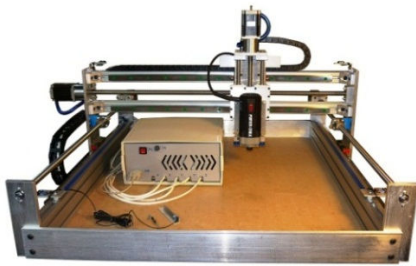


# Pilot Pro CNC Comparison Chart

The Pilot Pro CNC out performs machines costing much more.

Pilot Pro CNC \$3,750 DIY



Techno \$13,000



Shark \$3,399.99



All metal construction	All metal construction	All plastic construction
Replaceable wood table top	Non-replaceable metal top	Replaceable wood table top
Dual drive prevents racking	Single drive / racking	Single drive / racking
Heavy duty standard rails	Non-standard supported rods	Non-standard unsupported rods
26" X 26" X 4.5" travel	22" X 18" X 9" travel	24" X 24" X 4.5" travel
Heavy duty ball lead screws	Light duty ball screws	Light duty acme screws
Router, extruder, plasma, laser	Router	Router
Preloaded axial bearings	Non-preloaded axial bearings	Non-preloaded axial bearings
Isolated motor / screw mount	Isolated motor / screw mount	Non-isolated motor / screw mount
Industrial drivers and large motors and high current power supply	Non-standard drivers and small motors.	Non-standard drivers and small motors

**The Pilot Pro is an industrial design for superior performance.**

## Things to avoid-

\*Plastic construction is just wrong for a high quality machine. Plastic materials should only be used with machines targeted for the very low end hobbyist. The Pilot Pro CNC uses 80/20 aluminum extrusions for the highest quality construction possible.

\*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.

\*Single gantry drive causes racking. 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 also allows the machine to use a plasma torch, and a laser for cutting.

\*Liner rod bearings should not be used under high loads and long spans. No one should ever make or sell a machine with unsupported rods and bearings for the X and Y axis. 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.

\*The Pilot Pro CNC has the largest travel of any machine in its class. Two sizes are currently available – 26 X 26 X 4.5 and 26 X 42 X 4.5 inches of travel.

\*The Pilot Pro CNC uses standard ball lead screws that are pre-loaded to eliminate back lash. Other machines use non-standard ball lead screws or acme lead screws. Acme lead screws should always be avoided for precision machines.

\*The Pilot Pro uses a default trim router (73010 Porter Cable) but can easily handle a much larger router (690 Porter Cable router). 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. Always avoid a water cooled router as these can be very messy, and hard and expensive to replace.

\*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 quietly. Others use low end drivers or expensive proprietor 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 (16 gauge) to deliver all the power to the motors. The high flex is required on moving parts to insure a long trouble free life.