



OUR
**PRODUCT.
PROGRAM**

Thinking in *green* technology



Dr. William Hangsterfer

Thinking in *green* technology

Hangsterfer's Laboratories, Inc. specializes in the research, development and manufacture of a full-line of REACH compliant metalworking lubricants.

This includes emulsifiable oils, semi-synthetics, synthetics, straight cutting oils, drawing and forming compounds, EDM fluid and machine lubricants. Improve your surface quality and tool life when machining, grinding and forming aluminum, chrome, nickel, Stainless Steel, titanium and their alloys. All products are produced in an ISO 9001 approved facility.

Dr. William Hangsterfer founded the company in 1937 and we are currently in our third generation of leadership and our original founder's vision is still evident, „To develop the world's most efficient metalworking lubricants and compounds.“

Our products will exceed your expectations without compromise to health, safety or environmental concerns.



WELCOME TO Hangsterfer's Laboratories

ISO 9001 CERTIFICATION

Hangsterfer's Laboratories is dedicated to:

- Delivery of high quality and high performance metalworking fluids that meet our customer's requirements.
- Continual improvement of our research, product development and refinement of our quality processes.
- Delivery of superior service and technical support.

REACH CERTIFICATION

REACH is the European Community Regulation on chemicals and their safe use which stands for Registration, Evaluation, and Authorization of Chemical substances. The pre-registration phase started in June 2008.

The aim of **REACH** is to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances.

The **REACH** Regulation gives greater responsibility to industry to manage the risks from chemicals and to provide safety information on the substances. Manufacturers and importers will be required to gather information on the properties of their chemical substances, which will allow their safe handling, and to register the information in a central database run by the European Chemicals Agency (ECHA) in Helsinki Finland.

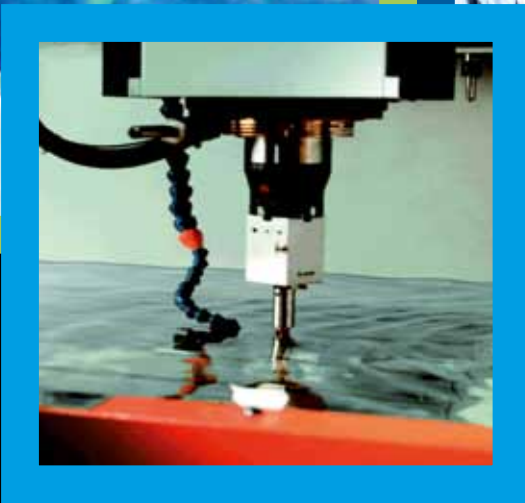
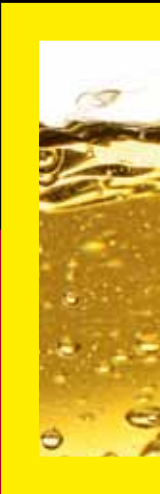
REACH provisions will be phased-in over 11 years.

GHS GLOBALLY HARMONIZED SYSTEM

The outstanding quality of our ingredients and our profound knowledge have successfully resulted in, that Hangsterfer's products do not require special labeling, when GHS is in place.

Hangsterfer's does not need:







PRODUCT. OVERVIEW

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Unique "coolant compatible" formulation.	
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Accessories for the Biobalance.	

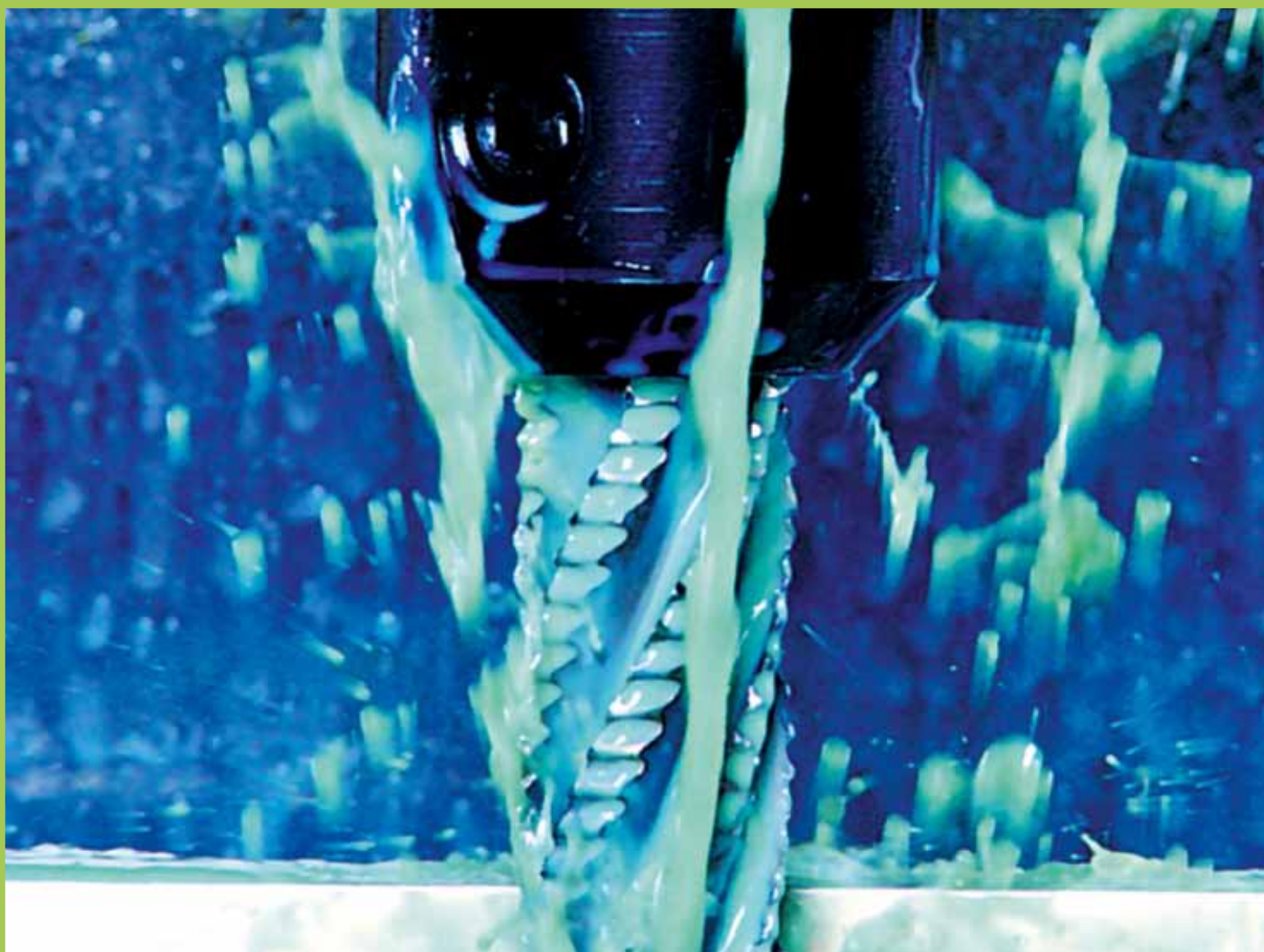
HANGSTERFER'S QR CODE

Hangsterfer's is always ahead of the curve with products and services. Our branding is no exception.

Our slogan "Supreme To Them All" is more to us than just a saying. When we wanted to offer QR codes to attendees at upcoming trade shows, we wanted it to be unique and more than just an easy way for visitors to get to our website. What we produce is truly one-of-a-kind.

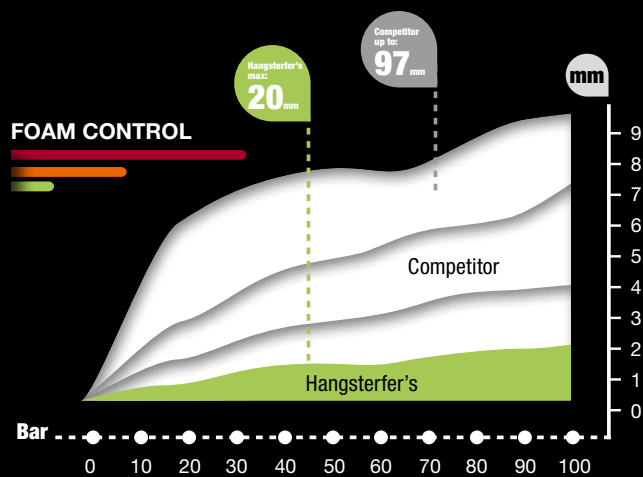
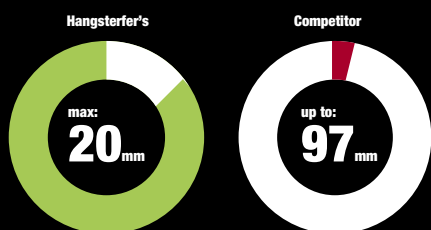


COOLANT. Concentrates



ADVANTAGES AT A GLANCE

- 1 USE OF SYNTHETIC, VEGETABLE AND PETROLEUM COMPONENTS
- 2 NO SECONDARY AMINES, NO BORON



Our bio-stable technology has evolved from the high quality emulsifiable oils (high oil content) into semi-synthetic (low oil content) and full synthetics (no oil content). Hangsterfer's only uses highly refined, ultra -pure ingredients. All of Hangsterfer's coolant concentrates are formulated with advanced technologies, which utilize synthetic, vegetable and petroleum components.

EMULSIFIABLE OIL

- **HE-2**
A high viscosity emulsifiable oil used for severe tapping, broaching, hobbing, stamping and drawing applications. Often recommended to replace straight oils.
- **Missile Lube 5 EH**
Chlorine-free, vegetable oil based coolant. Provides excellent lubricity, surface finishes and tool life. Especially good for aluminum, steel, Stainless Steel and other difficult to machine materials.
- **Missile Lube 8 EH**
Chlorine-free, vegetable oil based coolant. Provides excellent lubricity, surface finishes and tool life. Especially good for aluminum, steel, Stainless Steel and other difficult to machine materials.
- **S-388**
An emulsifiable oil concentrate with specially formulated anti-weld and anti-wear compounds for use on ferrous and non-ferrous metals especially aluminum alloys.
- **S-400**
Extremely high quality general purpose emulsifiable oil.
- **S-500**
The first choice for general machining of all metals. Due to its EP properties, outstanding results have been generated on all metals, including nickel alloys, stainless steels and aluminum alloys.
- **S-500 CF**
An emulsifiable oil concentrate with specially formulated anti-weld and anti-wear compounds for use on ferrous and non-ferrous metals especially aluminum alloys.
- **S-555**
A chlorine-free emulsifiable oil capable of excellent corrosion protection of yellow metals and other easily stained materials.
- **S-1001**
For severe metal removal, especially turning, drilling, cut tapping, thread rolling and milling of exotic aerospace materials.

SEMI-SYNTHETIC

- **S-737**
A semi-synthetic coolant concentrate.
- **S-777**
Crystal Cut 777 is the very latest in full synthetic formulations. Crystal Cut 777 utilizes specialized ingredients to achieve outstanding results in a wide variety of applications.
- **S-787**
Hangsterfer's S-787 semi synthetic represents the next generation in semi-synthetic technology. Designed with the job shop in mind, it is an ideal multi purpose fluid that provides outstanding machinability and cleanliness.

SYNTHETIC

- **CT-11**
A full synthetic traditionally used for light stamping and forming of carbon steel parts.
- **CT-50**
Intended for stamping and forming of heavy gauge material. Can be used straight or diluted.
- **Cobalt Grinder**
Pure synthetic coolant designed for the grinding of carbide.
- **Crystal Cut 243**
A low cost full synthetic designed for cast iron and carbon steel.
- **Crystal Cut 322**
A Boeing approved full synthetic. Excellent for machining and grinding of all materials, especially aerospace materials.
- **Crystal Cut 465**
Biostable full synthetic, designed to control the growth of bacteria.
- **Missile Lube 5**
EH + Bio-based emulsifiable oil, chlorine-free.
- **R-100**
An excellent grinding synthetic, especially useful in Blanchard grinders and deburring tumblers.

CUTTING.

Oils

Hangsterfer's cutting oils are recognized by Swiss-Style screw machine manufacturers around the world. Hard-Cut has improved tool life and surface qualities by as much as 300%. In addition to the lubricity provided at the cutting zone, our cutting oils provide excellent lubrication for the machine's slides, guide bushings, bearings, and spindles. Some can even be used in bar feeders.

Hangsterfer's Hard-Cut Series is formulated with the industry's safest chlorinated extreme pressure additives. Our Missile Lube series is both chlorine and sulfur free.



NO MATTER
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OIL SOLUTION.

HARD-CUT®

- **Hard-Cut 5118**
A great oil for broaching, gear hobbing and automatic turning of larger bar stock diameters.
- **Hard-Cut 5258**
Generally used as a tapping fluid. It can also be used in heavy duty gear working, broaching and fine blanking.
- **Hard-Cut 5258 Light**
A unique cutting oil intended for use in Swiss-Style automatics which are dedicated to very difficult to machine alloys, especially high temperature alloys.
- **Hard-Cut 5318**
Based on Hard-Cut 531, Hard-Cut 5318 is great for use in both CNC or Cam-style automatic screw machines. Usually used on larger diameter bar stocks.
- **Hard-Cut 5418**
An outstanding all-around cutting oil. It can be used in Swiss-Style automatics, milling machines or light stamping.
- **Hard-Cut 5518**
Ideal for turning small diameter bar stocks in CNC automatics.
- **Hard-Cut 5618**
Another unique product from Hangsterfer's, Hard-Cut 5618 is used in grinding, horizontal machining, Swiss-Style turning, light stamping and forming.
- **Hard-Cut NG**
Hard-Cut NG is the "Next Generation", hence "NG", in the full line of straight oils developed, manufactured and offered by Hangsterfer's.
- **Hard-Cut NG CF**
The "CF" stands for "Chlorine Free" in this next generation Hard-Cut product.
- **Hard-Cut NG 22**
Contains an infused combination of synthetic and vegetable compounds and derivatives.

MISSILE LUBE®

- **Missile Lube 1**
This is the heavier of the three oils. The viscosity makes it suitable for use in many CNC lathe applications including Swiss-Style automatics.
- **Missile Lube 1 XL**
This is the most popular of the three Missile Lubes. It can be used in virtually all metalworking applications that require a chlorine-free and sulfur-free cutting oil.
- **Missile Lube 1 XXL**
This is an especially low viscosity version of Missile Lube 1XL.

CC SERIES

- **CC 10**
Hangsterfer's CC oils are designed for light and medium duty metalcutting and metalforming operations.
- **CC 22**
These economically formulated oils are blended under the same quality control standards set for the premium Hard-Cut® Series.
- **CC 46**
Hangsterfer's CC oils are designed for light and medium duty metalcutting and metalforming operations.
- **CC 90**
Hangsterfer's CC oils are designed for light and medium duty metalcutting and metalforming operations.
- **CC 222, CC 332 and CC 442**
These are modern versions of the classical heavily sulfurized and chlorinated cutting oils. The old style dark sulfur and strong odors have been replaced with modern technologies that are light color and low odor.



GRINDING OIL

- Grinding Oil 1**
 Grinding Oil 1 is designed for grinding with diamond and CBN wheels. It can be used for grinding high-speed steel, cobalt, carbide, ceramics and hardened steel. Grinding Oil 1 can also be used in grinders that require the same oil for both lubricating the machine and the wheel/workpiece interface.
- Grinding Oil 2**
 Grinding Oil 2 can be used for grinding high-speed steel, cobalt, carbide, ceramics and hardened steel. Grinding Oil 2 is intended for use in grinding machines that use the grinding oil for machine lubrication.
- Grinding Oil 32**
 Grinding Oil 32 is compounded with both synthetic and natural lubricity additives. Grinding Oil 32 is designed for grinding with diamond and CBN wheels.

PC SERIES

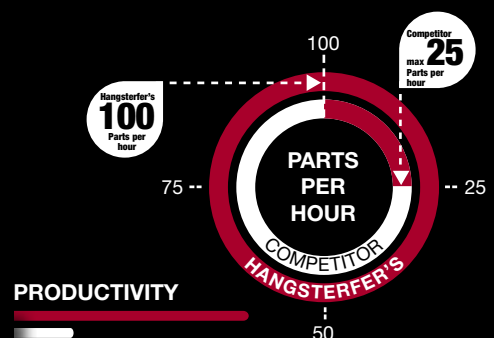
- PC 10 / PC 20 / PC 28 / PC 45**
 Hangsterfer's introduces a new series based on "Polar Cutting" technology and advanced "Very High Flash Point" (VHF) chemistry. The combination of the Polar technology and VHF chemistry takes the metal-working process to new heights.

TAPPING/MISTING

- SuperAllTap, SuperAllTap CF, SuperAllTap Light**
 SuperAllTap is recognized as the ultimate in high quality tapping compounds. Aqueous cleanable, oil free. SuperAllTap CF does not contain chlorinated paraffins or high concentrations of sulfur.
- SuperAllMist**
 Provides extreme adhesion to the tool and workpiece.

ADVANTAGES AT A GLANCE

- 1 LOWER ENERGY CONSUMPTION
- 2 INCREASE OF PRODUCTIVITY



METALFORMING. Compounds

Our “grease-like” metalforming compounds are highly fortified with additives that prevent metal-to-metal contact at the tool-workpiece interface where temperatures can exceed 1000° C.

Elastrohydrodynamic Lubrication (EHL) forms an evenly distributed film that eliminates galling and improves surface quality. It develops under extreme pressure from our use of long-chain chlorinated paraffins, select synthetic fat and synthetic oils.

We specialize in forming and drawing compounds for tube, rod, wire, bar and blanks. Hangsterfer's can custom blend products for whatever unique metalforming application you may have.



ALDRAW

- **Aldraw J-1 (Clear)**
A medium grade compound for drawing, forming and stamping. It is recommended for tube drawing and deep drawing, as well as a coating in fabricating 10-19 gauge metals.
- **Aldraw J-1 Dark**
This is a special version of the Aldraw J-1 that we sell overseas.
- **Aldraw J-1 E**
This is the aqueous cleanable version of Aldraw J-1.
- **Aldraw J-2 (Clear)**
A heavy viscosity compound developed especially for drawing, Stainless Steel tubing and other difficult to draw metals. J-2 is also used extensively in drawing bars and rods, as well as for Forming, deep drawing, perforating, blanking, stamping and other forming operations.
- **Aldraw J-2 Dark**
This is a special version of the Aldraw J-2 that we sell overseas.
- **Aldraw J-2 E**
This is the aqueous cleanable version of Aldraw J-2.
- **Aldraw J-4 (Clear)**
A lighter grade viscosity compound than J-1, J-4 is utilized for moderate stamping, drawing, and forming in moderately severe applications. J-4 can be pumped, but is usually hand applied.
- **Aldraw J-4 E**
This is the aqueous cleanable version of Aldraw J-4.
- **Aldraw J-50**
A lighter grade viscosity compound than J-4, J-50 is utilized for light stamping, drawing, and forming in less severe applications. J-50 is easily pumped and penetrates metal more rapidly.
- **Aldraw J-50 E**
This is the aqueous cleanable version of Aldraw J-50.
- **Aldraw JD-8801**
A medium viscosity compound formulated for use in conjunction with floating plugs in the tube drawing industry. Provides a bright finish when used on the I.D.
- **Aldraw JD-8801 E**
A medium viscosity compound formulated for the tube industry for use in floating and semi-floating plug drawing of Stainless Steel and nickel alloys.

- **Aldraw JD-9020**
Used in metal forming applications. Does not contain chlorinated paraffins or high concentrations of sulfur. Aqueous Cleanable, Oil Free.
- **Aldraw JD-9030**
This is the more heavy duty version of JD-9020.
- **Aldraw JH-9402**
Used for tube and wire drawing when surface quality and finish of the ID are critical. It can also be used for deep drawing and forming when conventional fluids are inadequate. JH 9402 is primarily for Stainless Steels, nickel alloys and titanium, but can be used safely on most materials.
- **Aldraw K-21**
This oil is intended for moderate duty applications that require an oil that can recirculate, provide an adequate level of EP additive and clean off easily in aqueous cleaning systems.
- **Aldraw K-90**
The same as K-21, but intended for more heavy duty applications, like drawing and forming.
- **Vanishing Oil**
This fluid does as the name suggests - it vanishes. It is used most frequently for light stamping and forming applications on non-ferrous materials.

PRECOATS

Hangsterfer's Laboratories has been supplying semi-plastic precoats to the tube drawing and deep drawing industries since 1970. The material being worked is first submerged in or painted with the appropriate precoat.

The carrier is allowed to evaporate leaving behind a tough protective film. Depending on the application and the material, the precoat will either be hard and dry or soft and tacky.

- **5 PC-NF Concentrate**
- **112 QD-NF Concentrate**
- **114 QD-NF Concentrate**



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DIELECTRIC. Fluids

Our dielectric fluids have allowed our users with EDM machines to increase amperage, thus reducing process times by as much as 30%. Also, they create a non-conductive channel allowing the spark to hit its target accurately and at a full charge. It has the added benefit of reduced carbonization, which reduces gummy residue.

- **Crystal Brite EDM**
developed to improve the spark erosion process in sinker style EDM machines.
- **V-EDM**
A first of its kind vegetable based dielectric fluid.

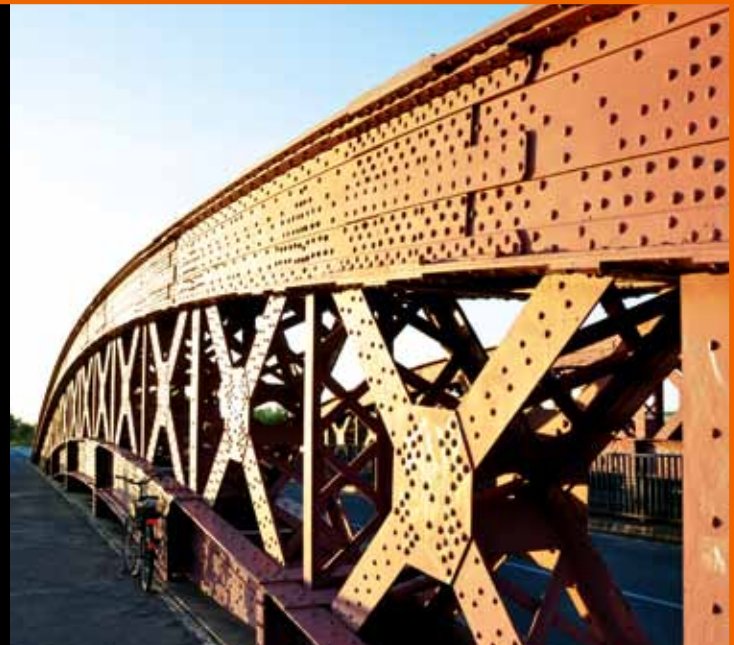
ADVANTAGES AT A GLANCE

- 1 REDUCING PROESSING TIMES BY AS MUCH AS 30%
- 2 INCREASING AMPERAGE

MISCELLANEOUS. Products

Rust Inhibitors are available in both aqueous and non-aqueous varieties. We have products for very short term, as well as long-term protection. Aqueous cleaners are available in a variety of detergency and pH ranges depending on the cleaning objectives.

We also offer non-aqueous cleaning solvents, which are ozone friendly. Specialty additives are used for the easy correction of in-process errors or for making adjustments needed to compensate for engineering changes.

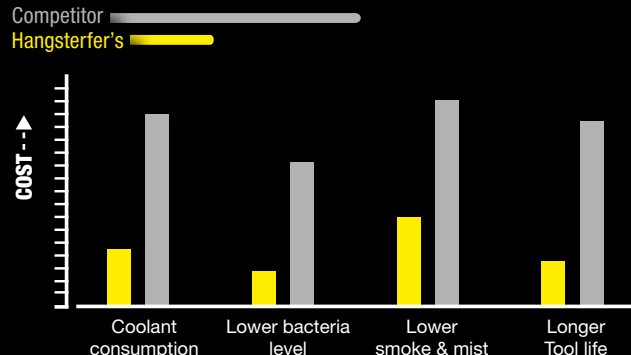


MACHINE. Lubricants

In the early 1980s, Hangsterfer's developed "coolant compatible" machine lubricants that do not cause negative coolant effects such as odor, staining and dermatitis.

Our unique "coolant compatible" formulation allows the oil to remain on the sliding surface in a completely fluid-like state, thus protecting the surface more effectively than old technology. Water is repelled which improves lubrication and prevents corrosion. Once you perform the easy conversion to our Way Oil series you will immediately see the benefits.

MACHINE LUBE COST





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RUST INHIBITORS

- Metal Deactivator Neat Oil
- Metal Deactivator Water Based
- Rust Coat 10
- Rust Coat 35
- Rust Coat 60
- Rust Coat 2000
- Soluble RP

AQUEOUS CLEANERS

- A.C. Cleaner
- Clean All
- Machine Cleaner
- Ozonic 117
- Ozonic 203
- Res-X
- VS-315

SPECIALTY ADDITIVES

- Additive Antifoam H-710
- Additive Calcium Liquid
- FoamBlock
- Refresh

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ADVANTAGES AT A GLANCE

- 1 STRONG AND ENVIRONMENTALLY FRIENDLY
- 2 VEGETABLE BASED CLEANERS



SPINDLE & HYDRAULIC OIL

- Antiwear 2 ISO VG 2
- Antiwear 10 ISO VG 10
- Antiwear 22 ISO VG 22
- Antiwear 32 ISO VG 32
- Antiwear 46 ISO VG 46
- Antiwear 68 ISO VG 68
- Antiwear 100 ISO VG 100
- Antiwear 150 ISO VG 150
- Antiwear 220 ISO VG 220

SLIDE WAY OIL

- Way Oil 1 ISO VG 32
- Way Oil 2 ISO VG 68
- Way Oil 3 ISO VG 150
- Way Oil 4 ISO VG 220

ADVANTAGES AT A GLANCE

- 1 COOLANT COMPATIBLE
- 2 SURFACE PROTECTION
- 3 INCREASED LUBRICITY OF THE SLIDES
- 4 PREVENTS CORROSION



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FILTERS

Why use a filtration system? Improve tool life, surface finish, reduce machine down time for sump maintenance and extend fluid life. Why use our system? Patented non-channeling filter elements for longer life, fluid is filtered before entering pump and portable frame design.

LAB EQUIPMENT

We are the source for all of the essential laboratory and associated equipment necessary to analyze coolants and most water-dependent systems. Both hand held and bench style equipment to suit your particular needs are available. With minimal investment, you can have a fully functional analytical laboratory to handle almost any coolant related problem.

MACHINE ACCESSORIES

A clear view on the tool and work piece can be important to the set up and operator when working on a CNC machine. Clearing the viewing window can be important while testing tools and/or operations. Vis-A-Clear will help to clear a viewing window and help prevent costly mistakes.

PROPORTIONATORS

Improper coolant concentration is one of the single most common reasons for coolant failure. If the concentration is too low, rust and bacteria can be a problem. If it is too high, increased consumption will follow. Using a proportionator will significantly reduce problems that may occur with coolants. Regardless of which work shift, everyone will be mixing coolant the same way every time.

PUMPS

Coolant foaming conditions vary due to tank size and coolant turnover. If these conditions cannot be changed, a simple alternative is controlled pumping of anti-foam additive into the coolant stream or tank. The Accu-Pump is designed for this application.

REFRACTOMETERS

Maintaining a proper coolant concentration in the sump can extend its life by as much as 50%. Low concentration can cause poor tool life, lack of chip flow due to reduce lubricity and reduced sump life. Over concentration can cause poor tool life due to lack of adequate cooling, lack of chip flow due to viscosity, increased concentration usage without benefit and increased foam tendencies.

SUMP CLEANERS

Sump Cleaners are an efficient means of sump clean out, as well as coolant and cutting oil transfer. Conveniently transfers fluid from the machine to a reclamation system and returns the recycled fluid back to the cleaned machines.

TOTES

Totes are engineered to reduce the costs associated with drum storage and disposal. Convenient recyclable totes are offered which meet or exceed DOT regulations.

TRAMP OIL SKIMMERS

Tramp oil, which includes primarily way oil, hydraulic oil and grease, will negatively affect the coolant's performance. Tramp oil, between the tool-workpiece interface, will interfere with the coolant's ability to dissipate heat and lubricate. In addition, tramp oil can promote odor-causing bacteria, which can degrade the coolant and cause dermatitis.

WATER TREATMENT

Water utilities vary their sources from season to season, affecting water quality and coolant foam tendencies. Our Water Treatment product is self-regulating and slow-dissolving for up to 6 months with regular coolant makeup and will not over condition your water. There are no chemicals to work with: simply replace empty cartridges.



Hangsterfer's division supplies basic yet functional equipment that aids in the longevity of metalworking fluids. "Walk before you run" and "keep it simple" form the basis of the TSP philosophy. Since our lubricants are engineered to be recycled, it makes sense to partner them with basic fluid management equipment.

Adding TSP products to your operations will help reduce fluid related costs.

We are at home throughout the world – and near you.
We speak your language. Take our word.



HANGSTERFER'S®
Research, Development & Manufacturing of Metalworking Lubricants

Our service locations in all major countries and a network of more than 100 distributors worldwide makes sure we are near you - wherever that may be. For you this translates into fast response times, on-site support and competent staff familiar with your location.

Hangsterfer

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