

**Tube and wire  
manufacturing lubricants**



# LUBRICANTS. TECHNOLOGY. PEOPLE.

We focus consistently on high-quality lubricants and related specialties.

We develop innovative and holistic solutions for a wide variety of applications.

We value the high level of commitment of our employees and their trusting interaction with one another.



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### Facts and figures

**Company:** FUCHS Lubricants (UK) plc, part of the FUCHS group, based in Hanley, Stoke-on-Trent, England

**Headquarters:** Mannheim, with facilities in Mannheim and Kiel

**Product range:** A full range of more than 2,000 products and 6,000 articles

**Certifications:** ISO 9001:2008, ISO/TS 16949:2009, AS 9100C, ISO 14001:2004, ISO 50001:2011, OHSAS 18001:2007

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FUCHS has developed, produced and sold lubricants and related specialties for more than 80 years – for virtually all areas of application and sectors. With over 100,000 customers and 50 companies worldwide, the FUCHS Group is the leading independent supplier of lubricants.

A team of more than 700 specialists around the world work to guarantee the satisfaction of our customers. Whatever their requirements, we have the ideal lubricant for their specific applications and processes. In our technology centre we link interdisciplinary expertise in a quick and efficient way – and work on innovative lubricant solutions to meet the demands of today and tomorrow every single day.

FUCHS lubricants stand for performance and sustainability, for safety and reliability, for efficiency and cost savings. They represent a promise: technology that pays off.

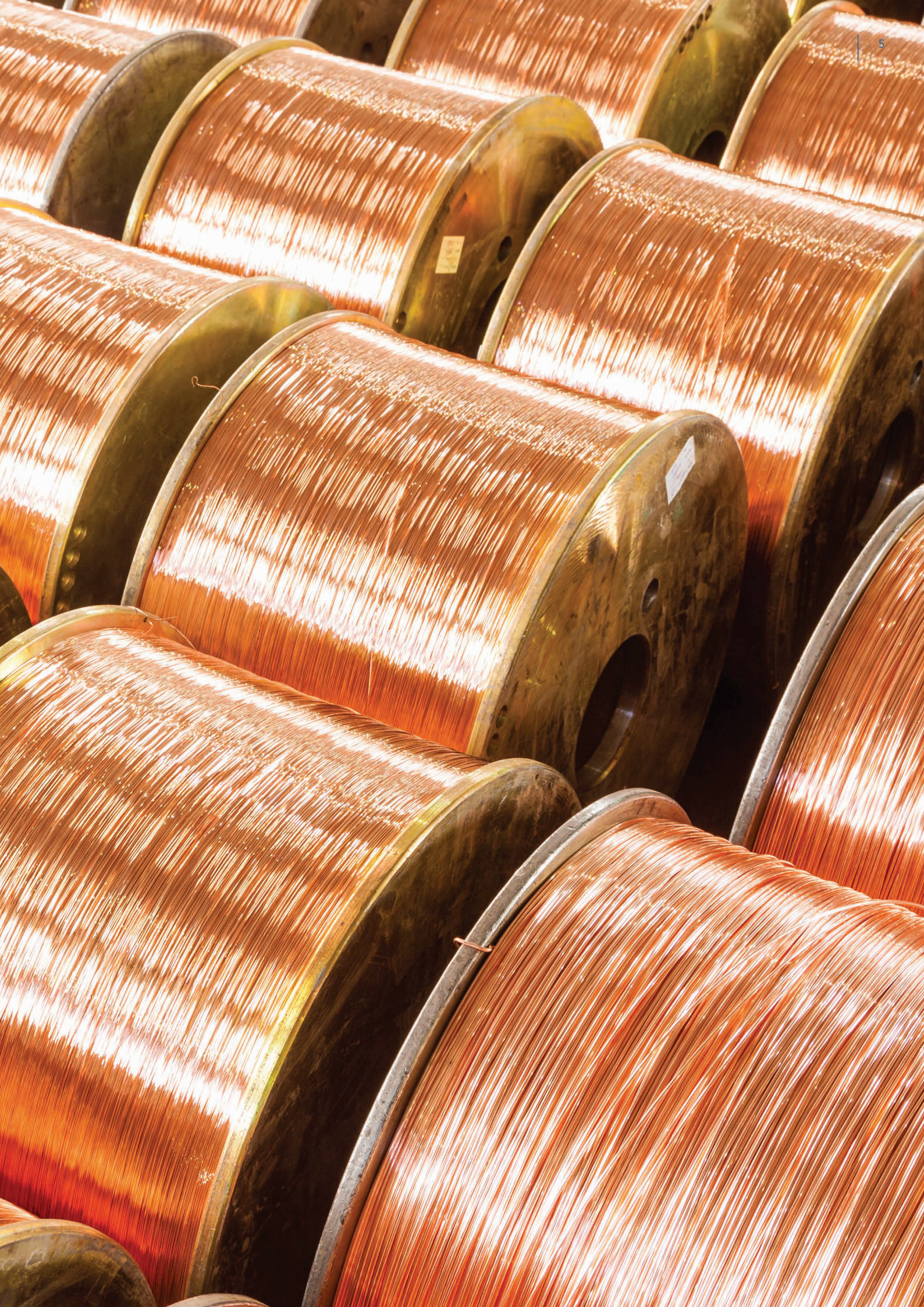


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## **LUBRICANTS FOR TUBE & WIRE MANUFACTURING INDUSTRIES. EXPERIENCE YOU CAN TRUST.**

Lubricant suppliers are common, but lubricant suppliers with the expertise, service support and experience of FUCHS in the Tube & Wire drawing industries are limited.

In choosing a partner, you need confidence in their ability to understand the specialised requirements of the industry, and have the technology, intellect and support services to deliver. FUCHS is that partner.



## Drawing fluids



### CETODRAW

The CETODRAW range represents superior lubricant solutions for the non-ferrous tube drawing industries, including copper, copper alloy and aluminium. Individual products can be used in a number of diverse production techniques ranging from; cascade systems, pilger mills, high speed spinner blocks to draw benches and Schumag machines. CETODRAW is synonymous with high quality tube production. Tubes produced using CETODRAW lubricants will meet the most stringent International Standards required of engineering, sanitation, air conditioning and refrigeration tubing (ACR).

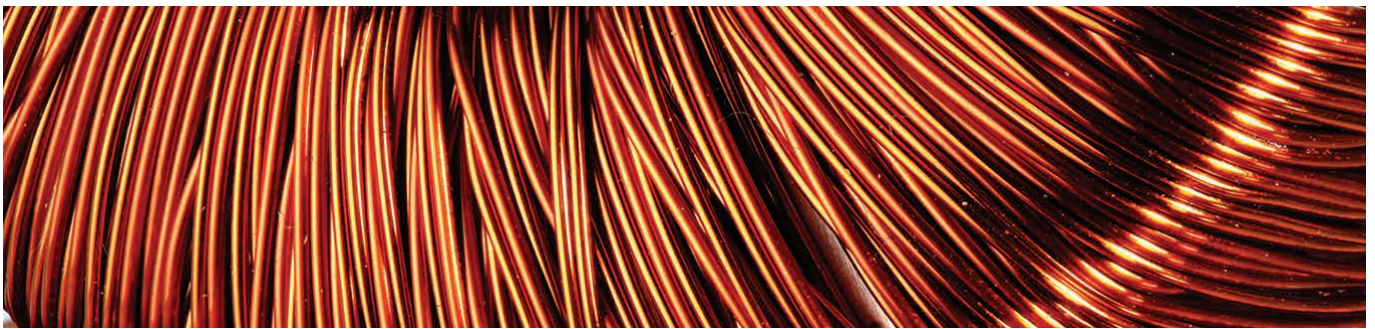
Specially formulated fully synthetic neat oils with low carbon forming tendencies and ultimate bright anneal. Particularly appropriate for ACR tube manufacturers.

Neat oils with superior low fume/bright anneal characteristics. Ideally suited to high speed and severe reduction draws.

Water miscible fluids for use in a variety of applications including extrusion, drawing, pilger milling and quench bath additives.

### The most appropriate CETODRAW grade will ensure:

- **Superior lubrication:**  
Enhanced tube surface quality, longevity of tool life and a reduction in drawing forces can all be achieved.
- **Improved productivity:**  
The need to degrease is eliminated reducing the number of processing stages required. All grades in the range therefore ensure bright anneal characteristics balanced to drawing capability.
- **Reduced carbon deposits:**  
CETODRAW lubricants have been formulated to reduce carbon deposits to meet the most stringent quality specifications. Ultra low carbon deposits can further be achieved with selected grades.
- **Efficient production:**  
Integrating CETODRAW lubricants can lead to a reduction in the amount of lubricant consumed when applied by metered application techniques, (Total Loss). This ensures that a lower volume of fresh lubricant is dispensed to the drawing tools compared with re-circulation methods.
- **Optimum performance:**  
The lubricant film strength of the high viscosity CETODRAW grades often allows for multiple draws, eliminating the need for reapplication of additional lubricant.
- **Excellent H&S characteristics:**  
Superior low fume characteristics under high speed, high load drawing conditions ensures excellent Health and Safety benefits.



## MASTERSOL

Water miscible lubricants that are recommended for use in the production of plain copper, tinned copper, enamelled & coated wires. Dependent on the grade selected they can be used for rod breakdown, intermediate, fine and superfine/ultra fine wire sizes. Grades recommended for rod breakdown can also typically be used for roll and roll/draw operations to produce shaped sections and copper strip.

MASTERSOL grades cover manufacture by a wide variety of techniques including single wire drawing, twin wire rod breakdown, multi-wire drawing and in-line drawing enamelling/coating. Generally they are semi synthetic formulations and specific grades are regarded as 'bio stable', (MASTERSOL's C32 & 1027M).

### Key performance benefits of MASTERSOL grades would include:

- **Enhanced production/surface finish:** Superior lubrication resulting in increased drawing speeds and reduced wire breaks, outstanding wire surface quality & protection against wear to commonly used material including diamond, synthetic diamond, ceramic and tungsten carbide.
- **Extensive application:** Suitable for use in the production of all grades/sizes of copper, tinned copper and copper alloy wire.
- **Improved production efficiency:** The longevity of the emulsion life reduces machine downtime and so improves production efficiency. Low top-up rates are a feature resulting in very low unit lubricant costs per tonne of wire produced. Extended emulsion life leads to reduced cost in terms of used emulsion disposal.

- **Excellent machine & wire cleanliness:** High detergency and emulsion stability characteristics lessen the build up of sticky deposits, reducing problems associated with die plugging, wire cross over and tension breaks.
- **Good Filterability:** Compatible with most modern fine filtration methods including paper filtration, hydrocyclones, centrifugal and cartridge filters.

## Drawing fluids



### BATRAL

BATRAL products are capable of drawing pure aluminium and the hard alloys of aluminium with, magnesium, lithium and silicon contents. With expert knowledge and the extensive BATRAL product range, FUCHS can recommend the most appropriate grade to manufacture the complete matrix of wire metallurgy and wire sizes ranging from rod breakdown through to fine wire.

The very high levels of lubrication achieved with BATRAL grades enables specific grades to be manufactured at lower viscosities than conventional counterparts which are traditionally available. This offers major benefits in terms of enhanced cooling, flushing of die throats and aluminium fines separation. Performance is further boosted by the inclusion of sophisticated additive systems into the formulations resulting in enhanced oxidation/ thermal stability and reduced oil thickening.

**In general BATRAL grades will offer many performance advantages including:**

- **Excellent wire surface quality:** Superior lubrication and bright anneal characteristics ensure a very clean and high quality surface finish to the drawn wire.
- **Superior wear protection:** The enhanced levels of lubricity ensure improved wear protection is afforded to both the dies and capstans.
- **Highly compatible:** BATRAL products can be used with all commonly available die and capstan materials such as diamond, synthetic diamond, ceramics and tungsten carbide/ toughened steels
- **Extended lubricant life:** The combination of increased lubricity/reduced viscosity enables more efficient filtration/fines separation. Combined with superior thermal and oxidation stability this offers the potential to extend lubricant life beyond what would normally be achievable.
- **Bespoke grades available:** Fully synthetic versions of the BATRAL range are available and are particularly suited to heavy size reductions on hard alloys using individual die holder lubrication.





### Rolling, Forming & Ancillary

FUCHS manufactures a range of rolling oils, forming lubricants and ancillary products.

**MASTEROLL:** High to low viscosities, water miscible and neat oil formulations, MASTEROLL offers a comprehensive range of lubricants suitable for numerous applications, such as roll & roll/draw applications for the production of profiles and wide and narrow gauge strip.

**MASTERFORM:** A versatile neat oil formulated product range developed to operate in a number of applications including ferrous wire drawing.

### Manufacturing Excellence

Our manufacturing plant is the most modern and efficient lubricant blending facility in the UK, with state of the art process control and quality management systems. The FUCHS engineering team undertakes a continuous improvement programme to maximise and improve production quality and on an on-going basis.

Our extensive range of Tube and Wire drawing lubricants are manufactured in specialised dedicated plant to ensure the highest standards of product quality are maintained throughout the production cycle.

### Unique and Bespoke

We can tailor make a product that fits the exact needs of your manufacturing application.

Do you require a unique lubricant for your application?

Is your manufacturing process and plant bespoke?

Do you have difficulty in sourcing a lubricant for your exact requirements?

FUCHS Lubricants (UK) plc, can manufacture unique, bespoke and individual lubricants to meet your needs.

## Tube application guide

Applications	Copper							Aluminium				Brass		Properties		
	1A	1B	1C	1D	1E	1F	1G	2A	2B	2C	2D	3A	3B	4A	4B	4C
CETODRAW 130					•		YES				•			132	X	YES
CETODRAW 162					•		YES				•			420	X	YES
CETODRAW 1122		•	•	•			YES	•	•	•	•			X	260	YES
CETODRAW 2279W		•	•	•			YES	•	•	•	•			X	250	YES
CETODRAW FA43							YES					•	•	X	275	YES
CETODRAW FA52							YES					•	•	X	855	YES
CETODRAW RD1281							YES					•		X	1175	YES
CETODRAW SYN57					•		YES				•			5	X	YES
CETODRAW SYN64					•		YES				•			130	X	YES
CETODRAW SYN68		•	•	•			YES							X	275	YES
CETODRAW X13			•	•	•		YES							X	195	YES
CETODRAW X175		•	•	•			YES	•	•	•	•			X	285	YES
CETODRAW X250W		•	•	•			YES							X	355	YES
CETODRAW X300W		•	•	•			YES							X	445	YES
MASTEROLL FA101						•	N/A							1.5	X	N/A

### KEY

<b>1A</b>	Mandrel
<b>1B</b>	O.D. breakdown
<b>1C</b>	I.D. breakdown
<b>1D</b>	O.D. finishing
<b>1E</b>	I.D. finishing
<b>1F</b>	Sinking
<b>1G</b>	Water absorbing

<b>2A</b>	O.D. breakdown
<b>2B</b>	I.D. breakdown
<b>2C</b>	O.D. finishing
<b>2D</b>	I.D. finishing
<b>3A</b>	O.D. lubrication
<b>3B</b>	I.D. lubrication

<b>4A</b>	KV 40°C
<b>4B</b>	KV 100°C
<b>4C</b>	Bright anneal
•	Primary intended use

### GUIDE

O.D.	Outside diameter
I.D.	Inside diameter
RBD	Rod break down
N/A	Not applicable

## Wire application guide

Applications	Copper								Aluminium				Brass		Ancillaries			
	1A	1B	1C	1D	1E	1F	1G	1H	2A	2B	2C	2D	3A	3B	4A	4B	4C	4D
MASTERSOL CT1	•	•																
MASTERSOL C6 PLUS	•	•																
MASTERSOL C8 PLUS	•	•																
MASTERSOL DC13 PLUS	•	•																
MASTERSOL C21 PLUS		•	•		•	•	•	•										
MASTERSOL C32					•		•	•					•	•				
MASTERSOL 1027M				•	•	•	•	•										
BATRAL A2											•	•						
BATRAL A3										•	•							
BATRAL A5									•	•								
BATRAL A7									•	•								
CETOSOL CPL								•										
RENOCLEAN SMC															•			
ANTICIDE OX																•		
SURETECH KE-131																		•
ANTIFOAM WS 1																	•	
ANTIFOAM LC 30 W																		•

### KEY

**1A** RBD  
**1B** Intermediate  
**1C** Fine wire  
**1D** Superfine  
**1E** Multi wire  
**1F** Enamelled  
**1G** Tinned  
**1H** Annealer

**2A** RBD  
**2B** Intermediate  
**2C** Fine wire  
**2D** Finishing  
  
**3A** Intermediate  
**3B** Fine wire

**4A** Cleaners  
**4B** Biocides  
**4C** Water treatment  
**4D** Anti foam

• Primary intended use

## Innovative lubricants need experienced application engineers

Every lubricant change should be preceded by expert consultation on the application in question. Only then the best lubricant system can be selected. Experienced FUCHS engineers will be glad to advise on products for the application in question and also on our full range of lubricants.



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