Gerber has expanded its portfolio of routing bits to meet your demanding cutting needs. New Gerber Platinum Bits utilize the latest in cutting technology to provide a cleaner cut edge and faster cut speeds through better chip removal. You can achieve superior results and improved efficiency from Platinum's specialized bit geometry designed for specific substrates and applications. These bits offer an extended bit-life when used for their specified purposes.

Gerber uses a unique application code system to identify each bit's purpose and etches it right into the bit shank. You'll always know you're using the right bit for the job.

Our popular Gerber Gold bit series continues to be a good choice for general applications and we also offer a wide variety of specialty bits.
UNDERSTANDING THE DIMENSIONS

When selecting straight router bits, you should understand how to select the correct sizes according to your material. The image below illustrates the various dimensions of a router bit.

C.E.L.  
Cutting Edge Length is the distance from the cutting end of the bit to the furthest cutting edge of the bit. This is the maximum cutting depth of the bit. Using a bit that is too long will increase your chance of breaking the bit during the cut due to chatter or wobble.

C.E.D.  
Cutting Edge Diameter is the width of the bit at the widest point of the cutting edge. This is used to determine the size of the hole that will be created by the bit.

O.A.L.  
Overall Length is the total length of the bit from cutting edge to the end of the shank. If your bit is too long, it may not provide the proper clearance for hovering over your materials during non-cutting moves.

SHANK DIAMETER  
The shank diameter is the measured width of the section of the bit that your collet holds onto. Make sure you have the correct collet or adapter sleeve for this dimension.

SHANK LENGTH  
The shank length is the measured length of the section of the bit that your collet will hold onto.

FLUTE  
The flute is the negative area where cut chips can collect and be channeled out of the cutting area. The shape and direction of the flute will determine the discharge direction of the chips during removal.

WHICH BIT TO USE?

C.E.L.  
Matching your C.E.L. (Cutting Edge Length) to your cutting depth will best ensure that you are not using a bit that is too long. Using a bit that is much longer than your cutting depth will increase the chance of vibration or chatter, which can cause bit breakage and poor edge quality.

C.E.D.  
When selecting which C.E.D. (Cutting Edge Diameter) to use, you should consider the radius of the bit. For an inside corner cut, the sharpness of that corner is going to be determined by the radius of the bit. The smaller the bit, the sharper the corner detail will be. Using smaller bits generally takes longer to cut, and because of their small size, break more readily. See illustration below.

O.A.L.  
Be sure that your bits fit into your collet and do not extend too far or they will not clear your material during dry haul moves.

* In our Gerber Routing and Engraving Bits catalog, we specify the SHANK DIAMETER, CUTTING EDGE DIAMETER, CUTTING EDGE LENGTH, and OVERALL LENGTH. These are the most important dimensions when selecting router bits. It is good to understand the shank length, shank diameter, and flute lengths, but they are not as important in deciding which bit to use.
BALL NOSE BIT
Used for 3D model cutting, this advanced grind technology produces a superior cut in plastics, solid surfaces, aluminum and woods.

- Gerber Platinum 3D Modeling Bits (code 3D)

UPCUT
Provides faster cutting while pulling chips up and out of the work, and toward the router motor.

- All Gerber bits, with the exception of specialty bits and Platinum Laminates & Veneers (code LV), are upcut bits.

COMPRESSION
Provides clean cuts on the top and bottom of the material with both an upcut and downcut at the same time.

- Gerber Platinum Laminates & Veneers (code LV) are compression bits. These bits produce a clean top and bottom edge on single and double-sided laminated substrates.

O FLUTE
Designed to produce a smooth finish. Single “O” flute features increased clearance, resulting in maximum chip flow and elimination of chip rewelding.

Gerber “O” Flute Bits:
- Platinum Aluminum & Wood (code AW)
- Platinum Hard Plastic & Foam (code HPF)
- Platinum Soft Plastic & Foam (code SPF)

SUPER “O” FLUTE
A highly polished O flute that not only allows for easier chip formation and evacuation, but also provides for a sharper cutting edge that delivers a better edge finish on a variety of materials. This is an excellent general purpose tool, capable of cutting wood, plastic, aluminum, and solid surfaces.

Gerber Super “O” Flute Bits:
- General Purpose (code GP)

SINGLE FLUTE
Gerber Single Flute Bits:
- Platinum Aluminum & Wood (code AW)
- General Purpose (code GP)
- Platinum Hard Plastic & Foam (code HPF)
- Platinum Soft Plastic & Foam (code SPF)
- Platinum All Purpose Straight (code APS)
- Gold Two Flute Spiral

DOUBLE FLUTE
Gerber Double Flute Bits:
- Platinum Foams (code F)
- Platinum All Purpose Clean-Out (code APC)
- Platinum Folding Tool (code FT)
- Platinum 3D Modeling (code 3D)
- Gold Two Flute Spiral
TECHNICAL DATA

TOOL MATERIAL
• Solid Carbide*: Provides the best rigidity and long tool life. Primarily used in CNC operations.
  * All Gerber Bits are Solid Carbide construction.

FLUTE GEOMETRY
• Straight Flute: Offers a neutral chip removal resulting in increased force.
• Upcut Flute: Provides excellent surface finish and promotes good chip extraction. Vacuum, fixturing or cutting-to-mask is suggested to reduce chance of part lifting.
• Compression: Used to provide a better finish for both the top and bottom of the part. Primarily used for laminated materials.

NUMBER OF FLUTES
• Single Flute: One flute resulting in larger chiploads.
• Double Flute: Two cutting edges resulting in twice the cutting edge surface per revolution of the tool.
• Multiple Flutes: Allows for the best part finish in harder materials.

Note: As the number of cutting edges increase, your feed rate should increase as well.

OPTIMIZING SPEED AND FEEDS
Adjust the feed rate and RPM from the suggested rates with the following considerations:
1. Watch the edge finish as you increase the feed rate. If the finish starts to get worse or you risk moving the part from the vacuum surface, decrease the feedrate to optimize the edge finish.
2. Decrease RPM until your surface finish deteriorates again. Then increase your RPM until the finish is acceptable.
3. By taking the largest chip possible, you have optimized the speed and feed.

TOOL HEAT
If your bits are heating up, your feed rate is too low. This will result in breakdown of the cutting edge and premature dulling. To check this, run a nest of parts and stop the spindle. Test the bit temperature when the spindle has stopped rotating. If it feels hot to the touch, review the Optimizing Speed and Feeds section above.

GLOSSARY OF TERMS

APC (Gerber Code) | All Purpose Cleanout
APS (Gerber Code) | All Purpose Straight
AW (Gerber Code) | Aluminum & Wood
C.E.D. | Cutting Edge Diameter
C.E.L. | Cutting Edge Length
Chamfer | A cut that is usually at a 45° angle to the adjacent face
Chip Rewelding | Accumulated cut chips that gather together into a solid mass from heat
Collet | A cylindrical clamp that holds the bit
Compression | Multiple direction bits that both upcut and downcut at the same time
F (Gerber Code) | Foams
Flute | The negative area of the bit where cut chips can collect for discharging
FT (Gerber Code) | Folding Tool
GP (Gerber Code) | General Purpose
HPF (Gerber Code) | Hard Plastic & Foams
Kerf | The groove or slit made by a saw, cutting torch, laser or cnc router
LV (Gerber Code) | Laminates & Veneers
O.A.L. | Overall Length
Shank | The shaft end of a bit grasped by the collet
SPF (Gerber Code) | Soft Plastic & Foams
Upcut | The bit direction that pulls cut chips up and out of your work


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