

CUTTING DATA

PCD & Carbide Woodworking Tools

Starting parameters for solid carbide router bits, PCD nesting cutters, pre-milling / jointing cutters, trimming tools and PCD-tipped saw blades.

RPM / vf / fz	PCD	Carbide	Panel machining
---------------	-----	---------	-----------------

How to use this guide

For CNC routers, RPM + feed rate + feed per tooth are the most practical. Large saws and jointing tools are commonly specified by cutting speed in m/s.

Solid carbide router bits

Cutter D	RPM	Starting fz (mm/tooth)	Typical use
3-6 mm	18,000-24,000	0.03-0.08	Fine routing
>6-12 mm	18,000-24,000	0.08-0.18	General MDF / plywood
>12-20 mm	16,000-22,000	0.15-0.30	Higher material removal
>20-25 mm	14,000-20,000	0.20-0.35	Large router cutters

Feed relationship

$$\text{Feed } vf \text{ (m/min)} = fz \times \text{RPM} \times z / 1000$$

PCD ROUTING & JOINTING

PCD cutter starting data

Tool family	RPM / Vc	Starting fz	Guidance
PCD Nesting Router Bits	18,000-24,000 rpm	0.18-0.30	MDF / particleboard
PCD Trimming & Finishing	16,000-24,000 rpm	0.15-0.30	Lower chip load for highest finish
PCD Jointing / Pre-Milling	60-90 m/s	0.20-0.40	Large-diameter edgebander / through-feed tools
Carbide finishing router bits	18,000-24,000 rpm	0.08-0.20	Small batch / less abrasive board

SAW BLADES

PCD / carbide-tipped circular saw reference

Application	Recommended Vc	Starting fz
Panel sizing - laminate / HPL	60-90 m/s	0.05-0.12
Compact laminate / dense panel	55-80 m/s	0.04-0.08
High-quality trimming	60-90 m/s	0.05-0.08

Formulas

$$Vc \text{ (m/s)} = D(\text{mm}) \times \pi \times \text{RPM} / (60 \times 1000)$$

Disclaimer: Board type, laminate, tooth geometry and maximum tool RPM are critical. Respect the tool and machine maximum speed.