

Knowledge Base: KB1009 – Understanding HPGL X Y Resolution

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Overview

Newing-Hall, Inc. offers a wide variety of engraving table configurations. Newing-Hall's HPGL controllers must be configured correctly to properly run on the variety of configurations. One of the most common configuration issues is X Y table resolution. The controller must be set with the properly resolution to engrave the proper dimensions on a particular table.

Currently Newing-Hall offers two pitch styles on its engraving tables. The original table pitch that dates back to the early 1980s used a 4:1 pitch. This combination offered a 4:1 ratio; meaning in order to move one inch on the table the lead screw is rotated 4 times. Current production engraving tables is now set to a pitch of 5:1 using a ball screw. This means to move one inch on the table the ball screw needs to be rotated 5 times.

Symptoms of Incorrect X Y Resolution

Symptoms of incorrect X Y resolution typically manifests it self into two categories.

1. Engraving is smaller than designed.
2. Engraving is larger than designed.

If the engraving is smaller than designed then it could be assumed the engraving table has a ball screw pitch of 5:1 while the controller resolution is set to 4:1.

On the reverse side if the engraving is larger than designed it could be assumed the engraving table has a lead screw pitch of 4:1 while the controller resolution is set to 5:1.

For example if the table is set to lead screws (4:1 pitch) and the controller resolution is set to 5:1 then the engraving will be larger than it should be.

Setting the Proper Resolution

To properly set the controller X Y resolution the table pitch must first be determined.

To determine the proper pitch on the table use the manual adjustment knob on the X-axis of the table and move it one inch. If the knob is rotated 4 times the table has a lead screw pitch of 4:1. If the knob is rotated 5 times to move an inch the table has a ball screw pitch of 5:1.

Once we have determined the correct pitch on the table the controller can now be configured to use the proper X Y resolution.

1. Close APEX-JLS and/or Job Server.
2. Make sure the HPGL controller is on.
3. Start Machine Parameters utility located in the *APEX Product Software* program group.



Machine
Parameters

4. Once Machine Parameters loads select the link on the left side called Machine Resolution / Motion Parameters.
5. On the right side change the X Resolution and Y Resolution to the correct values using the table below.

	X Resolution	Y Resolution
4:1 Pitch (lead screw)	-12800	12800
5:1 Pitch (ball screw)	-16000	16000

6. Close Machine Parameters and select *Save* to save changes to the controller.
7. The controller will reboot.
8. Engrave and verify if the resolution is correct.

If you have problems please contact Newing-Hall Customer support at 1-800-521-2615.