ENG

SAWING THICKER VENEERS

Machining thicker veneers (1 mm, 1.5 mm and 2 mm) is more complicated than machining standard 0.6 mm veneers. Decospan sets out below the key points to bear in mind when machining these products.

CHECKLIST

- **The sawing machine**:

  Make sure that the machine is in good working order. The motors for the main saw and scoring saw must have no radial or axial runout, otherwise it will be difficult to achieve a clean cut with the saw.

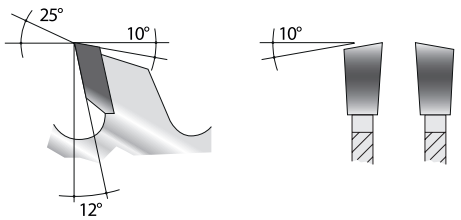
- **The tools**:

  For a quality finish, a main saw and scoring saw that sits in front of the main saw must always be used. The type of tools and the number of teeth on the tools also play an important role. The more teeth there are, the better the quality of the kerf.

- **Type of saw blade**:

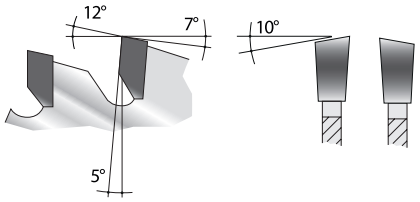
  A saw blade can have teeth with a positive or negative rake angle. Most saw blades available for sawing sheet materials have a positive rake angle. This is not a problem provided the saw blade is in good condition. A saw blade with a positive rake angle is much more aggressive than a blade with a negative rake angle. A negative rake angle gives a cleaner surface cut since the cutting surface of the saw teeth is not pulled through the sheet but cuts through it.

UW CIRCULAR SAW BLADE



Using alternating teeth and a positive cutting angle For splinter-free cutting of veneered sheet materials or sheets with plastic on one side, hardboard, MDF, blockboard and chipboard.

Wneg CIRCULAR SAW BLADE



Using alternating teeth and a negative cutting angle. This saw blade is specifically intended for use on crosscut panel saws, radial saws and shuttle saws.
The negative cutting angle means that the saw blade does not result in tearing of the material to be sawn.

The rake angle generally correlates with the type of teeth.
There are various different types of teeth:

- Alternating teeth
- Flat in combination with trapezoid teeth
- Flat teeth

The saw blades that were used for the simulations given on the back of this document have either alternating teeth or flat and trapezoid teeth. We start from the premise that we are using hard metal for sawing and not diamonds. More specifically, most machines in the joinery have hard-metal saw blades.

PRACTICAL SAWING TIPS

We sawed a panel with thick veneer on the transverse side using two different machines.

1. Manually operated panel saw

The panel saw is equipped with a scoring saw with an adjustable thickness and a fixed saw blade with a diameter of 300 mm, a thickness of 2.4 mm and 96 teeth. The number of teeth plays a crucial role and is related to the diameter of the saw blade and the rate of feed. Clearly, a saw blade with 42 teeth will give a much poorer quality than a saw blade of the same diameter but with 96 teeth. The number of teeth needed to saw thick veneer is 60 for a saw blade with a diameter of 300 mm.

We first set the depth of the scoring saw. The scoring saw be set so that three teeth are proud of the sliding table and, of course, the saw goes through the full thickness of the veneer. The scoring blade ensures that the veneer on the underside if cleanly cut and there is no splintering when the main saw cuts through the panel.

The main saw that is used here has a positive rake angle and alternating teeth. How deep the scoring saw goes can be adjusted. With this split scoring saw, the thickness of the saw blade is automatically adjusted. The depth the scoring saw must go into the panel (extra deep because of the veneer) is between 0.05 and 0.1 mm.

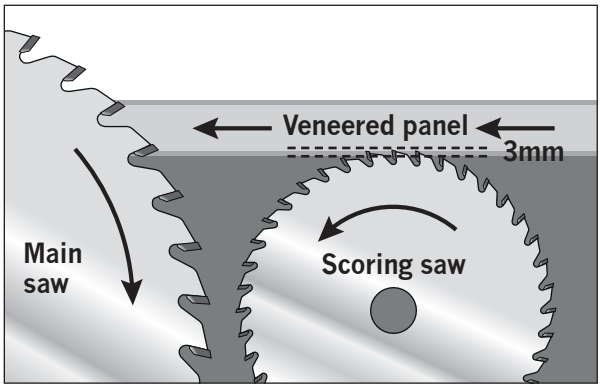
The rate of feed of the panel is about 5 m/min.

2. Automatic panel saw

The difference as compared with the previous machine is that here automatic throughput is used.The scoring saw here has a diameter of 220 mm and 72 teeth.

The thickness of this scoring saw is fixed and is 0.1 mm thicker than the saw blade (300 x 3.2/2.2 x 30). We adjust the scoring saw so that it will go through the thick veneer and is proud of the sliding table by about three teeth. The rate of feed of this machine is constant since it is machine driven and equates to around 10 m/min.

The saw blade that is used here has a positive cutting angle of 12° and flat and trapezoid teeth. This also gives a neater cutting quality.

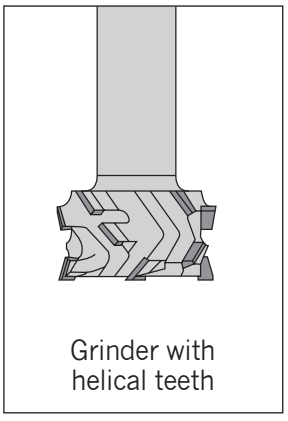


GRINDING THE SIDES

Some all-purpose or one-sided edge-banding machines are equipped with grinders instead of saw blades.

Here, it must be remembered that, in theory, a grinder does not cut as neatly as a saw blade. Consequently, the quality of the tool plays an essential role. The cutting angle of the tool must always be tilted towards the inside of the sheet. The teeth of the grinder pushes the veneer down against the sheet in order the prevent splintering.

The number of teeth and the speed has a major impact on the rate of feed used. With a grinder diameter of 150 mm and Z = 4 (n = 300 rpm), there is a rate of feed of 5 m/min.



Grinder with helical teeth