Drilling Quick Reference

1. Center Drills

• #1 → holes < 1/4″
• #2 → most common, holes up to 1/2″
• #3 → > 1/2″ or when rigidity matters

2. Center Drill RPM

50–75% of same-size twist drill.
Ex: 1/8″ drill @ 2000 RPM → #2 center drill ~1200–1500 RPM.

3. Drill Choice

• HSS → aluminum, brass, mild steel, plastics
• Cobalt (M35/M42) → stainless, hard steels, titanium
• Carbide → very hard materials, rigid setups
• Split-point → reduces walking
• Parabolic → chip clearance in deep holes

4. Drill RPM Formula

RPM = (SFM × 4) ÷ Diameter

Material	HSS (SFM)	Cobalt (SFM)	Carbide (SFM)
Aluminum	200–300	250–350	600–1000
Brass	150–200	180–250	500–800
Mild Steel	80–100	100–140	250–400
Stainless Steel	40–70	60–100	150–250
Plastics	200–400	200–400	400–800

5. Step Drilling

For holes > 1/2″ or tough material:
• Increase by ~30–40% diameter steps
• Ex: 3/4″ hole → 1/4″ → 1/2″ → 3/4″

6. Reaming

Leave 0.010–0.015″ stock (small holes), ~2–3% dia (larger).