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Amateur

Knife making tutorial [part 1, the knife handle]

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- Skills and guides - DIY, Making things. -



Publication: Tuesday 16 May 2006

Description :

Explains in detail how to make a knife from existing parts.

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I have been for a long time what most people call a knife nut[:-)] After a modest collection, this was prone to lead me to knife making.

An easy way to start it to buy pieces, or a kit. Brisa.fi by example sell parts, and the blades are relatively cheap. They also have great tutorials, but you will find mine here. Let's start simple with easily available materials and tools.

We will not cover here how to make a blade from scratch, that will come in the last part of the series and [part two](#) will cover sheath making.

The first thing to do is to gather all the materials and tools needed:

Materials:

- Wood block for the handle
- Blade
- Bolster (preferably pre-pierced and preshaped)
- Spacers, or other material that are used.
- Epoxy glue
- Acetone
- Duct tape

Tools:

- Orbital grinder, or angle grinder with speed control and a rubber disk.
- Sand paper, different grits, the coarser the fastest, the finer for the best finish.
- Drill and long drill bit, 4mm diameter(or adjusted to the tang diameter)
- Thinned chisel (4mm width)
- Mechanical saw blade reground and fitted with a handle in order to make the tang hole)
- Wood saw, mechanical or hand driven
- Metal saw
- Vise
- Little gadgets as shown in the pictures

I have a good selection of mechanical tools, but all this can be done by hand. You will be glad however to have at least a mechanical drill and sander. I tried to keep this as generic as possible, though indeed the pictures show the making of one knife, and are therefore more specific.

You can click on the images in order to get a more detailed view.

Preparing materials



Squaring the wood blank For a beginner, it is easier if everything is square.

Squaring the wood block can be done by hand or using a bench grinder.



Drilling the block slow speed and care, and a lot of checkings.

Then the block is drilled. Here you see a a press drill, but frankly, I do better by hand. Since a 20 cm x 4mm drill bit is very flexible, it is easier to drill by hand taking care to compensate and align, than using the press. If you drill using a press, you'll be glad you squared the block... Mark on the outside of the block the expected path for the bit in the two dimensions, and check that the bit follows the path.



Cutting and sanding the tang Cut the tang to desired length, and send it using coarse grain.

The tang needs to be cut to the right length. Depending on the assembly type you are planning, it may mean none at all (tang goes through a butt plate) or a few mm or cm from the handle end. You need to use your hand to decide the final handle shape and size. Some prefer a drawing, I prefer the intuitive approach, everybody has his own way![:)] The coarse grinding of the tang ensures a better adhesion with the glue in the later gluing stage. This Lauri PT blade also needs the tang to be squared for the bolster to fit properly.



Preparing the tang hole Here we need to check the alignment of block and tang.

Plan the tang hole. It may be interesting at this point to trace on the outside of the block the dimensions of the channel that will be prepared for the tang.



Sand the bolster We make the pre-pierced bolster flat.

Prepare the bolster. Here I use a pre-shaped bolster, but you may also cut it from a plate of silver-nickel or brass. In which case you will also have to drill and file the tang hole. The premade bolsters are rather flat, though embossed so you may need to flatten it. To do this, I use a simple block of wood with two nails planted at strategic distance to hold the bolster well, and sand either on a sand paper laying flat on the table, or on a machine.



Cutting spacers I use wood spacers



Spacers ready different colors.

I use thin wood spacers between the bolster and handle block, so I prepare and cut these to dimension.

Fitting the tang and bolster



Fit bolster to the blade It probably needs to be filed a little, or more.

Check bolster on blade Yes it is perfectly level everywhere. OOps, I cut myself. learn from this and wrap the edge of the blade in duct tape from the early stages!



Good adjustment There are no spaces, the fit is perfect. Avoid dropping blood everywhere!

Adjust the bolster to fit the tang as perfectly as possible, so file it and check the fit often. Invest in a few fine jeweller files of different sections, it will be well worth it.



The modified saws blades Here are the tools I use for enlarging and fitting the tang hole.

These are the most convenient tools in order to enlarge a drilled tang hole. It is a mechanical jigsaw blades ground at the top and inserted in handles. There is no commercial equivalent, you will need to make these. take care about heat building in the seteel when you grind them. Please note, on the picture the 3 types of blades, at the top, a model with straight sharp edged teeth, designed for cutting wood across the grain, very useful to make straight edges and angles. The two lower models are scrapers, they have wide set teeth, and work marvels in the deep of the hole. The last model is better for finition and soft metals. Another tool I use often is a thin long chisel, originally 6mm, ground to 4, as it allows fast removal of material when the tang hole is square. Some tangs, on traditional blades taper toward

the end in all directions, and these are better fitted using the saw blades.



Fitting the tang - maybe You can use this, but it is a bit violent, and wont got the full length.

Fitting the tang -really Better use this, a 4mm wide chisel, in company of a saw blade will do wonder.

Checking things Well now, we need to check everything fits. Probably the angle of the block at the bolster will need adaptation.

Then we need to fit the tang. The best way to do this, is either to drill a huge hole, but the adjustments are clumsy, and a lot of glue will be needed. This requires some work but be patient, the result is well worth doing. This method allows perfect adjustments, not that important when there is a bolster, but very important when there is no bolster. It is important to check the angle at which the block of wood meets the bolster. As the block was squared at 90 degrees, there may be some angle where it meets the bolster which will need to be corrected for a perfectly flat fit. This happens because the bolster may be at an angle slightly different than 90 degrees with the tang, or that you made the tang hole asymmetrical in the wood block. No problem either ways, just adjust the angles.

Gluing the tang



Acetone cleaning Acetone is mandatory to remove any grease trace.

Clean every piece to glue in acetone, at least two times. This will remove finger prints. Fingers always leave a greasy print, even when clean, so do not touch any of the areas of the parts to glue with bare hands once they're cleaned. In general plan for the smallest thickness of glue as possible. Glues have poor side force strength in large thicknesses. Doing this and ensuring the surfaces to glue are rough will make an optimal bonding.



Prepare glue I used kevlar in it, but avoid it, simpler to use only epoxy glue.

Prepare the glue. Consider the time the glue takes for hardening. Do not start difficult and complex stacking using a 5 minute glue. Epoxy glues work great. Generally slower epoxy glues provide better bond than faster ones. Respect

Knife making tutorial [part 1, the knife handle]

the proportions of catalyst and resin, and mix well for a few minutes, the bond will be better. Here you can see some kevlar fibers that will be mixed in to the glue for the tang fitting, avoid fibers for gluing the bolster and spacer stacks, they are difficult to use.



Gluing Apply the glue everywhere.

Perform the gluing. Apply glue on all surfaces of the stack, fill the tang hole. Do not hesitate to use excess glue. Have a lot of excess glue squeezing out as you assemble.



Put in the vise A vise is indeed useful in order to maintain the assembly until the glue takes.

Then you need to put your stack under pressure in a bench vise, a hand vise, or any system you may have made. Make sure whatever system of clamping you use that it also pushes on the blade.



Cleaning the glue Clean the places which needs to be with acetone and cloth before the glue hardens.

We are not yet finished. After the glue has started thickening, but before it is totally hard, clean the parts that needs to be, using a rag and acetone. You will be happy not to have any hard glue to remove later. You can now let the glue set until it reaches maximum strength (or close — read the glue specifications).



Gluing result This is what you get once the tang is glued.

And here is the result, A homogeneous block. I had to destroy a few handles made this way, and it is, quite surprisingly, a tough hammering job.

Shaping



Prepare for sanding At that stage the blade (and you) needs protection.

First let's remove the extra glue and make for the right thicknesses.



Grossly cut handle to shape This is done using a saw.

Once this is done, it is good to give the general outlook by sawing the block to the right outlines. I do this by eye, some may prefer to follow plans.



Coarse shaping Then, making progressive bevels, coarse grind the handle to the desired shape.

Then the shaping takes place, use a bench or orbital grinder, using coarse grit paper, or a set of files, whatever you have at hand, and feel comfortable with. The shape comes by progressively and symmetrically removing bevels until the desired curves are reached. I personally use an orbital grinder and a 24 grit paper, which is extremely coarse.



Details of the shape A handle shape is a 3d work, better check often how it fits the hand.

Detail shaping And finish the sanding with finer papers.

The detail shaping takes place using progressively thinner grits and refining the shape. I often check in my hand to see how it feels, until I am satisfied. It is also time to start rounding things.



Band sanding Block the knife and use a band of paper to finish the round shapes.

A good way to finish the curves is to use a band of sandpaper and pass it around the handle while the blade is held in a vise.



Finishing Finish by hand using very fine sand paper.



A little extra A butt decoration, an insert made of mother of pearl.

The finishing is done using fine sand papers and steel wool, until the right finish is reached. Here I added a little extra, a mother of pearl insert on the top of the handle.

Protecting



Protect the handle Treat the wood, using your preferred method. Here an hardening oil from brand biofa.

Handle coated in oil Wait some time, to let the oil penetrate.

It is time to add a protective coating to the handle. Some will wax it, some will varnish it, I prefer to oil it. There are many options: Pure linseed oil, my own mixture of linseed oil and pine pitch, tung oil, all have their uses, Here I use a commercial hard oil coating based on linseed and pine pitch. I will probably apply a few coats of this. With linseed I prefer to just drop the handle in the oil for a few days. I wait the proper amount of time for the right penetration and drying between coatings.

Our efforts show up



Final result Looks good enough to me!



Another view Details.

This is how it looks once finished. The result looks good, and will certainly serve well. Here is a better picture of it:



A better picture. A better picture of the finished knife.

Conclusion

I hope this has triggered some envy in our readers to make their own knives . Feel free to ask questions by commenting the article, or just add your own tips.

In the next part, [Knife making tutorial \[part 2, the sheath\]](#), I will explain how to make a leather sheath for this knife. Then in the last third part, I will explain an extremely simple forge, and basic technics.

Post-scriptum :15/05/2006 V 1.0, first publication. 18/05/2006 V 1.1, Added tang tools.