

Flatness measurements on IROC Alubody

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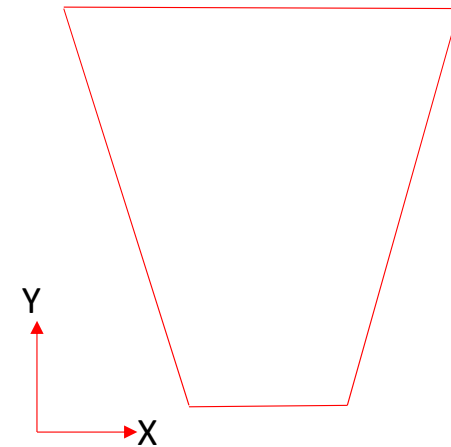
Background information:

For plots and data below, the alubody is oriented as shown.

All transverse measurements (X,Y) are reported in millimeters, height measurements are reported in microns for the color density plots. You are viewing the alubody from the pad plane side so larger height values are toward you (hill) and smaller are away (valley).

The alubody was scanned in 14 left to right scans at different vertical (Y) locations. The Y locations were selected to miss various features – cooling loop grooves, rows of connector slots. The step in the X direction is 2 mm.

The vertical “bar” showing a single measurement in the plots that follow is not always centered vertically on the measurement location. The lower bar edge is half way to the previous (lower Y) scan and the top edge is half way to the next (higher Y) location. For successive scans where the Y spacing is equal (scanning between the connector slot rows) the vertical measurement location will be centered in the bar.



Color density plot of height measurements.

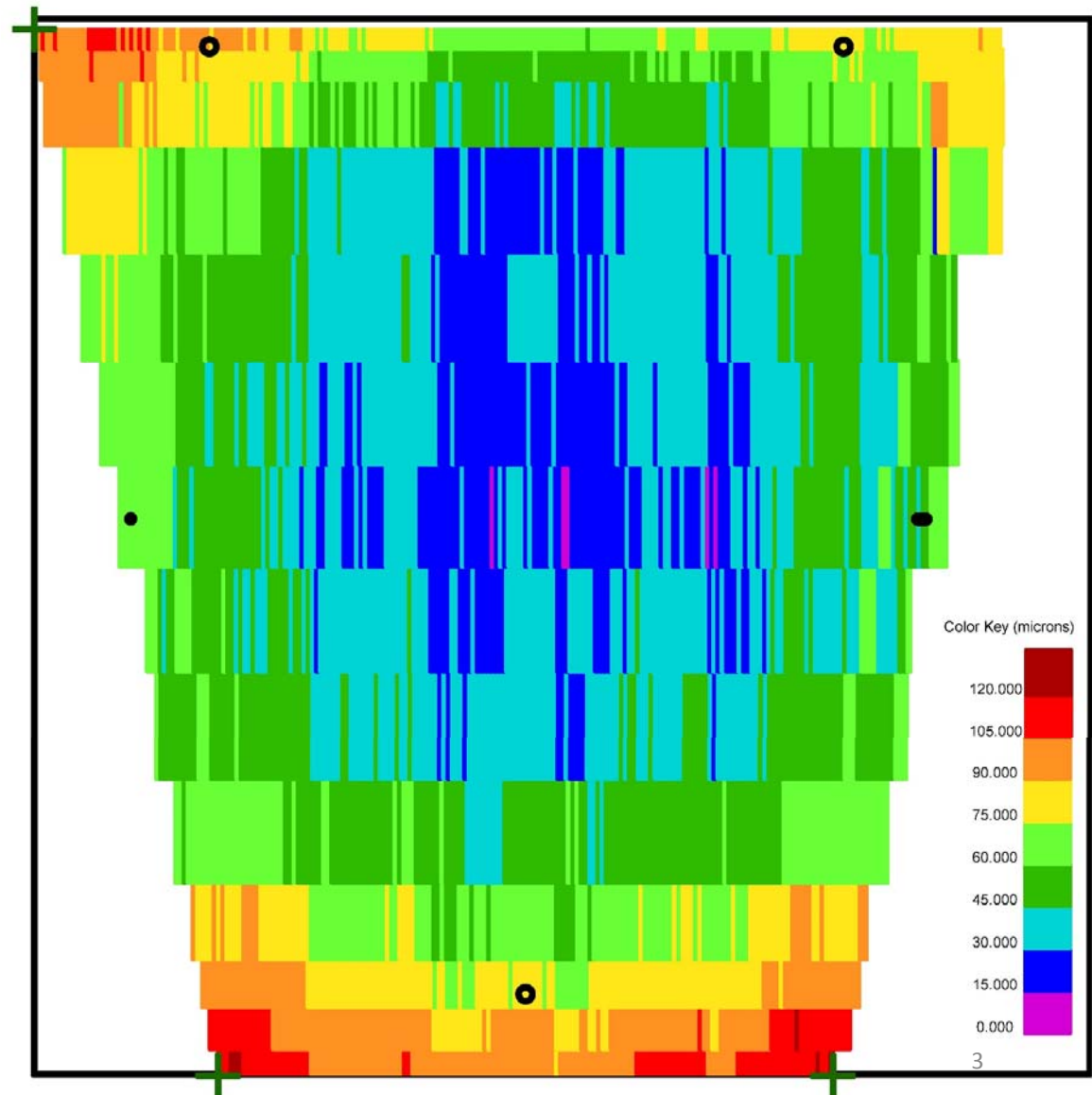
- Framing box is 500 mm x 500 mm.
- Green crosses show corners of alubody. The upper right corner is just beyond the range of the machine so measurements are not available there.
- Black circles are mounting holes.

Again, lower height (cooler colors) represent a valley.

Min Height = -0.10277 mm
Max Height = 0.01147 mm
Difference = 0.114 mm

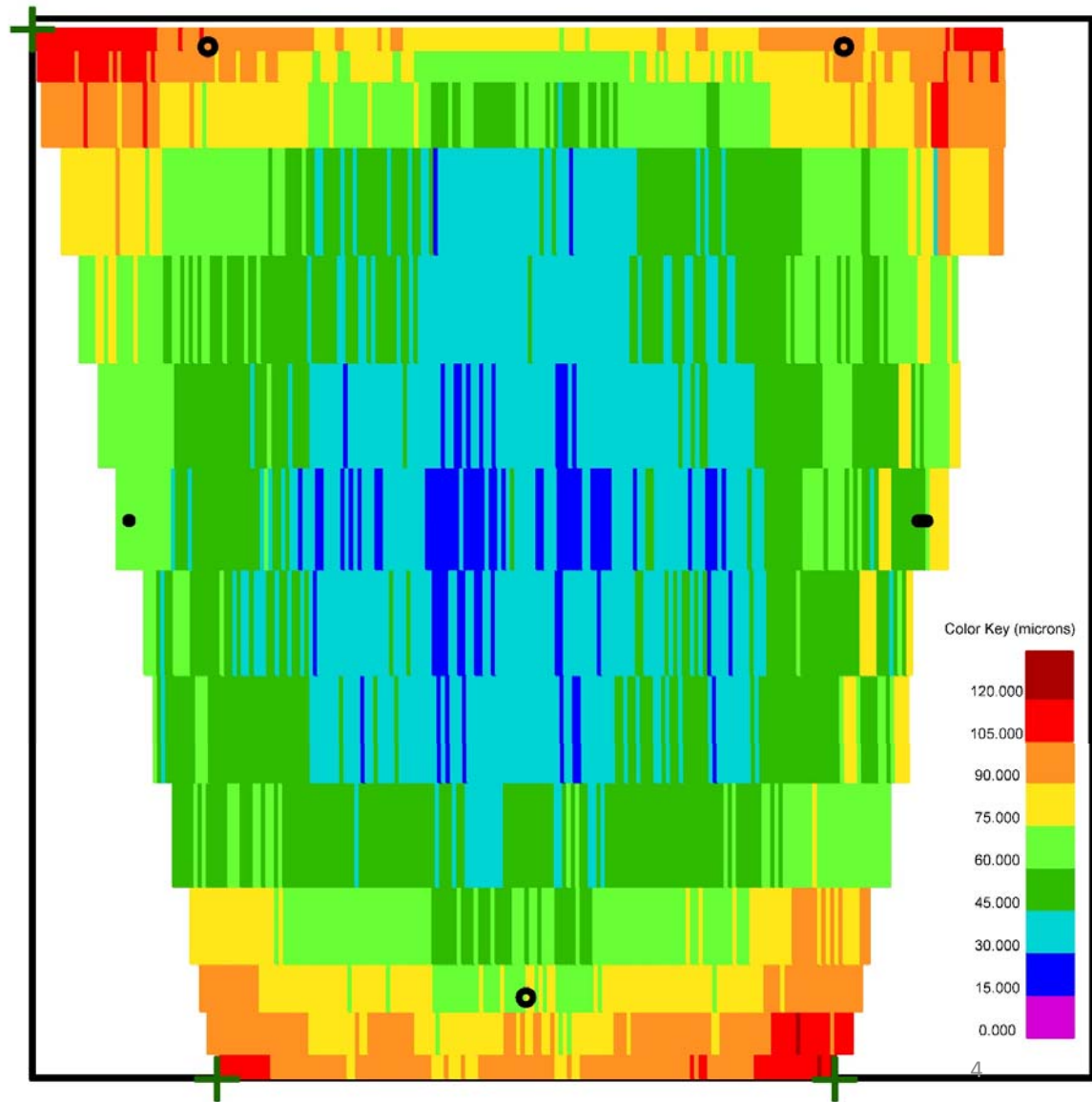
These data are *not corrected for possible rotations* between the measurement plane and the alubody plane (rotations about X and Y axis)
- see next plot.

For location data presented later the coordinate origin is at the lower left of the framing box shown here.



Height differences from best fit flat plane.
Fit parameters = rotation about X and Y axis.
X slope = -2.87×10^{-5}
Y slope = -3.92×10^{-5}

Max Height 0.05436 mm
Min Height = -0.05133 mm
Difference = 0.1057 mm



Specifics for some features:

Corner locations:

	X (mm)	Y (mm)
top left	0	495
Bot left	87.124	-0.606
bot right	378.369	-0.672

Mounting holes:

Note – for a tapped hole, diam. and location are less precise.

	X (mm)	Y (mm)	Diam. (mm)
MH1	232.734	37.729	6.582
MH2	82.868	486.8	6.669
MH3	383.005	486.761	6.488

Small features on left and right edges (mm)

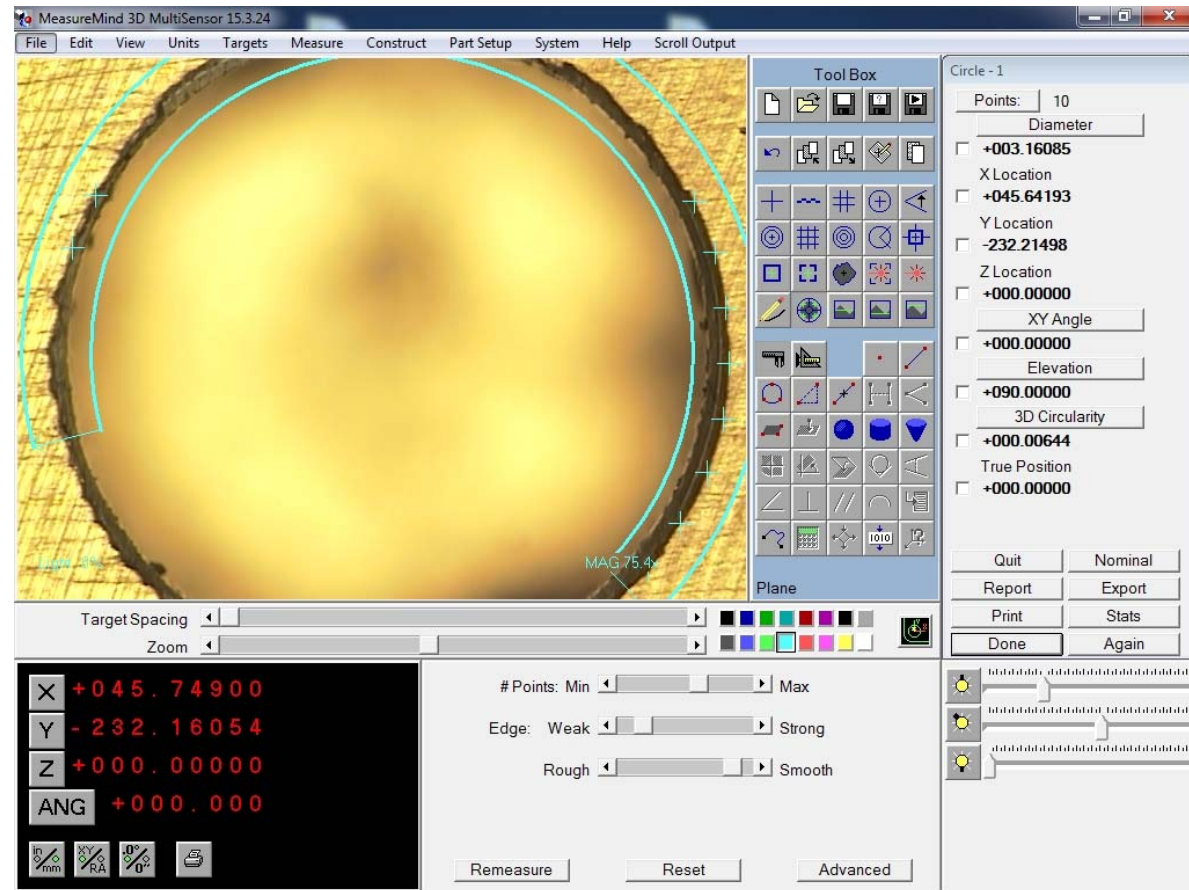
Hole:

X = 45.650, Y = 262.790, Diam. = 3.1725

Slot:

Low edge Y= 261.040, high edge Y= 264.221

Left tip, X= 416.462, right tip, X= 423.639



Typical OGP measurement screen. This shows feature fitting – user defines 3 points on the circle, the machine then finds several points and fits a circle. Ignore values here, image was taken before part setup was complete.