

# Test of CNC Formosa

## 1 Steppers motors

The machine move because have steppers motors. Steppers motos are différents than other electric motors

Stepper motor is a brushless DC electric motor that divides a full rotation into a number of equal steps.

Theirs motors can move machine in very accurate position without any feedback sensor with open-loop controller, as long as the motor is carefully sized to the application in respect to torque and speed.

### The power and size of steppers motors

## Steppers motors

what mean stepper motor Nema 14, Nema 17, Nema 23 ?

**NEMA** mean *National Electrical Manufacturers Association*

For example 17 of Nema 17 mean 1.7 inch



NEMA is a standard for size and position of fixing hole.

You can change a Nema17 in a machine with Nema17 other brand

For fixing it's Ok it's match, but

### The power ?

The power it's write in datasheet manufacturer.

The torque unit is write in N\*m



In the majority of cases, Nema 23 stepper motors have more torque than Nema 17 but it's not always true. Depend of the length of stepper motor.

Go in the web site of Taiwan stepper motor manufacturer SUMFU  
<http://www.sumfu.com/step>

Find a bipolar Nema17 stepper motor have more torque than bipolar Nema23

Write for each motors (nema 17 and nema23) the reference and torque  
Write for each motors the current rate and how many step the motor can do for one turn.

Send your home-works by e-mail to [makerslide-machines@gmail.com](mailto:makerslide-machines@gmail.com)

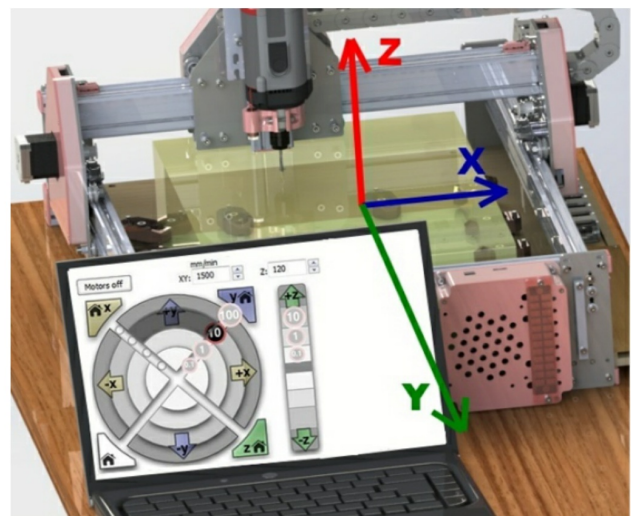
## 2 Test the movement of stepper motors

The conventional choice for X axis is for the mouvement more long the machine can do.

Y axis the perpendicular mouvement of X axis in the same plan and Z the mouvement of tool (spindle for milling cnc).

For CNC Formosa we don't follow this convention and have reason.

SEE FOR MORE INFORMATIONS  
<http://www.makerslide-machines.com/zh/machines/>



Now, connect your computer to the smoothieboard controller with pronterface and test the X Y and Z mouvement like the vidéo in Qr Code



If all works perfect is no good, with this way you can't learn, so next step you need do mistake in the machine to learn how overcome the problems.