

- Tumbling uses small pieces of media (ceramic, plastic, or similar materials) inside a rotating drum or vibratory bowl to gently erode burrs and soften edges.

Key Notes:

- Produces a semi-uniform, stone-ground finish, smooth but not perfectly consistent.
- Does not remove deep scratches or provide a mirror polish.
- Smaller holes (like 0.040") may not be affected if media can't reach inside.
- Great for prepping parts for secondary finishes like anodizing or powder coating.

Why Use Tumbling:

- Breaks sharp edges and reduces burrs.
- Improves part handling safety.
- Provides an overall smoother surface feel.
- Helps with adhesion for coatings and finishes.



Brass: Unfinished (top) Tumbled (bottom)

Figure 1.2

Comparison: Tumbling vs Linear Deburring

Use tumbling or linear deburring when:

- You want safer, smoother edges.
- Your part will be handled frequently.
- You plan to apply coatings or finishes.
- You need improved surface prep without cosmetic perfection.

Choose tumble deburring over linear deburring when:

- Your part is made of ferrous metal (steel).
- Your part is no larger than 4" x 7" and no smaller than 3".
- Your parts are not fragile or contain fine details or thin sections.
- Your parts will be handled a lot. Linear deburring leaves a sharper edge.

Tumbling vs Deburring: Sheet metal parts with linear deburring on the left, and tumbling on the right (see Figure 1.3).



Figure 1.3

Summary

Deburring transforms raw, sharp-edged parts into safe, touch-friendly components ready for handling or finishing. Whether you choose tumbling for smoother rounded edges or linear deburring for flat precision, both methods help ensure your SendCutSend parts look and feel production-ready. In the next lesson, we'll explore finishing techniques starting with additive coatings.

Learn more at <https://sendcutsend.com/education/>