

Rose Engine Lathe Setup Checklist

Controls

- 1 On the **Preferences** page
 - a. Ensure **Returns** are set correctly. Typical setting is 15,000 for all axes.
 - b. Ensure the axis information is correct for the X & Z axes
 - i. Distance/360 ([Calculator](#))
 - ii. Leadscrew Left or Right
 - c. Ensure the configurable axes are set correctly (Motor 3 & Motor 4)
 - i. If using a Rosette Phaser/Multiplier, then for M3
 1. Axial
 2. Gear Ratio = 9
 - ii. Set as appropriate for M3 and M4
 1. Axial & Gear Ratio, or
 2. Linear
 - a. Distance/360 ([Calculator](#))
 - b. Leadscrew Left or Right
- 2 If using multiple axes (especially on Sync or MultiSync pages), for all axes but the Spindle:
 - a. Set max speed set to 15,000
 - b. Set speed slider to 100%

This allows for the spindle speed slider to set the speed for all axes.
- 3 For the spindle, set the Max Speed as necessary. 5,000 is a recommended starting point.
- 4 When using the Rose pattern, for X & Z axes, set
 - a. Max speed to 1,000-2,000
 - b. Acceleration to 50,000

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- 1 **Headstock:** Center the headstock, and then remove the centering block.
- 2 **Rosettes:** Ensure the rosettes are
 - a. The ones you want
 - b. Phased correctly using a pin
 - c. If using a rosette phaser/multiplier, held against the phaser/multiplier drive gear with a collet
- 3 **Amplitude Adjuster:** Ensure the amplitude adjuster
 - a. Has the amplitude % set correctly ([calculator](#))
 - b. Has the arms vertically aligned
 - c. Is using the correct shape and style of rubber to follow the rosette
 - d. If using only one rosette, ensure the outside vertical arm is held in place, back away from the spindle.
 - e. If using two rosettes, ensure the projection of each vertical arm rubber is correct.

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- 4 **Rubbers:** Ensure rubbers are
 - a. If not using an amplitude adjuster, ensure the rubber is
 - i. The correct shape and style
 - ii. Aligned with the rosette (*if not using an amplitude adjuster*)
 - b. If using two rosettes, ensure the projection of each rubber is correct.
- 5 **Object:** Set the object in the chuck/collet and
 - a. Align the object in the chuck/collet
 - b. Ensure object is being held securely (tighten the chuck/collet)
 - c. Ensure the adapter is held securely in place with a draw bar.
 - d. Ensure the chuck/collet is secured to the adapter.

6 Slide for Tool Holding and Positioning

Cross Slide

- a. Align the cross slide to be parallel to the spindle. *Usually this is parallel, but an angled cut may be desired.*
- b. Ensure there is sufficient movement on the cross slide for the needed work
 - i. X axis
 - ii. Z axis
- c. Ensure the slide is held securely to the bed (e.g., mag switches engaged)

Curvilinear Slide

- a. Align the curvilinear slide to be parallel to the spindle. *Usually this is parallel, but an angled cut may be desired.*
- b. Ensure there is sufficient movement on the cross slide for the needed work
 - i. X axis
 - ii. Z axis
- c. Ensure the slide is held securely to the bed (e.g., mag switches engaged)
- d. **Template:** Ensure
 - i. The correct template is used
 - ii. The template is securely held in place
- e. **Template Follower:** Ensure
 - i. The template follower is correct (i.e., the correct size and shape)
 - ii. The template follower is securely held in place
 - iii. The template follower is secure engaged with the template using either the weights or a spring.

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Spherical Slide

- a. Set the spherical slide so that the swing achieves the desired profile
- b. Ensuring that the swing path is not encumbered by other objects.
- c. Ensure the spherical slide is held securely to the bed (*e.g., mag switches engaged*)
- d. Set the spherical slide's puller/pusher base (the part where the motor is mounted) at the correct position
- e. Ensure the spherical slide's puller/pusher base will move the cutter through the complete path needed.
- f. Ensure the spherical slide's puller/pusher base is held securely to the bed (*e.g., mag switches engaged*)
- g. Ensure the slide is held securely to the bed (*e.g., mag switches engaged*)

7 Cutter of Choice

Cutting Frame

- a. For cutting frames not using the triangular, carbide cutters, ensure the cutter:
 - i. Is the one desired
 - ii. Is at the desired projection for the needed diameter of swing
 - iii. Is held in the correct rotational position
 - iv. Is held securely
- b. Set the universal cutting frame's rotation.
 - i. Usually, this is 0° from horizontal, but it could be different if desired
 - ii. If not horizontal, ensure the rotation is the correct direction ([calculator for dynamic rosette phasing](#))
- c. Align the cutter vertically (*unless desired to be otherwise*)
- d. Ensure the cutting frame is held securely in the QCTP

Drilling Spindle

- a. Ensure the cutter is held securely in the collet
- b. Align the cutter vertically (*unless desired to be otherwise*)
- c. Ensure the drilling spindle is held securely in the QCTP

Eccentric Cutting Frame

- a. Ensure the cutter has the correct cutting angle (*e.g., 60°, 90°, 120°, etc.*)
- b. Ensure the ECF radius is correct ([calculator for pearling](#))
- c. Ensure the ECF is balanced
- d. If holding the ECF in a drilling spindle, see also notes above

8 Overhead Drive

- a. Adjust the cables to be vertical for both X and Y axes
- b. Ensure the cables are not too slack, nor too taut

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- 9 **Cutter:**
 - a. Ensure the cutter is being turned in the correct direction. If not, reverse the overhead drive.
 - b. Set the speed for the cutter (*too fast will burn certain woods, especially on the end grain*)

- 10 **Vacuum:** Set the vacuum inlet so that
 - a. It does not interfere with movement of the slide
 - b. Is best able to collect most of the dust coming off the cutter

- 11 **Lighting:** Set the lights so that
 - a. They do not interfere with movement of the slide
 - b. They provide for maximum visibility of the cutting activity
 - c. They do not shine up into the operator's eyes

- 12 **Re-check that everything is locked down**
 - a. Draw bar for work holding
 - b. Chuck/collet to the adapter
 - c. Object in the chuck/collet
 - d. Slide (i.e., mag switches)
 - e. Tool holder in QCTP

- 13 Make a **test cut** (or more than 1)