

Torchmate Gantry Testing of X & Y Axis.

If you are finding that your machine is not making true direction movements, or that the machine is changing the outcome of your design even though the program is telling you that the movements are correct, it could be the result of your X or Y axis being out of alignment. To test these axis, please do the following exercise.

Turn on the Driver box, Signal Generator, and open the driver software Online. Be sure that the gantry has enough travel distance available on the X axis before proceeding. In the lower right corner of the main page, select Point, Any Point, Incremental, and then enter 48.0 for the X axis. Before pressing Move, lower your torch holder so that you can mark the exact spot where the torch is currently resting. Raise the torch to its normal resting position, and then press Move. The gantry should move along the X axis for 48 inches. When the gantry stops, lower the torch in the holder, and mark the exact spot where the torch is now resting. Measure the distance between the two points with a tape measure device. Did the X axis travel the 48 inches? Did it go further or shorter? By how far was it off the program distance? To correct this divide the distance to travel by the distance actually traveled (for example, $48/47.75$), then multiply this number by the current gear ratio (1.6400).

With the X axis completed, test the travel distance of your Y axis. Be sure that the gantry has enough travel distance available on the Y axis before proceeding. Proceed with the same operation as before, except this time enter 36" for the Y axis, move the gantry, and then mark the spot where the torch is now resting. Measure the distance between the two points. How far off was the Y axis from the program? Did it go further or shorter? By how far was it off the program distance? To correct this divide the distance to travel by the distance actually traveled (for example, $36/36.75$), and then multiply this number by the current gear ratio (1.6400).

Enter the new values in the Gear Ratio fields for both X & Y. the Tool Positioning Resolution will be automatically adjusted.

	Step Mode (micro steps/ full step)	Motor Res. (full steps/ motor rev)	Gear Ratio (motor rev/ screw rev)	Screw Thread (screw rev/inch)	Tool Positioning Resolution (inches, calculated)
X	2	200	1.64000000	1.00000000	0.001524390244
Y	2	200	1.64000000	1.00000000	0.001524390244
Z	2	200	1.64000000	1.00000000	0.001524390244
A	2	200	72.00000000	1.00000000	0.012500000000

Configuration

Machine Type: Mill

Use Axes: X Y Z A

4th Axis Type: Rotary

Lathe Tool: Near Side

General

	Axis Length (inches)	Pt. Move Linear Interp.	Backlash Comp Backlash (inches)
X	96.0000	Yes	0.0000
Y	48.0000	Yes	0.0000
Z	96.0000	No	0.0000
A	36000.0000	No	0.0000

If you are cutting circular shapes and they don't appear to be round, you may also want to check the set screws on the motor pulley, and on the big pulley it is connected to by the belt. Also, check the tension of your belts, the gear to gear track ratio, and the movement of the slide and cassette. If you are still having problems, please contact Tech Support for more information.