

# Pilot Pro CNC Comparison Chart

The Pilot Pro CNC out performs machines costing much more.

**BEST BUY**  
Pilot Pro CNC \$3,900 DIY



**OKAY**  
ShopBot \$4,995



**TOY**  
China \$3000



X-26", Y-26", Z-5.5"	X-24", Y-18", Z-3.5"	X-23.5", Y- 35.4", Z- 3.3"
Dual drive prevents racking	Single drive / racking	Single drive / racking
Heavy rigid gantry	Narrow / weak gantry	Narrow / weak gantry
Heavy duty standard rails	Medium duty standard rails	Light duty rods
Heavy duty bearing blocks	Light duty bearing blocks	Light self-aligning bearings
Heavy duty ball lead screws	Light duty lead screws	Light duty ball lead screws
Preloaded axial bearings	Non-preloaded axial bearings	Non-preloaded axial bearings
Isolated motor / screw mount	Non-Isolated motor / screw mount	Non-Isolated motor / screw mount
Router, extruder, plasma, laser, 4 and 5 <sup>th</sup> axis, more	Router	Router
Industrial drivers and high torque motors	Non-standard drivers and small motors	Non-standard drivers and small motors

**The Pilot Pro is made in the USA and is an Industrial design for superior performance.**

***Beware of bad designs and cheap parts.***

\*The Pilot Pro CNC uses heavy duty aluminum extrusions for the highest quality construction possible. These parts are **very precisely made**, anodized, and will last forever. Steel frames are less precise due to warp and bends, welds crack, and steel rusts.

\***Single gantry drive causes racking.** Racking is a twisting motion. This is due to the large span between the linear bearings from side to side. The Pilot Pro **eliminates this racking** by using a dual drive system. This dual drive provides more than **twice the power of a single drive** and also allows the machine to use a plasma torch and for mounting your work vertical.

\*The Pilot Pro has the thickest gantry of all the other machines. Please note that

**a gantry with no depth is too weak for a CNC router.** Our gantry is more than 4" thick for extreme rigidity. All this gantry requires large, heavy duty linear bearings used on the Pilot Pro CNC router.

\***Liner rod bearings are inferior** and should not be used for moving CNC axes. Linear rail bearings are much higher in quality and have a much higher load rating. The Pilot Pro uses **standard industrial rails** for the X and Y axis. Our gantry linear bearings are **supper sized and rated at over 6,000 LBS** for extra strength to carry the massive gantry, spindle, and options.

\*The Pilot Pro CNC uses standard ball lead screws that are pre-loaded to eliminate back lash. **These screws are rated for hundreds of pounds of force and are C5 grade.** C5 grade ball screws are the same you will find in the best machine shops. Other machines use non-standard lead screws or acme lead screws rated at only a few ponds of force. Acme lead screws should always be avoided for precision machines.

\*Most low end machines mount the motor directly to the lead screws. This is a problem because the axial bearings must be preloaded to remove back lash. Also, by preloading the bearings it isolates the horizontal and vertical loads from the motors. Without this isolation damage to the motors could result under full loads. **The Pilot Pro is one of the few to use preloaded axial bearings** to eliminate back lash and isolate the loads from the motors.

\*The Pilot Pro uses **standard industrial motor drivers** for each axis. These drivers use very advanced electronics to drive the motors accurately, with high torque, and drive them quickly. Others use low end drivers or expensive proprietary drivers.

\*Most machines use small motors to drive the axis. This can lead to inaccuracies, small cutting tools, and low cutting depth. The Pilot Pro uses **specially made NEMA 24** motors with the highest torque rating for their size.

\*Most machines use small gauged wire to deliver power to the motors that drive the axis. This can lead to voltage drops and power loss. The Pilot Pro **uses high flex large gauge** wire to deliver all the power to the motors. The high flex is required on moving parts to insure a long trouble free life.

\*Aluminum table tops look nice however; they are not a precision surface and are not replaceable. Mistakes are made and the aluminum top will soon be damaged. The Pilot Pro CNC uses a very flat replaceable table top. Also, you can **mount your work horizontal or vertical**, use a water table, plasma table, and it has a deep are for large work.

\*The Pilot Pro CNC has the largest travel of any machine in its class. The design is scalable so most any size can be built.

\*The Pilot Pro uses a default trim router mount (fits Bosch colt or 611 Dewalt) but can easily handle a much larger spindle water or air cooled. Also the Pilot Pro setup makes it easy to add an extruder for additive rapid prototyping, plasma torch, or laser. Others are very limited using only a router.

\***Avoid made in China.** These manufactures are flooding the market with cheap machines that look pretty good. However, they are made with low end components, **many parts are factory rejects**, they also have very low quality designs, poor

assembly, no customer support, and Chinese software that are hard to understand and use. Also, there are **hidden costs** – Import Fees, Homeland security fees, Customs Fees, Broker Fees, Trucking fees! Beware.

**We have a lot of pride in our machines and only ship the highest quality machine possible** for the lowest price. We guaranty that you can grab hold of our Z axis and not feel any movement. This translates into the best possible cutting results. Our machine will make you the best products for years to come and this is the most import consideration of all. When you get a Pilot Pro CNC you are a part of our family, and we will take care of you, you have **Free support for life.**

Let us show you how we can help. Ask us for a demo. Don't see what you need, we can add it for you. **We look forward to working with you.**

[www.pdjinc.com](http://www.pdjinc.com)  
[sales@pdjinc.com](mailto:sales@pdjinc.com)

503-632-6693  
Saint Helens, OR  
USA