

# 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.



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ABRASIVES & TOOLING

MACHINE  
ACCESSORIES

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FILTERS

HONING FLUIDS  
& COOLANTS

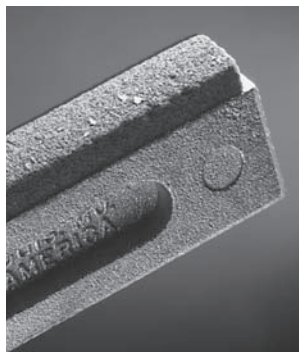
TECHNICAL DATA

## 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 11.5 to properly match the right Sunnen Oil to your specific application.

# Honing Oils and Coolants

ADAPTERS & OTHER  
ABRASIVES & TOOLING

## MB-40 Honing Oil

### SPECIFICATIONS

Chemistry:	Mineral Oil, sulfur, chlorine, phosphorus
Viscosity:	43cSt@40°C
Hazardous OSHA/DOT:	Yes/No
VOC:	194 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes

### FEATURES & BENEFITS

- Works well with plated diamond Single Stroke Honing® Diamond tools, conventional and superabrasive honing, and KROSSGRINDING® applications
- Also useful when fine surface finishes are desired

MB-40 combines the best features of our industrial and automotive honing oils in one. It is specially formulated for use in severe applications that encounter problems such as pick up and galling.



MACHINE  
ACCESSORIES

## MAN-863 Honing Oil

### SPECIFICATIONS

Chemistry:	Sulfur
Viscosity:	22 cSt@40°C
Hazardous OSHA/DOT:	No/No
VOC:	22 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes

### FEATURES & BENEFITS

- Suitable for all materials including exotic metals
- Has a mild odor and is very gentle to operator's skin

MAN-863 was developed to answer the need for a non-hazardous, ecologically responsible, unregulated alternative to traditional honing oils. It is composed of natural surface active lubricity agents in combination with preservatives, a sulfur extreme pressure additive and metal deactivator to prevent staining of alloys containing copper.



GAGING

## SHO-965 Honing Oil

### SPECIFICATIONS

Chemistry:	Contains no mineral oil, sulfur, or chlorine
Viscosity:	25 cSt@40°C
Hazardous OSHA/DOT:	No/No
VOC:	30 grams/liter

### FEATURES & BENEFITS

- Low VOC, super-compliant in California's SCAQMD

SHO-965 is designed to provide the performance of MB-30 without the volatile organic compound content and without the odor.



FILTERS

## MB-30 Honing Oil

### SPECIFICATIONS

Chemistry:	Mineral oil, sulfur
Viscosity:	22 cSt@40°C
Hazardous OSHA/DOT:	Yes/No
VOC:	329 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes, 1L (1 Quart) bottle

### FEATURES & BENEFITS

- Delivers maximum cutting rates and abrasive life when honing difficult materials like stainless steel, and features high levels of surface active lubricity agents.
- Contains metal deactivators to prevent staining of copper containing alloys
- Very effective as a general cutting oil for screw machines, drilling, tapping, and reaming
- Works on virtually any metal from aluminum to zirconium

MB-30 is Sunnen's multi-purpose industrial honing oil. For over forty years, MB-30 has set the standards by which other honing oils are judged. High performance lubricity agents combine with sulfur extreme pressure additives prevent welding and tearing of the work piece and keep the abrasive clean.



HONING FLUIDS  
& COOLANTS

## LP8X Honing Oil

### SPECIFICATIONS

Chemistry:	Mineral oil, sulfur
Viscosity:	7 cSt@40°C
Hazardous OSHA/DOT:	Yes/No
VOC:	370 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes

### FEATURES & BENEFITS

- Suitable for honing a wide range of materials
- Performs well as a screw machine or general purpose cutting oil
- Compatible with the oil and filter system of all Sunnen honing machines and other manufacturers' machine tools in which petroleum oils are normally used

LP8X is a chlorine-free version of MAN-845 honing oil. LP8X is petroleum based and contains a highly effective sulfur additive in combination with lubricity agents to produce slightly higher honing performance than MAN-845 in automotive machine shop applications.



TECHNICAL DATA

## SHO-500

### SPECIFICATIONS

Chemistry:	Contains no mineral oil, sulfur, or chlorine
Viscosity:	22 cSt@40°C
Hazardous OSHA/DOT:	No/No
VOC:	19 grams/liter

### FEATURES & BENEFITS

- Petroleum-free, ideal for general use.
- Ideal for honing applications where additives cannot be used, such as nuclear and some aerospace parts, or where company policies discourage use of fluids with such additives.
- Does not contain material derived from animals.
- Can be used with conventional vitrified honing abrasives and metal-bond superabrasives.
- U.S. Dept. of Agriculture BioPreferred®.



# Honing Oils and Coolants

## MAN-852 Honing Oil

### SPECIFICATIONS

Chemistry:	Contains no mineral oil, sulfur or chlorine
Viscosity:	28 cSt@40°C
Hazardous OSHA/DOT:	No/No
VOC:	1 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes



### FEATURES & BENEFITS

- Approved by Boeing Aircraft Company and used to hone critical parts where classic cutting oil additives such as sulfur or chlorine have been shown to cause microcorrosion, resulting in part failure
- Has a mild odor and is very gentle to operator's skin. Very popular with operators who are sensitive to additives used in regular cutting oils

Man-852 is a non-hazardous, ecologically responsible, unregulated honing oil composed entirely of natural surface active lubricity agents. Because this product does not use additives, it is ideally suited for applications where additives are restricted, such as the aerospace and nuclear industries. MAN-852 hones most materials satisfactory, however, when used with materials such as soft copper, may produce stone loading.

## KG3X Honing Oil

### SPECIFICATIONS

Chemistry:	Contains no mineral oil, sulfur or chlorine
Viscosity:	21 cSt@40°C
Hazardous OSHA/DOT:	No/No
VOC:	13 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums



### FEATURES & BENEFITS

- Typically used to hone critical parts where classic cutting oil additives such as sulfur or chlorine have been shown to cause microcorrosion, resulting in part failure
- Has a mild odor and is popular with operators who are sensitive to additives used in regular cutting oils
- U.S. Dept. of Agriculture BioPreferred®

KG3X is a non-hazardous, ecologically responsible, unregulated honing oil. Like MAN-852, it is additive free and is composed entirely of surface active lubricity agents, but is formulated to a lower viscosity. Because this product does not use additives, it is ideally suited for applications where additives are restricted, such as the aerospace and nuclear industries. KG3X hones most materials satisfactory, however, when used with materials such as soft copper, may produce stone loading.

## MAN-845 Honing Oil

### SPECIFICATIONS

Chemistry:	Mineral oil, sulfur, chlorine
Viscosity:	7 cSt@40°C
Hazardous OSHA/DOT:	Yes/No
VOC:	380 grams/liter
Size Available:	18.91 L (5 gal) pails, 209.21 L (55 gal) drums, 1255 L (330 gal) totes



### FEATURES & BENEFITS

- Low viscosity creates less oil "carry off" and makes cleaning easier
- Also an excellent screw machine and general purpose cutting oil
- 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-845 is formulated for general purpose automotive machine shop honing. It is excellent for con rods, piston pins, king pins, or general shop honing. MAN-845 can be boosted if necessary for occasional honing of more difficult materials (like aluminum or high nickel cast iron) by adding a small amount of Sunnen Industrial Honing Oil. It is petroleum based, containing high performance lubricity agents in combination with both sulfur and chlorine extreme pressure additives.

## CK-50 Honing Oil

### SPECIFICATIONS

Chemistry:	Mineral Oil, sulfur, chlorine
Viscosity:	4.4 cSt@40°C
Hazardous OSHA/DOT:	Yes/No
VOC:	428 grams/liter
Size Available:	209.21 L (55 gal) drums



### FEATURES & BENEFITS

- Low viscosity creates less "carry off" of oil on the motor block and is easily cleaned in hot tanks or spray washers
- Compatible with the oil and filter system of all Sunnen Honing Machines and other manufacturers' machine tools in which petroleum oils are normally used

CK-50 is specially formulated for honing cast iron automotive and truck engine blocks and should not be used to hone other materials. It is petroleum based, containing high performance lubricity agents in combination with both sulfur and chlorine extreme pressure additives.

ADAPTERS & OTHER  
ABRASIVES & TOOLING

MACHINE  
ACCESSORIES

GAGING

FILTERS

HONING FLUIDS  
& COOLANTS

TECHNICAL DATA

# Honing Oils and Coolants

ADAPTERS & OTHER  
ABRASIVES & TOOLING

## LT9X Honing Oil Concentrate

### SPECIFICATIONS

Chemistry: Contains no mineral oil, sulfur or chlorine  
 Viscosity: 108 cSt@40°C  
 Hazardous OSHA/DOT: Yes/No  
 VOC: 4 grams/liter  
 CONCENTRATE

### FEATURES & BENEFITS

- Also an excellent screw machine and general purpose cutting oil
- Compatible with the oil and filter system of all Sunnen honing machines and other manufacturers' machine tools in which petroleum oils are normally used

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.)



MACHINE  
ACCESSORIES

## MAN-C Honing Oil Concentrate

### SPECIFICATIONS

Chemistry: Mineral oil, sulfur, chlorine  
 Viscosity: 437 cSt@40°C  
 Hazardous OSHA/DOT: Yes/No  
 VOC: 64 grams/liter  
 Size Available: 18.91 L (5 gal) pails,  
 209.21 L (55 gal) drums,  
 1255 L (330 gal) totes

### FEATURES & BENEFITS

- Concentrated formula...can be mixed with mineral oil on-site to make a variety of regular-strength honing oils
- Compatible with the oil and filter system of all Sunnen honing machines and other manufacturer's machine tools in which petroleum oils are normally used
- Contains a mixture of sulphurized and chlorinated materials
- Recommended for use with hard-to-hone materials such as stainless steel, soft 8620, Inconel and Zirconium
- Useful only as concentrate to blend with mineral oil. One pail to one drum of mineral oil will result in mix similar to MAN845.

MAN-C is a honing oil concentrate, which when mixed at the proper ratios with customer supplied mineral oil, makes MAN-845 or CK-50 honing oil. The end user will save on shipping expenses by purchasing the mineral oil locally and mixing it with MAN-C at their facility.



GAGING

FILTERS

HONING FLUIDS  
& COOLANTS

TECHNICAL DATA

## SCC-100/101 Honing Coolant

### SPECIFICATIONS

No mineral oil, sulfur or chlorine  
 Viscosity: Water  
 Hazardous OSHA/DOT: No/No  
 VOC: 39 Grams/Liter  
 Size Available: 0,95 L (1 quart),  
 3,79 L (1 gal)

### FEATURES & BENEFITS

- Foam control makes SCC-100/101 ideal for use in grinders, especially the Sunnen Valve Refacer and Tappet Refacer
- Compatible with machine tools that are designed to use water-based coolant

SCC-100/101 is a general purpose grinding fluid formulated to be very mild to the operators skin. The coolant is recommended for light duty machining and grinding of alloy steels, copper alloys and some aluminum.



## SCC-205/605 Honing Coolant

### SPECIFICATIONS

No mineral oil, sulfur or chlorine  
 Viscosity: Water  
 Hazardous OSHA/DOT: No/No  
 VOC: 1 Grams/Liter  
 Size Available: 18.91 L (5 gal) pails,  
 209.21 L (55 gal) drums

### FEATURES & BENEFITS

- Far superior to conventional honing oils in reducing or eliminating workpiece temperature build up
- Suitable as a grinding coolant or general purpose metal working fluid for both ferrous and non-ferrous parts
- Contains no dangerous nitrites, nitrates, PCB's, PTTBA, Mercurials, or Phenols

SCC-605 and SCC-205 Honing Coolant Concentrates are formulated to meet the demands of the KROSSGRINDING® System, Single-Stroke® Honing System and metalbond superabrasive honing.

SCC-605 and SCC-205 are very similar. Select SCC-605 when honing cast iron. This coolant has the ability to "self clean" which results in longer coolant life and consistent surface finish. Select SCC-205 when honing hardened steel using fine grit diamond plated tools or metal bond abrasives.



## 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	SHO-965	LP8X	MAN-845	CK-50	GHC351	MAN-852	MAN-863	KG3X	SHO-500	SCC-205	SCC-605
Process	Honing	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y <sup>(1)</sup>	Y <sup>(1)</sup>
	KROSSGRINDING™	Y	Y	Y	Y	—	—	Y	Y	Y	Y	Y	Y	Y
	SINGLE STROKE HONING™	Y	Y	Y	Y	—	—	Y	Y	Y	Y	Y	Y	Y
	Broaching	Y	Y	Y	—	—	—	—	Y	Y	Y	Y	—	—
	Gundrilling	Y	Y	Y	—	—	—	—	Y	Y	Y	Y	—	—
	Milling, Drilling, or Turning	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<b>Material</b>		<b>MB-40</b>	<b>MB-30</b>	<b>SHO-965</b>	<b>LP8X</b>	<b>MAN-845</b>	<b>CK-50</b>	<b>GHC351</b>	<b>MAN-852</b>	<b>MAN-863</b>	<b>KG3X</b>	<b>SHO-500</b>	<b>SCC-205</b>	<b>SCC-605</b>
Steel (hard)		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Steel (stainless), Stellite, Carbide		Y	Y	Y	—	—	—	—	Y	Y	Y	Y	Y	Y
Ceramic, Glass, Quartz, Carbon, Ferrite		Y	Y	Y	—	—	—	—	Y	Y	Y	Y	Y	Y
Nylon, Plexiglass, Polycarbonate		Y	Y	Y	—	—	—	—	Y	Y	Y	Y	Y	Y
Aluminum, Brass, bronze, Steel (soft), Cast Iron (all)		Y	Y	Y	Y	Y	—	Y	Y	Y	Y	Y	Y	Y
<b>Specification</b>		<b>MB-40</b>	<b>MB-30</b>	<b>SHO-965</b>	<b>LP8X</b>	<b>MAN-845</b>	<b>CK-50</b>	<b>GHC351</b>	<b>MAN-852</b>	<b>MAN-863</b>	<b>KG3X</b>	<b>SHO-500</b>	<b>SCC-205</b>	<b>SCC-605</b>
Chemistry	USDA Biopreferred®	—	—	—	—	—	—	—	—	Y	Y	Y	—	—
	Hazardous OSHA	Y	Y	Y	Y	Y	Y	Y	—	—	—	—	Y	Y
	Hazardous DOT	—	—	—	—	—	—	—	—	—	—	—	—	—
	Mineral Oil	Y	Y	Y	Y	Y	Y	Y	—	—	—	—	—	—
	Animal Fat	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	—	—	—
	Sulfur	Y	Y	Y	Y	Y	Y	Y	—	Y	—	—	—	—
	Chlorine	Y	—	—	—	Y	Y	—	—	—	—	—	—	—
	Phosphorus	Y	—	—	—	—	—	—	—	—	—	—	—	—
	VOC (grams/liter)	194	329	30	370	380	428	175	1	22	13	19	1	1
Viscosity (cSt@40°C)	43	22	25	7	7	4.4	35.4	28	22	21	22	Water	Water	
Size Available*	Quart/Liter 1,0 L (1/4 gal)	—	Y	Y	—	—	—	—	—	—	—	—	—	—
	Pails 18,9 L (5 gal)	Y	Y	Y	Y	Y	—	—	Y	Y	Y	Y	Y	Y
	Drums 209,2 L (55 gal)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Totes 1255 L (330 gal)	—	Y	Y	—	Y	—	Y	Y	Y	—	—	—	—

(1) Requires metalbond abrasive.

\*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

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TECHNICAL DATA

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