



# METALWORKING

## INTRO

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The metalworking industry is complex and challenging: a huge range of modern materials, combined with a multitude of machining operations can make selecting the correct product a minefield.

Once selected, the oil or fluid has to work hard to simultaneously lubricate, cool and flush whilst operating in an open environment - making it susceptible to contamination and degradation.

Add to that the ever-more stringent health and safety regulations, frequent updates to hazard labelling, and today's increased pressures for productivity and cost-savings, and lubrication becomes quite a daunting task...

Fortunately, Millers Oils can help.

Millers Oils has been a leading independent blender of oils and lubricants for over 130 years, and since 2000 has been an authorised distributor of Quaker Chemical soluble metalworking fluids.

The combined product expertise and industry knowledge, coupled with Millers-Xtra bespoke fluid management services means Millers Oils customers benefit from an industry leading advantage in their production processes.





## WATER-SOLUBLE METALWORKING FLUIDS

The Quaker boron and formaldehyde-free range of metalworking fluids is both safer and higher performing than traditional technology.

- ✓ Excellent work-piece finish
- ✓ Long sump life
- ✓ Multi-metal compatibility
- ✓ Suitable for high pressure systems
- ✓ Extended tool life
- ✓ Boron and formaldehyde-free

○ Recommended

□ Potential application

		QUAKERCOOL® Selection Chart							
Application		QUAKERCOOL® 3618 HBFF	QUAKERCOOL® 3502 BFF	QUAKERCOOL® 7350 BFF	QUAKERCOOL® 7101 BFF	QUAKERCOOL® 7601 BFFR	QUAKERCOOL® 7100 HD BFF	QUAKERCOOL® 3750 BFF	QUAKERCOOL® 7200 HBFF
Operations	Turning	○	○	○	○	○	○	○	○
	Milling	○	○	○	○	○	○	○	○
	Drilling	○	○	○	○	○	○	○	○
	Deep hole drilling	□		□	○	○	□	□	○
	Tapping-threading	○	□	○	○	○	○	○	○
	Reaming	□		□	○	○	□	○	○
	Broaching				□	○		□	□
	Sawing	○	○	○	□	○	○	○	○
	Grinding	○	○	□	□		○	○	□
	Honing-Lapping	□		□		□	□		□
Materials	Cast Iron	○	○	○	○	□	○	○	□
	Steel	○	○	○	○	○	○	○	○
	High alloy steel	○	□	○	○	○	○	□	○
	Stainless Steel	□	□	○	□	○	□	□	○
	Aluminium alloys	○		○	○	○	□		○
	Aero aluminium alloys			○	□	○			□
	Copper alloys	□		□	□		□	□	□
	Titanium	○	□	○	○	○	○	□	○
Refractometer factor [%/°Brix]		1.7	2.3	1.3	1.3	1.0	1.6	1.3	1.0
Recommended Concentration		6 - 10%	4 - 10%	6 - 10%	8 - 12%	5 - 12%	6 - 10%	5 - 10%	6 - 12%
Make up water hardness [ppm]		90 - 350	50 - 340	90 - 500	170 - 340	180 - 360	90 - 500	35 - 180	140 - 450

## SYNTHETIC METALWORKING FLUIDS

Key products	Description
Millgrind G Syn	Synthetic chlorine free grinding fluid concentrate, designed for use on all surface, centreless and cylindrical grinding applications. Can be used for the grinding of glass and in mirror production.
Millcool Synth	Synthetic chlorine free metalworking fluid suitable for arduous grinding and cutting operations. For general machining, thread cutting, deep hole drilling and reaming on ferrous, high tensile and stainless steels, inconel, aluminium alloys, plastics and non ferrous composites.

Millers Oils blends its own range of neat cutting and forming fluids that provide excellent surface finish of the work piece and extended tool life across a range of applications and materials.

## NEAT CUTTING OILS

Key products	Cast iron	Aluminium	Yellow metals	Alloy steel	Mild steel
Millicut CAS 14	✓			✓	✓
Millicut CAS 27	✓			✓	✓
Millicut CL 20		✓	✓	✓	✓
Millicut CL 32		✓	✓	✓	✓
Millicut CHF 10	✓			✓	✓
Millicut CHF 22	✓			✓	✓

## NEAT FORMING OILS

Key products	Aluminium	Yellow metals	Alloy steel	Mild steel
Light duty <5 mm	Millform QD, Millform VO	Millform CL36, Millform QD	Millform CL150	Millform QD, Millform CL36
Medium duty 5 - 10 mm	Millform HCL33	Millform HCL33	Millform HCL33, Millform HCL140	Millform HCL33, Millform HCL140
Heavy duty >10mm	-	-	Millform HCL635	Millform HCL635

For specialist products please contact [technical@millersoils.co.uk](mailto:technical@millersoils.co.uk) or +44 (0) 1484 475060

## MAINTENANCE LUBRICANTS

Application	Product	Description	Viscosities
Hydraulic oil	Millmax	Low foaming oil for protection against corrosion and wear and maximised power transfer.	22, 32, 46, 68
Spindle oil	Millmax	High speed spindle oil with good oxidation stability and protection against corrosion.	2, 5, 10
Slideway oil	Millway	Anti-wear, anti-corrosion and high lubricity, no-drip formulation to prevent stick-slip and protect slideways.	68, 220
Grease	Deltaplex 2EP	Multipurpose, high-load bearing red lithium complex grease.	NLGI 2

## RUST PREVENTIVES AND DEWATERING FLUIDS

Product name	Description
Rust Preventive 1403	Dewatering fluid with indoor protection for up to 3 months.
Rust Preventive 184A	Dewatering fluid with indoor protection 12+ months; outdoor protection 3 to 9 months.
PW11 Wax Film	Indoor protection 5 years; outdoor protection 2 years

# MILLERS-Xtra FLUID MANAGEMENT

Millers-Xtra is a total preventative maintenance service, developed using 130 years of industry knowledge and tailored to the needs of our customers today. Services include:

## SITE SURVEYS

Millers Oils offers a detailed site survey to fully understand your business and its requirements. From that, we can advise the best products and equipment to maximise your operations.

## CONDITION MONITORING

Millers Oils offers condition monitoring including oil sampling, regular concentration and pH checks as well as performing any corrective actions e.g. removal of tramp oil and concentration adjustments to keep metalworking fluids at optimum performance level and in line with HSE guidelines.



## CLEAN-OUTS

When products reach the end of their usable life, Millers-Xtra fluid management technicians can perform full machine clean-outs, reducing the risk of contamination to extend the life of new product.

## ADVICE

Millers Oils has a dedicated team that operates a tech help desk service during office hours for application advice and troubleshooting.

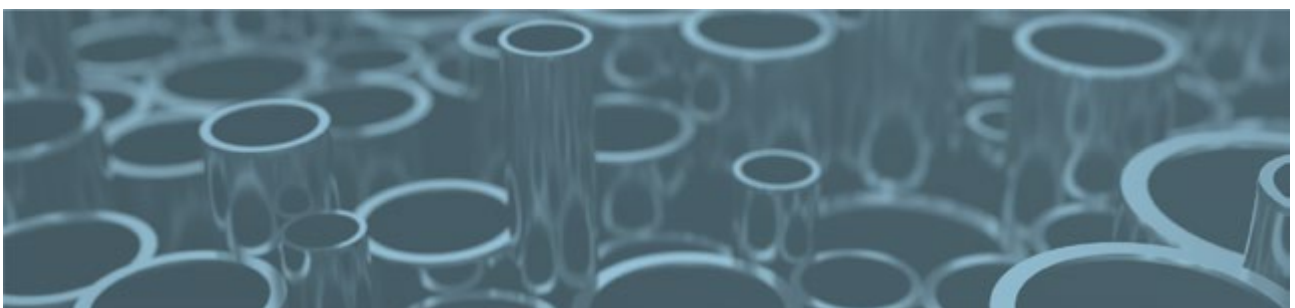
## TRAINING

Millers Oils can provide bespoke training for managers and operators, including best practice for enhanced productivity and HSE compliance.



## YOUR BENEFITS:

- Increased productivity through condition monitoring and planned maintenance
- Improved surface finish and reduced scrap with our high quality products
- Peace of mind: our technicians take away the stress of fluid management, so you can focus on your core business





“ Millers Oils’ technical knowledge and experience means we have full confidence in their recommendations, and the training and condition monitoring provided has helped us to both extend coolant life and prevent unplanned down-time. The Millers-Xtra team has been particularly supportive during the transition to formaldehyde-free product, providing a flexible changeover programme so clean-outs are scheduled with minimal impact on our business. All in all an invaluable service for the metalworking industry.”

*Maintenance Manager - Fives Landis*

“ We have been using Millers Oils for over ten years now and have always found them to be a very reliable and cooperative supplier. They are very helpful with any technical problems we may have and always do their best to assist us in any way they can.”

*John Crabtree – Bowers Metrology*

Millers Oils is a leading independent blender of oils and lubricants, operating since 1887 in Brighouse, West Yorkshire. We pride ourselves on our award-winning innovation and our independence which allows maximum flexibility to meet our customers’ needs.

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MillersOilsLtd

All products and information are reflective of the latest specifications at the time of going to print. The company reserves the right to change formulations and specifications without prior notice.

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MADE IN BRITAIN

