File Bit Selection Guide

A professional reference chart for selecting the right e-file bits based on material, shape, grit, and task requirements safely at home.

1. Core Bit Materials & Functional Limits

Material Type	Primary Mechanical Characteristics & Best Uses	Nail Health & Safety Boundaries
Diamond	Coated with synthetic diamond particles. Excellent for exfoliating dead skin, refining side walls, and gentle cuticle preparation.	Designed strictly for skin and natural nail prep. High friction if held stationary; keep moving.
Tungsten Carbide	Made of hard metal with fluted cutting edges. Shaves off product quickly without clogging. Ideal for acrylic or hard gel removal.	Strictly for enhancements. Never use directly on the natural nail plate to avoid severe thinning.
Ceramic	Fluted porcelain-like material. Reduces heat generation during friction. Great for removing gel polish, builder gel, or acrylics.	Fragile material; can chip if dropped. Safe only for enhancements and product bulk reduction.
Sanding Bands	Disposable paper sleeves placed over a mandrel bit. Perfect for surface etching, smoothing, and roughing up enhancements.	Single-use item for sanitary safety. Use fine grits (240+) and extremely low RPM if preping natural nails.

2. Silhouette Matrix & Boundary Angles

Bit Shape	Structural Profile & Geometry	Primary Purpose & Angle Rules
Flame	Tapered with a slight belly and narrow tip.	Lifts the proximal nail fold and cleans the lateral sinuses. Hold flat at a 10–15° angle.
Ball	Spherical bead shape available in multiple sizes.	Safely exfoliates dead cuticle tissue and rough side walls. Keep parallel to the skin surface.
Barrel (Flat)	Wide cylindrical body with a flat top.	Surface smoothing, shorting enhancements, and flattening. Avoid using close to the cuticle area.
Safety Crown	Cylindrical body with a smooth, rounded top.	Safe back-fill and bulk reduction near the cuticle. The smooth top minimizes accidental cutting.
Cone	Slim, narrowing profile with a blunt or pointed tip.	Cleans underneath the nail extension edge and refines narrow side margins cleanly.

3. Choose-By-Task Speed & Grit Index

Application / Task Step	Recommended Bit & Grid Configuration	Safe Speed Range (RPM)
Cuticle & Pterygium Prep	Fine Diamond Flame or Ball bit	5,000 – 10,000 RPM
Natural Nail Surface Etch	240 Fine Sanding Band / Fine Diamond Buffer	3,000 – 5,000 RPM
Gel Polish / Soft Gel Removal	Fine Carbide or Ceramic Barrel bit	10,000 – 15,000 RPM
Builder Gel / Acrygel Refining	Medium Carbide or Ceramic Safety bit	15,000 – 20,000 RPM
Acrylic Bulk & Length Removal	Coarse Carbide Barrel or Cone bit	20,000 – 25,000 RPM

4. Technical Pro Tips & Maintenance

PRO TIP — Seasoning Brand-New Bits: *Always run a brand-new carbide or diamond bit against a manual emery board file before its first use. This dulls the micro-sharp outer edges slightly, drastically reducing the risk of accidentally cutting or scratching your client's or your own proximal nail folds during practice.*

SAFETY PROTOCOL: *Always verify your e-file's direction setting before starting work. If you are right-handed, use the 'Forward' (FWD) direction and pull the drill from right to left across the nail. This prevents the bit from grabbing the surface and skipping unpredictably onto the skin.*