TYPES OF TURNING

The two basic forms of turning are spindle turning (between centres) and bowl turn (faceplate).

Spindle turning

The piece of work is held between the two centres for this type of turning. It is used for produc legs of chairs, rails, etc.

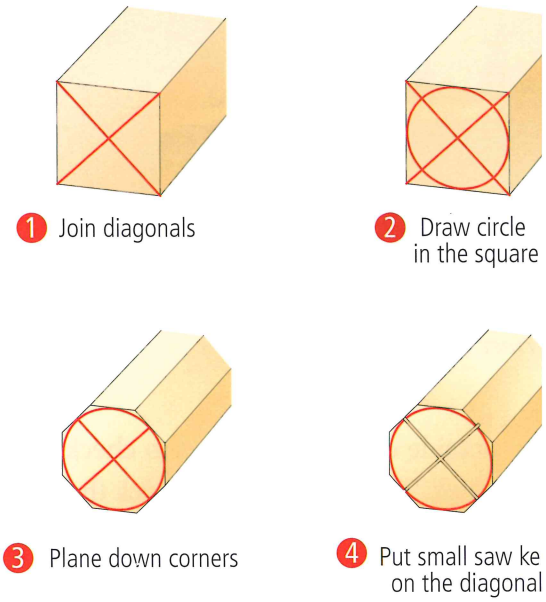
Preparing a piece for turning

When turning between centres choose a blank with no defects.

Follow the steps shown opposite to prepare the piece.

Mounting a piece on the lathe

- Insert the piece on the drive centre
- Slide the **tailstock** into position. Tighten the centre on the centre point of the end and secure

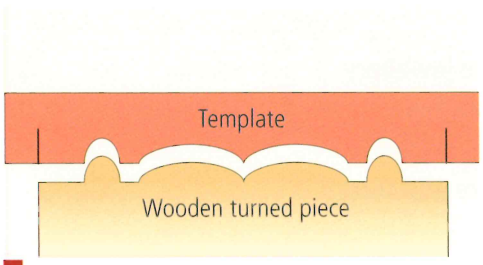


Steps in preparing and mounting a piece on th lathe

PROFILES

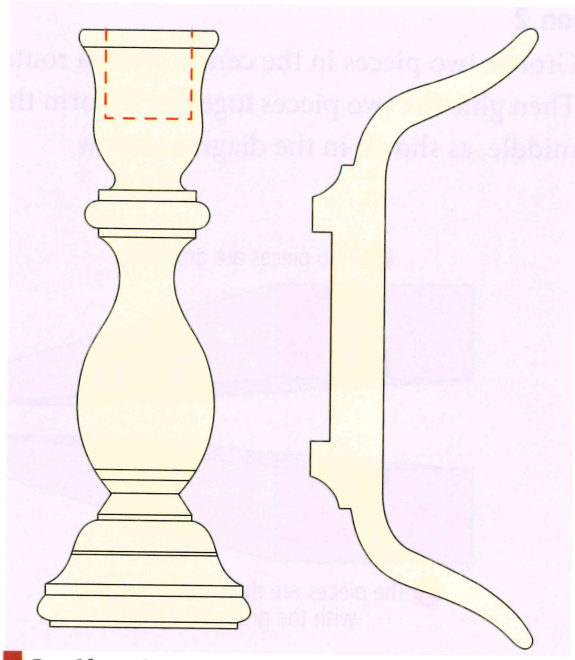
When drawing designs of pieces to be turned it is usual to draw them as profiles or sections showing the outline of the shape.

These outlines only need to show half of the object as the other half is created automatically.



Profile template

The profile can be cut out of card and this **template** is used to help make identical copies of the design.



Profiles of projects

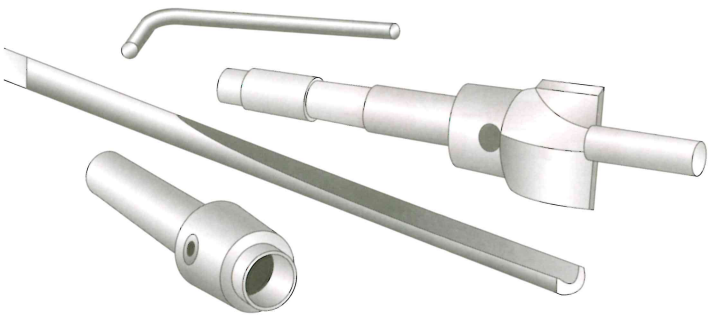
Drilling a hole

There are a number of ways to create a hole through a piece. For example, this is required where a hole is needed for the stem of a lamp.

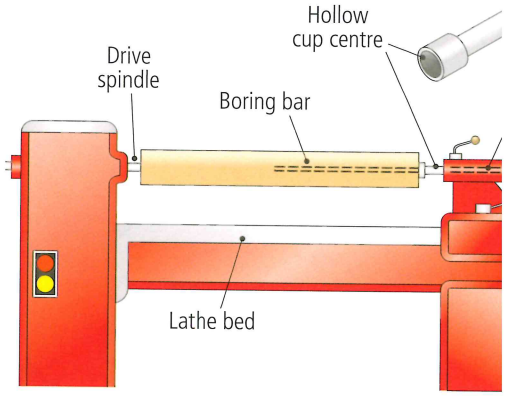
Option 1

A long hole boring kit can be used.

- The piece is secured with a hollow centre in the tailstock
- The hole is drilled through the hollow centre
- The hole is bored half way through the piece, removing parings regularly
- The piece is reversed in the lathe and the process is repeated for the other half



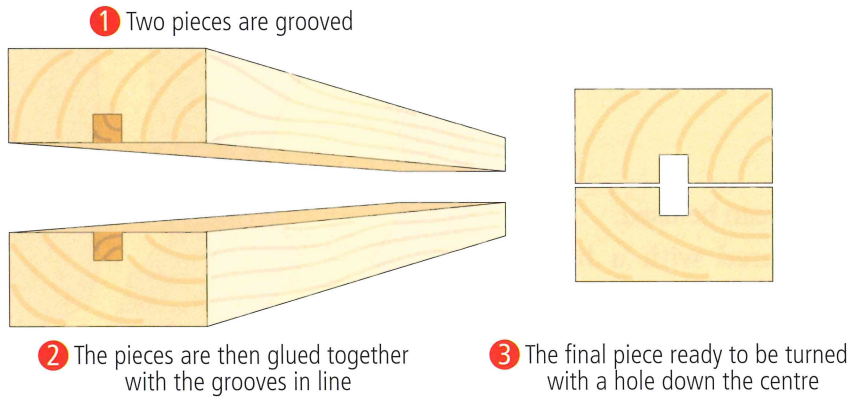
Long hole boring kit



Boring a long hole on the lathe

Option 2

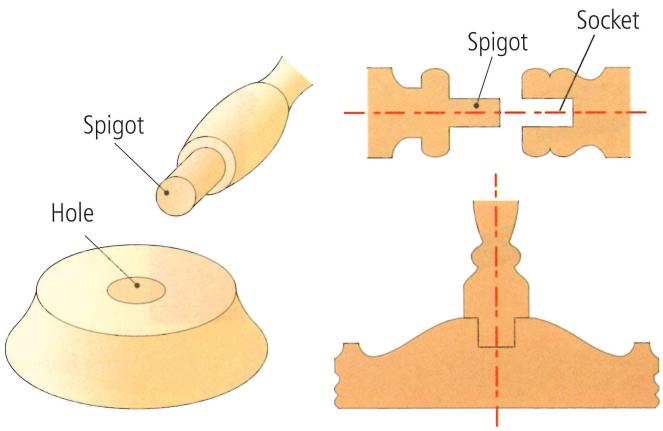
- Groove two pieces in the centre using a router
- Then glue the two pieces together to form the blank for turning with the groove down middle, as shown in the diagram below



Grooved pieces glued together

JOINTS

Shorter, turned pieces can be joined together to make longer sections. A **spigot** and **socket** is used to make a strong bond between the pieces. The spigot is turned to the required diam using a parting tool to fit a pre-drilled hole. This joint is useful when joining lamp stems to w bases.



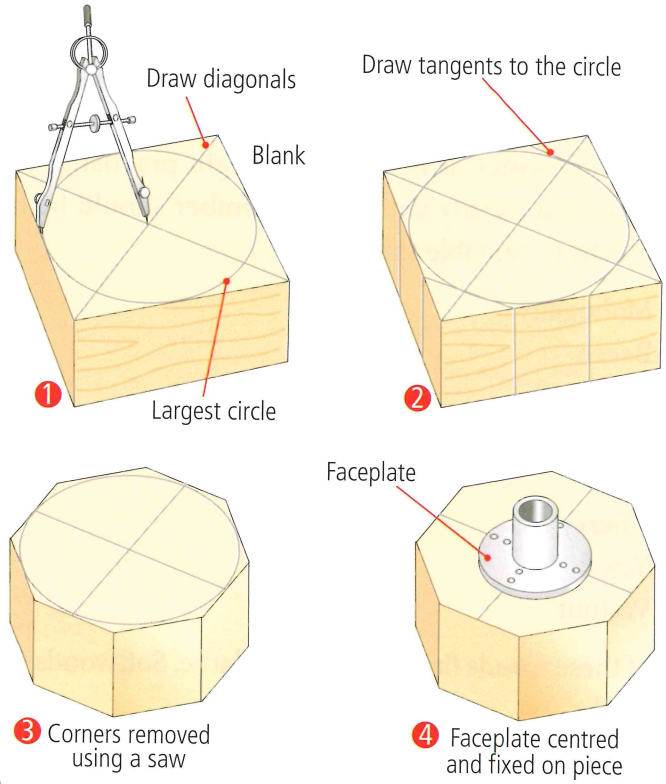
Spigot joints

Bowl turning (faceplate)

When turning a bowl or similar using a **faceplate** there are two stages.

Firstly, the underneath or bottom is turned.

Secondly, the piece is reversed and the upper side is hollowed out and shaped.



Mounting the blank

Preparing and mounting the blank

- The diagonals are drawn on the faces of the piece to find the centre
- Use a compass to draw the largest possible circle on the faces of the blank
- Tangents are drawn to the circle leaving an octagonal shape
- Remove the corners of the octagon using a saw, or roughly cut out the circle
- Locate the faceplate on the centre of the face of the piece and screw it down. The screws should be long enough to grip the wood, but not too long to interfere with the turning
- The faceplate is screwed hand tight on to the spindle of the lathe
- Adjust the tool rest to the work piece, so that it is close but not touching the piece as it rotates

Turning a bowl

In some cases a piece of work is fixed to an auxiliary faceplate using adhesive. This is done when:

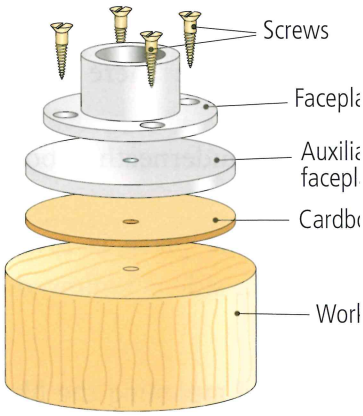
- Using a very thin piece
- Screw holes would spoil the appearance of the work
- Screws might catch in the lathe tools

Bowl turning

Suitable wood

Most woods can be turned. However, hardwoods with a close grain are the best. Softwoods are ideal to begin with as they are softer. It is helpful to begin practising your turning on a freshly cut log. The timber should be free from defects. Suitable timbers are:

- Mahogany
- Beech
- Sycamore
- Elm
- Oak
- Cherry
- Yew
- Walnut



Attaching work to an auxiliary faceplate

All of these woods finish well on the lathe. Softwoods can be used, but they are usually less e finished.

Finishing

In order to complete the turned work first sand it smooth and then apply a sealing coa protection.

Sanding is usually done while the piece is still on the lathe. For safety, the tool rest sh always be removed before sanding begins. The sanding process generally follows these ste

- Medium sandpaper (80 grit) takes away any rough marks
- Fine sandpaper (120 grit) removes lines and scratches left by the 80 grit paper
- Very fine sandpaper (180–320 grit) cleans most of the remaining small scratches

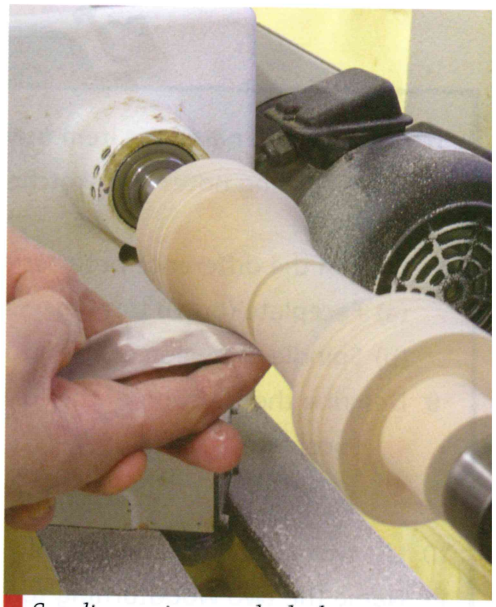
Remember

- Sanding creates fine dust – wear a dust mask while sanding on the lathe
- Take care when sanding – friction makes the paper hot and it can burn you
- Keep the sandpaper moving to get a uniform and smooth finish

Each sandpaper grit will form tiny scratches on the surface of the turned piece. You progress on to the next grade of paper when the scratches of the previous grade have been removed. Take care not to remove the crisp lines intended at shoulders, coves, etc. It is very easy to round over sharp edges by too much sanding.

A wide variety of finishes can be used with turned work as with most wood. However, many turners favour finishes such as Danish oil, waxes, tung oil and friction polish, which is similar to French polish but is suitable for lathe work.

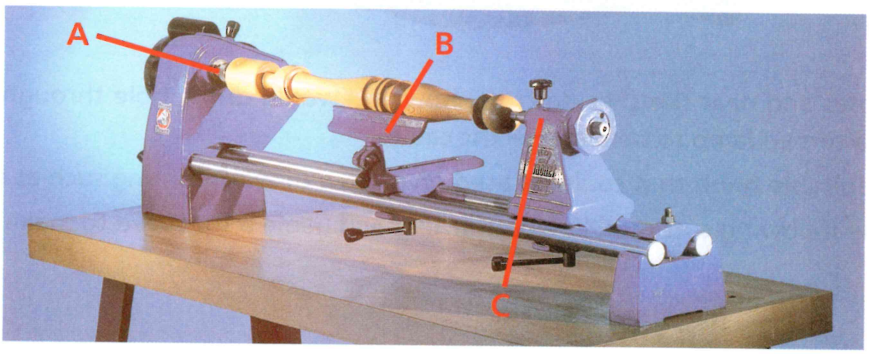
Danish oil has the advantage that it soaks into the wood and hardens, and it can be renewed regularly. This improves the appearance of the wood. Where items come into contact with foodstuffs, they need to be finished with a non-toxic finish.



Sanding a piece on the lathe

Exercises

1 Name the parts of the lathe labelled on the diagram.



2 Name the lathe parts shown in the diagram opposite.

3 What is the function of the live centre on a lathe?

4 Why is it necessary to wear full-face protection when using the lathe?

5 List two other safety precautions that must be taken when working on a lathe.

Exercises

6 Describe and name the item used to help in producing a number of similar turned piec

7 Explain, using notes and sketches, what a profile is and how it is used in making a turn piece.

8 Explain the difference between the two types of turning:

(a) Faceplate (bowl) turning

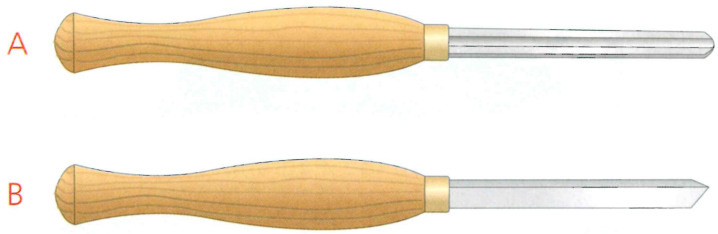
(b) Spindle (between centres) turning

9 Describe the function of the following woodturning equipment:

- Faceplate
- Tool rest

10 List two safety rules that should be followed when sanding a piece of wood on the lat

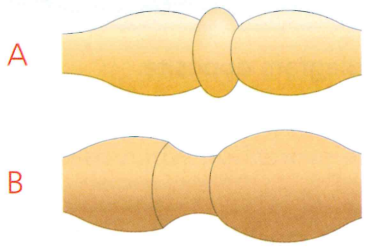
11 Name the two woodturning tools in the diagram below.



12 Using notes and neat sketches describe, how you would drill a hole through the cen stem of a turned lamp to take an electric cable.

13 Name a suitable finish that could be used on a piece of woodturning such as a lamp.

14 Name the following cuts used in woodturning and name a tool used to make each cut



Exam Question

1 The diagram shows a holder for a kitchen towel roll. It is made from two pieces of wood and joined at A.

(a) Make a neat diagram of each piece showing clearly how they could be jointed at A.

(b) The base is to be made from a square of wood similar to that shown in B. Describe, using notes and sketches, the steps involved in shaping the wood and mounting it on a faceplate before turning begins.

(c) List three safety precautions that should be followed when using a lathe.

(JC, OL, 2008)