

High Pressure Cooling for Metal Cutting and Grinding Applications

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Seal-less Pump Technology

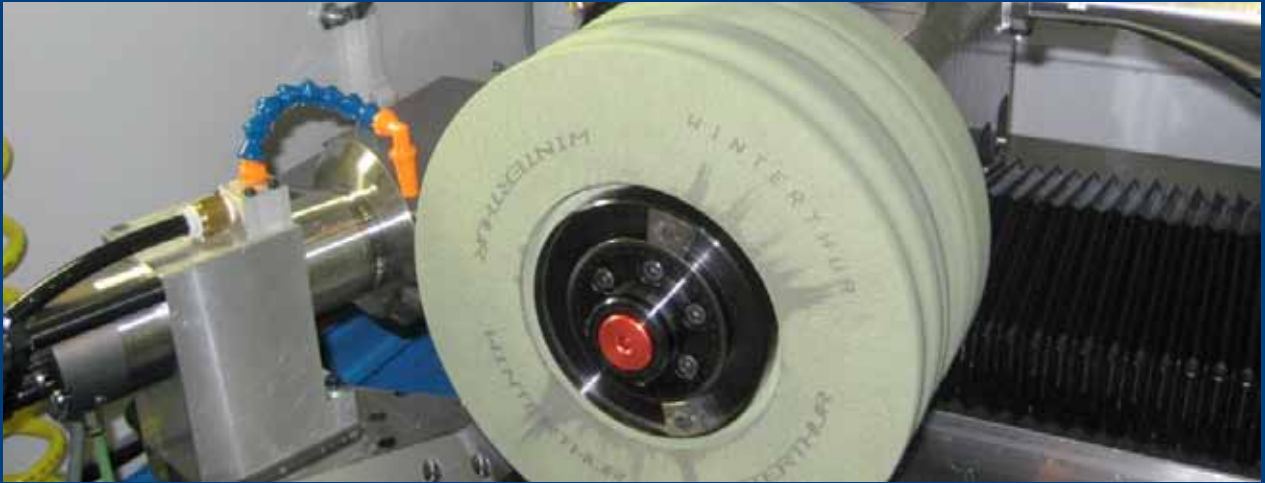
High Pressure Cooling in Metal Cutting Applications

High Pressure Cooling offers a host of benefits in a wide range of metal machining, speeding the process and delivering increased efficiency. It delivers copious amounts of coolant directly to the cutting edge providing better cooling than spray or flood cooling.

This enables:

- **Faster Speeds / Quicker Feeds:** Spindle speed may be increased without loss of tolerance or tool fatigue. This enables faster stock feed rates to be achieved, improving throughput. Cycle time improvements of up to 75% have been achieved, dramatically improving production efficiency.
- **Longer Tool Life:** Better cooled cutting tools maintain their sharpness longer, dramatically improving tool life and reducing the number of tool changes for maintenance.
- **Longer Machine Life:** Better cooled cutting tools generate less friction and impose less stress on machine spindles.
- **Improved Surface Finishes:** High pressure coolant delivery flushes cut chips and swarf away from the cutting edge, enabling faster operation and improved surface finishes to be achieved.
- **More Effective Chip Management:** Slower spindle speeds create larger chips and curly swarf which can impair the cutting operation and surface finish. High pressure coolant delivery generates smaller chips and flushes them away from the critical cutting edge faster and more effectively. Effective chip removal also prolongs tool life.
- **Power Savings:** By forcing lubricant to the chip/tool interface (the cutting edge) better lubrication is achieved and pick-up is eliminated and power requirements are reduced.





High Pressure Cooling in Grinding Applications

High pressure cooling opens up the wheel grit matrix and reduces wheel clogging, which:

- Reduces requirement for wheel dressing
- Extends wheel life
- Improves profile accuracy

- Increases efficiency, and the number of parts per wheel
- Reduces maintenance need and unproductive wheel dressing time

During the grinding process wheels suffer from:

- Wear at the cutting edge, which reduces profile accuracy
- Matrix clogging, blinding, glazing and dulling of the abrasive particles... reducing cutting efficiency.

Wheel blinding is more prevalent when grinding ductile metals and using certain types of cutting lubricant.

Truing and dressing a wheel will improve cutting efficiency by exposing new, sharper grits or grains but it must be remembered that dressing a wheel wears it away, reduces the number of parts per wheel and increases the process cost.



High Pressure cooling for grinding applications improves efficiency and reduces costs.

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