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 Geocyclist - 06 Nov 2012 21:25

Good point Phil about the values being within the tolerance. My 2 cents: there no point worrying about the angle any more than to the nearest 0.5 degrees. Smaller than that and you are getting close to the 0.2 working accuracy.

Getting down to brass tax: IF the cube was accurate to 0.000001 degrees, could you tell one side was off by 0.1? Based on how the edge bevel is? I think not?

I have noticed the phenomena about the cube, sometimes you just have to take it off, turn it a bit and put it back on to get a good measurement.

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Re: Angle cube seems to vary quite a bit...
Posted by Mikedoh - 07 Nov 2012 00:04

Is there more to calibrating it than rezeroing it on your work surface each time?

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Re: Angle cube seems to vary quite a bit...
Posted by wickededge - 07 Nov 2012 08:11

Hey Phil,

I'll see what I can dig up. It's been a while and my memory is rusty.

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Re: Angle cube seems to vary quite a bit...
Posted by cbwx34 - 07 Nov 2012 09:31

Are you talking about this?

wickededgeusa.com/index.php?option=com_k...id=363&Itemid=63

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Re: Angle cube seems to vary quite a bit...
Posted by PhilipPasteur - 07 Nov 2012 09:49

Good article, but no.

I just shot a note off to iGaging asking for the procedure. Lets see what I get back, if anything.

If I get the procedure I will scan it and post it.

Phil

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Re: Angle cube seems to vary quite a bit...
Posted by wickededge - 07 Nov 2012 13:16

PhilipPasteur wrote:

Good article, but no.

I just shot a note off to iGaging asking for the procedure. Lets see what I get back, if anything.

If I get the procedure I will scan it and post it.

Phil

They're usually pretty responsive there. I also sent an email to them this morning.

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Re: Angle cube seems to vary quite a bit...
Posted by wickededge - 08 Nov 2012 12:50

I got the recalibration instructions back from iGaging. Here they are: Re-calibrating your digital angle gauge. There is a permanent link to the file on the Downloads page, accessible from the Resources tab.

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Re: Angle cube seems to vary quite a bit...
Posted by PhilipPasteur - 08 Nov 2012 13:29

Thanks Clay.

I just could not remember the button sequences to get it into calibration mode. Now I have that.

Of course the requirement to have soemthing level to 0.02 degrees is a problem.

I used a metal plate that I had leveled with another device that claims 0.1 degree accuracy..

Who knows, but I have no granite surface plate available to me anymore...

My cube will show exactly 90 degrees on either side after zeroing it. Probably as good as it gets.

Thanks for posting that. I have still not heard back from the good folks at iGaging.

Phil

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

Posted by AnthonyYan - 10 Nov 2012 19:13

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I've been using the Wixey Digital Angle Gauge, which is very similar to the iGaging Angle Cube. On paper, the Wixey is supposed to have an overall accuracy of 0.1 degrees, and a repeatability of 0.1 degrees. It has a resolution of 0.1 degrees.

www.wixey.com/anglegauge/index.html#wr300

I have a small granite surface plate, and a sine bar, so I may try to test its accuracy.

There are very high accuracy digital inclinometers, but they are expensive. The one below only measures a limited range of +/- 20 degrees, but has very high accuracy (0.003 degrees).

www.digipas.com/DWL-3500.php

Alternatively, you might be able to rig something up with a machinist's spirit level (also called an engineer's level) which is basically a very precise bubble-level with liquid. You would need something like a sine bar, gauge blocks, or angle gauge-blocks, and/or a micrometer. You can buy non-digital engineer inclinometers which are already rigged up this way, but they're very expensive (several hundreds of dollars). Of course, at this point, you're probably insane.

Have I thought about this? Yes.

I got quite curious about general metrology, and have been reading up on it and looking at company websites that sell metrology products.

In terms of cutting performance, I probably wouldn't notice a +/-1 degree difference.

Sincerely,

--Lagrangian

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