TOOL X®
POWERED BY NANO FLUIDS TECHNOLOGY

TOOL-X – CASE STUDY 102

Grinding

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 large tier one automotive supplier that is multi-national in size and scope.

APPLICATION: Grinding automotive internal engine components using Tool-X's water-based MP-101 nanofluid in their centerless grinding machines.

PROBLEM: Excessive change overtime and low output of parts.

EVALUATION PROCESS:

1. Grinders were relocated from several different plants into one large facility, cleaned and had to be filled back up with coolants.
   a. The current water-based metal working fluid (MWF) was added to six (6) grinding machines.
   b. Tool-X's MP-101 nanofluid was added to two (2) grinding machines.
2. The initial focus was evaluating the number of rejected parts and looking to increase throughput.

SOLUTION: Upon the completion of the evaluation, the number of parts rejected was reduced and the throughput increased.

RESULTS: The Tool-X MP-101 nanofluid enhanced both performance and productivity; production rates were increased by 8.3% by reducing cycle times from 3.0 to 2.75 seconds. The decrease in cycle times increased production from 1,100 to 1,300 pieces per hour. Throughput per machine increased 200 pieces per hour or 4,000 per day. A decrease in part transition times went from five (5) hours to less than one (1) hour.

OUTCOME: Customer changed to using Tool-X MP-101 water-based MWF for all eight (8) grinders in this grinding operation due to the increase in through put which has also reduced expedites, overtime, and part shortages.

Grinding Data			
	Increase in Performance	Cycle Time	Production Two (2) 10 Hr Shifts
Before Tool-X	1,100	3.00	22,000
After Tool-X	1,300	2.75	26,000
Change (%)	23.6%	8.3%	4,000

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