

PEN MANDRELS AND TBC (Turning Between Centres) FAQ

We often get questions about which mandrel to buy, which is the best, do I need a mandrel saver, what is turning between centres, etc., etc. This short article is intended as resource to help answer those frequently asked questions.

Do I need a mandrel?

Most pen turners use a mandrel. It is not entirely necessary as you will see in the section below on turning between centres (TBC) but I would recommend starting out by using a mandrel.

Which make of mandrel should I buy?

In my experience there is little to choose between brands of mandrel, after all they are little more than a steel rod attached by various means to a Morse taper at one end and threaded (or not) at the other. I would recommend the type that is adjustable for length by means of a grub screw or collet, the colletted type being more accurate. There are differences in manufacturing tolerance between makers so sometimes bushes from one maker may not fit or may be a loose fit on a mandrel made by a different manufacturer. Often this is immaterial, but it can be the cause of concentricity problems.

Do I need a mandrel saver?

A mandrel saver or mandrel support is not essential, but I would recommend using one as it transfers the pressure from the tailstock to the blank rather than the mandrel rod thus greatly reducing the risk of bending the rod. They are available as separate items or as part of a unit such as the Axminster Compression Mandrel. Again, differences in manufacturing tolerance between manufacturers can cause problems of fit so it is best to use a mandrel and mandrel saver from the same manufacturer.

Should I buy a starter set?

Starter sets come with a mandrel and perhaps a mandrel saver depending on the set in question. They also usually include a drill, barrel trimmer and some cheap starter kits and blanks. They can work out cheaper than buying the components separately but it is always worth checking the price of the individual pieces to make sure you are getting good value.

Do I need a different set of bushes for every type of kit?

In short, Yes.

What is turning between centres?

TBC is the term used to describe a method of mounting the blank where the blank is mounted between special bushes with a 60-degree recess machined into the end. The bushes are then mounted on the lathe between a 60-degree dead centre in the headstock and a 60-degree live (revolving) centre in the tailstock. This resolves all the issues of lack of concentricity and inaccuracy that can arise when using a mandrel. Only a few suppliers such as Taylor's Mirfield, British Made Pen Kits and Beaufort Ink supply bushings of this type in the UK. Others are available from suppliers in the USA. It is possible to use ordinary bushes in this way but doing so is likely to damage the live and dead centres.