General Machining Techniques

Formica® decorative laminates have a relatively hard surface, so tool wear will be greater than with most wood based products. Use tungsten carbide tipped (TCT) saws and cutters, or – for longer tool life – use polycrystalline diamond (PCD) saws and cutters.

Circular Saws (Fixed)

The saw blade diameter should be as large as the machine will allow (preferably not less that 150mm) to give the highest available tip speed. For example, a 300mm diameter saw blade with a spindle speed of 3000rpm will give a tip peripheral speed of 45m/s.

Generally, saws should be fine-toothed close-pitched, with alternative teeth top bevelled. Several special saws, such as trapezoidal tooth (triple chip) saws, are ideal for cutting both unbonded and bonded laminates.

Cut the sheet face-up, holding it firmly down on the machine bed to prevent fluttering.

Circular Saws (Portable)

Portable circular saws are particularly useful for on-site work. Their rotational direction requires the sheets to be cut face-down to avoid chipping. A fine-toothed blade is essential to reduce the need for subsequent finishing.

Travelling Saws

The most convenient method of converting large sheets into smaller sized panels is to clamp the sheets and pass a travelling saw across them. These saws range from simple manually-operated machines to the more sophisticated power-operated clamped beam and wall mounted saws.

Band Saws

The band saw is ideal for rough cutting of shaped work. Manganese steel blades with hacksaw-shaped teeth are recommended.

Portable Jig Saws

Jig saws produce cut-outs of any size or shape. The cutting action is upwards, so chip-free cuts are difficult to achieve. Make cuts with a fine-toothed blade, and with the sheet face-down. Where this is not possible, make allowance for the extra finishing necessary to remove edge chipping.

Spindle Moulders

All normal cutting tools can be used in the machining of laminates, but they must be tungsten carbide tipped. High speeds in the order of 5000rpm - 8000rpm give the best results. Milling heads and cutter blocks with disposable TCT cutters (both straight and profiled) provide a convenient and relatively inexpensive method of machining the edges of boards.

Solid tipped cutter blocks with 4 - 10 blades, although expensive, soon pay for themselves in operations such as edge shooting, profiling and edge rebating of panels. They can be used for a considerable time before re-sharpening is necessary, and their weight gives them an inertia that minimises chatter.

When working with laminates face-down on the spindle table, clamp the workpiece to a moving pad to minimise the risk of scratching.

High-speed Fixed-head Routers

Bench high-speed fixed-head routers may be used with single or double flute TCT cutters having an optimum peripheral speed of 10m/s - 15m/s.

Concentric cutters in eccentric chucks give greater clearance, thus cool clean cutting, and longer intervals between sharpening.

Although primarily intended for cut-outs, these machines can be used for many operations such as profiling, edge trimming and grooving. It is not normally necessary for high speed routers to be used at speeds in excess of 18,000rpm - 20,000rpm, if only to avoid the exact balancing requirements at higher speeds. For curved work, first rough-cut the shape on a band saw, leaving 2mm - 3mm all round for subsequent trimming on the router.

Portable Hand-held Routers

Invaluable for clean hole cutting, edge finishing and trimming on-site, these routers are also useful in the workshop for dealing with bulky assemblies. They can be fitted with small saws for on-site edge grooving of panels.

Portable Hand-held Trimmers

Compact hand-held electrical trimmers which operate at speeds of 18,000rpm - 20,000rpm are designed principally for trimming decorative laminates. They are lightweight and easily operated with one hand. Depth of cut is usually controlled by an adjustable guide wheel, and TCT cutters are available for edge trimming at angles ranging from 30° - 90°.

Edge Trimming

There are several machines for volume edge trimming. They will remove excess material from two edges and bevel one or both edges, all in one operation.

Drilling and Hole Cutting

HSS steep spiral drills with a point angle of 60° - 80° instead of the normal 120° are most suitable for small diameter holes. For larger holes (which are best cut from both sides) hole saws, cylinder cutters, trepanning or fly cutters with a centre locating point are all suitable.