

## Hard Cut® 5318 / 5418 / 5518 *Straight Cutting Oils*

### GENERAL DESCRIPTION

The Hard Cut "8" series represents the third generation of performance above the traditional Hard Cut oils. The "8" signifies a two fold increase of the synthetic fraction in the product. The Hard Cuts are the first choice by the aerospace, electronic and medical industries, especially in Swiss style screw machines.

The Hard Cut "8" series is highly recommended for use on stainless steels, hardened steels, high nickel alloys, titanium and aircraft aluminums. The Hard Cuts are formulated in various viscosities and with various levels of Extreme Pressure (EP) additives. High quality raw materials help provide for both an operator friendly and environmentally compliant product. Reduced smoke, cleaner machines, low odor and non-irritating are just some of the benefits. As with all of Hangsterfer's Hard Cuts, they are non-toxic and non-corrosive.

### APPLICATION

**5318** - The ultimate in lubricity of this series. Hard Cut 5318 is an advanced version of Hangsterfer's original screw machine oil, Hard Cut 31. This oil is excellent for heavy duty cutting operations, including hobbing, broaching, drilling, tapping and threading. Optimum stock size in bar fed application is 0.500" (12.65mm) or larger.

**5418** - This popular general purpose oil is excellent for a wide range of operations, including turning and milling. It provides ample lubricity for extreme metal removal, while being low enough in viscosity to cool during high speed turning and milling applications. Optimum stock size in bar fed applications is 0.500" (12.65 mm) to 0.125" (3.15 mm).

**5518** - This oil offers excellent results in high speed turning of small diameter parts (0.125" (3.15mm) and under), gundrilling and deep hole drilling. Its low viscosity helps the oil penetrate the tool-workpiece interface in very small component manufacturing.

Hard Cut 5518 is well suited for honing of ferrous and non-ferrous materials. It is non-staining and leaves little residue while providing rust protection. The extreme pressure additives in Hard Cut provide flushing and pickup protection for the abrasive while allowing free cutting for superior finishes. Honing is a cutting operation with very small chips. Hard Cut 5518 is suited for use with solid and expanding hones in most type honing machines. Suitable for use on hone materials but not limited to; diamond, super abrasives, ceramic and silicone carbide.

### MAINTENANCE & CLEANING

**Maintenance:** While straight cutting oils are not susceptible to the broad range of problems encountered with a water based fluid, regular maintenance does improve their performance and extend their life. The Hard Cut oils are designed to reject foreign contaminants, such as metal fines. If the performance of the oil begins to deteriorate, remove the oil from the machine and allow to settle in an empty drum or settling tank for 3-7 days. Fines and contaminants will settle to the bottom. After settling, return the top 80% to the clean machine. In order to get the maximum life from your oil, keep the sump free of cleaners, solvents, rust inhibitors, coolants and other contaminants which may inhibit performance.

**Cleaning:** All Hard Cut oils are formulated to minimize cleaning time. They are cleanable in both aqueous and solvent systems. For best results use a Hangsterfer's Ozonic series cleaner or recommended aqueous cleaner. Both style cleaners work best at removing Hard Cuts when heated to 140°F (60°C).

**PRODUCT CHARACTERISTICS**

Hard Cut	5318	5418	5518
Form	Liquid	Liquid	Liquid
Color	Red	Red	Red
Odor	Mild	Mild	Mild
Specific Gravity	0.96	0.93	0.91
<b>Viscosity: SUS @ 100°F</b>	<b>210</b>	<b>159</b>	<b>90</b>
<b>cSt @ 40°C</b>	<b>45</b>	<b>34</b>	<b>18</b>
Flash Point, COC, °F/°C	370 / 187	350 / 176	250 / 121
Fire Point, COC, °F/°C	380 / 193	370 / 187	260 / 126
Pour Point, °F/°C	<0 / -18	<0 / -18	<0 / -18
Solubility in Water	<0.01%	<0.01%	<0.01%
Boiling Point, °F/°C	400 / 204	440 / 226	420 / 215
Vapor Pressure, mm Hg @ 25°	<0.01	<0.01	<0.01
pH @ 10%	N/A	N/A	N/A
Chlorine	Added as EP Additive	Added as EP Additive	Added as EP Additive

**SHIPPING UNITS**

Hard Cut 5318, 5418 and 5518 are available in 5 gallon, 55 gallon and Intermediate Bulk Containers (275 or 330 gallons). All products are distributed worldwide.

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