EnduraPanel

Bringing **colour** to life

Machining of EnduraPanel

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Cutting Panels

Ensure the panel is well supported either on a table or other panels. Using a clean blanket or similar will reduce the chances of scratching. Make sure to shake off any machine swarf or vacuum clean between operations.

Before cutting EnduraPanel, double check all sizes and geometry. Measure the width, height and triangular distance across opposing corners to determine the size and squareness of the panel required.

Using a suitable marker e.g. ballpoint pen, pencil etc mark out the sizes.

Always use sharp blades suitable for cutting EnduraPanel (see page 3).

Generally speaking, panels can be cut using most commonly accepted practices used for machining MDF.

CNC Router

Flat Bed CNC Routers are ideal for cutting EnduraPanel into almost any shape. A large selection of straight and profile router bits are readily available to produce almost any edge profile.

Laser cutting

EnduraPanel is suitable for laser cutting. As with any CNC process, complex shapes can be produced to high precision and repeatability. An experienced operator is able to achieve an almost perfect mirror-polished edge requiring no finishing.

Due to its highly specialised nature, advice on this method is beyond the scope of this document. Consult an acrylic fabricator for laser cutting contractors experienced in working with acrylics.

Hand and Plunge Router

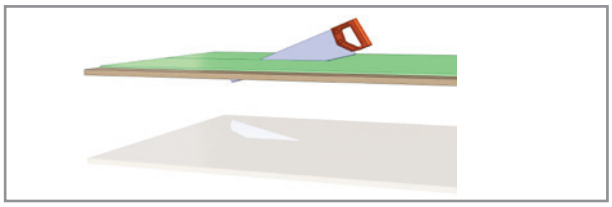
Hand/ plunge routers are easy to use with EnduraPanel. Always clamp work piece solidly and use guides with the router.

Routers are an excellent tool to dress a previously sawn edge which will then require less finishing.

Hand Saw

A fine-tooth finishing saw (at least 10tpi, with minimal set) is recommended for use with EnduraPanel. Hold the saw at a lower angle so that the blade is cutting a larger area. Cut slowly with even strokes keeping cutting force to a minimum.

Cut into a sacrificial MDF board or similar to minimise the chance of edge chipping.



Hand Sawing

Table Saw

EnduraPanel can be cut to size using a circular saw. It is important to use a blade with the correct cutting geometry (see page 3) as this reduces the blade corner chips to an absolute minimum, thereby reducing the possibility of chipping the sawn edge of EnduraPanel.

The most critical times when machining with any circular blade are feed-in and feed-out. Both must be taken very carefully and at a reduced feed rate.

Always allow the panel to pass through the blade at an even rate – never force the panel.

Circular Saw

With quality equipment, an excellent edge finish can be achieved with EnduraPanel. The main factors in achieving the best possible outcome with a circular saw are:

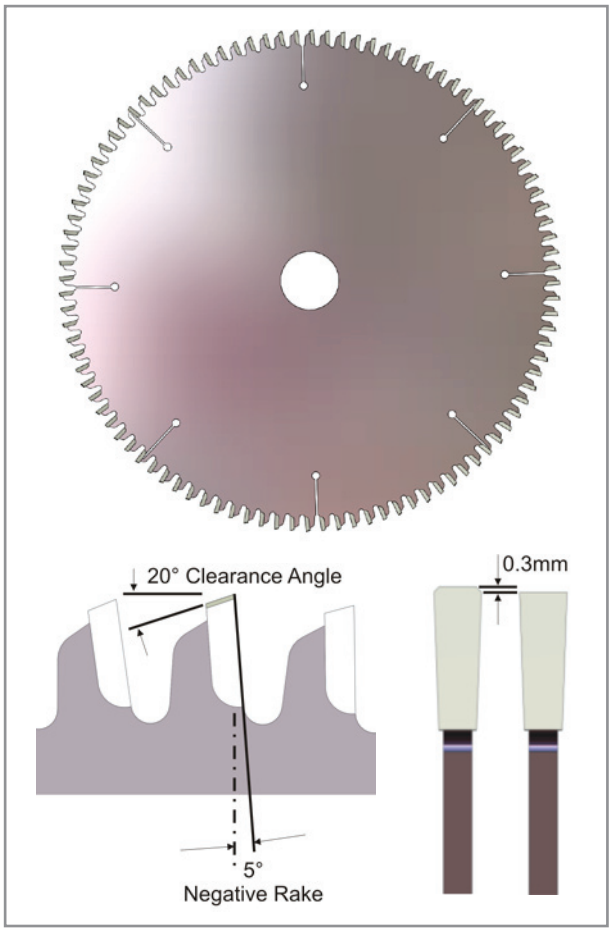
- Panel rigidity. Clamp the sheet on both sides of the cut
- Saw stability. Always use a good quality fence or guide to improve saw stability and straight-line cutting
- Saw bearing quality. The price of a circular saw can be a good indication of the quality of the bearings used inside. Cheaper saws often use bushes that offer little to limit the blade's sideways float, and will begin to wear quickly. This will have a dramatic impact on cut quality
- Blade selection. Always use a blade with the correct cutting geometry. Alluminium blades generally work well with EnduraPanel

Reduce the cutting depth to allow the blade to cut approximately 7mm through the EnduraPanel, preferably cutting into a sacrificial MDF board or similar.

CIRCULAR BLADE GEOMETRY AND CONDITIONS

Circular Blades for EnduraPanel

EnduraPanel is best cut using fine-tooth circular blades with either a 'hollow ground' geometry or a 'triple chip' blade with the following geometry and conditions:



Geometry and Conditions:

Blade Diameter	255-305mm
Number of Teeth	80-100
Tooth Thickness	3-3.5mm
Clearance Angle	15-20°
Cutting Angle (Rake)	-5°
Angle of Setting Band	2-3°
Blade Speed	3000-5000rpm
Surface Speed	3000-4000m/min

Drilling

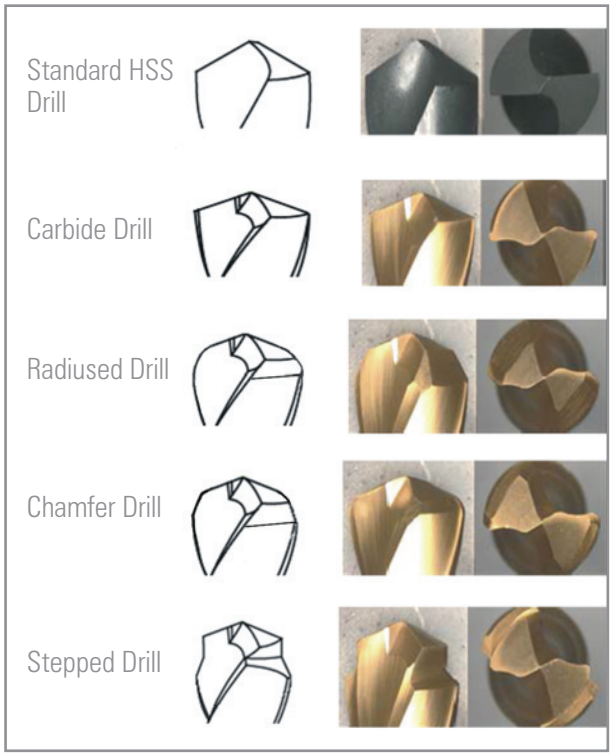
Drilling EnduraPanel is easy and professional results can be achieved following these guidelines:

- Always drill into a sacrificial panel of MDF or similar
- Many different drill forms have been assessed and work well but all should have the cutting edge ground off (blunt) so that the drill 'scrapes' rather than 'cuts' the EnduraPanel
- High cutting speeds are advised and be careful to back off the drilling pressure when breaking though the bottom of the hole

DRILL GEOMETRY

Machine Drilling

Specialised drills are available for drilling EnduraPanel. Most are designed to be used in either CNC machinery or at least a drill press.



Hand Drilling

In most site applications, drill bit options are minimal. In this case the best option is to use a blunt drill as shown below.

Standard sharp drill | Blunt for EnduraPanel

Hole Saws

Hole saws should be sharp, but the pilot drill blunt. It is recommended to drill the hole saw half way through, then turn the EnduraPanel over and finish the hole. This prevents the edge from 'blowing out'. De-bur the edge with 100-grit sandpaper.

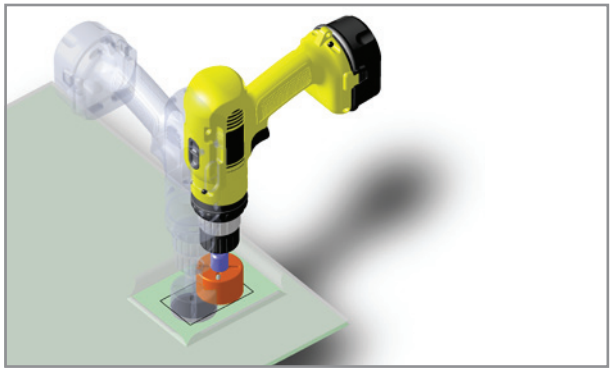
Cutting of Penetrations

When measuring and marking for cut-outs around power outlet boxes etc, ensure enough clearance is given for the switch body and that the cover plates or bulkhead fittings will cover the finished cut-outs.

In wet areas, use an approved sealer to seal the edge and a 50mm perimeter of the painted side of any penetration. Follow guidelines in 'Shower Lining Detail' technical specification.

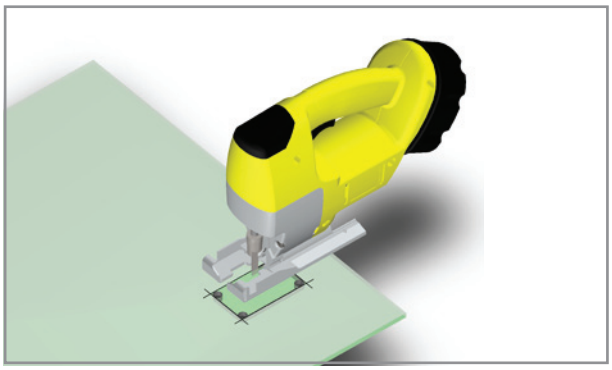
Power Socket: Hole Saw Technique

Determine the position of the outlet on the panel and mark the centre. Now mark 20mm either side of the centre mark. Drill each hole with a 65mm hole saw.



Power Socket: Jig Saw Technique

Determine the position of the outlet on the panel and mark the perimeter of the cut-out. Drill a 10mm hole inside each corner. Insert jigsaw blade and cut along the lines, leaving the radiused corners intact (this prevents stress in the panel)



Finishing the edge after cutting

If the EnduraPanel edge is to be left exposed, it can be easily finished to a polished glass-like quality. A good finish left from the machining process will take considerably less time to finish.

Always peel back the protective film 25mm from the edge while polishing. Remove any sanding dust between grades and polishing compounds immediately.

HAND FINISHING

1. Use a 400-grit paper to remove any cutter marks from the machined edge and then progress to a 600-grit.

2. Chamfer any burrs or swarf from the corners.

3. Using a soft, clean cloth and a suitable polishing compound, hand rub the edge to a polished finish. Follow guidelines in 'Repair & Maintenance' technical specification.

FLAME POLISHING

A well-machined edge can be flame polished using a Hydrogen/ Oxygen mix. Contact an Acrylic fabricator for this service. An experienced operator can leave an excellent finish.

Bending EnduraPanel

6mm EnduraPanel can be cold-bent to a minimum radius of 1000mm.

4mm EnduraPanel can be cold-bent to a minimum radius of 500mm.

It is recommended to clamp the panel while the adhesive cures.

Double-sided tape can also be used to help secure the panel during adhesive curing phase. Follow guidelines in 'Installation to Dry Areas' technical specification.

Cutting EnduraPanel Jointing Systems

EnduraPanel Jointing Systems can be easily cut on a mitre-saw with a fine-toothed blade.