

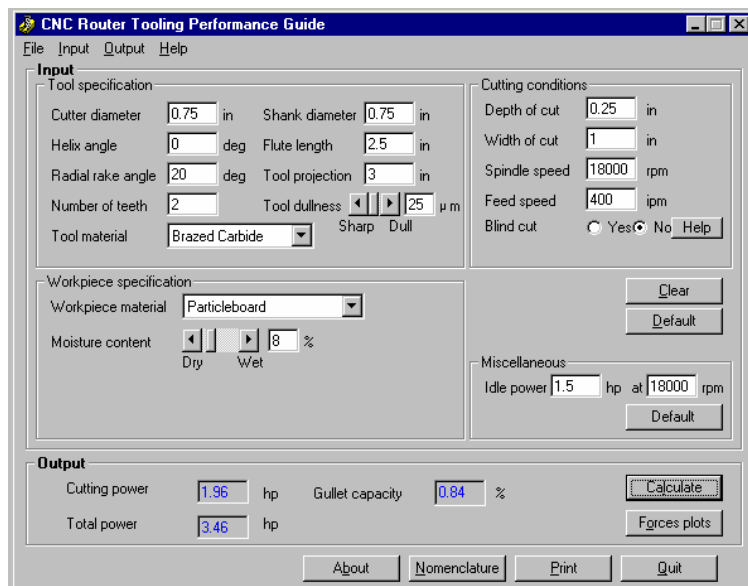
Research Summary

WOOD MACHINING & TOOLING RESEARCH

ROUTER TOOLING PERFORMANCE RESEARCH

The performance of CNC router tooling has been studied extensively in conjunction with the WMTRP process monitoring research initiative. These studies have focused on the effect of machining and workpiece related parameters on cutting forces and spindle power consumption. Machine and tool related parameters include spindle rpm, feed speed, tool diameter, number of flutes, tool geometry and sharpness, width of cut, and depth of cut. Workpiece related parameters include workpiece material, moisture content, and grain orientation. Experimentally determined average power consumption data gathered from field and laboratory tests have been used in conjunction with computer models to predict average and instantaneous cutting forces, torque, tool gullet capacity, and tool stresses for a wide range of tool designs and machining conditions. This information is being used to aid in WMTRP process monitoring research as well as WMTRP high speed machining research.

Input/Output Screen for Windows[™] Router Tooling Performance Guide



The Wood Machining & Tooling Research Program (WMTRP) is a multidisciplinary program involving the fields of Mechanical Engineering, Industrial Engineering, Manufacturing Engineering, Material Science, and Wood Science. The program mission is to provide the woodworking industry with personnel educated in machining and tooling technology and provide applied research results aimed at improving efficiency and wood utilization. Major program support is provided by the U.S. Department of Agriculture.

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