



Wood Lathe Speed Guide

Adapted from Daniel Bauer on <https://modernwoodturning.com/>

Which speed is safe? Having the correct lathe speed will allow blanks to turn without vibration so that tools produce a clean surface. Use the safest speed for your lathe and avoid accidents.

General Guidelines on wood lathe speeds:

You can work on smaller objects at higher RPMs; larger objects require lower RPM. Small objects like pens or small boxes can tolerate high speeds of 1500-3000 RPM. This speed is desirable because chisels will cut better and cleaner. Lowering the RPM is necessary for large objects. They are heavier and more likely to be out of balance and cause vibration. You can use a bandsaw or chain saw to make the object more round and balanced.

- The thinner a turning becomes, the slower the RPM or centrifugal force may split the work.
- Slower RPM is needed for soft, spalted, weak timber.
- Lathes that are small, lightweight or on a poor foundation require slower RPM.
- A weak attachment of timber to the lathe requires a slower RPM.

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The optimal turning speed is dependent on the size, hardness of the wood, and whether it is balanced. Considering your comfort is also essential. There is no rule that you must follow but the formula below is a place to start.

To determine the safe speed for your lathe you can use a formula. For metric measurements, you divide 150,000 by the diameter of the workpiece in millimetres and you will get the minimum safest speed. To find the maximum safe speed, you divide 225,000 by the diameter of the workpiece in millimetres. For example:

Divide 150,000 by the diameter of a workpiece of 300mm. Minimum Safe Speed is 500.

Divide 225,000 by the diameter of a workpiece of 300mm. Maximum Safe Speed is 750

Lathe Speed Chart

Diameter (mm)	Minimum Safe Speed	Maximum Safe Speed
50	3000	4500
75	2000	3000
100	1500	2250
125	1200	1800
150	1000	1500
175	857	1286
200	750	1125
225	667	1000
250	600	900
275	545	818
300	500	750
325	462	692
350	429	643
375	400	600
400	375	562
425	353	529
450	333	500
475	316	474
500	300	450