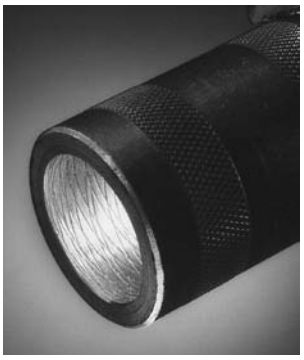
Honing Oils And Coolants

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.

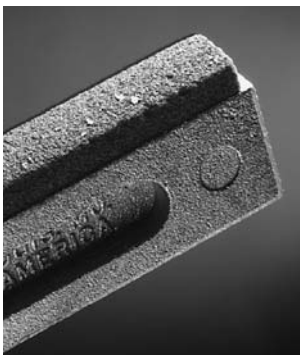
In many instances the importance of the honing oil is left out of the equation and that can be a costly mistake-because the success of the honing process depends on precision performance by each of the components of the honing system ... machine, tooling, abrasive and honing oil. Use of Genuine Sunnen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

Typical Honing Problems

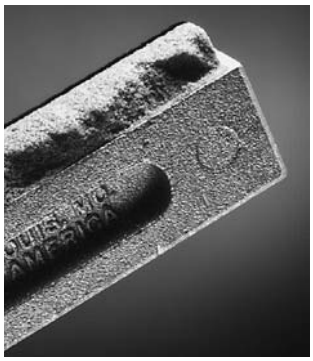
1. Weak honing oil allows welding of metal chips to the workpiece which are then sheared off, causing a larger total surface roughness than that expected for a given abrasive grit size. The consequence is unwanted random scratches on the workpiece deeper than those normally produced during honing operations. 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 180 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.

MB-40 Honing Oil

MB-40 combines the best features of our industrial and automotive honing oils into one. It is specially formulated for use in severe applications that encounter problems such as pick up and galling. Formulated with extreme cutting additives. MB-40 works well in Single-Stroke Honing® Diamond Tooling, conventional and superabrasive honing, and KROSSGRINDING® applications. It has also proven useful when fine textures are desired.
NOTE: Parts cleaning can be more difficult than with MB-30, so it is recommended that MB-40 be used only after MB-30 has proven unsatisfactory.

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 6.4 Gal. Pail

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 Environmentally Friendly 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 Environmentally Friendly 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-845 and CK-50 Honing Oil

MAN-845 is formulated for general purpose automotive machine shop honing. It is excellent for con rods, piston pins, king pins or general shop honing. **CK-50** is specially formulated for cast iron automotive and truck engine blocks and should not be used to hone other materials. Both are petroleum based, low viscosity and are compatible with the oil and filter system of all Sunnen honing machines and other manufacturers' machine tools in which petroleum oils are normally used.

MAN-852 Environmentally Friendly 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 Supfina 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 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-205 when general all-around performance and longer coolant life are desired. SCC-605 is recommended for cast iron or when a low foaming coolant is required.

SCC-900 Coolant Maintenance Kit

Poor 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-40	MB-30	MAN-863	MAN-852	KG3X	SF	SCC-205	SCC-605	CK-50	MAN-845/ MAN-C*
Process	Honing	Yes	Yes	Yes	Yes	Yes	Yes(2)	Yes(1)	Yes(1)	Yes	Yes
	KROSSGRINDING™	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
	SINGLE STROKE HONING™	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
	Grinding	No	No	No	No	No	No	Yes	Yes	No	No
	Broaching	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
	Gundrilling	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
	Milling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Drilling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Turning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Superfinishing	No	No	No	No	No	Yes	No	No	NA	NA
	Use as Additive	Yes	Yes	Yes	Yes	Yes	No	NA	NA	No	No
	Use as Base	No	No	No	No	No	No	NA	NA	Yes	Yes
Material	Alnico	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Aluminum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes(2)
	Berylium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Brass	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Bronze	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Carbide	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Carbon	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Cast Iron (soft)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
	Cast Iron (hard)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
	Ceramic	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Cobalt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Ferrite	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Glass	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Inconel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Molybdenum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Nickasil Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Nylon	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Plexiglass	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Polycarbonate	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Silver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Steel (soft)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes(2)
	Steel (hard)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Steel (stainless)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Stellite	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Quartz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Titanium	Yes	Yes	Yes	Yes	Yes	(3)	Yes	Yes	No	No
	Zirconium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Honing Oil Specifications/Information

		MB-40	MB-30	MAN-863	MAN-852	KG3X	SF	SCC-205	SCC-605	CK-50	MAN-845
Chemistry	Hazardous OSHA	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
	Hazardous DOT	No	No	No	No	No	No	No	No	No	No
	Mineral Oil	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes
	Sulfur	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes
	Chlorine	Yes	No	No	No	No	No	No	No	Yes	Yes
	Viscosity (SUS)	125	125	125	150	125	46	Water	Water	65	65
Size Available *	Pails 18.91 L (5 gal)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Drums 209.21 L (55 gal)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Totes 1255 L (330 gal)	No	Yes	Yes	Yes	No	Yes	No	No	No	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.

Notes

Now you can place your orders on-line at:

www.sunnen.com