

Tool-X[®]

Tech Data Sheet 113
Sawing
Oil-based MWF

What is Tool-X? A new line of metalworking fluids that contain a new additive - trillions of carbon-based nano-onions in solution. These nano-onions improve the lubrication along the cutting edge, preventing build-ups and improving heat transfer. The result is longer-lasting tools that cut truer, with more precision, with less force required, than with conventional metal working fluids.

Customer: A major Tier One manufacturer of automotive interiors manufactures molding for plastic injection molding for use in its production lines.

Application: Sawing large steel molds using a Canola oil-based MWF.

Problem: A switch to a Canola Oil based MWF for environmental reasons resulted in reduced tool life and requirements for cost reduction.

Evaluation Process: 1) Data was collected for 2 weeks using the current oil-based MWF. Clean MWF was evaluated with new tools at current speeds and feeds and the number of parts between dressings was recorded. 2) The MWF was drained and replaced with new Canola oil product and Tool-X concentrate. Tool life was evaluated.

Results: The Tool-X nanofluid additive enhanced tool life; saw blades cut through 1.9X as many feet of material as previous, resulting in large tool cost savings.

Outcome: Customer changed to using a Tool-X blended canola oil-based MWF for its sawing operations.

Tool-X improves machining processes. The role of metalworking fluids is to permit tools to change the shape of materials as efficiently and effectively as possible. To achieve this objective, metalworking fluids must counteract common failure modes by reducing heat, adhesion, pressure and wear while providing lubricity under the extreme temperatures and pressures associated with metalworking. Tool-X nanofluid technology enables our metalworking fluids to attain new levels of performance.

Tool-X Benefits: With Tool-X, surface finish is improved (lower Ra, fewer and smaller distortions). Feeds and speeds can be increased, often by 25% or more. Tool life is extended. Problems caused by excess heat (white film layers, long chip sizes, metallurgical damage) can be avoided. Reworks, tool sharpenings, and deburring steps can be reduced or eliminated.

With Tool-X, it's all about the numbers. Tool-X metalworking fluids cost more than conventional fluids, as much as twice as much. But the savings that are possible, through extended tool life, increased productivity, and parts with better surface finish and better dimensional accuracy, can provide users with substantial returns on investment. Let us demonstrate how Tool-X can improve productivity and reduce expenses in your facility.

See www.tool-x.net for more information.

Sawing Data

	Cuts per Blade
Before Tool-X	1,000
After Tool-X	1,900
Change (%)	90%

