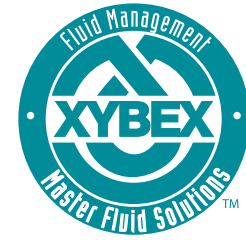


FLUID RECYCLING EQUIPMENT

MAXIMIZE PRODUCTIVITY
AND MINIMIZE WASTE
WITH XYBEX®



MAXIMIZE PRODUCTIVITY
AND MINIMIZE WASTE
WITH XYBEX



A UNIQUE PERSPECTIVE.

Master Fluid Solutions, the company that invented coolant recycling, is unique in the metalworking fluid industry. Its **XYBEX® Fluid Recycling Equipment** offers expert machining fluid management solutions. But we don't just sell equipment, but rather, equip our customers with the tools and training they need to optimize the products we sell.

The key to using less fluid is to institute a fluid recycling program.

An effective fluid recycling program requires:

- > Stable, bio-resistant fluids which can withstand repeated recycling
- > Management control and **active** supervision of the recycling program
- > Properly designed and sized recycling equipment and systems capable of maintaining the fluid in consistently good condition
- > Control of the mechanisms which cause coolants and cleaners to fail

You may have the mistaken impression that fluid recycling is complicated or costly. Instead, it's an easy way to operate more efficiently and more affordably, so it virtually pays for itself.

Customers who recycle their fluids realize a 40%–80% reduction in coolant and fluid purchases.

PUT XYBEX TO WORK FOR YOU: (PAGE)

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MEASURING FLUID PROPERTIES AND USING PURE WATER

The Misco **Palm Abbe™ Digital Refractometer** is fast, convenient, and easy to use. With a drop or two of fluid in the titanium well, it delivers a readout in degrees Brix. Nonlinear temperature compensation is automatic and ensures fluids read between 32°F–122°F (0°C–50°C) are measured accurately.

The large LCD display is easily read, even in dim light. The user interface has two buttons – one for readings, the other for menu options.

No special calibration solutions or tools are needed, as Palm Abbe automatically calibrates itself to water and is ready to use in seconds. No screws to turn and nothing to adjust.

The Palm Abbe Digital Refractometer gives fast, accurate measurement of coolant concentration.



No fluid maintenance concentration control program is complete without a method to check the concentration on a periodic basis. After all, you cannot control what you don't measure!

Charting daily refractometer readings and tracking actual-versus-desired concentration is the easiest way to prevent deviation from the desired concentration. This allows the operator to make daily adjustments to keep concentration on target.

Sometimes it is difficult to measure concentration by refractive index due to physical factors. In those cases, **Master Fluid Solutions Titration Kits CL-1** and **CGF-1** are used to check the concentration of Master STAGES cleaners and TRIM® cutting and grinding fluids. While checking concentration, always check the pH. Using Master Fluid Solutions **pH Test Strips** is a simple way of determining the degree of acidity/alkalinity of aqueous solutions.

Keeping the concentration controlled, and the pH within the recommended range will help fluids perform much better and last much longer.

Difficult-to-check fluids are easily checked with (below left) Titration Kits CL-1 and CGF-1.

Pure water – key to excellent coolant performance and longevity – comes in many forms such as distilled, deionized, and reverse osmosis water. Typically, deionizer systems are rented from local vendors and distillation units from companies who specialize in this process.

An economical way to provide pure water is with a reverse osmosis (RO) system. Reverse osmosis is a process that removes up to 98%–99% of dissolved minerals and virtually 100% of colloidal and suspended matter. Compared with other processes, it provides excellent quality water at a relatively low cost.

There's a XYBEX **Reverse Osmosis System** to fit your needs. RO systems are sized based on your raw water quality and the quantity of RO water your plant needs. Your Reverse Osmosis system can be skidded for ease of movement in your plant, and comes ready for utilities hook up. RO systems are expandable and can be custom configured for up to 10,800 gallons per day capacity.

Using pure water is key to excellent coolant performance and longevity.



RECYCLING FLUIDS WITH XYBEX SYSTEMS

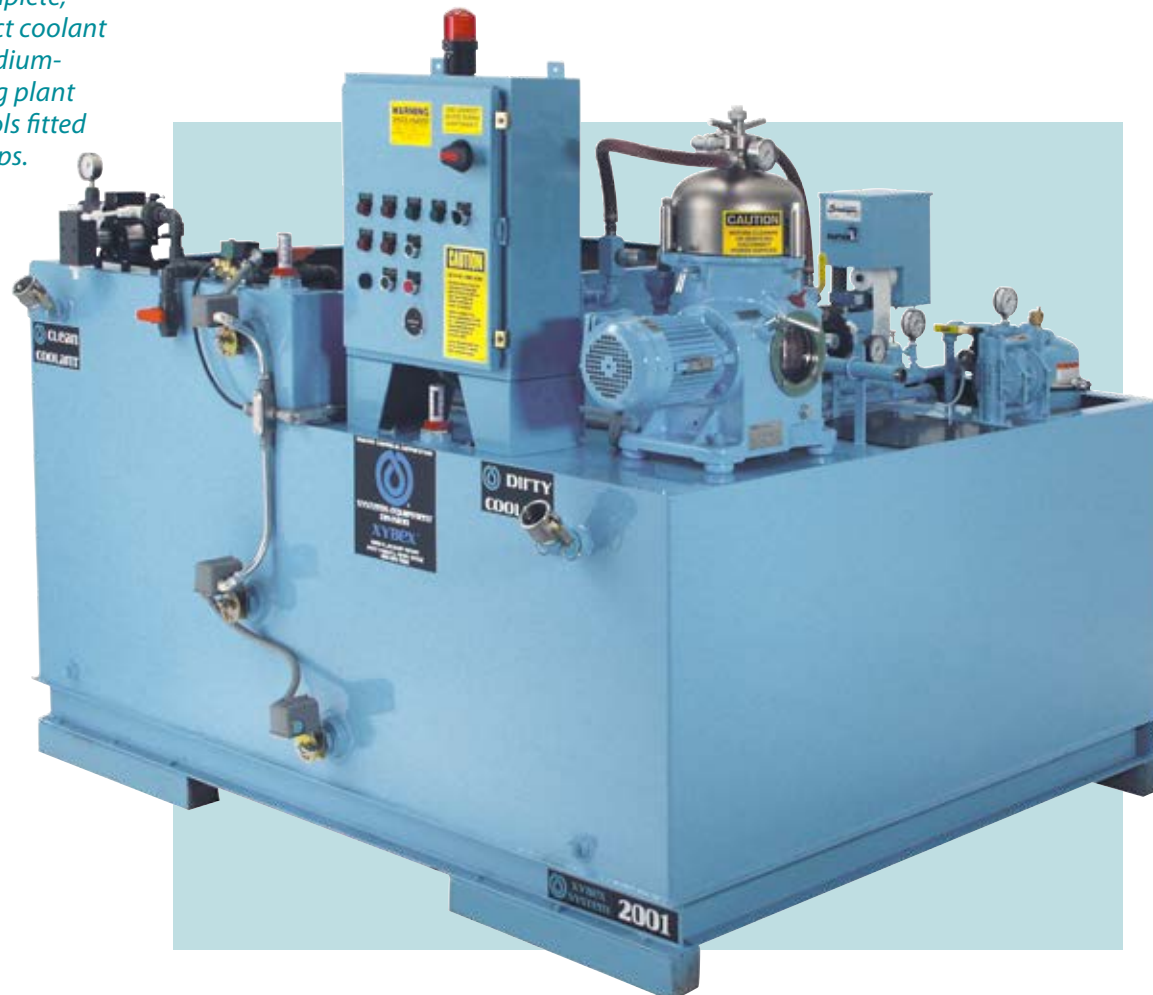


The System 1000 series also offers an optional dual product design, the **XYBEX® System 1200**, which features two clean and two dirty tanks for those companies running two products (such as one for cutting and one for grinding). For the ultimate in fluid recycling, the largest standard order XYBEX System that Master Fluid Solutions makes is the **XYBEX® System 2001**. It is a complete, full capability, single-product recycling system for the medium-to-large sized metalworking plant operating with machine tools fitted with their own coolant sumps. The XYBEX System 2001 is equipped with a high-speed centrifuge, includes a larger, more fully instrumented

control panel, and an ergonomically-friendly centrifuge pre-filter package. The XYBEX System 2001 will provide makeup coolant and will recycle a sufficient quantity of fluid daily to support a total of 6,000 or more gallons of coolant in the machines. Do you have a situation where greater flow rates or higher processing capacities are required? Custom configurations are also available. Just name your requirements and we can custom engineer a system especially for you.

All XYBEX Systems include an appropriately-sized dirty tank and clean tank; **UNIMIX™** automatic coolant proportioning pump for coolant makeup and concentration control, and a **SCROUNGER® Oil Skimmer** for removing free-floating, nonemulsified tramp oil from the dirty tank. Options include coalescers and other tramp oil removal devices. The larger XYBEX Systems include a high-speed, liquid-from-liquid disc-bowl centrifuge to purify the fluid, removing tramp oil to less than 0.5% and solids to the 2- to 5-micron level.

XYBEX System 2001 is a complete, full capability, single product coolant recycling system for the medium-to-large-sized metalworking plant operating with machine tools fitted with their own coolant sumps.



The **Master Coalescer II™** meets the needs of any multiple-machine metalworking plant for a simple, effective, low-cost tramp oil separator which can be moved from machine to machine. Master Coalescer II processes machine tool coolants to remove tramp oil and fines and provide clean, reusable coolant. The oleophilic coalescing plate packs which remove oils effortlessly and efficiently, come standard with an air-feed pump or heavy-duty, electric-feed pump. The unit also can be used on high temperature fluids, such as cleaners. A single portable machine can support tramp oil removal for an entire shop!

The portable **Master Coalescer Jr™** is a high-performance coalescer in a small package. Perfect for modern CNC machine tool sumps, it comes with an air feed pump, high-efficiency coalescing plate pack, and a small floating skimmer pick up that fits in small spaces and shallow sumps.

Master Coalescer II – the ultimate coalescing unit for use with large sumps and/or a large number of machine tools.



The **Sump Side Coalescer™** is a small, inexpensive coalescing unit for sump-side use. Flow rate is 1.5 U.S. GPM (5.6 LPM). This device is used in situations where it is impossible or difficult to provide idle time for the machine sump to allow tramp oils to rise naturally. Coalescing in the Sump Side Coalescer takes place outside the machine tool sump, allowing tramp oil to rise naturally.

The **SCROUNGER® Oil Skimmer** features an oleophilic belt and a unique method of stripping the separated oil from the belt. The **SCROUNGER® Jr.** uses the same "oil loving" belt, but uses a more compact scraper blade to strip the separated oil from the belt. These low-maintenance items also can be equipped with a timer, so the unit runs only when the machine is idle and tramp oil has risen to the surface of the sump.

Master Coalescer Jr. low-maintenance coalescer removes tramp oil while machine is running.



REMOVING TRAMP OIL

Sump Side Coalescer – a quiet, economical option.

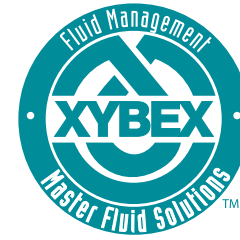


SCROUNGER and SCROUNGER Jr. oil belt skimmers can be used in very tight quarters.



FLUID RECYCLING EQUIPMENT

FILTERING AND REMOVING SOLIDS WITH THE YELLOW BELLIED SUMP SUCKER



FILTERING AND REMOVING SOLIDS WITH THE YELLOW BELLIED SUMP SUCKER

Every metalworking plant faces the problem of how to clean machines thoroughly and effectively yet minimize the downtime for machine tools. If you want the job done right, then nothing works better than the **Yellow Bellied Sump Sucker™** (YBSS). With solid holding capacities to 5.3 cubic feet, and liquid capacities to 1,000 gallons, the YBSS will clean virtually any machine tool sump quickly and thoroughly.

During the machine cleaning process, the YBSS removes coolant, sludge, and chips from the sump, filters the sludge and chips from the coolant in the integral filter liner, then returns the filtered coolant back to the sump. The polypropylene sleeve filters to a nominal 50 microns. Where finer filtration is needed, such

as for grinding, a single-use paper filter sleeve can be inserted into the chip basket to filter 20 micron particulate.

Once the machine cleaning process is complete, and the filtered fluid is returned to the machine, then the chip basket can be removed from the chip tower so that the chips and the sludge can be dumped. The perforated metal tower and solid steel bottom design are rugged. The basket can hold up to 800 pounds of chips. When ready to be emptied, it should be lifted with an overhead hoist or another suitable lifting device and the solids safely disposed of in a chip hopper. The bottom of the chip basket is equipped with a trap door design, which can be activated at a safe distance with the remote cable latch release.

With YBSS, machines are cleaned in a fraction of the time required by other methods. Better still, machine tools aren't sitting idle for extended periods of time. Get your machines back up and running parts quickly with a YBSS!

A VARIETY OF UNITS/CONFIGURATIONS:

- > Single compartment from 50 to 1,000 gallons
- > Twin compartment from 40/40 to 500/500 gallons
- > Tow units up to 1,000 gallon single or 500/500 gallon twin units
- > Truck-mounted units up to 400 gallon single or 200/200 gallon twin units
- > Push-around models up to 275 gallon single to 100/100 twin units

For large plants, the tow, truck-mounted, or push units would be needed, as the sump sucker size is determined by the size and number of machine tool sumps in the plant.

The smallest unit is the **LI'L Sucker™** 50-gallon, single compartment tank, which is an excellent addition to a smaller shop with limited floor space. The small push-around units include many of the same features of the larger units.

Consult your Master Fluid Solutions distributor for help selecting a sump sucker for your operations.

Power options include air venturi, 120 VAC single-phase, 220/440 VAC 3-phase electrical, and even an LP unit with self-contained Kohler engine.

THE YBSS IS FAST!

In a typical example, a cylindrical grinder sump with 120 U.S. gallons (454 liters) of coolant and 700 pounds (318 kilograms) of sludge was completely cleaned, the coolant filtered, and returned to the sump in just ten minutes.



Yellow Bellied Sump Sucker is ideal for expansive plants with lots of square footage to cover.

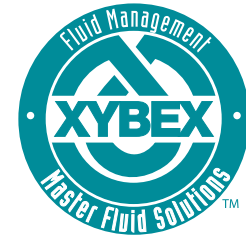
Yellow Bellied Sump Suckers continue to be the workhorses of the coolant industry. Once the machine cleaning process is complete, the chip tower (shown below in cut away) can be hoisted from the YBSS so that chips and sludge can be dumped from the remote-activated trap door.



All the features of our standard YBSS are available in easy-to-use, virtually maintenance-free, air-venturi units.



The LI'L Sucker is a 50-gallon, 120 volt electric sump sucker fits almost anywhere that floor space is a premium.



REMOVING TRAMP OIL

Getting rid of tramp oil should be high on the priority list of all metalworking shops. Excess tramp oil causes smoke, mist, and bacterial infestation of the metalworking fluid. Additionally, excess tramp oil is a contributor to dermatitis. It can adversely affect surface finish as well as dimensional tolerance control. Fortunately, removing tramp oil is easy.

XYBEX larger-scale tramp oil separator systems use a rugged, reliable, high-speed disc bowl centrifuge system. These systems are normally set up in a stationary position and coolant or cleaner brought to them for recycling. In such cases, they are part of our **XYBEX Recycling Systems** (pages 2-3). Portable units are also available.

Large-scale centrifuge systems purify fluids and remove tramp oil from large central systems. The centrifuge pulls fluid from the central system in a side loop, purifies the fluid, removes tramp oil, and returns cleaned fluid to the system.

High-speed, disc bowl centrifuges are available with either a solid-wall bowl design (which is manually cleaned) or a two-part bowl design (self-desludging, automatically cleaned). The self-desludging design is preferable for higher solid situations and on central system equipment.

High-speed centrifuges purify the fluid, removing tramp oil to less than 0.5% and solids to the 2- to 5-micron range.

The portable, compact **Tramp Oil Terminator™** is used in smaller shops requiring more than just free-oil removal. Some of the peskiest tramp oils are those which emulsify in the carrier fluid – either through light chemical bonding or mechanical shearing. The high-speed, Tramp Oil Terminator centrifuge removes tramp oil from both water-miscible coolants and aqueous cleaners to provide clean, reusable coolants and cleaners. Its mobile platform means fluid recycling can be taken sump side for more efficient use of machine up-time. Simply drop two hoses into the machine sump and start the centrifuge to effortlessly remove tramp oil while the machine tool continues to run.

MAXIMIZE YOUR COOLANT DOLLARS!

You can recycle coolant virtually indefinitely in a well-managed fluid management program fashioned around a Master Fluid Solutions XYBEX Fluid Recycling System. Let our years of experience work for you. After all, Master Fluid Solutions is the company that invented coolant recycling.

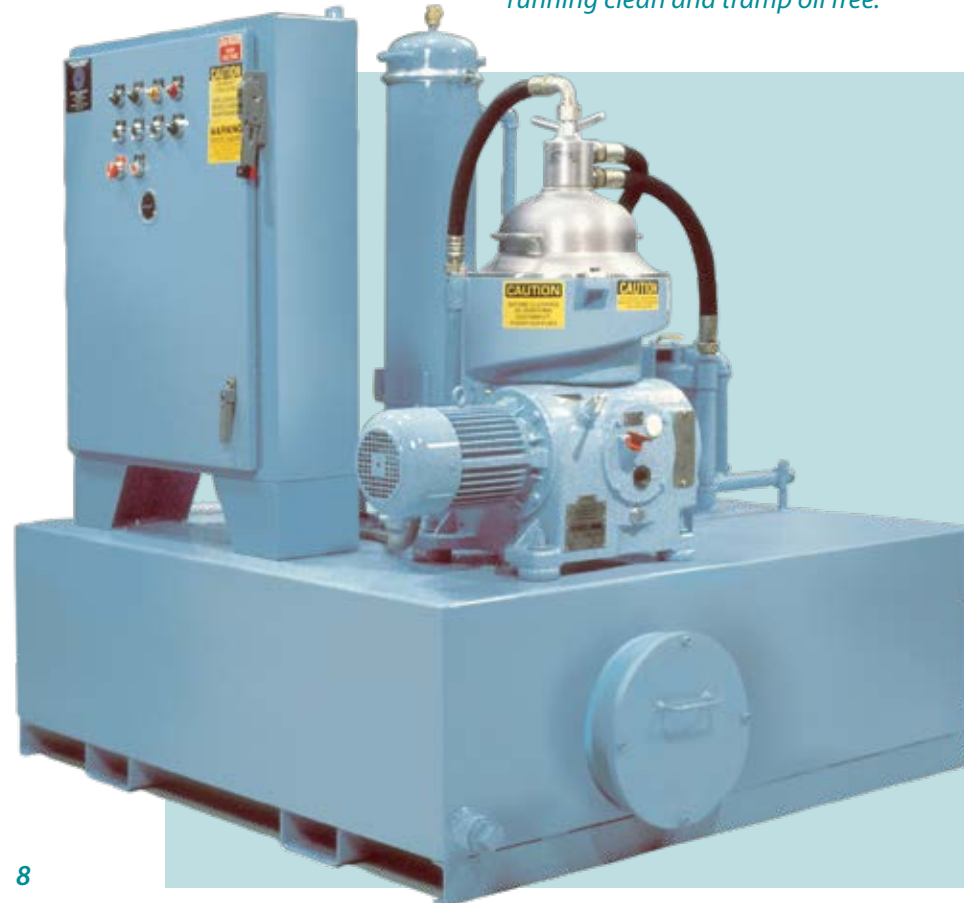
Solids collect in the bottom of individual machine sumps and the bottom of large central systems. Having this reactive metal in contact with the coolant can cause many problems. It's important to get the chips and fines out of a system in order to achieve optimal system performance. The machines that do this range from simple to sophisticated.

Two inexpensive solutions for use on individual machines are the Drum Top Sump Cleaner and the MCC Reversible LIQUI-VAC™.

The **Drum Top Sump Cleaner** is a vacuum unit that converts an existing open-top drum into a powerful machine tool sump cleaner. The Drum Top Sump Cleaner also removes chips and fines and is an economical alternative to a dedicated sump cleaner.

The **MCC Reversible LIQUI-VAC™** is another inexpensive solution to your sump cleaning problems. It readily connects to a closed-head drum, yet is small enough to fit in your hand. Both these small units suck up tramp oils, used oil, and waste coolants quickly and efficiently.

Self-cleaning, high-speed, disc-bowl centrifuges keep central systems running clean and tramp oil free.



Tramp Oil Terminator – the portable centrifuge that removes even the peskiest tramp oil and is easily moved on its mobile platform.



The Drum Top Sump Cleaner converts an existing open top drum into a powerful machine tool cleaning system.



The Reversible LIQUI-VAC is big enough for tough jobs, yet small enough to fit in your hand.



FLUID RECYCLING EQUIPMENT

Maintaining tight control of the fluid concentration ensures the fluid never becomes too lean or too rich. When the concentration is too lean, the result often is rust, bacterial infestation, and poor tool life. When the fluid concentration is too rich, the mixture often causes eye, nose, and skin irritation, and is simply a waste of product. Mechanical mixers ensure consistent concentration under all types of conditions.

XYBEX offers a complete line of mechanical concentrate mixers to meet the needs of all metalworking shops.

When more accurate and automatic mixing is required, consider **UNIMIX™**. UNIMIX is a water-driven, positive-displacement proportioner, which dispenses coolant on demand at the desired concentration. Average flow rate through all units is 5 GPM. Mixing ranges are available from 1%–15%. Special units are available for high alkalinity parts washing fluids. UNIMIX has the benefit of keeping the concentration the same at all times, despite varying water pressures or fluid levels in supply containers.

Master Mix™ is a compact, easy-to-use venturi mixer for combining water with coolant concentrates. Water jetting through the unit creates a vacuum that siphons concentrate from the drum. A needle valve allows for infinite adjustments across the mixture range. Available in 3 and 10 GPM versions, with mixing ranges adjustable from 2%–25%.

UNIMIX dispenses coolant on demand at the desired concentration.



Master Mix is an economical, easy-to-use venturi mixer.



CONTROLLING CONCENTRATION

When mixing cleaners, there is often more than one product to mix. What better way to mix them than with a two-product mixer? **Skrambler2™** is a rugged, industrial grade, dual-ratio mixer with dual 3.5 GPM air gap eductor proportioners made for dispensing Master STAGES CLEAN products. You can dispense the same product at two different ratios or two differing products at the same or differing ratios.

Tackling tough cleaning applications and want economical mixing? Choose **The Whammer™**. The Whammer is a simple, durable, low-cost foaming dispenser for Master STAGES™ CLEAN maintenance cleaners. It is especially useful when cleaning machine tools. You can easily see where machine cleaner has been sprayed both inside and outside the machine.



Master Fluid Solutions has put all the aspects of good coolant and fluid management to work in a single machine, the **XYBEX® Fluid Recycling System**.

A XYBEX System maximizes the recycling of water-miscible fluids and minimizes or eliminates disposal, reduces fluid concentrate use, and improves plant profitability and productivity. The systems range in size from small to large and feature low maintenance, unattended operation, and fast return on investment. Increase profits year after year with a XYBEX system.

XYBEX System 750 with standard high-speed disc bowl centrifuge and an "over and under" tank design is ideal with limited floor space.



The smaller **XYBEX® System 600** is a feature-packed, modular, yet low-cost coolant recycling system. The standard unit is designed for use with water-miscible coolant and cleaner products which reject tramp oils. XYBEX System 600 supplies the basics for fluid recycling, yet offers the flexibility to meet the customer's future needs. With a convenient side-by-side tank design, it can expand as your business grows by simply replacing the standard coalescer module with a centrifuge module.

XYBEX® System 750 packs in even more features. Its stacked tank design is ideal for the shop trying to conserve floor space. With its standard high-speed centrifuge, this system allows for complete recycling of any premium metalworking coolant. Because XYBEX System 750 uses a true high-speed centrifuge, only one pass through the

RECYCLING FLUIDS WITH XYBEX SYSTEMS

system is necessary to remove tramp oils, particulate matter, and even some bacteria. Cleaning the fluid to this degree eliminates the need for expensive, energy-intensive coolant pasteurization.

XYBEX® System 1000 delivers an even larger centrifuge for higher processing rates. Its standard high-speed centrifuge is capable of processing up to 90 gallons of fluid per hour. Higher flow rate centrifuges are available. The feature-packed system also allows greater flexibility for adding optional equipment. The XYBEX System 1000 is ideal for companies wanting to include pure water delivery as an option with their single-skid system.

This system can also easily be outfitted with a reverse osmosis system, or deionizer system.

(continued, next page)

The smaller XYBEX System 600 is a feature-packed, modular, low-cost coolant recycling system.



Committed Today for a Greener Tomorrow

Our corporation is committed to sustaining our natural resources, protecting our environment, and leaving a smaller footprint on the places we all call home.

As a manufacturer of fluids and fluid recycling equipment, we are committed to promoting conservation in manufacturing and helping customers maximize productivity while minimizing waste.

Just visit masterchemical.com and click on "Green Policy" to learn more about our commitment to environmental stewardship.



Cutting and Grinding Fluids that Lead the Industry

Master Fluid Solutions has been recognized for more than 60 years for its TRIM family of metalworking fluids for all types of cutting and grinding operations. Known worldwide for superior performance, TRIM meets the demands of specialized industries such as automotive, aerospace, and medical parts manufacturers.

For the full range of cutting and grinding applications for synthetics, semisynthetics, and soluble oils, TRIM products deliver longer tool and sump life, better finished parts, and a better bottom line.



Master STAGES: Products to Clean, Coat, and Protect

Master STAGES surface treatments include cleaners and corrosion inhibitors to keep you environmentally compliant, up and running at peak performance, and more profitable.

Have health and safety issues? High disposal costs? Need to prevent rust or clean lubricant from parts? Whatever your production problems and concerns, we have a performance-proven product sure to make the difference. The Master STAGES difference— the right solution for the job at the right price.



For prices or additional information on special units or special applications, contact your Master Fluid Solutions Distributor.



www.masterfluidsolutions.com



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