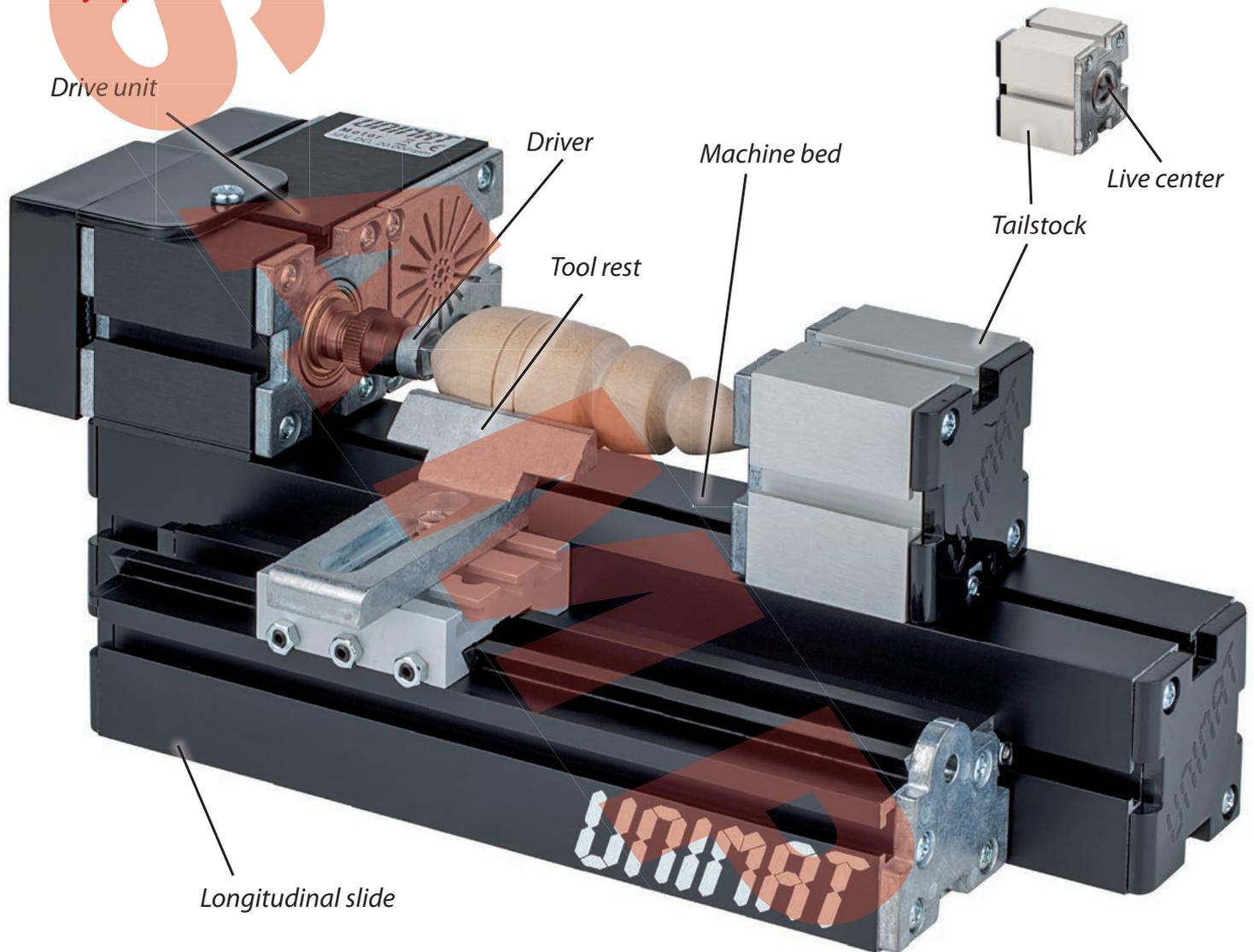




[DESIGN & TECHNOLOGY]

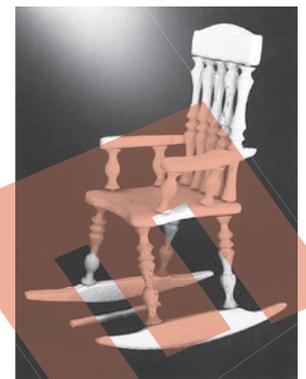
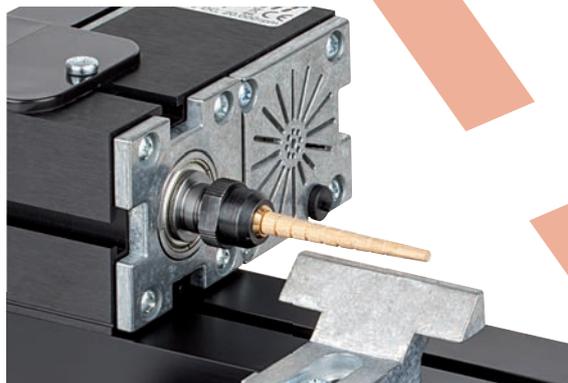
might cause a sudden crack. For sanding and finishing higher revolutions are suitable.

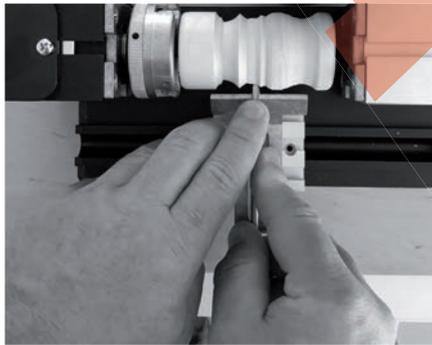
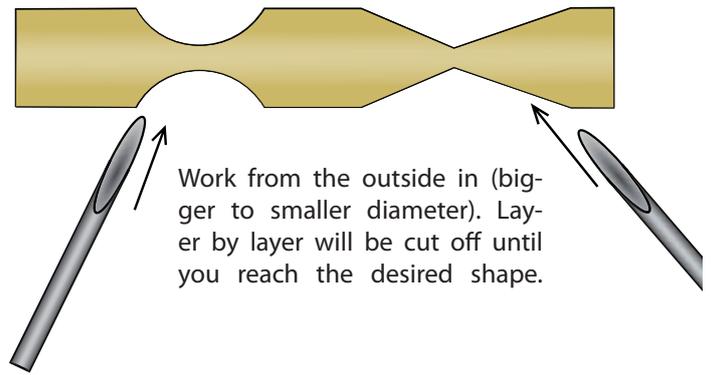
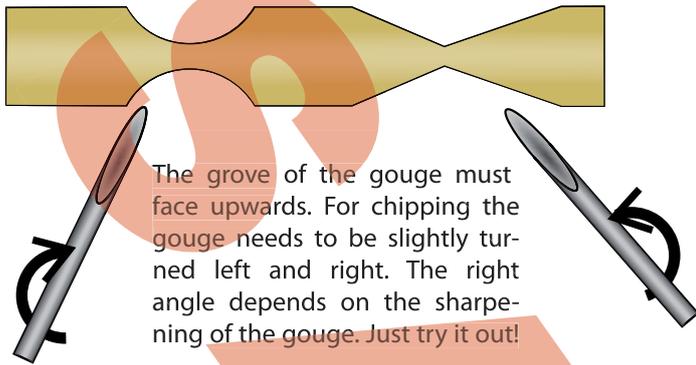
The major parts of a woodlathe



Methods of woodturning

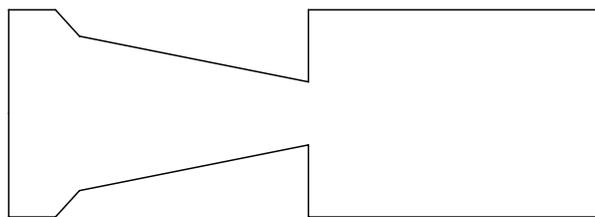
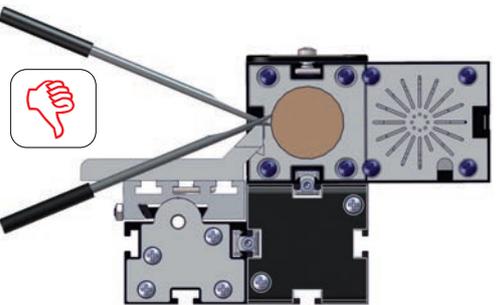
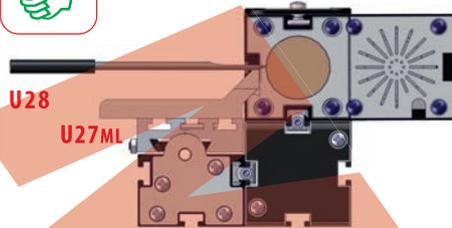
1. MINIATURE TURNING: workpieces with a diameter up to 6 mm should be chucked by means of collets.



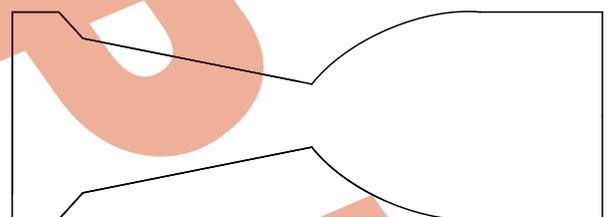


U28

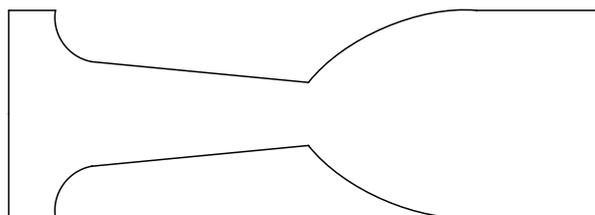
U27ML



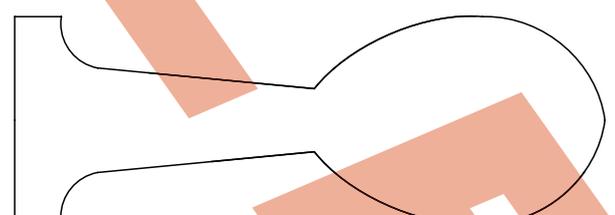
1. process the trunk



2. the lower roundings of the top of the tree



3. the roundings of the base



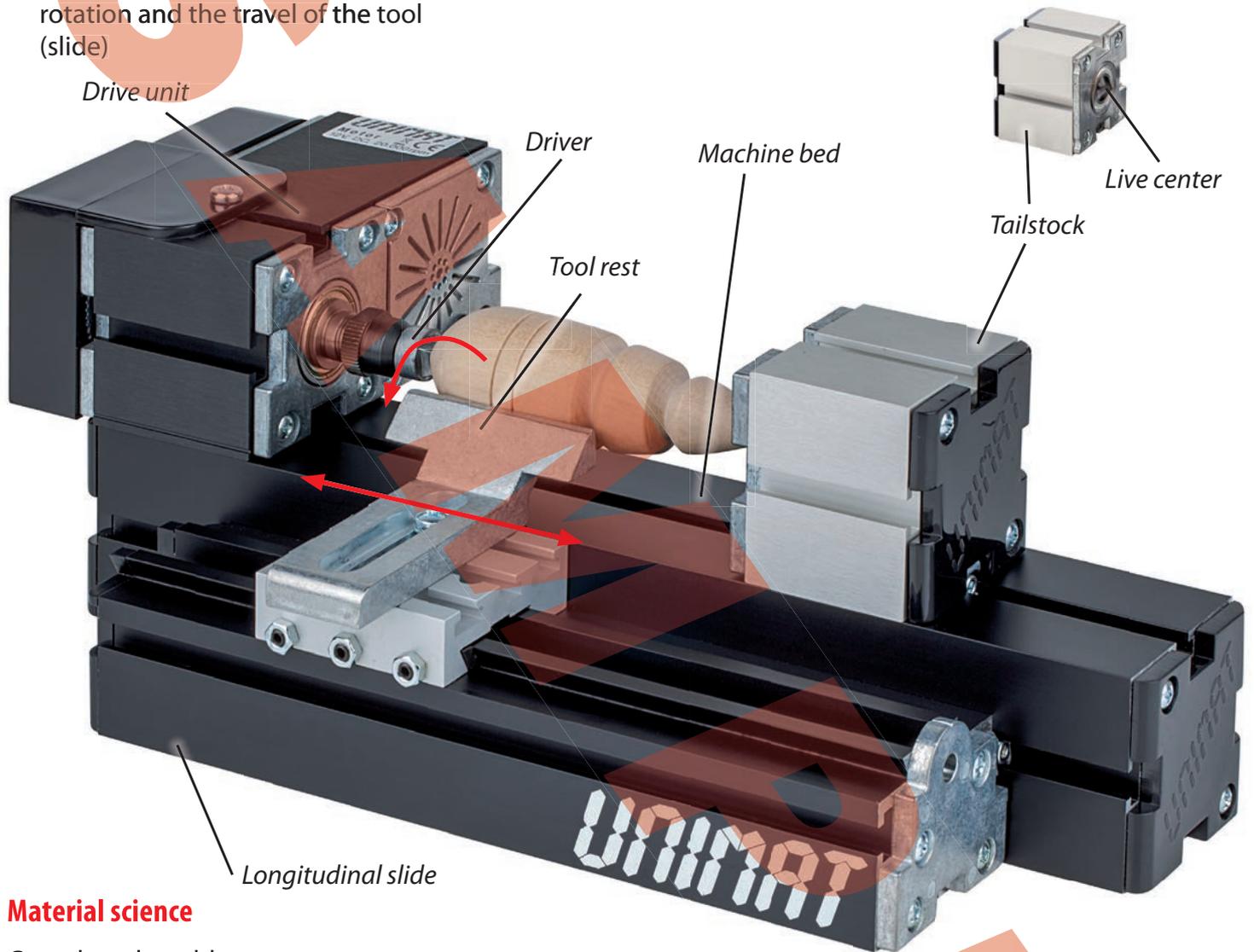
4. the rounding for the top of the tree

To get a smooth surface use sanding paper, if necessary.

Questions on Woodturning

Major parts of a woodlathe

- 1) Name the components
- 2) Mark the direction of the part rotation and the travel of the tool (slide)



Material science

Complete the table:

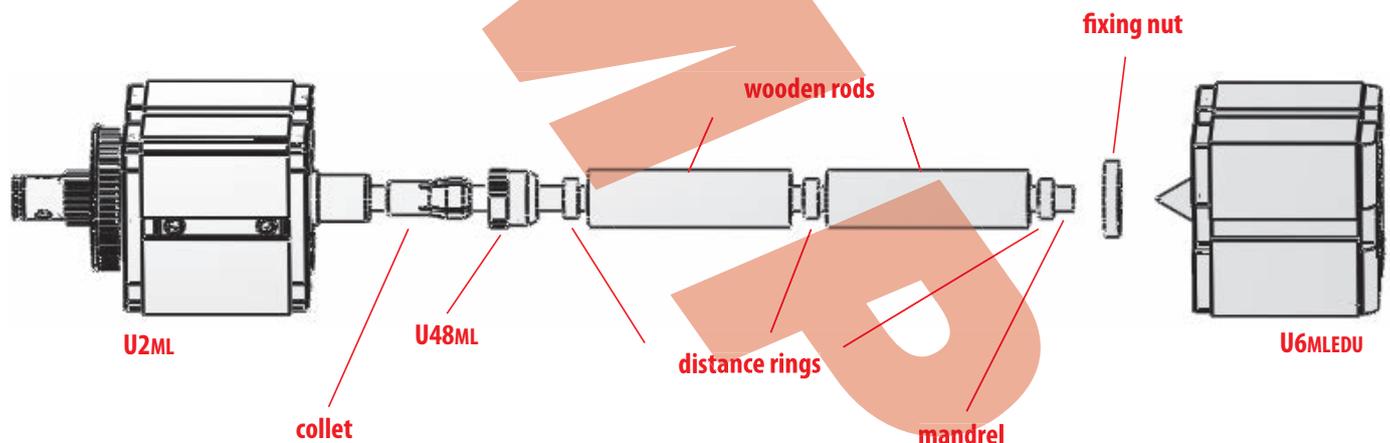
type	property	application
Spruce	soft, little resin, clearly visible annual circles	A cheap and frequently used wood (from paper to construction wood), very difficult for woodturning.
Birch	relatively soft, fine structure	For woodturning as well as for use as plywood plate for jig-saw works.
Lime tree	very soft and durable, easy to colour	Ideal wood for woodturning and carving, very easy to process.
Beech	hard, durable, fine, beautiful surface	A much preferred type of wood for childrens toys, jig-saw works, or as solid wood for the woodturning lathe.
Maple	light-yellow/white color, fine structure, hard, not weather resistant	furniture, music instruments, toys, turned items

Making a wooden pen

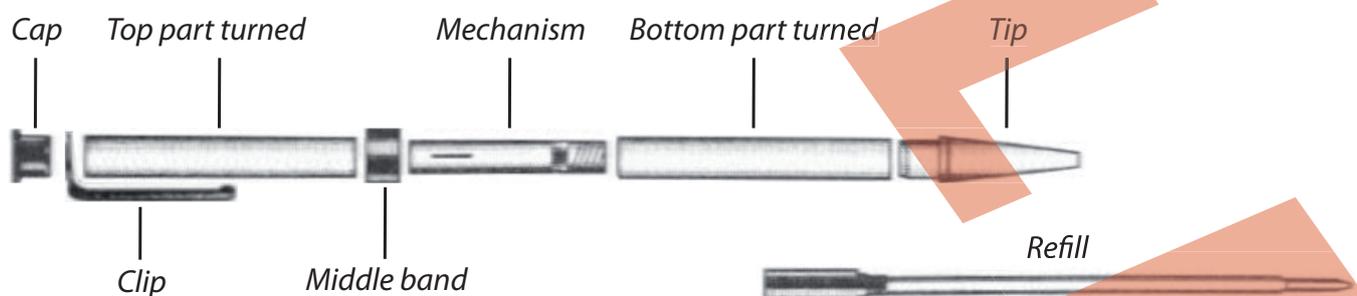
Instructions for the Wooden Pen material package

Material	<ul style="list-style-type: none"> • 1 material package for wooden pen per student • 1 piece of sanding paper per student
Equipment	<ul style="list-style-type: none"> • Unimat wood lathe mounted with live center, slide and mandrel for clamping the wooden rods • Press, Clamp
Processes for students	<ul style="list-style-type: none"> • Wood turning • Sanding • Coloring • Unmounting the two workpieces
Processes for instructor	<ul style="list-style-type: none"> • Clamping the two workpieces • Assistance with unmounting the workpieces • Assembling the components of the pen (use pen press 163600PR)
Project duration	<ul style="list-style-type: none"> • appr. 30 – 70 minutes (incl. wood finishing, painting, ...)

Mounting instructions



Assembly instructions



1. Put together tip, bottom part turned and mechanism (use press).
2. Screw refill inside the mechanism and put middle band on mechanism.
3. Put together cap and top part turned assemble (use press).

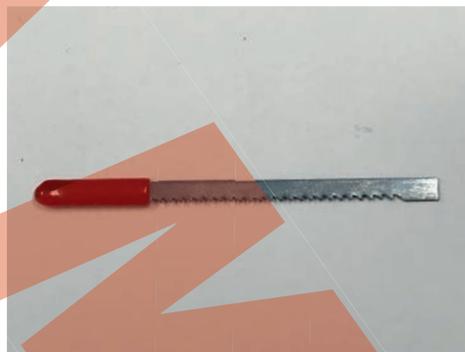
Saw blades

There are hundreds or even thousands of different saw blades on the market. Each one is used for different

- material (wood, stone, metal, etc)
- purpose (fine cuts, curved cuts, straight cuts, routing, etc)
- saw machines (jig saw, circular saw, band saw, etc)



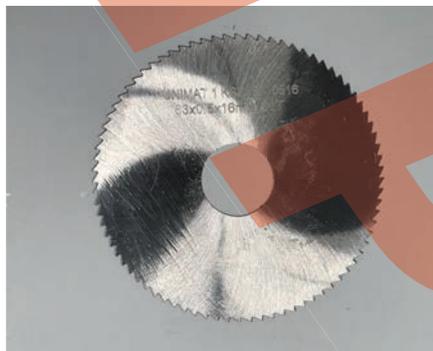
*jig saw blade
(Unimat 1)*



*jig saw blade
(Unimat Education)*



*jig saw blade
(Unimat PL)*



*circular saw blade
(straight tothing)*



*circular saw blade
(tooth offset)*

An important factor is „TPI“ (teeth per inch) which measures the „finess“ of a saw blade.

Other features are

- tooth offset saw blades
- blades with hardened tips out of carbide or diamond

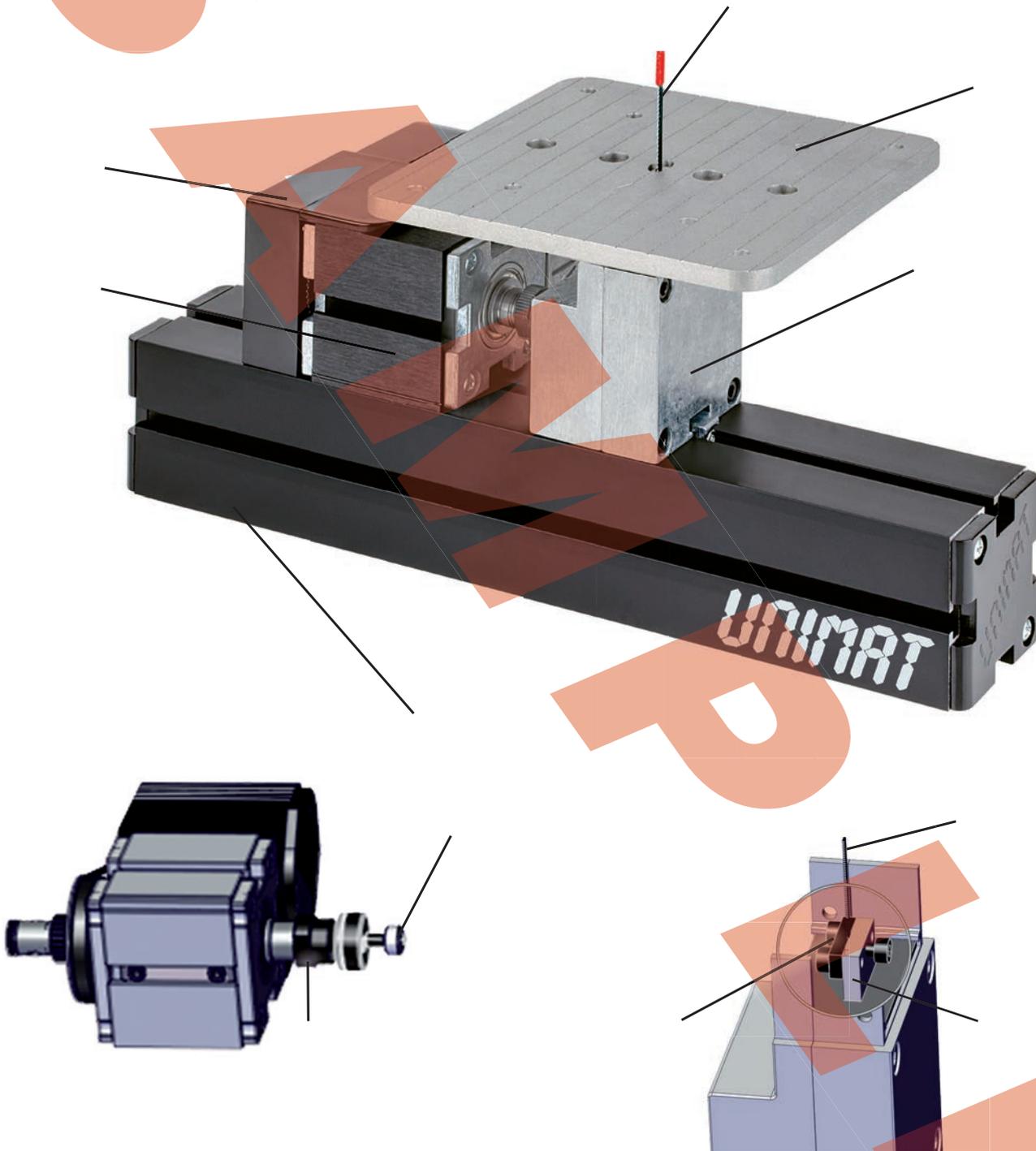


*circular saw blade
(carbide tipped)*

Questions on sawing

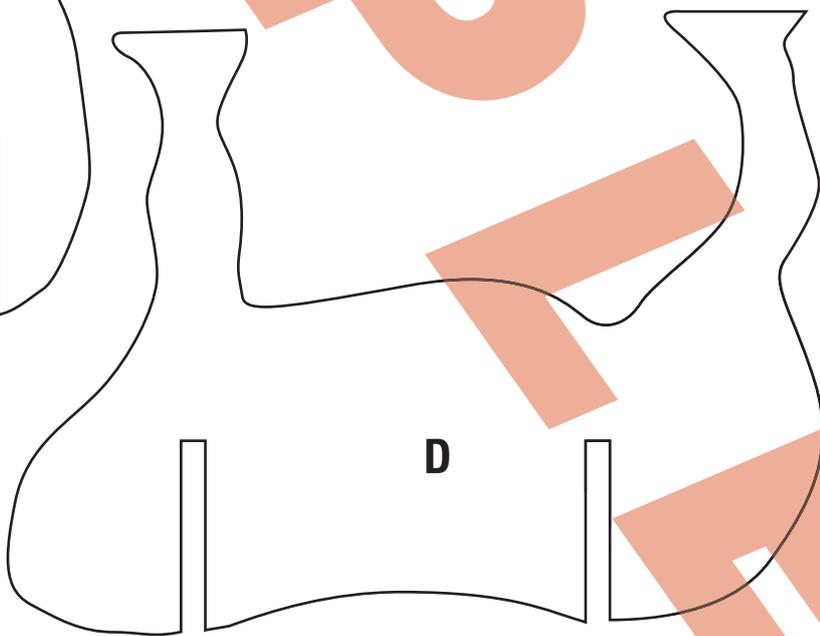
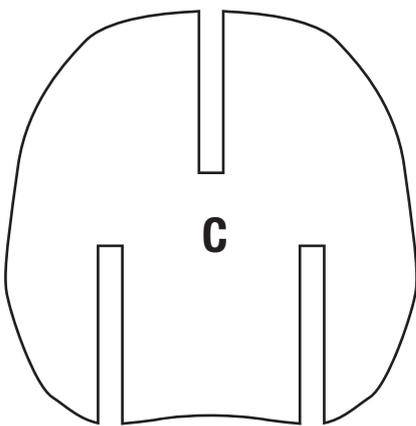
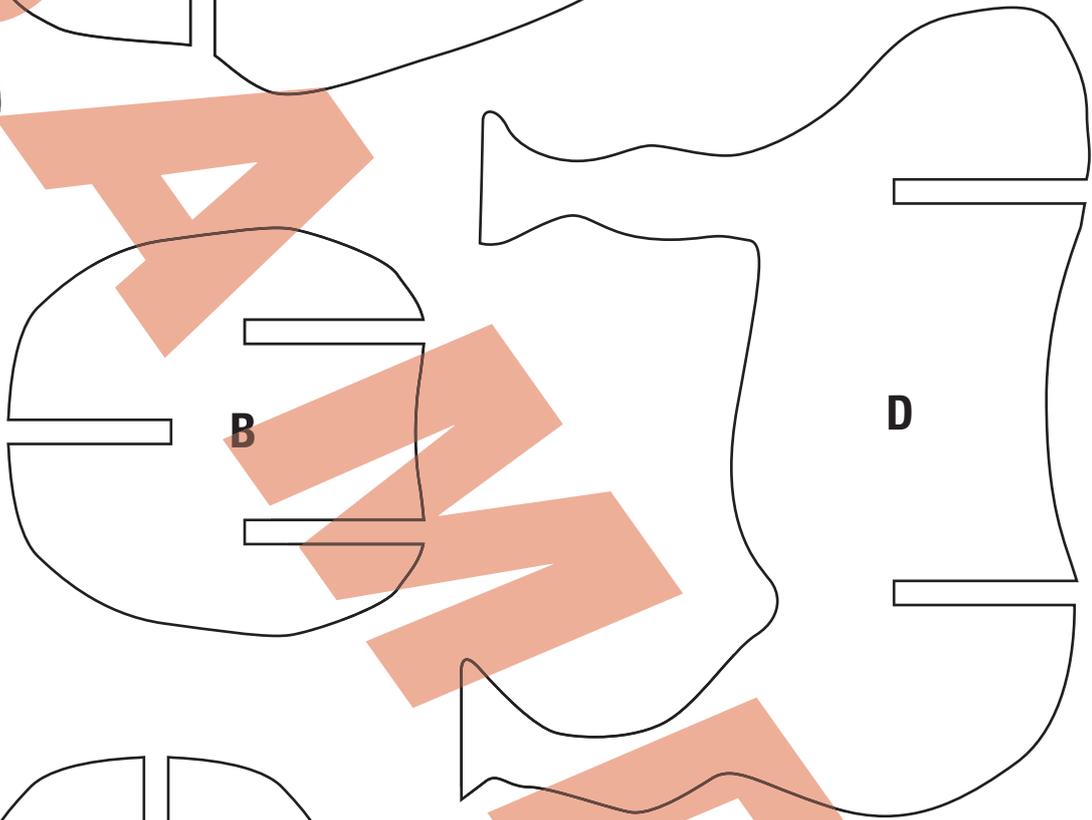
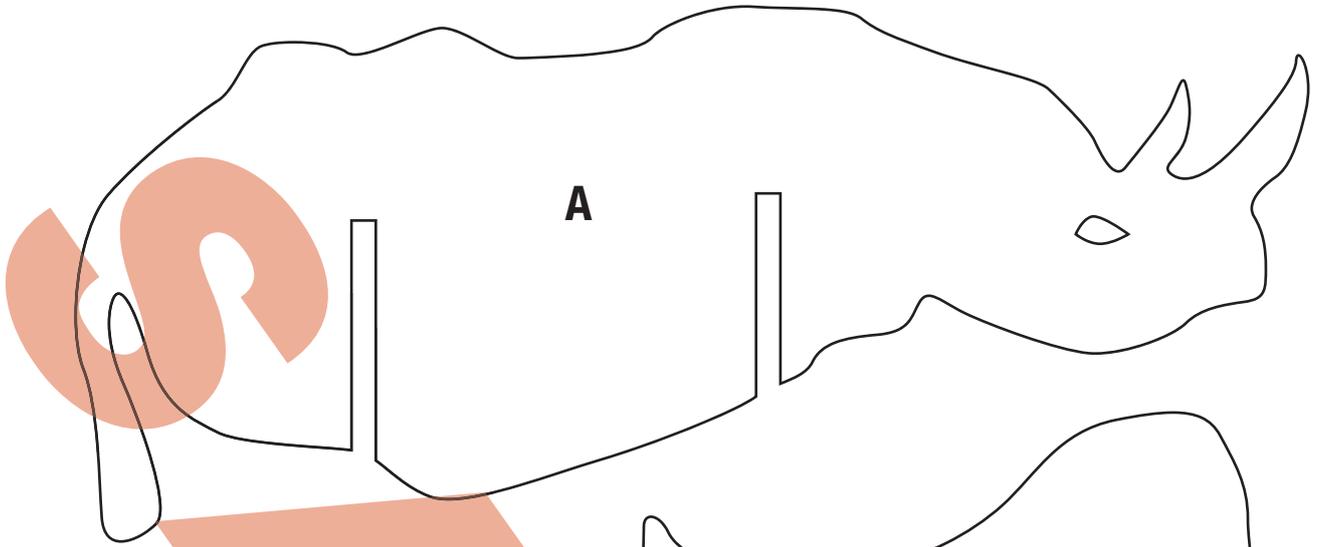
The major parts of a jig saw

- 1) Name the components
- 2) Describe the function of the eccentric



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Stationary driven drilling machines:

Drill press (also known as a pedestal drill, pillar drill, or bench drill) is a fixed style of drill mounted on a stand, or screwed to the floor or a workbench. The movement of the chuck and spindle is guided by a lever working on a rack and pinion. The workpiece can be attached to the worktable by a vise or a clamp. Drill presses are often used for miscellaneous workshop tasks other than drilling holes. This includes sanding, honing and polishing.

For handheld drills in DIY small drill stands are available too but are usually very inaccurate.

- Special applications
 - Geared head drill press
 - Radial arm drill press - several drill heads
 - Mill drill - combine a drill press (belt driven) with the X/Y coordinate abilities of the milling machine
 - Coordinate drill - high accuracy and stability in several axes
 - Long neck drill - for holes in tough to reach areas
 - Angle drill - if no space for the drill
 - Center drill

Drill bit fixation

The drill shank is the upper end of the drill bit and it is used to mount the drill bit into a drilling machine by means of collets, chucks or morse taper with an interlock system (Weldon shank etc). The shank can be cylindrical, conical (morse taper) or squared.



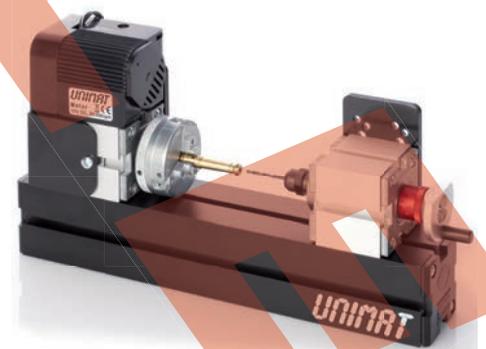
Bench drill



Box column drill



Angle drill



Center drilling machine