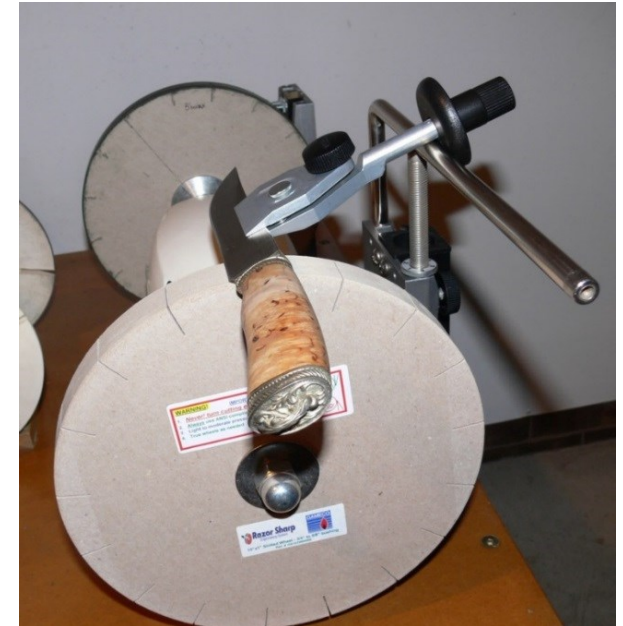


## Controlled-Angle Support for Bench Grinder/Buffer



Should we even explain importance of angle control?

When you finish your edge, the angle the knife attacks the abrasive becomes very critical.

1 degree too steep and you'll be gouging the edge into the abrasive dulling it.

1 degree too shallow and you'll be honing on the shoulder of the bevel, not the edge, honing and honing to no effect on the burr.

Freehand sharpening has been shown to deviate within 3 degrees from the target angle; a coated blade tosses another challenge to freehand sharpening, and the angle control helps maintain crisp bevels.

We tried both 8" and 10" paper wheels, getting comparable result.

But as our workshop sharpens knives on the larger Tormek, we get better results finishing on the 10" paper wheel as better matching the profile of the edge ground on the T7/T8 grinding wheel.

10" paper wheels are run on an 8" grinder/buffer, while 8" paper wheels are run on 6" grinder - this gives room for your fingers on the knife handle over the grinder housing.

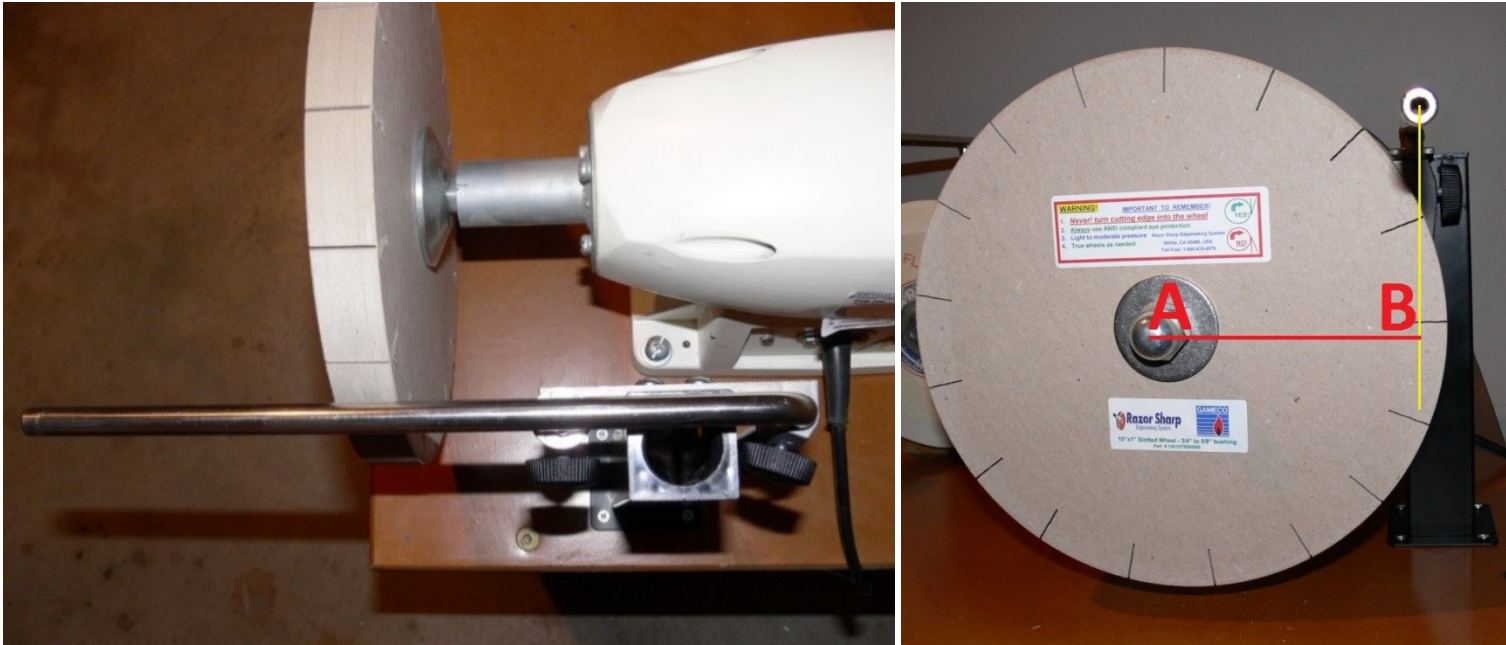
For honing we use slotted paper wheels. Typically, for mainstream knives one slotted paper wheel is with 5-micron diamond paste and another with a mix of 0.5 micron diamonds and chromium oxide. We use diamond paste because it covers all range of knife steels, including hard alloys.

## Mounting instructions

The support stand height is about 220-230 mm for a 10" wheel; for an 8" wheel it is 200 mm.

The support requires certain positioning in relation to your buffer/grinder.  
For honing, mount it on your grinder bench to work away from the wheel.

With the support bar inserted, align the bar with the grinder shaft (i.e. perpendicular to the wheel), with the middle of the bar length against the wheel as shown in the following photographs. The support bar must be positioned in parallel with the grinder shaft to the best of your ability.

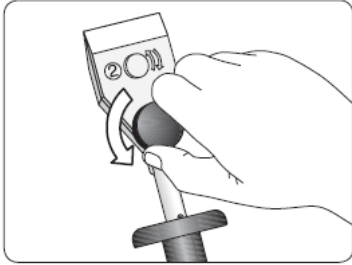


The distance **AB** between the grinder shaft centerline and the bar centerline should be approx. 9 cm for 8" wheel, and **12.5 cm for 10" wheel**. While parallel alignment of the grinder shaft and the support bar is very important, the distance AB can be approximate at this step.  
Having properly positioned the support, mark the holes, remove the bar, and fasten the support to your grinder bench with screws.

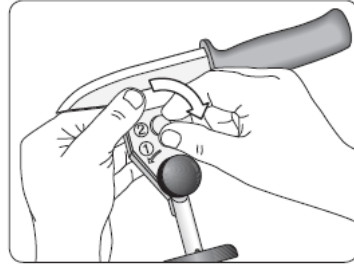
## Operation

Clamp the knife in the Tormek Knife Jig as described in the Tormek handbook:

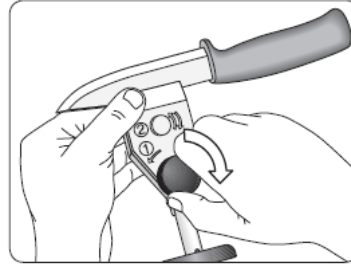
### *Mounting the knife in the jig*



*Check that the knob is loose.*



*Adjust the jig with the small screw to fit the thickness of the knife.*



*Tighten the knob. The knife is now firmly mounted in the jig.*

Set the edge honing/grinding angle by either:

- Tormek AngleMaster;
- Marker method;
- or for ultimate sharpness, use our computer software **Angle Setter for Bench Grinder** (for Mac **Angle Setter for Bench Buffer**).

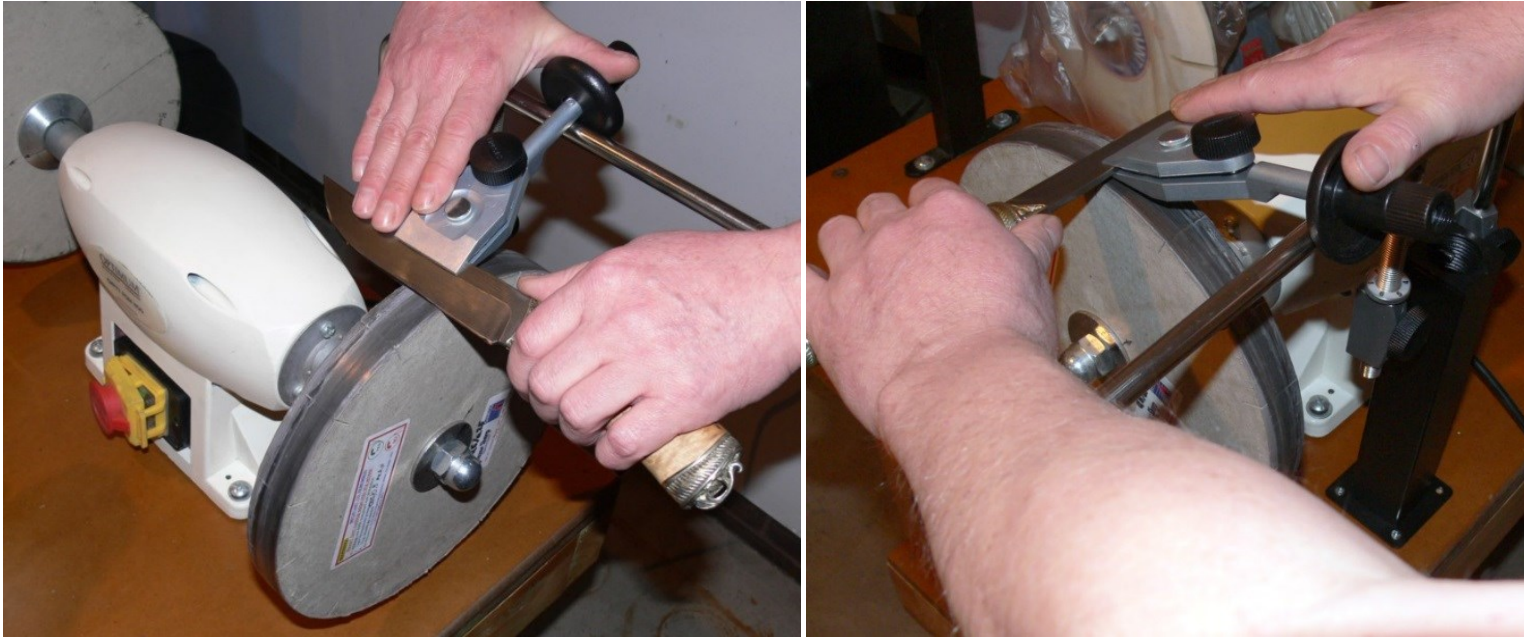
Angle is changed by elevating/lowering the support bar, fine-tuned with the support micro-adjust wheel.

Fix the bar position with the black locking screws at the base.

On the photographs below is AngleMaster set for 30 degrees edge angle (included), on the left photo for 8" wheel, and right for 10".



Make sure that you press your thumb on the knife jig so that the jig is always pressed against the bar during operation. Ensure the jig slides on the Universal Support perpendicular to the wheel and the blade is not shifting forward/backwards. Don't neglect safety glasses.



Move the knife over the wheel with light pressure just enough to maintain continuous contact of the blade with the wheel. Ensure that the blade is in contact with the entire width of the wheel; near the tip raise the knife handle following the taper. Half-speed buffer/grinder is recommended.

**To prevent edge burning at high RPM:**

Use slotted wheels and a half-speed grinder/buffer;

Now and then clean the wheel slots with a thread or floss;

When using diamonds for honing, use oil-based diamond pastes rather than sprays;

Use our Honing Cooler;

Pull the blade across the wheel at a feed rate of approximately 5cm per 1 second on a half-speed speed grinder/buffer, and 10cm per sec on full speed - not slower! Better do two quick passes than one slow.

## Applet Installation

This applet runs on Windows 7, 8, 10 and future Windows OS.

Extract (unzip) the download.

Run by clicking the **BG\_Angle\_Setter** and click Install when prompted.

This installs and runs the applet, and the application can be uninstalled via Add/Remove Programs in the Control Panel.

**MacBook, iPhone & iPad** applets can be bought directly from the **App Store**.

**Android phone & tablet** applets can be bought directly from the **Google Play**.

Search for **Angle Setter for Bench Grinder**, and for Mac search for **Angle Setter for Bench Buffer**.

## Using the computer applet to set honing/grinding angle

Having mounted the supports next to your grinder or buffer, you have to take the following measurements in mm:

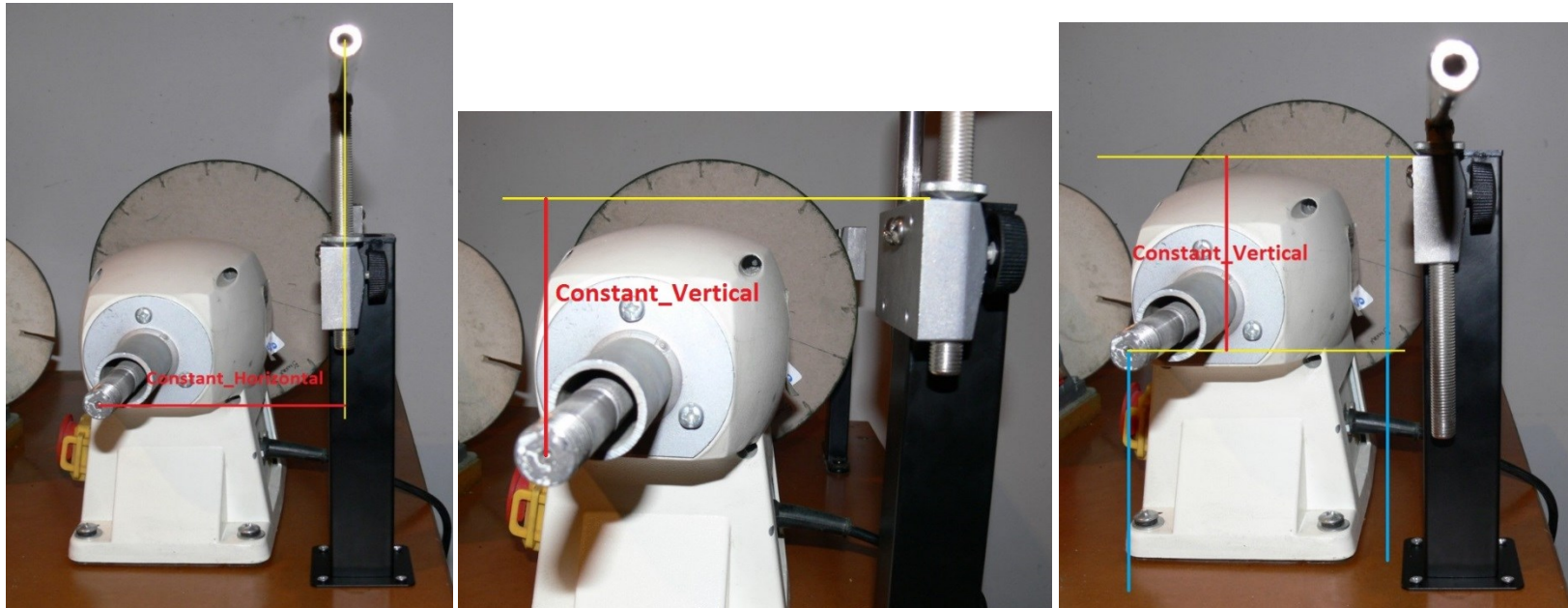
- Wheel diameter.
- **Constant\_Horizontal** – horizontal distance between the grinder shaft centerline and the bar centerline. Recommended distance is 90 mm for 8" wheel, and 125 mm for 10" wheel, but you must measure the actual distance of your setup in mm.
- **Constant\_Vertical** – vertical distance between the center of the grinder shaft, and the top of the support stand.

It is the same as the **difference** between the support stand height, and the vertical distance from the center of the grinder shaft down to the bench.

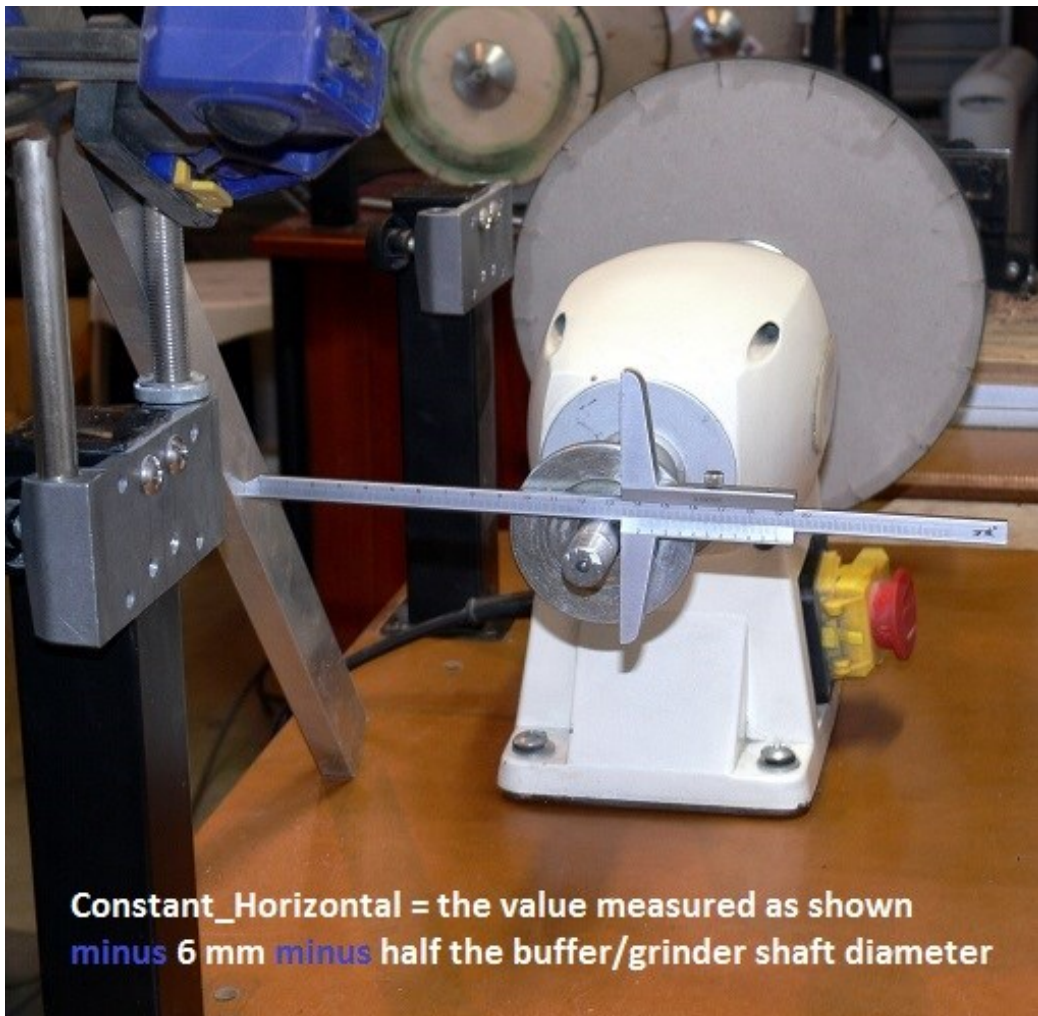
The support stand height is about 220-230 mm for a 10" wheel; for an 8" wheel it is 200 mm – you have to measure the actual height.

So for a 10" wheel the **Constant\_Vertical** = **230 minus** [vertical distance from the center of your grinder shaft down to the bench].

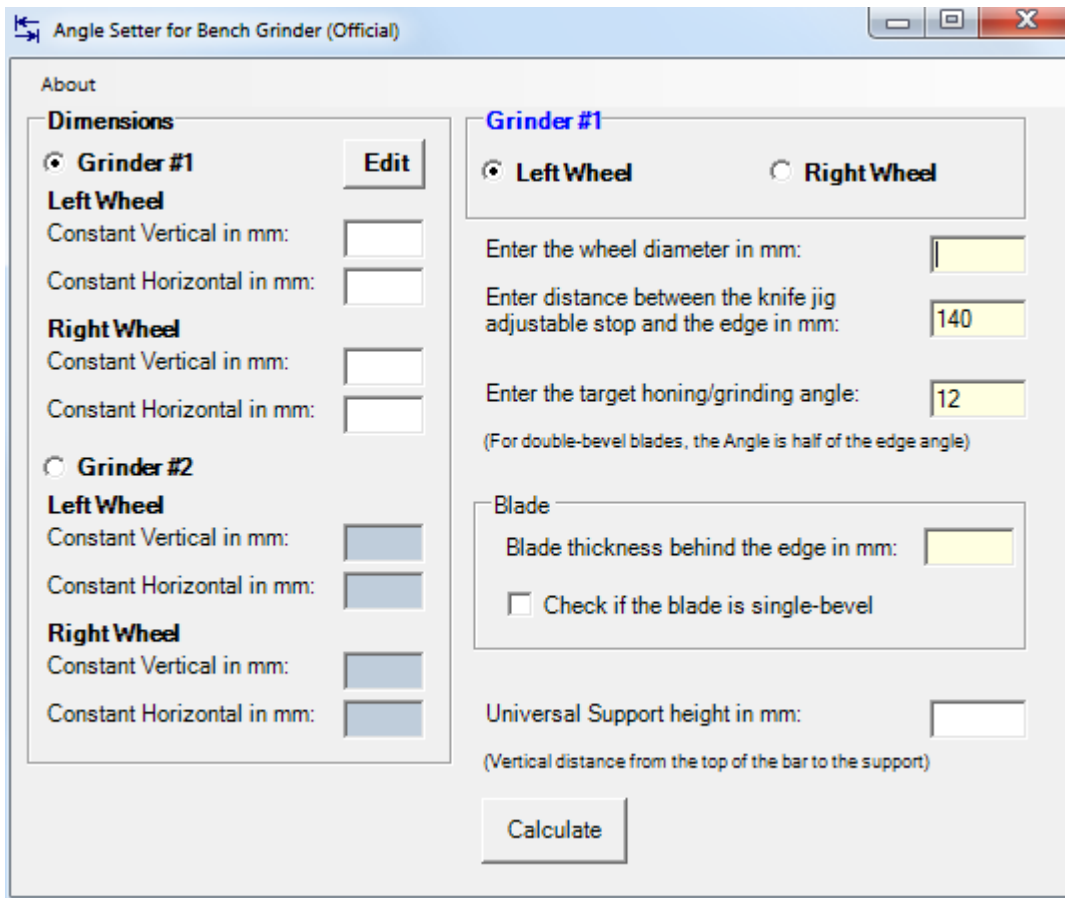
These measurements you do only once, to tune the applet to your particular setup.



See how we measure the Constant\_Horizontal and Constant\_Vertical; must be done for each side, because distances are not the same on the left and right even in the best buffer/grinder.



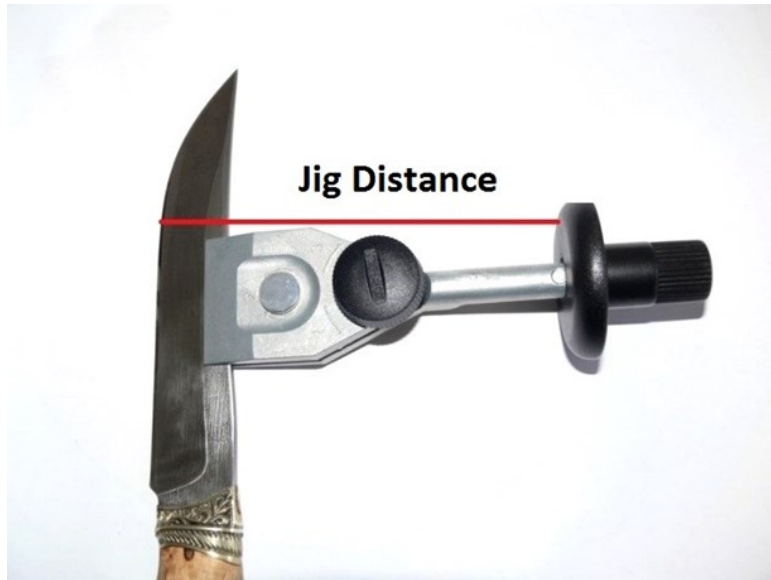
Click the Edit button to edit the constants in the applet with your measured values, and click the same button to save – you have to do it just once.



Measure the actual **Wheel Diameter** in mm to a fraction of mm, using 300 mm calipers.

## Jig Distance

Having mounted the knife in the knife jig, measure distance between the knife jig adjustable stop (the flat black plastic part) and the knife edge in mm – you will need this value for the applet.



Use some kind of a jig setting block for better accuracy. The jig projection measuring/setting block has 2 functions: first is to align the knife edge parallel to the plane of the jig adjustable stop; and the second function is to accurately measure the *jig distance* for use with our software.



Enter the target edge angle in degrees per side (dps). For double-bevel blades, the *Angle* is half of the included edge angle.



### Blade thickness behind the edge

For honing, measure at the edge bevel to a fraction of mm, using callipers or micrometre.



Select your grinder, left or right wheel, enter the wheel diameter, jig distance and the target honing/grinding angle, and press the Calculate button.

For your target honing/grinding angle, the applet will give you the support bar height as a vertical distance from the top of the bar to the top of the support stand.

Using the support micro-adjust wheel, set the bar height with the help of a caliper depth probe as shown on the photo, and lock position with the black locking screws.

