TOOL X®
POWERED BY NANO FLUIDS TECHNOLOGY

TOOL-X – CASE STUDY 101

Swiss Turning

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 way. 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 Swiss screw machine products for the defense industry.

APPLICATION: Turning screws made of 316 stainless steel using Tool-X's 175 oil base lubricate.

PROBLEM: Insufficient tool life, long cycle times, and requirement for cost reductions.

EVALUATION PROCESS:

1) Tool life & cycle times documentation was available because this part had been in production.

2) Tool-X's 175 oil lubricate was added with the tool life and speeds & feeds were monitored.

SOLUTION: Upon documenting the tool life study evaluation, the material removal rates (Speeds & Feeds) were adjusted over several months to assess the potential for improved cycle time improvements.

RESULTS: The Tool-X 175 oil nanofluid increased the performance and throughput.

1) Milling inserts went from 2,800 pieces to over 12,800, which was a 360% increase.

2) Cycle time dropped 25 seconds in stages from 97 seconds to 72 seconds (-34.7%).

3) Throughput increase to produce over 125,000 additional components.

OUTCOME: Customer changed to using Tool-X's 175 oil lubricate for their entire Swiss Turning operations.

Grinding Data			
	Increase in Tool Life	Cycle Time Reduction	Production Two (2) 10 Hr Shifts
Before Tool-X	2,800	97.00	405,453
After Tool-X	12,800	72.00	504,000
Change (%)	360.0%	-34.7%	98,547

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