

## **Crosscut saw**

### **Background**

The crosscut saw is used in the furniture industry and in construction. In the timber industry, crosscut saws are used to rough cut timber, and they are often used in construction to cut to finished dimensions. You can save a lot of stock and improve the quality of the finished items by taking account of defects like knots and cracks and cutting in the right place.

There are different kinds of crosscut saw, from simple manual crosscut saws to automatic optimising crosscut saws. Four common types are described below:

- pendulum crosscut saw
- radial arm crosscut saw
- semi-automatic crosscut saw
- optimising crosscut saw.

### **Pendulum crosscut saw**

The pendulum crosscut saw is among the most widely used crosscut saws. It is a good all-rounder that you can use to cut moderate quantities of timber.

#### **Machine table with saw unit**

The pendulum crosscut saw consists of an elongated machine table with a saw unit (motor and blade) fixed to the rear of an articulated arm. To cut the timber you pull the saw unit towards you.

The saw unit can often be rotated so you can cut at different angles – mitre cutting. You can normally adjust the pendulum height, allowing you to use different blade sizes.

#### **Fence, adjustable stops and rollers**

There is also a fence at rear of the machine against which you push the timber. The rail has adjustable stops which you set to determine the length of the cut timber. Many tables have rollers that make it easier to feed the timber. The pendulum crosscut saw may have automatic saw movement and sometimes automatic timber feed too.

### **Radial arm crosscut saw**

The radial arm saw is used to make long crosscuts and mitre joints in solid wood and engineered wood.

#### **Machine table with saw unit**

The radial arm saw consists of an elongated machine table with a column fixed behind it. The column has a horizontal arm with the saw unit suspended in a track allowing the blade to be moved over the table. The height of the horizontal arm can normally be adjusted so you can use blades of different sizes.

The arm carrying the saw unit can be rotated (between  $-70^\circ$  and  $+70^\circ$ ) for mitre cutting. The blade too can be tilted in relation to the arm (between  $0^\circ$  and  $45^\circ$ ). This

provides great flexibility in terms of the angle of cut, but also makes the radial arm saw a dangerous machine. Many tables have rollers that make it easier to feed the timber. The radial arm crosscut saw may have automatic saw movement and sometimes automatic timber feed too.

### **Fence and adjustable stop**

There is fence at the rear of the table against which you press the timber. The rail has adjustable stops which you set to determine the length of the cut timber.

### **Scoring blade**

For sawing veneers or laminates you can use a radial arm saw with a scoring blade. This creates a shallow groove on the underside to prevent tear-out.

### **Semi-automatic crosscut saw**

The semi-automatic crosscut saw is one of the fastest and safest crosscut saws. It is good for cutting large amounts of timber.

### **Saw units and clamping pistons**

In a semi-automatic crosscut saw, the saw unit is mounted underneath the table and the saw blade moves up through a gap. That means the timber must be held down so it is not raised by the blade. This is done with clamping pistons. Clamping and cutting are both automatic.

### **Machine table with rollers**

The table has rollers that make it easier to feed the timber. The rollers are often also driven so the timber is fed automatically.

### **Optimising crosscut saw**

The optimising crosscut saw is an advanced type of semi-automatic crosscut saw for cutting large quantities of timber. You can use an optimising crosscut saw to create different programs for different cutting lengths. The machine may also be equipped with a timber sorter.

### **A computer calculates the cuts in order to minimise waste**

The machine has a computer which calculates the most economical way to cut the timber – in other words the way that minimises waste. The timber (which can be of different lengths) is placed on a feed conveyor which feeds it piece by piece. The machine measures the timber and calculates how best to cut it. The actual cutting is done automatically.

### **A camera monitors timber quality**

As the operator, all you have to worry about is the quality of the timber. But even that job can be automated with inspection technology – a camera (scanner) assesses the timber quality by detecting knots, splits and wane. This means the cutting process is fully automated.