

The following must be read in conjunction with SP01 General Workshop Safety Rules.

A scroll saw is useful for cutting intricate curves that cannot be cut on any other machine. It has the useful feature that the blade can be placed through a pre cut starting hole. This feature allows interior cutouts to be made without creating an entry slot for the blade through the edge of the work-piece. An example of the work that can be done on a scroll saw is shown in Photo A



The main hazards when operating a scroll saw are: finger / hand injuries caused by contact with the blade and fine dust inhalation.

Safety Rules

1. Wear safety glasses and a dust mask.
2. Never place your hands or fingers directly in line with the blade and keep them at least 75mm from the blade.
3. Always make sure the blade is the proper type for the cut you are planning. *For guidance refer to page 2.*
4. Always install the blade with the teeth pointing forward and down.
5. Always ensure that the blade is correctly tensioned to prevent it from bending or breaking. *For guidance on blade tension refer to page 2.*
6. Never start the saw with the work-piece in contact with the blade.
7. Always hold the work-piece firmly against the table when operating the saw. If you find this difficult, fit the work-piece hold down which should be adjusted to lightly touch the wood.
8. Never force the work-piece into the blade. Apply a slow, even pressure when cutting.
9. Never back out of a cut when the saw is running, always turn off the power first.
10. Always support round stock in a V-block so that it does not roll and jam the blade or break it.
11. Never attempt to cut material that does not have a flat surface under the blade.
12. Never try to cut a small work-piece that is too small to be held safely.
13. Never try to remove small off cuts that are close to the blade when the saw is operating.
14. Never put hands under the table when the saw is operating.
15. Always set the saw speed to its minimum setting before starting the saw then adjust it to the desired speed for the type of cut. *Refer to page 3 for guidance on blade speed.*
16. Use the adjustable table lamp adjacent to the saw to clearly illuminate the saw table area.
17. Always adjust the blower to direct the saw dust away from your face.
18. Release the blade tension when you are finished using the saw.

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Operating Guidance

The following refers to Excalibur scroll saw. Except for saw throat capacity and the steps to install a blade the following also applies to the Delta scroll saw.



Saw Throat Capacity

The Excalibur scroll saw has a throat capacity of 533mm between the blade and the rear of the saw. If any dimension of your work- piece is greater than 533mm, (e.g. corner to corner of a rectangle) carefully consider your cutting strategy to avoid fouling the work-piece on the back of the saw during a cutting operation.

Blade Selection

Some general guidelines to consider when choosing a blade are:

- Wide thick blades with coarse teeth are suited to cutting straight lines and sweeping curves quickly, but will not turn tight corners and only leave a fairly smooth finish that will require sanding.
- Narrow thinner blades with finer teeth will cut more slowly, but will turn tighter corners for cutting very intricate work. They will impart a smooth finish that requires no sanding.
- Consider material thickness when selecting a blade. Ensure that two to three teeth are in contact with the work-piece at all times. For example when cutting 3mm thick material, use a blade with a minimum of 16 to 20 teeth per inch. *Note: Teeth numbers, if specified, are on a per inch basis.*
- Blades are identified with a number system ranging from 0 to 12. As a rough general rule lower number blades in the range 0 to 5 are used for more intricate work on thinner material (2 to 12mm) and blades in the range 6 to 12 for less intricate work on thicker material (5 to 25mm). *Note: The saw can cut wood up to 50mm thick but this is not recommended.*

Fitting and Tensioning the Blade

Remove any existing blade by flipping the blade tension lever fully forward and loosen the upper and lower blade clamps.

Installing a Blade

1. Set the blade tension lever to the forward position.
2. Fit the blade into the upper and lower blade clamps with the teeth facing forward and down. Tighten the clamps by hand and do not over tighten.
3. Push the Blade Tension Lever to the fully back position.
4. Check the blade tension by applying moderate pressure sideways to the middle of the blade. It should only flex a few mm. If you feel the blade requires more tension this can be applied via the Upper Arm Tensioner by turning it only **very slightly** in a clockwise direction.

A properly tensioned blade will last longer and be much less likely to break. If the blade tension is too loose you will notice that the blade will have a tendency to drift and veer off line. A blade that is over tensioned will break easily and may pull free of the blade clamps. Determining the best blade tension for a particular blade and cut is

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subjective and can only be learned by practice.

Refer to page 3 for guidance on blade speed.

Blade Speed

The Excalibur saw blade speed can be adjusted between 400 and 1550 strokes per minute using the speed control knob. Choosing the best speed is subjective and is dependent on a variety of factors including: type and thickness of material, type of blade being used, required finish quality and experience / personal preference of the operator.

Here are some general guidelines to consider when setting the speed:

- For best results and smoothest most efficient cutting, select the highest blade speed you are comfortable using.
- Harder and denser material requires lower blade speeds.
- Slower speeds also work better with very thin blades or when cutting brittle or delicate material such as veneers.
- Some wood species have a tendency to burn quicker at higher blade speeds. To avoid additional sanding later, reduce blade speed at the first sign of burn marks on the work-piece.