



## Guide to hand turning aluminium

For turners familiar with wood and acrylics/plastic, turning metal will be a new experience. It may well be something you had not considered before. Whilst most metals are turned on dedicated metal lathes, some softer metals can quite easily be turned by hand.

Why aluminium? Because it is a soft metal, can be turned by hand on a medium to large woodturning lathe, is relatively inexpensive and unlike most other metals does not tarnish and requires only polishing for a final finish, although a surface finish can be added if required. The advantage over wood is that it is strong, has no grain so won't chip and can have intricate patterns added that would not be seen on wood.

It is essential before beginning to understand the fundamental difference between turning metal and turning wood, primarily for safety reasons.

Whilst wood gets hot when drilled, it is a poor heat conductor and rarely will you feel the outside of a wooden blank getting hot. Aluminium is a very good heat conductor - **the outside of your blank will get very hot and can burn** - this is a lesson quickly learned. Allow plenty of time for your blank to cool during and between each process.

Wood and acrylic blanks tend to chip away in small pieces and are generally fairly harmless. Metal tends to turn away in strands and this can be seen when drilling and turning. **These strands or swarf are very hot and can be very sharp. We recommend a protective glove to stop any injuries.**

Wearing a glove whilst turning can also present some dangers and often the shavings / swarf will wind themselves around the blank and need to be removed.

**NEVER remove metal swarf whilst the lathe is running. Stop the lathe and remove, and then re-start to resume turning.**

Because aluminium is much harder than wood, it requires a lot of pressure in order to remove material. This can be done by positioning the tool at the correct angle, holding firmly and moving your whole torso to make a sweeping cut into the blank

#### Do I need to use the brass tubes in a kit?

It is possible to insert pen kit parts directly into aluminium, however you will require a drill the exact diameter of the INSIDE of the brass tube. Most woodturners are unlikely to have such a precise metal drill. Therefore, we still use the brass tube as it is designed specifically for the kits and it is also a good guide to getting the correct length blank.

#### What about lubrication?

There are many types of metal lubricants available, but what can be used and you may already have is WD40 to assist whilst drilling blanks. It lubricates and prevents some aluminium adhering to your drill flutes. All traces of lubricant must be removed completely prior to gluing in any brass tubes or the gluing process may be compromised.

#### Will it damage my tools?

Generally most tools are made of very hard materials such as High Speed Steel (HSS), some are carbide tipped, etc. All far harder materials than aluminium, but unlike wood cutting where an extremely sharp tool is essential, it is not quite so critical with aluminium. So, if you have an older tool that is rarely used, it could be ideal.

For trimming, we have used both a disc sander and also a barrel trimmer. Both work well.

#### What about finishing?

Aluminium can be finished by sanding like any blank. We generally use a bowl sander and aluminium oxide abrasive until there are no sharp edges that could cause injury. The effect of a bowl sander can produce an attractive pattern like a satin textured finish.

For a brilliant shine, we sand to 1200 grit and then use a polishing mop and tripoli polish to a super shine. Please be aware of aluminium dust when sanding and wear protective equipment. Polishing metal is quite a dirty business. Polishing mops for metal are often unusable on wood afterwards because of the residue left behind. There are many metal polishes commercially available that may be employed directly at the lathe.

#### Will it rust?

Aluminium does not rust, but it will oxidise. Aluminium oxide is clear and extremely hard (hence aluminium oxide abrasives). It does not tarnish or change the colour of the skin as some metals can. You can of course add your own finish, there are now so many finishes that we cannot advise which work well and which don't. We suggest maybe you experiment to get your own unique final finish.

Hopefully the warnings above have not scared you away, because turning aluminium is very rewarding and makes attractive finished items. As with all turning, there is a learning curve to getting the finish you are happy with and that is all part of the fun.

We have made aluminium kits turned between centres, as well as on a mandrel.

Tools you may find useful:

Hacksaw, centre-finder (pre-drilling), disc sander, HSS drill bits (do not use brad point bits), WD40.



Eliot click pen kit finished in aluminium