



# Shaping the Future. Together.

A complete overview of our Metalworking Fluid Solutions



Metalworking companies face challenges today as never before. Under increasing pressure to reduce costs and environmental impact, they are also dealing with new highly engineered materials creating new requirements in manufacturing processes and metalworking fluids. At this critical point in time, we are the long-term partner for manufacturers seeking to anticipate—and overcome—these challenges. We are committed to offering innovative solutions to help our metalworking customers run more efficiently today and reap the opportunities of the future.

## Applied Intelligence: The Quaker Houghton Difference

Our metalworking experts work closely with your team to solve complex manufacturing challenges. In an increasingly competitive industry, we are the partner you can trust to prepare you for the future based on extensive knowledge of your unique operating environment and goals. We provide on-site expertise that maximizes quality, performance and safety.

**With Quaker Houghton products and people at work in your facility, you can:**

- Lower fluid consumption with minimal drag-out, reduced usage rates and extended bath life
- Increase productivity due to extended tool life, reduced downtime and less rework
- Improve safety and environmental impact through technologically advanced fluids and reduced waste, energy and water consumption

## Solutions That Optimize Performance

Quaker Houghton solutions are the metalworking industry standard, proven reliable in the most demanding environments. Our complete range of solutions includes:

-  Cleaners
-  Corrosion Preventives
-  Die Casting Fluids
-  Fire-Resistant Hydraulic Fluids
-  Forging Fluids
-  Heat Treatment Fluids
-  Industrial Lubricants
-  Metal Forming Lubricants
-  Metal Removal Fluids



# Cleaners

There is constant and essential requirement for cleanliness in an industrial setting. With unclean surfaces, manufacturers face challenges ranging from part defects, corrosion, and downstream compatibility issues to slip and fall hazards. Process cleaners are needed to remove oils, residues, and fines from metal strip and parts while keep work areas and equipment clean from the accumulation of oils, greases, and dirt coming from the maintenance cleaners manufacturing environment.

## Product Categories

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- **Process:** Spray cleaners are formulated to be used in single or multi-stage spray washers and many also offer corrosion protection. Immersion cleaners effectively remove heavy-duty soils with only moderate agitation.
- **Maintenance:** Includes floor, machine tool sump, and general-purpose shop cleaners.



# Corrosion Preventives

Rust and corrosion are the naturally occurring enemies of machined parts as well as coils (metal strip), blanks, stamped parts and other surfaces. High humidity, foreign contaminants, and uneven product coverage can cause serious damage. Quaker Houghton's complete line of solvent, oil and water-based corrosion preventives protect metal parts during production and in storage, both indoor and outdoor.

## Product Categories

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- **Solvent-Based:** Neat, compatible with all metals
- **Oil-Based:** Neat, low VOC applications
- **Water-Based:** Synthetic, can be biostable
- **Soluble Oils:** Water dilutable, Barium-free
- **Greases & Waxes:** Neat, compatible with all metals



# Die Casting Fluids

Our water based, dilutable DIE SLICK® lubricants, with reactive Smart Polymer technology, have been developed to provide exceptional release and die protection characteristics, whilst our water free minimum quantity (MQL) and unique, patented, Lubrolene® electrostatic spray products provide unrivalled quality, operating cost, and environmental performance benefits.

## Product Categories

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- **Die Release Lubricants:** Water-based, water-free and electrostatic die release lubricants
- **Plunger Lubricants:** Our range of plunger lubricants include water-free (oil based), solid beads and water based emulsions to meet customers defined needs.
- **Ladle Coatings:** High solids, ceramic-based coatings for ladles and other areas exposed to molten metal which provides a protective coating that will not adhere to molten alloy
- **Trim Lubricants:** Premium, water soluble lubricant formulated to provide excellent boundary protection for trim presses.
- **Heat Transfer Fluids:** Non-toxic, non-corrosive, low odor heat transfer fluids that quickly absorb heat.
- **Quenchants:** Quench tank additives that contain a blend of surfactants and corrosion inhibitors which quickly dissipate heat from castings while inhibiting oxidation, protecting parts and equipment from rust.



# Fire-Resistant Hydraulic Fluids

Our hydraulic fluids were developed to work in harmony with our wide range of industrial process fluids. Our hydraulic fluid range includes High Water Content (HFA), Water Glycol (HFC), and Synthetic Water Free (HFD-U) fluids.

## Product Categories

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- **High Water Content (HFA):** High water content fluids that combine the excellent fire resistant properties of water with lubrication and corrosion protection from an additive concentrate
- **Synthetic Water Free (HFD-U):** Formulated from polyol esters (synthetic and natural) that have excellent fire resistant properties.
- **Water Glycol (HFC):** Fluids with a combination of fire resistant properties with good lubrication performance and are endorsed by original hydraulic component and equipment manufacturers.



# Forging Fluids

The high pressures and temperatures generated in the hot and warm forging process demand lubricants that have what it takes to increase the life of machinery parts and dies by protecting them from corrosion and improving surface quality. Our range of forging fluids cover many applications including closed die, upsetting, open die, hammer, mechanical or press, ring rolling and either warm or hot forging.

## Product Categories

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- **Water Graphitic:** Dispersions of graphite in water are ideal for impact type applications in closed dies. Typical applications include press, hammer and drop forging of automotive parts, aerospace and medical applications.
- **Oil Graphitic:** Graphite in oil products are available in a range of viscosities and additive content for numerous applications, ranging from heavy duty deep extrusions to light forming, in ferrous and non-ferrous alloys.
- **Water Synthetic:** These water-based products are free from graphite for cleaner working conditions and cleaner components. Typical applications include closed die ferrous and nonferrous extrusions, forgings, stampings on hammers, presses and drop forging applications
- **Oil Base:** Oil base products are free from graphite for cleaner working conditions and cleaner components, available in a range of viscosities and additive content for numerous applications ranging from heavy duty deep extrusions to light forming, in ferrous and non-ferrous alloys.



# Heat Treatment Fluids

Our comprehensive portfolio including cold quenching oils, martempering oils and aqueous quenchants. Quaker Houghton delivers superior industrial solutions to meet required metallurgical properties and reduce distortion in heat treated components.

## Product Categories

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- **Cold Quenching Oils:** High-quality refined paraffinic base stocks for high and low hardenability alloys, achieving excellent metallurgical properties and low residual stresses and distortion. These quenchants are suitable for use from ambient to 90°C
- **Martempering Oils:** Suited for elevated temperature use above 120°C, where high properties and low distortion is required. High-quality base-stocks, and robust additive packages result in long-life quenchants for elevated temperature applications.
- **Vacuum Quenching Oils:** Specially formulated to provide the high flashpoint/low vapor pressure required in vacuum furnace applications. These oils, using robust additives, achieve the low distortion, high metallurgical properties required by demanding customers.
- **Aqueous Quenchants:** Polymer quenchants that provide low distortion and excellent properties for spray or immersion applications. Our bio-stable polymer quenchants reduce the "Monday morning smells."



# Industrial Lubricants

Quaker Houghton offers a full range of industrial lubricants such as hydraulic oils, gear oils, slideway oils, spindle oils, and greases that are designed to meet or exceed the industrial standards and specific OEM requirements.

## Product Categories

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- **Gear Oils:** These incorporate safe and effective additives in high quality base oils and are designed to withstand the churning, aeration and heat generation that are characteristic of gearboxes. Our gear oils enhance lubrication in a variety of applications, where sliding and rolling motion of gear sets would rupture a normal lubricating film.
- **Slideway Oils:** High film strength lubricants comprising high load carrying anti stick-slip additives in premium quality base oils. They are designed expressly for use where sliding motion takes place at high load and low speed and where absolute freedom from sticking or chattering of ways or slides is a necessity
- **Spindle Oils:** Based on highly refined oil which provides excellent water separation and extremely low foaming tendencies over a wide range of temperatures. Our products also contain inhibitors for rust, corrosion and oxidation.
- **Hydraulic Oils:** Available in several grades both Zn as Zn free and designed for the arduous requirements of high performance hydraulic systems. They are also suitable for machine tool lubrication, allowing product rationalization.
- **Greases:** A wide range of products based on various type of thickeners and base oils. Available in different consistency grades, wide range of base oil viscosities and state-of-the-art additive combinations to meet the requirements of the metalworking industry.



# Metal Forming Lubricants

Our comprehensive Metal Forming Fluid line includes synthetic lubricants, soluble oils, straight oils, vanishing oil lubricants, and specialized lubricants. We offer lubricant solutions for all metal forming operations, including automotive and component stamping, fine blanking, deep drawing, cold heading, hydroforming, wire drawing, extruding, tube forming, roll forming, and hot stamping.

## Product Categories

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- **Straight Oils:** Provide effective lubrication, strong extreme-pressure properties, and excellent corrosion protection with a product line to meet advancing industry needs.
- **Soluble Oils:** Water-based soluble oils that provide good lubricity and cleanability when mixed with water at low concentrations.
- **Synthetics:** Products for light to heavy-duty stamping, drawing, punching, and blanking operations, and offers excellent lubricity and cleanliness.
- **Vanishing Compounds:** Low to no residue lubricants incorporate various additive technologies that cover a wide range of flash points.



# Metal Removal Fluids

Acting as a lubricant and coolant, Metal Removal fluids reduce friction between the workpiece and the machine tool. Our fluids are formulated to be used with the various metals and local conditions encountered in a variety of operations including broaching, drilling, EDM, grinding, hobbing, honing, milling, MQL, reaming, tapping, and turning.

## Product Categories

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- **Soluble Oils:** Relatively high content of mineral oil delivering maximum tool life, corrosion prevention and part finish.
- **Semi Synthetics:** Fall between higher oil content soluble oils and the zero oil content synthetic materials maximizing cleanliness, machining, corrosion resistance and foam characteristics.
- **Synthetics (True Solution):** Contain no mineral oil and offer optimal cooling and lowest foam development. All components are completely water soluble.
- **Neat Oils:** Cutting and grinding oils formulated to be compatible with the strict requirements of OEMs. These offer extended tool life for applications ranging from light duty cutting to heavy duty broaching. Our grinding oils provide products for both high speed grinding, as well as specialized applications.

## Partners in Success

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**150% INCREASE IN TOOL LIFE:** A switch by a leading service provider for aerospace OEMs to our new coolant with its advanced lubricity package and excellent wetting properties resulted in increased tool life and reduced coolant usage.

**ADDITIVE ELIMINATION IN QUENCHING:** A commercial heat treater switched to our robust cold quenching oil to achieve specified hardness levels and metallurgical properties without extra additives, putting an end to waste due to quench oil degradation.

**\$2.3 MILLION ANNUAL SAVINGS WITH ADVANCED COOLANT:** A global automobile manufacturer switched to our boron- and chlorine-free emulsifiable metalworking fluid, eradicating their calcium carbonate build-up issue and achieving a 91% reduction in lost parts.

**ELIMINATING RUST ISSUES:** A large forging and machining shop switched to using our all-synthetic, non-staining aqueous-based corrosion preventive, eliminating all rust issues and saving over \$100,000 annually.

# Forward Together™

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