

# Honing Oils And Coolants

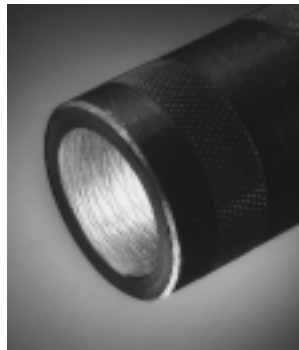
The single largest expense (approximately 90%) of honing cost per part is labor. The second largest expense (about 10%) is abrasive consumption. Typically, oil cost per part is less than one tenth of a percent of the total, yet, a slight decrease in cycle time, or a decrease in abrasive consumption resulting from a better lubricant, repays the cost of the honing oil many times over.

In many instances the importance of the honing oil is left out of the equation and that can be a costly mistake—because the success of the honing process depends on precision performance by each of the components of the honing system ... machine, tooling, abrasive and honing oil. Use of Genuine Sunnen Honing Oil is the solution to many honing problems.

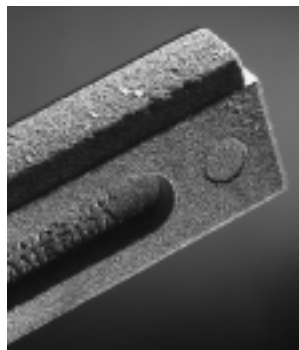


## Typical Honing Problems

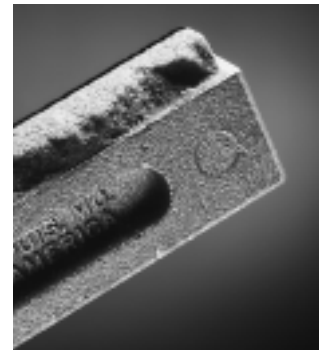
1. Weak honing oil allows welding of metal chips to the workpiece which are then sheared off, causing a larger total surface roughness than that expected for a given abrasive grit size. The consequence is unwanted random scratches on the workpiece deeper than those normally produced during honing operations. The results are lost productivity, material waste, part rejects, and lost profits.



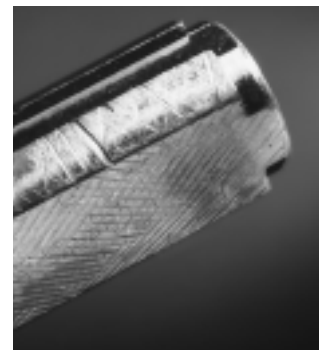
2. Honing oil with low lubricity or improper chemistry allows metal chips to lodge in the abrasive surface, much like mud in a snow tire. This embedded metal holds the abrasive surface away from the workpiece and slows down the cutting rate. Slower cutting rates decrease machine and operator productivity.



3. When metal embedded in the abrasive surface rewelds to the workpiece, it is torn away from the stone. This damages the stone's trailing edge because vitrified bonded abrasive, like concrete, is weak in tension. If the metal is embedded near the leading edge of the stone, it will leave a scratch in the abrasive surface.



4. Low performance honing oil can create catastrophic welding between the workpiece and the mandrel shoe when honing soft materials ranging from stainless steel to low carbon steels. This may lead to serious and very costly problems such as: ruined honing tools, machine failure, part rejects and lost profits.



Check the Sunnen Honing Oil and Coolant Selection/Information Charts on page 174 to properly match the right Sunnen Oil to your specific application.

# Honing Oils And Coolants

## MB-30 Honing Oil

The most economical general purpose sulphurized honing oil available for over 40 years. MB-30 has set the standard by which other honing oils are judged. Prevents galling between the workpiece and the tool, keeps the abrasive clean and delivers maximum cutting rates and abrasive life even when honing difficult materials such as 300 Series stainless steels. Ideal for locations where a wide variety of materials are honed. Also very effective as a general cutting oil for drilling, tapping, and reaming. No matter the metal, from aluminum to zirconium, MB-30 works.



## LT9X Honing Oil Concentrate

LT9X can be used as a chlorine-free additive to boost performance or replace depleted additives in a wide variety of honing and cutting oils. (Mixing LT9X in a one-to-one ratio with mineral oil makes a formulation similar to MB-30 Honing Oil.) **Note: Choose a mineral oil that is severely solvent refined or severely hydrotreated and has a viscosity of 50-100 sus. Avoid high wax content mineral oils.**

## MAN-C Coolant Concentrate

Very similar to LT9X except it contains a mixture of sulphurized and chlorinated materials. It is recommended for use with hard-to-hone materials such as stainless steel, soft 8620, Inconel and Zirconium.

## MAN-863 Honing Oil

Ideal for applications where petroleum based honing oils cannot be used. MAN-863 contains sulphur, but has a milder odor, and is gentler to the operator's skin than MB-30.

## KG3X Honing Oil

Sunnen KG3X Honing Oil is similar to MAN-863 but avoids the use of sulphur additives. Ideally suited for applications where these additives are restricted as in the aerospace and nuclear industries. Hones most materials satisfactorily, however, may produce stone loading in materials such as soft copper.

## MAN-852 Honing Oil

MAN-852 is another sulphur-free honing oil similar to KG3X. Slightly higher in viscosity than KG3X which allows more oil to remain on the part while honing. (Higher viscosity oils may not flow adequately when used in machines with centrifugal pumps.)



## Sunnen "SF" Superfinishing Oil

Sunnen "SF" Superfinishing Oil is specially formulated to meet the needs of Sufpina Superfinishing and Thielenhaus Microfinishing machines. Superfinishing or microfinishing are polishing processes which use bonded abrasives. These processes are significantly different from honing or grinding and require an oil with unique characteristics. Sunnen "SF" Oil



has a very low viscosity and is formulated with wetting agents that, when compared to competitive oils available, promote increased oil flow between the ultra-fine abrasives and the workpiece. It also uses phosphorous extreme pressure and lubricity agents for superior finish capability. The oil is very light in color for easier part visibility.

## SCC Honing Coolant

Sunnen SCC-405 and SCC-205 Honing Coolant Concentrates are formulated to meet the demands of The KROSSGRINDING® System and Single-Stroke Honing® Process and Metalbond Superabrasive Honing. Far superior to conventional honing oils in reducing or eliminating workpiece temperature build-up caused by these operations. SCC-Coolant is also suitable as a grinding coolant or general purpose metal working fluid for both ferrous and non-ferrous parts. Contains no dangerous nitrites, nitrates, PCBs, PTTBA, Mercurials, or Phenols. (One 18.9 liter [5 gallon] pail makes up to 208 liters [55 gallons] of coolant when mixed at a 10:1 ratio.)



### Selection Information:

For best results, select SCC-405 when general all-around performance and longer coolant life are desired. Select SCC-205 when superior performance is required, such as when honing aluminum or using fine grit diamond plated tools or metalbond abrasives. See selection guide on page 174. Select SCC-605 when honing cast iron with metal bond abrasives (low foaming).

## Returnable Totes

With increasing environmental regulations regarding used container disposal, Sunnen's reusable 1255 liter (330 gallon) totes for honing fluids are ideal if usage is more than 5 drums per year. Tote is constructed of a high density polyethylene tank housed within a steel wire frame, mounted on a steel pallet. When the tote is empty just return it to Sunnen – no disposal required. Bulk pricing of honing fluids saves money over drum prices. *Approximate shipping weight 1180 kg (2600 lbs).* Contact Customer Service for shipping policies. See Selection guide page 174. Not available outside USA.



## SCC-900 Coolant Maintenance Kit

Pour housekeeping and improper coolant concentration are the major causes of coolant failure, yet simple daily maintenance will protect and prolong coolant life.

The Sunnen SCC-900 Coolant Maintenance Kit provides everything you will need to check water based coolant. Kit includes: Instruction and Record Forms, Refractometer, PH Kit, Pitcher, Storage Case.



# Honing Oils And Coolants

## Selection/Information Charts

### Recommended Honing Oil

		MB-30	MAN-863	MAN-852	KG3X	SF	SCC-405	SCC-205	SCC-605
Process	Honing	Yes	Yes	Yes	Yes	Yes(2)	Yes(1)	Yes(1)	Yes(1)
	KROSSGRINDING™	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	SINGLE STROKE HONING™	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Grinding	No	No	No	No	No	Yes	Yes	Yes
	Broaching	Yes	Yes	Yes	Yes	No	No	No	No
	Gundrilling	Yes	Yes	Yes	Yes	No	No	No	No
	Milling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Drilling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Turning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Superfinishing	No	No	No	No	Yes	No	No	No
	Use as Additive	Yes	Yes	Yes	Yes	No	NA	NA	NA
Use as Base	No	No	No	No	No	NA	NA	NA	
Material	Alnico	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Aluminum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Beryllium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Brass	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bronze	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Carbide	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Carbon	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes
	Cast Iron (soft)	Yes	Yes	Yes	Yes	Yes	No	No	Yes
	Cast Iron (hard)	Yes	Yes	Yes	Yes	Yes	No	No	Yes
	Ceramic	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Cobalt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Ferrite	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Glass	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes
	Inconel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Molybdenum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nickasil Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nylon	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes
	Plexiglass	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes
	Polycarbonate	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes
	Silver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Steel (soft)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Steel (hard)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Steel (stainless)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Stellite	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Quartz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Titanium	Yes	Yes	Yes	Yes	(3)	Yes	Yes	Yes	
Zirconium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

### Honing Oil Specifications/Information

		MB-30	MAN-863	MAN-852	KG3X	SF	SCC-405	SCC-205	SCC-605
Chemistry	Hazardous OSHA	Yes	No	No	No	Yes	Yes	Yes	Yes
	Hazardous DOT	No	No	No	No	No	No	No	No
	Mineral Oil	Yes	No	No	No	Yes	Yes	No	No
	Sulfur	Yes	Yes	No	No	No	No	No	No
	Chlorine	No	No	No	No	No	No	No	No
	Viscosity (SUS)	125	125	150	125	46	Water	Water	Water
Size Available*	Pails 18.91 L (5 gal)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Drums 209.21 L (55 gal)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
	Returnable Totes 1255 L (330 gal)	Yes	Yes	Yes	Yes	Yes	No	No	No
	Disposable Totes	Yes	No	No	No	No	No	Yes	Yes
Delivery Shipped From	St. Louis, MO	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Los Angeles, CA	Yes	No	Yes	No	No	No	No	No
	Fort Worth, TX	Yes	No	No	No	No	No	No	No
	Atlanta, GA	Yes	No	No	No	No	No	No	No
	Detroit, MI	Yes	No	No	No	No	No	No	No
	Boston, MA	Yes	No	No	No	No	No	No	No
Grand Island, NB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

(1) Requires metalbond abrasive. (2) Depends on material. (3) Insufficient data available for recommendation.

\*Estimated Shipping Weight: Pails - 18,2 KG (40 lbs.) Drums - 182,0 KG (400 lbs.) Totes - 1180 KG (2600 lbs.)

Actual Weight depends on type of fluid.