

Horizontal CNC Machining

What is Tool-X?

Tool-X is a Nano fluid and uses very few chemicals. We have replaced these toxic chemicals with safe Nano Particles that are not harmful. Increases in tool life, improvement in surface finishes, and removes that rotten egg smell, increases feed and speeds are a few of the things this Nano Technology will do for you.

Welcome to the future in metal working fluid technology.

What is the role of Nano technology in metal working fluids?

Nano particles added to a cutting fluid will improve the lubricating properties in the metal removal processes by reducing production time, labor hours, and energy usage (costs) which will increase throughput. The nano particles will reduce friction and heat at the cutting surface which is a major difference over a conventional chemical coolant. Not only do nano particles lower the heat, but they will transfer the heat to the sump of the machine where it can be wicked away. The ability to cut different metals like aluminum & titanium without changing coolant is a huge advantage. The level of performance over your current coolant will be dramatic and there will never be any skin irritation or rotten egg smell. See attached to this website www.Tool-X.net

CUSTOMER: A manufacturer of components for clamping, gripping, and robotic tooling solutions for industrial & commercial use.

APPLICATION: Horizontal CNC machining 1018 cold rolled steel in a job shop environment.

PROBLEM: Insufficient material removal rates and poor tool life.

SITUATION: Milling of 75 parts per 8-hour shift; Annual volume 12,000 parts per year for their customer; Milling cutter cost \$72.00 plus 10 resharpening at \$33 each with an average of 31 parts machined per resharpening using a water-based coolant.

EVALUATION PROCESS:

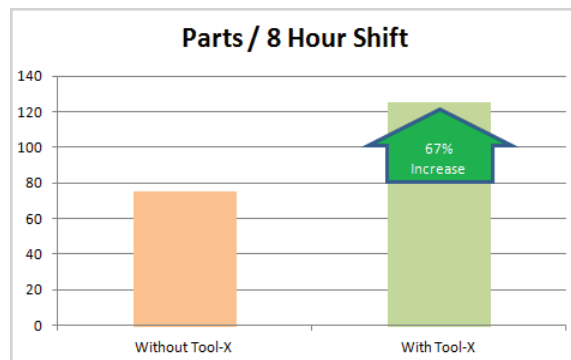
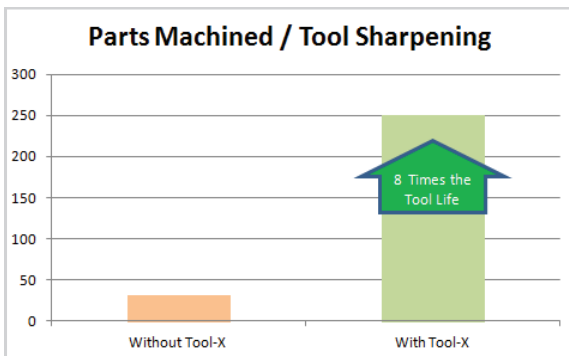
- 1) The initial evaluation was conducted across two identical CNC machines using a water-based cutting fluid.
- 2) This side-by-side assessment demonstrated Tool-X’s ability to reduce spindle loads, improve the surface finish, extend tool life, and increase material removal rates.

SOLUTION: The introduction of Tool-X’s MP-101 nanoparticles allowed for increased feeds & speeds & an increased tool life by 8 times which significantly reduced tool costs.

RESULTS: The Tool-X MP-101 nanofluid increased the performance and throughput.

- 1) Production rates were increased from 75 parts / shift to 125 parts per shift using Tool-X.
- 2) Tool life was increased from 31 to 250 parts per sharpening.
- 3) Tooling costs were reduced substantially & production capacity was increased by 67%

OUTCOME: After the testing & evaluation over several months, the customer changed to using Tool-X’s water-based nanofluids for these key production machines.



TOOL-X, LLC

265 S. Federal Hwy – Suite 250, Deerfield Beach, FL 33441

www.Tool-X.net | 248-495-4367