

What is a Rose Engine?

A Rose Engine is a type of lathe. As the work revolves, it moves from side to side, guided by a rosette. You can also move the work backwards and forwards, guided by a pumping rosette or multi-wave swash plate. This kind of work can be called “using the pumping action”, or Crown Turning, but I prefer the term Swash Turning for deep shaping.

The Rosette is held against a fixed Rubber (cam follower) by a spring, or cord and weight.

The sideways movement can be achieved in many ways:

On the oldest British machines, the back end of the mandrel pivoted on a fixed point, and the front end rocked .

On the commonest type of Rose Engine, the whole headstock rocks on bearings set in or under the bed.

To avoid distortion of the shapes, many Rose Engines have sliding headstocks.

I've worked with a spin indexer as headstock, sitting on a free-running rotary table so the headstock can swivel from side to side.

Some Rose Engines have a second mandrel geared to the first, carrying a single-wave rosette which can be repeated as many times as required on the work.

It may be more convenient to move the tool from side to side, instead of the work.

Each arrangement has its advantages and disadvantages, but it really doesn't matter what method you use, so long as the cutter is following the right path relative to the work.

Modern Rose Turners tend to cut the work with small rotary fly cutters (cutting frames), though hand tools were used on the first machines, and broad fixed form tools were used on the large 18th century machines. The old methods allowed craftsmen to produce the bi-convex rounded lobes which were popular at the time. It's difficult reproducing these shapes with a fly cutter, which makes concave scoops in the work. Some kind of spherical turning movement is needed.

If you're an engineer, thinking of building a real Rose Engine, I suggest you cobble something simple together, and get some practical experience before deciding on a final design. Different types of work need different machines, and you have no idea how your interests will develop as you learn the basic techniques .If your real interest is building machines, rather than using them, I suggest you choose a decorative design (with plenty of shiny brass). It should eventually have a good resale value, particularly if it's practical as well as pretty.

Working with rotary cutters.

The wood has to pass the cutter at high speed to get a good finish. It doesn't matter which is moving. On a normal lathe, the work and chuck have to be balanced, and strong enough to cope with the forces involved. It's much easier rotating the work very slowly, and using a high-speed rotary cutter. You still have to think about the balance, and make sure that when the weight goes over the top, it doesn't flop forwards. Chucks don't have to deal with large centrifugal forces, but they still have to hold the work securely, and be solid enough to avoid vibrations.

Slow rotation allows you to do all sorts of tricks that are difficult or impossible on a fast lathe. You can turn the work through part of a rotation*. You can even mount it at right angles to the axis, on a dome chuck (or improvised equivalent). These are tricks used by Ornamental Turners. They're fond of combining chucks to produce exotic effects. (That's why OT chucks are so solidly built, to minimise vibrations.) Combining Ornamental Turning effects with Rose Turning can be very effective.

If you're thinking of attempting work with rotary cutters, read the SAFETY ADVICE ([link](#))

on homepage).

* Pole lathe turners learned this trick first, with handled vessels like the porringer, the quaich, and the lambhog. Designs like this could only become popular when the general population understood the capabilities of a lathe, so that they would be astonished by the trick. A bowl found in Strathclyde, that could be as early as 90 AD, appears to have a handle turned in a circle, with the body of the bowl turned on either side of the handle. Trick turning has a very long history.