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# CUTTING OIL

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### PREMIUM, CHLORINE-FREE CUTTING OILS

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**Cutting Oils** are formulated to cover a wide variety of machining operations and metals. The chlorine-free cutting oil technology benefits the machine operator, the machine tool and machining efficiency.

In service **Cutting Oils** offer the following benefits:

- ◆ Excellent lubricity and good extreme pressure properties
- ◆ Minimized chip-to-tool weld
- ◆ Light colour and low odour
- ◆ Improved tool life and workpiece finish
- ◆ Corrosion / rust protection of part and machine
- ◆ Low smoke / mist tendency

### **Product Applications**

**Cutting Oils** are formulated to allow several machining applications and various metallurgy and machining severity to be covered with one fluid. They can be used with all types of tooling including High Speed Steel, Carbide, Titanium-Nickel and Ceramic. They are compatible with each other and can be blended in all proportions. However, since the **400** and **500** products contain active sulphur, they are not recommended for use with copper containing alloys.

They contain an anti-mist additive that helps to eliminate fogging and stray mist in the workplace. This is particularly important with the drive to lower workplace oil mist exposure levels and applications where the formation of hydrocarbon aerosols needs to be minimized to reduce fire hazards. All grades are also formulated to provide a smooth part surface finish for the intended application.

**Cutting Oil 300** is a non-active cutting oil that can be used with all ferrous and non-ferrous alloys in light to moderate duty cutting operations. It is recommended for use in automatic and CNC screw machines where alloy changes are frequent and good cooling efficiency and chip removal are important. It can be used in most cutting operations with free machining ferrous and non-ferrous metals. Another feature is its ability to perform as a cutting oil, machine tool lubricant and hydraulic fluid in a single machine to reduce oil inventories on the shop floor.

**Cutting Oil 400** is an active, low viscosity general purpose cutting oil that can be used to machine most ferrous and non-ferrous alloys in all types of cutting applications (turning, threading, milling, forming, drilling and sawing). It is recommended for use in automatic and CNC screw machines where multiple cutting operations are performed using alloys with moderate-to-high machinability properties.

**Cutting Oil 500** is an active heavy-duty cutting oil that is recommended for difficult cutting applications (tapping, hobbing and broaching) using alloys with low and moderate machinability properties.

## Product Recommendations and Selection Guide

Alloys	Cutting Oil				
	Ferrous			Non-Ferrous	
Relative Machinability	Easy	Intermediate	Difficult	Easy	Difficult
Hobbing, Shaping, Broaching, Tapping	400 500	500	500	300	300
Threading, Turning, Milling, Forming Drilling and Boring, Sawing Multiple Spindle Screw Machines CNC and Automatic Screw Machines	400 300	400 300	400	300	300

## Product Maintenance and Handling

**Cutting Oils** are manufactured from quality petroleum base stocks, carefully blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact with the skin, splashing into the eyes or ingestion. Please refer to the Material Safety Data Sheet for further information.

Note: This product is NOT controlled under the Canadian WHMIS legislation.

## Typical Properties

Cutting Oil Grade	300	400	500
Density @ 15°C, kg/m <sup>3</sup>	864	878	888
Colour, ASTM	0.5	1.5	1.5
Flash Point, °C	202	196	198
Kinematic Viscosity, cSt @ 40°C	33.0	32.4	45.8
Chlorine, wt. %	None	None	None
Copper Corrosion, 3 hrs. @ 100°C	1B	4C	4C
Total Sulphur, wt%	.50	2.40	2.40

The typical properties shown above are representative of current production. Some are controlled by manufacturing and performance specifications while others are not. All may vary within modest ranges.