Angle cube seems to vary quite a bit...

Posted by Scott Sherman - 02 Nov 2012 22:08

I know there is a +/- tolerance of .05 degrees using the angle cube, but I seem to get quite a bit more than that when measuring between stones.

What I mean by that is that I calibrate the cube to 0.00 and then attach it to a stone then set the angle to some amount (for example 16.00 degrees). Then repeat this with the other stone. After several strokes, I can recheck it and find that the stones are now off by about +/- .20 degrees. This also occurs when changing the stones from one set to the next.

Bottom line is that there is a tremendous inconsistency in the angles being used to apply the paddles to the blade. Now, to be clear we are mostly talking about pretty small changes in the angle but in a precision tool, it seems like it should be more consistent to me. Or am I making a mountain out of a mole hill?

I know many don't even use an angle cube and just set the paddles using the calibrated guide rod. Can you get the same result essentially when the angles vary by a quarter of a degree between stones or do you need to continuously re-adjust the stones every time you change them?

Sorry for rambling, but I was not quite sure how to articulate my observations simply. Have any of you noticed this with your angle cube?

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Re: Angle cube seems to vary quite a bit...

Posted by PhilipPasteur - 03 Nov 2012 14:23

Hey Curtis,

Maybe more to the point.. I would like to solicit your thoughts on the burr at each grit thing.

Phil

cbwx34 wrote:

Geocyclist wrote:

"A man with one GPS always knows exactly where is he, a man with 2 is never quite sure".

Man, there's so much wisdom in that statement, I may make it part of my signature.

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Re: Angle cube seems to vary quite a bit...

Posted by cbwx34 - 03 Nov 2012 14:49

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PhilipPasteur wrote:

I think most folks would agree that it is really not a good idea to form a burr with each grit.

Just a heads up. With the several hunderd knives that I have done on the WEPS, I have never even tried to form a burr with each grit. Just my take.

If you profile with your diamonds, whatever the grit, pull a burr on each side once. Just sharpen with equal strokes per side after that. Trust the system. When I have done the setup correctly, it doesn't let me down. You really spend too much time and remove too much metal in trying to pull a burr at each grit.. at the finer grit levels, it becomes an excersize in frustration.

Check the forum. This has been discussed several times.

Phil

I think you're right for the most part… I think it might be more accurate to say… once you raise a burr with a lower grit, you don't need to check for it at each level, you know you're already at the edge. So taking the time to raise a burr and check for it is not necessary and counterproductive. Once you know you're at the edge, it becomes an exercise in refining it, so your 2nd part is correct.

If someone thought there was an issue with reaching the edge at any level, they could check for a burr, that would tell. I think that's what Geocyclist was trying to say… at least that's what I would do, or get

out the microscope and see what's going on.

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Re: Angle cube seems to vary quite a bit...
Posted by Geocyclist - 03 Nov 2012 16:45

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Phil,

Yes I agree about burring only once. I think if you are with diamond stones and the thickness are the same it is counterproductive. For the purpose of worrying if your angle changes (for any reason) I am just saying a burr is a quick check that you are getting to the edge. But this is only half of a check as if you went more obtuse you would still burr.

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Re: Angle cube seems to vary quite a bit...
Posted by PhilipPasteur - 03 Nov 2012 17:51

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Yeah, I get that. Once I have established a bevel and made sure that I have established a burr on both sides, I go to alternating stroke as I go finer. I guess that if we checked at the microscopic level, we might see some kind of burr at each stroke. Not something that I would take time to verify though.

The thing is that lots of folks read this forum that don't have the experience using the WEPS that we do. One of the complaints... illustrated by the quotes below, is that the system takes too much itme to use. A common misconception, it seems, has been that raising a burr with every stone is required. I think that we know what each other is meaning, even though it may not be in the actual text. Many others probably take what we say verbatim. Ever notice that there are several hundred non members viewing the forums,at any given time, compared to a dozen or so members?

Soooo...

Using alternating light sweeping strokes (as recommended) it will be very difficult to detect or even see (with comonly accessible magnification) a burr between strokes with anything finer than maybe 200 grit. Likely a waste of time... and probably frustrating for anyone trying to get there.

Of course, if we make a decision to change the angle significantly (make it more obtuse), re-establishing a burr would be the thing to do. We were talking about 0.2 degree variances in the angle with a cube. Or so I thought.

Here are a couple of things that I found that might clarify things a bit.

From Clay, link below:

I'd go with a final angle of 22 degrees per side and I'd use all the stones and strops you have. If you have the time, you could re-profile the blade to 20 degrees per side and work through all the grits. Then go back and set the angle to 22 degrees and put a micro-bevel on with your 1600 ceramics with 5-10 light strokes per side, definitely alternating from side to side so you don't create a burr.

www.wickededgeusa.com/index.php?option=c...9&Itemid=63#6391

From Tom Blodgett, link below:

Which brings us to the second possibility - strokes. . If you are alternating strokes, you will not get a burr(at least not a honking big burr) because each alternating stroke cancels out burr buildup. Sweeping strokes, are slower for metal removal and are better once you have established the desired geometry.

www.wickededgeusa.com/index.php?option=c...5&Itemid=63#1377

From Leo, link below...Mark asking the question, Post 1513:

Hi Lukas

There has been a misunderstanding by many, that it takes a long time to sharpen with the WEPS...not true. Part of the problem is that the many have not seen this video (link is below). Please watch it and see how Clay takes a cheaper Chef's knife from sharp to dull by raking the edge with a bastard file and the rebuilds the edge to sharp again in a short time.

One of the huge misunderstandings is this: you only have to raise a burr on each side of the blade with the 100 grit paddles 'once'. And then move up through the rest of the finer grit paddles. **It is not necessary to raise a burr with each of the sets of paddles**
!!!!!!

Watch the video and you will see how easy it really is. And by the way, to touch up your knife once you have done the whole process with your WEPS, does not require a raising of the burr again unless you want to change the angle or the edge has been damaged.

Please let me know your thinking after watching the video Lukas.

www.wickededgeusa.com/index.php?option=c...id=77&video_id=1

Best regards

Leo

www.wickededgeusa.com/index.php?option=c...2&Itemid=63#1510

Again, just for clarification, not for showing anyone that they are right or wrong. Each person has an approach to this art. If it works for you ...then it works. If you can save a bit of time in the process and get to the same place, so much the better. I am all for efficiency.

Phil

Geocyclist wrote:

Phil,

Yes I agree about burring only once. I think if you are with diamond stones and the thickness are the same it is counterproductive. For the purpose of worrying if your angle changes (for any reason) I am just saying a burr is a quick check that you are getting to the edge. But this is only half of a check as if you went more obtuse you would still burr.

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Re: Angle cube seems to vary quite a bit...

Posted by Scott Sherman - 06 Nov 2012 15:04

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Not to beat a dead horse, but I was a bit late to the party when it was discovered that the screws that locked the angle guide arms in place did not seat into the dimpled bar under the riser. I sort of think that this is at the core of this problem since the guide arms are being subjected to different dresses and vibrations with each stroke and since they are just depending on friction against the flat part of that steel bar instead of sitting inside a dimple or cup to hold it in place it is inevitable that it will drift a bit this way or that. So that is why between each stone I find that the angle is off enough to effect the flatness and accuracy of the bevel on the blade under the apex.

So, I think that this should be remedied when Clay gets the new guide rod hardware out to lock those arms in place more securely. I think once in effect, when you set the guide rods, you can be confident that they will cause the stones to strike and drag over the blade at a consistent angle each time, assuming the thickness of the stone is within a tiny fraction of the others. As the diamond stones are.

At least I hope this is the case.

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Re: Angle cube seems to vary quite a bit...

Posted by PhilipPasteur - 06 Nov 2012 16:27

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You are beating a dead horse!

Just as a data point. I have not used the dimpled side of the rod ever since I got my angle cube. Way over a year and a hundred knives ago. I don't have issues with the sliders wandering. Only about three months ago did I think to file the ends of the screws flat. This reduces the torque required on the set screws to keep the slider in place, but not dramatically.

While I was going through my little sharpening routine over the last couple of days I di notice somethng about my angle cube. I could change the fine adjuster over maybe a turn and my angle reading would not change. I would move the angle cube away from the stone and reset it, the reading would change in excess of 0.20 degrees...sometimes 0.3..

In other words the angle cube requires a bit of finessing to work as well as it can. I mentioned that I usually just check angles with the coarse diamonds, then with the Choseras (once) then with the strops (once). For the last excercize I checked everytime I flipped the stones or changed them. I would get a couple of tenths or so difference everytime! I would carefully make adjustments until I was exactly at 18 degrees..and hold the cube in place for 20 to 30 seconds to make sure that it stabilized. Sharpen away and check again when I flipped the stones.... then start cursing because the reading was different....

I Know that nothing slipped. I was cranking the screws down with pliers...!!! I have purple locktite on the threads, the arm joints have almost no slop. That leaves two possibilities (as far as I can see), the stones

actually are different thicknesses to the extent that causes the difference, or my placement of the stones along the length of the blade was not prceise enough.

In any case, as was discussed before, a couple tenths of a degree is really noting to obsess about. In my experience, new screws, old screws, whatever screws, you will likely see differences in readings of this magnitude... IF you are worried enough to check often enough.

If you have the black screws, until you get the update, I would bet that applying a bit of the purple locktite and cranking down a bit on them will be plenty to keep your sliders from moving enough to bother anything. Of course, if it still worries you, get some thumbscrews to fit and put them in the back threaded holes. Even if you are sure your sliders are not moving... the angle cube will surely drive you to distraction if you let it.

Phil

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Re: Angle cube seems to vary quite a bit...
Posted by Scott Sherman - 06 Nov 2012 16:49

Thanks Phil,

I can always count on you to put things in the proper perspective. I guess the truth will be in the actual user experience when I am able to switch out the screws to see if there is less movement. I only bring this up because we (I) are (am) dealing with scratches that are microscopic and in attempting to get that mirror finish with as few visible scratches to my eye possible. When the angle changes, even 0.2 or 0.3 degrees, it can have an effect.

Anyway, as always thanks for your response. I appreciate that you thought it was significant enough to take the time and spend the energy to experiment on your own system to respond.

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Re: Angle cube seems to vary quite a bit...
Posted by wickededge - 06 Nov 2012 17:46

A couple things to note about the Angle Cubes:

- They have an error percentage of +/- .2 degrees.
- They vary in their readings within that range routinely and need to be properly 'settled' which does take finesse.
- They're sensitive to being perpendicular to the zero plane from at least one side; in our case, the front and back of the box need to be perpendicular to the plane. If you rotate the cube on the stone so that the numbers are facing somewhat up or down, you'll see a significant difference in angle. I shoot for having the stone right in line with the vise jaws and the edge of the bevel of the cube aligned to the edge of the stone. If I'm being really OCD about it, I'll use a square against the back plate of the cube to be sure.

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Re: Angle cube seems to vary quite a bit...

Posted by PhilipPasteur - 06 Nov 2012 20:25

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Thanks Clay...

Also Scott. Keep in mind that I usually am not that anal about the cube... I was trying to make that Dmascus Mule as close to perfect as I could get it.

I usually, as mentioned check when first setting up the diamonds, then with the choseras (keep in mind that those are not machined parts and wear at different rates...so I would not be surprised to see angles +/- 0.5 degrees) then before the strop series (again the leather is not uniform, much less the "roo and nanocloth). I get great edges doing that. They cut well and are very pretty as well.

You can obsess about it, but as Clay mentions, you are running up against the accuracy of the device when fretting about .2 degrees (worst case you could be off by 0.4 degrees and never even know it)... If this is Varying quite a bit... to you, you need a more accurate device before we start looking at inaccuracies in the WEPS as being the culprit.

If you find one, let me know... I will probably buy one !!

Here is an interesting quote for you:

"Recall that two values that are different, yet are still within the stated tolerance of the measuring device,cannot reliably be distinguished from each other."

www.gia.edu/diamondcut/pdf/4_05_RDR_pg183_185.pdf

Take a read of it...interesting stuff.

Phil

Scott Sherman wrote:

Thanks Phil,

I can always count on you to put things in the proper perspective. I guess the truth will be in the actual user experience when I am able to switch out the screws to see if there is less movement. I only bring this up because we (I) are (am) dealing with scratches that are microscopic and in attempting to get that mirror finish with as few visible scratches to my eye possible. When the angle changes, even 0.2 or 0.3 degrees, it can have an effect.

Anyway, as always thanks for your response. I appreciate that you thought it was significant enough to take the time and spend the energy to experiment on your own system to respond.

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Re: Angle cube seems to vary quite a bit...

Posted by PhilipPasteur - 06 Nov 2012 20:42

Hey Clay,

Speaking of the Angle cube....

You mentioned having the claibration procedure for the angle cube at one point some time back. Do you still have it.

I ran accross it one time and actually did it... now I can't find it. If you do have it, could I get a copy?

Please.

Phil

wickededge wrote:

A couple things to note about the Angle Cubes:

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- They vary in their readings within that range routinely and need to be properly 'settled' which does take finesse.
- They're sensitive to being perpendicular to the zero plane from at least one side; in our case, the front and back of the box need to be perpendicular to the plane. If you rotate the cube on the stone so that the numbers are facing somewhat up or down, you'll see a significant difference in angle. I shoot for having the stone right in line with the vise jaws and the edge of the bevel of the cube aligned to the edge of the stone. If I'm being really OCD about it, I'll use a square against the back plate of the cube to be sure.

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