Workbee CNC Router

I recently bought a 1500×1500 Workbee CNC router Kit from Bulkman 3d and i bought both the leadscrew and belt versions (technically i bought the leadscrew version and a belt kit)

i think i'm going to be happier with the belt because it can supposedly go faster.

leadscrew wabble really is an issue on this size of the machine. except for Bulkman nobody sells the 1500 kits with leadscrews.. there is a video out there suggesting to put tension on the leadscrews rather than pressure to eliminate wobble.. i might try that but i don't want to shorten my extrusions, so i'll need to figure out another way to put tension on the leadscrews.

i've got the grbl controller and am running grbl v1.1 these are my settings for the leadscrew so far.. limit switches haven not been configured yet.

```
$0 = 10    (Step pulse time, microseconds)
$1 = 25    (Step idle delay, milliseconds)
$2 = 0    (Step pulse invert, mask)
$3 = 0    (Step direction invert, mask)
$4 = 0    (Invert step enable pin, boolean)
$5 = 1    (Invert limit pins, boolean)
$6 = 0    (Invert probe pin, boolean)
$10 = 1    (Status report options, mask)
$11 = 0.010    (Junction deviation, millimeters)
$12 = 0.002    (Arc tolerance, millimeters)
$13 = 0    (Report in inches, boolean)
$20 = 0    (Soft limits enable, boolean)
$21 = 1    (Hard limits enable, boolean)
$22 = 0    (Homing cycle enable, boolean)
$23 = 0    (Homing direction invert, mask)
$24 = 25.000    (Homing locate feed rate, mm/min)
$25 = 500.000    (Homing search seek rate, mm/min)
$26 = 250    (Homing switch debounce delay, milliseconds)
$27 = 1.000    (Homing switch pull-off distance, millimeters)
$30 = 1000    (Maximum spindle speed, RPM)
$31 = 0    (Minimum spindle speed, RPM)
$32 = 0    (Laser-mode enable, boolean)
$100 = 100.000    (X-axis travel resolution, step/mm)
$101 = 100.000    (Y-axis travel resolution, step/mm)
$102 = 100.000    (Z-axis travel resolution, step/mm)
$110 = 4000.000    (X-axis maximum rate, mm/min)
$111 = 4000.000    (Y-axis maximum rate, mm/min)
$112 = 500.000    (Z-axis maximum rate, mm/min)
$120 = 300.000    (X-axis acceleration, mm/sec^2)
$121 = 300.000    (Y-axis acceleration, mm/sec^2)
$122 = 200.000    (Z-axis acceleration, mm/sec^2)
$130 = 200.000    (X-axis maximum travel, millimeters)
$131 = 200.000    (Y-axis maximum travel, millimeters)
$132 = 200.000    (Z-axis maximum travel, millimeters)
```

the above maximum speeds where reached doing aircuts only!

Here are some configurations that worked so far:

material	**bit**	**depth**	**spindle RPM**	**feed rate (mm/min)**	**result**
OSB	1/4 upcut	6mm	19200	1700 mm/min	very rough cut, a little smoke every now and then
OSB	1/4 upcut	3mm	19200	3000 mm/min	much smoother, no smoke
MDF	1/8 upcut 2-flute	spiral ?? bore	3000	500	no smoke but vibrations
MDF	1/8 upcut 2-flute	spiralpocket	7000	500	no smoke
Valchromat (Colored MDF, slightly harder than regular MDF)	6mm straight 2-flute	7mm	10'000	2000 mm/min	some vibrations but acceptable quality that only needs slight sanding on visible edges