

Converting the HiTorque Mini Mill to CNC

The LittleMachineShop HiTorque Mini Mill is relatively easy to convert to CNC. This document tells you the things you need to do the conversion.

This bill of materials is based on the conversions done at the 2011 CNC Workshop.

Mechanical Elements

The mechanical elements come from CNC Fusion (www.cncfusion.com). They have a kit specific to the HiTorque mini mill.

Electronic Elements

The electronics come from Automation Technology Inc. (<http://www.automationtechnologiesinc.com>). Order the following items:

- (3 ea.) KL23H276-28-4B – 270 oz-in stepper motors 1/4" shaft with flat
- (1 ea.) KL-350-48 – 48V 7.3A power supply
- (1 ea.) KL-G540-48 – Aluminum housing with; E-stop switch, toggle switch, and power outlet
- (1 ea.) – Gecko G540 4-axis driver with four 9 pin connectors
- (optional 1 ea.) – SmoothStepper USB motion control interface for Mach 3 with cables and connector

Software

You will need Mach 3 software, available from LittleMachineShop.com (www.littlemachineshop.com/3652)

- 3652 – Mach 3 CNC Software License

Miscellaneous

You will need wire, crimp connectors, and other components to assemble the electronic and mechanical elements.

Notes

Mount the current set resistors in the 9-pin connector shell on the end of the stepper motor cable. That guarantees that the correct resistor is always connected with the motor.

The SmoothStepper allows you to connect to your computer using a USB cable rather than a parallel cable. You can also use computers without a parallel port

such as laptops with the SmoothStepper. You will need a SmoothStepper driver for Mach 3.

Limit switches are not necessary. If you choose to include them, the Keiling wiring diagram shows how to connect them.

If you don't understand what you are reading in this document, and/or want to use a CNC milling machine, rather than *build* a CNC milling machine, we suggest you look at the CNC mills sold by LittleMachineShop.com. See <http://littlemachineshop.com/cnc>

Resources

CNC Fusion

Photos of CNC Fusion kit installed on a HiTorque Mini Mill	http://www.cncfusion.com/images/X2mounts/LMS/LMS.html
Installation instructions	http://www.cncfusion.com/images/X2mounts/Assembly-BS.html

Keiling Technology Inc

Gecko 540 wiring diagram	http://www.keilinginc.net/G540WD.pdf
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Mach 3

Mach 3 Home page	http://www.machsupport.com/
Download Mach 3	http://www.machsupport.com/downloads.php
Mach 3 Documentation	http://www.machsupport.com/documentation.php

GeckoDrive

Gecko G540 Manual	http://www.geckodrive.com/images/fck_uploads/G540%20REV4%20MANUAL.pdf
Gecko G540 XML File	http://www.geckodrive.com/images/fck_uploads/540BVFD.xml