Safer process.
Safer profit.

rhenus

rhenus coolants

Maximum performance at low consumption

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General information

Optimised for highly technical processes

New materials and machining processes, innovative tools and machine technology – for metalworking you need more than standard coolants. Every application is different. It is more important to provide tailored products and to use technical experience intelligently.

Be it amine-free or based on alternative amines, dual-component coolants or multi-functional products, special coolants for magnesium processing or molybdenum grinding, coolants for new aluminium alloys and composite materials – you can simply expect more from us.

rhenus coolants are always an excellent solution: technically, economically and ecologically.

Innovations – made by Rhenus Lub

Since the company was founded 130 years ago, we have been setting the standard for industrial lubricants. As a specialist in water-miscible and non-water-miscible coolants and high performing greases, Rhenus Lub has always been a pioneer of innovation. As a technology leader, we use the best quality raw materials and have made coolants free from amine and boric acid according to the highest health-related requirements the standard.

In close collaboration with universities and research institutions, we continue to constantly develop our products specifically for your applications. In a joint project with the renowned University of Bremen, we are researching, for example, the impact of microbiology on potential savings in the use of lubricants. We are also developing a new formula for water-miscible fluids – for even greater long-term stability and resistance to entry from bacteria and fungi.

Water-miscible coolants

Water-miscible cooling lubricants from Rhenus Lub form finely dispersed and very stable emulsions which enable a superior long service life and significantly reduce the drag-out loss. Top up concentration of 1–2 % are usually sufficient to meet the target concentration – an important contribution to reducing processing costs.

Free from amine and boric acid – for optimum skin compatibility

Independent laboratories confirm the extremely low allergy potential of amine-free rhenus coolants, which work in the low pH-layers of 7.5 to 8.5. The skin-friendly character is also demonstrated by the measurement of "trans-epidermal water loss" (TEWL), which was determined with the Rhenus Lub new standards for water-miscible coolants.

Advantages at a glance:

- Long service life of the coolants
- High dimensional accuracy and surface quality for your work pieces
- Significantly reduced tool wear at higher cutting performance
- Unbeatably low consumption
- Optimum skin-compatibility
- Safe and economical process flow for the most varied applications
- No labelling requirement

Examples: Products & applications

The all-rounder. rhenus 7 series free from boric acid and amine

Very good skin compatibility, optimal long-term stability, low foaming and excellent material compatibility – the rhenus 7 series scores points with these features. From grinding to heavy-cutting operations of stainless steel and aluminium, the coolants guarantee safe lubrication from the innovative product line while protecting against discolouration and corrosion.

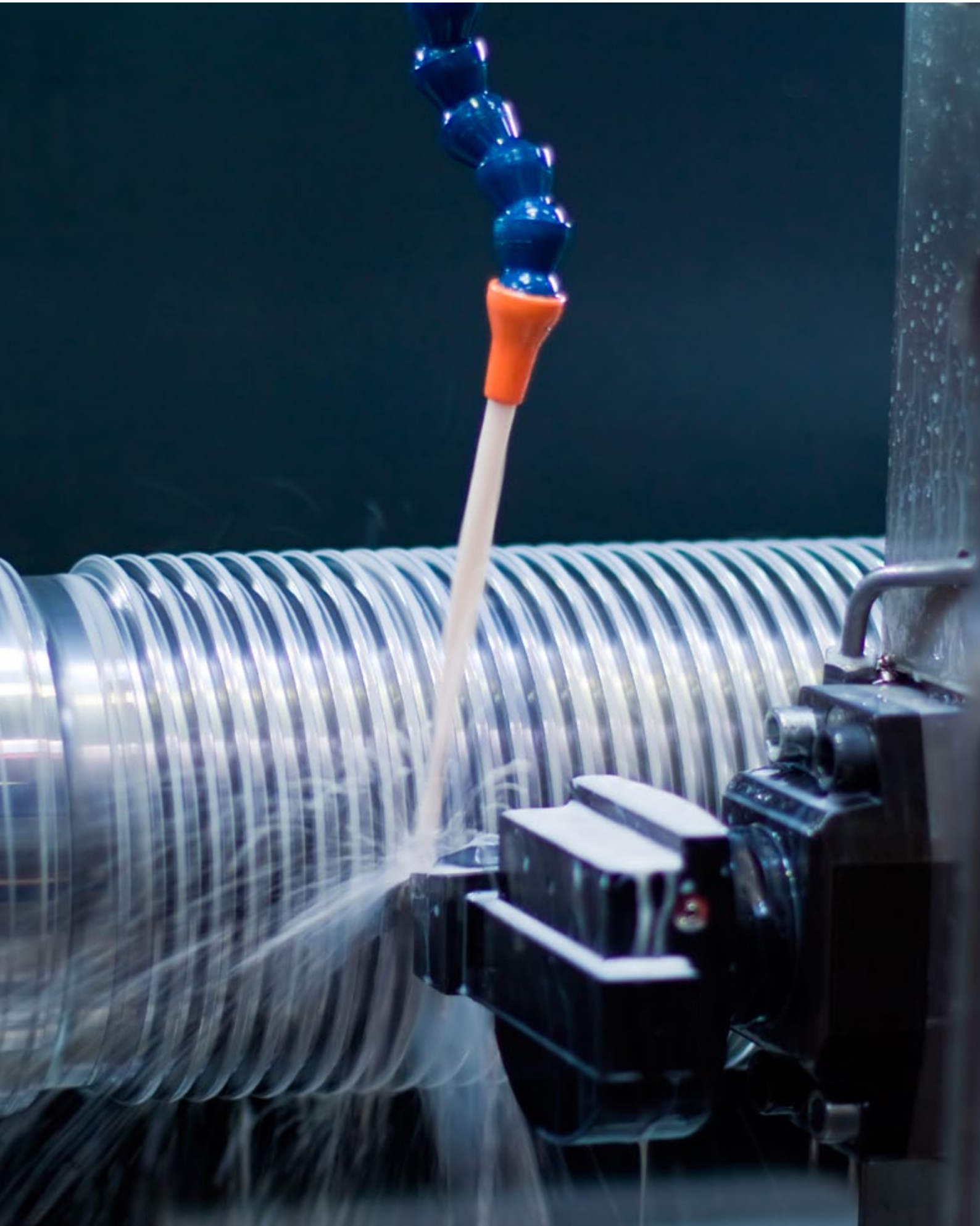
rhenus FS 750 is suitable for light cutting operations and grinding. The high-perform-ing can be used in hard water is used without any problems which makes it ideal for customers in the metalworking industry, want to use all the advantages of water-miscible coolants which are free from boric acid and amine.

Best results when machining aluminium and non-ferrous metals

Based on demanding and low-evaporating alternative amine, the boric acid-free coolant, rhenus TU 43 brings optimum results with its powerful grease additives in the machining of aluminium and non-ferrous metals, and also in the demanding processing of steel and cast iron. Very good long term stability, excellent flushing and reliable corrosion protection are the key benefits that give you real added value.

Ideal for magnesium processing

The water-miscible cooling, rhenus XF 80 MG is especially characterised by its high emulsion stability, low hydrogen development and reduced release of magnesium, without causing adverse effects on the magnesium alloys. Extremely long service life, low top up concentration and excellent flushing behaviour help to sustainably reduce the total cost of the fluid process.



Water-miscible or not water-miscible?

There are borderline application cases. What to do if everything in the process chain is oriented for water-miscible? Or, if the product containing additive mineral oil products do not enable adequate processing results?

This can occur when there is challenging threading or reaming, and also in broaching operations. Particularly in broaching, users move quickly s in borderline areas. rhenus XF 61 P is free of mineral oil, with powerful additives and stable. The water-miscible coolant proves itself as a problem solver in demanding threading, reaming and broaching operations.

Thanks to its special EP sulphur additives, the high-performance lubricant guarantees the best results in all borderline cases of coolant use. rhenus XF 61 P thereby complies with all applicable legal standards and regulations, protects the environment and is not subject to mandatory labelling.

Non-water-miscible coolants

Our high-performance products in low-evaporation, non-miscible coolants are based on selected base oils with low aromatic content and application-specific additives. All products generally have low oil mist levels which fall below the legally required limits.

Perfectly tailored to your application

Which non-water-miscible coolant is exactly suitable for your application? Our experts help here. Here, not only the machining process (tools, cutting speed, feed rate), the material to be processed the requirements for the surface condition are analysed. Part of the overall assessment is also important system parameters, such as filling capacity, filter systems and coolant pressure. The consideration of local statutory provisions, the optimum integration into your production process and the disposal of the medium round off the package and provide one thing above everything else: a safe and economic fluid process.

Application areas and advantages

Honing and grinding oils

— Low oil viscosity, low foaming, safety through high flash points, no grinding burn

— Excellent lubricating properties, long-lasting abrasion rates, good filtering, excellent flushing behaviour

Cutting oils

— Long tool service life, increase in cutting speed, reduction in wear and maintenance costs, secure surface quality and dimensional accuracy

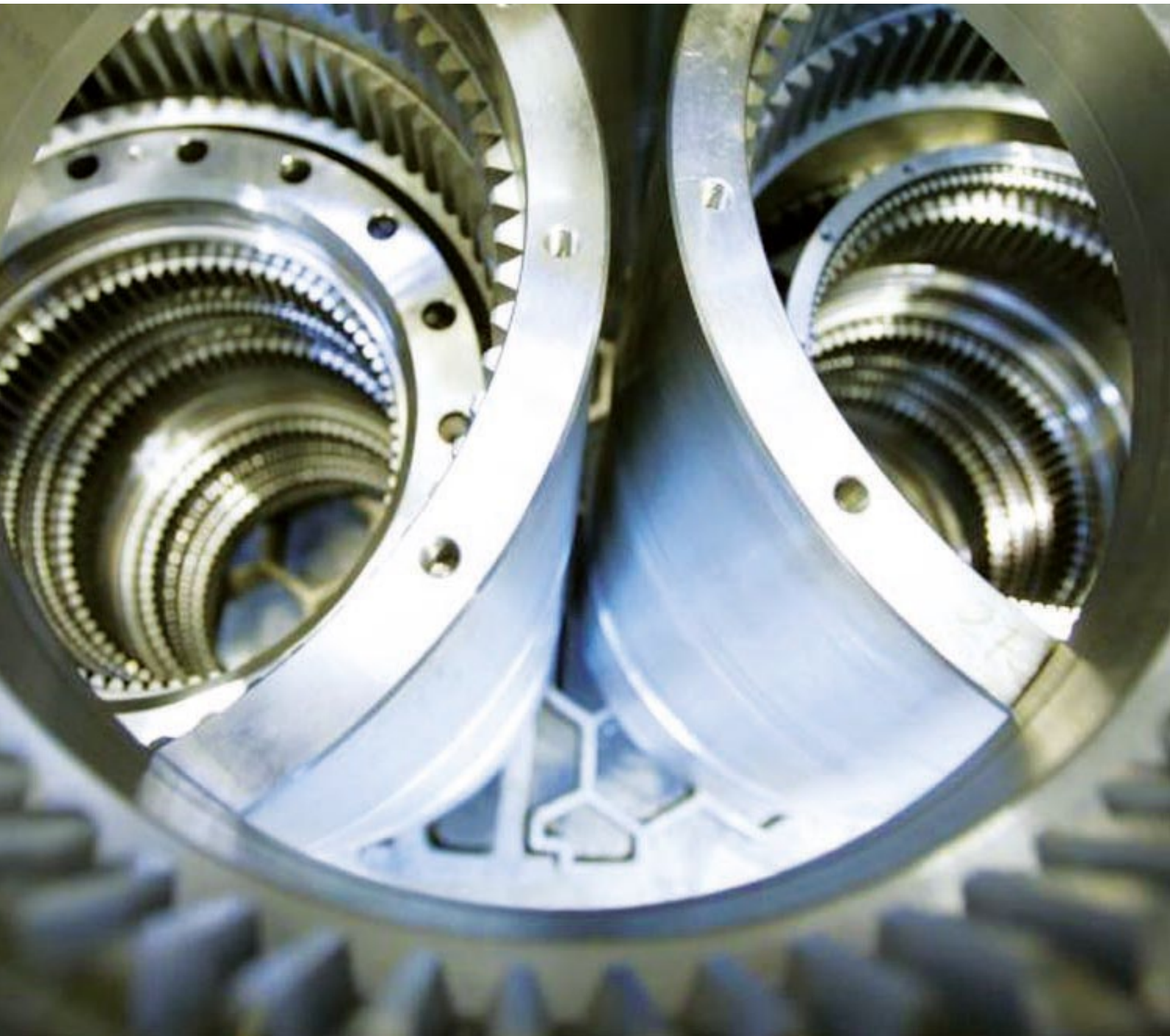
Stamping and drawing oils and special oils for metal forming

— High processing power, maximum dimensional accuracy and surface quality for complex workpiece geometries, reduction in process costs

— Application areas from steel to aluminium and copper, reduction in disposal costs and safe for the environment due to no chlorine

— Optimal dosages for good application accuracy, excellent results through targeted consultation on the technological demands

Examples: Products & applications



The king of grinding and cutting oils

The low-carbon, chlorine-free rhenus grinding and cutting oils reduce oil mist and oil evaporation. They are characterised by excellent Noack values at high flash points with simultaneous low viscosity. The result: Low consumption and therefore a significant cost reduction.

No more grinding burn in the manufacture of gears

Gears are produced according to different methods, for example with the full form loops. Thanks to its viscosity of 10 mm^2/s at 40°C, the grinding oil rhenus CXS guarantees both a very good cooling effect and optimal filtering. Grind burn, which was previously a frequent source of error in gear manufacturing, is avoided. Applications for gearing machines from Kapp, Liebherr, Klingelnberg, Gleason Pfauter, Niles and others emphasise the power of rhenus CXS.

Lower consumption – lower costs

We developed the product rhenus DU 42 P especially for aluminium processing. The high-alloy special lubricant has a very good wetting properties, it forms a uniform thin film of grease on the entire metal surface and securely adheres to the workpiece. This helps companies to significantly reduce their oil consumption – when puling profiles and wires with a thickness of up to one millimetre, and also in flow forming. With a viscosity of 42 mm^2/s, rhenus DU 42 P can be applied to the lubricating surface by spraying or flooding.

With an additional lubricant, machining operations can be dispensed with. Even customers whose formed products need to undergo an additional wash benefit by using the new drawing oil.

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Product data tables

The universals

Product	Mineral oil content [%]	Polar/ EP additive	Usage concentration from %	Materials					Application instructions
				Cast G	Steel S	Heavy-machining alloys H / X / Z	Alu N	Brass Copper N	
rhenus FU 75 T[1)]	40	Polar	6	X	XX	X	XX	X	Universal coolant, optimal at machining centres. WGK 1.
rhenus FS 750[1)]	41		4	X	X		X		Grinding and light machining. WGK 1.
rhenus FU 760[1)]	29	Polar/EP	5		XX	XX			Especially for the most demanding of high-alloy steels. WGK 1.
rhenus FU 50 T	51	Polar	6		X	X	XX	X	Universal coolant, good long-term stability, preferred for aluminium processing. WGK 1.
rhenus TU 30 T	18	Polar	4	XX	XX	X	X	X	Universal coolant with excellent cooling and flushing effect. WGK 1.
rhenus TS 30 T	22		4	XX	XX	X	X		Grinding and light machining. Low foaming and well flushing. WGK 1.
rhenus TU 34	36	Polar	4	XX	XX	X	XX		Universal coolant, low foaming and well flushing. WGK 1.
rhenus TU 43[2)]	16	Polar	4	XX	XXX	XXX	XXX		Universal coolant for heavy processing. WGK 1.
rhenus TS 44[2)]	27		4	XXX	XX		X		Universal coolant for grinding and light machining. WGK 1.

The synthetics

Product	Mineral oil content [%]	Polar/ EP additive	Usage concentration from %	Materials					Application instructions
				Cast G	Steel S	Heavy-machining alloys H / X / Z	Alu N	Brass Copper N	
rhenus TY 100 S	0		4	XX	XX	XX	X	X	Transparent abrasive, low foaming and extremely low odour.
rhenus FY 121 L[1)]	0	Polar	3	X	XX	XX	X	X	Transparent coolant for machining and forming. WGK 1.

The specials

Product	Mineral oil content [%]	Polar/ EP additive	Usage concentration from %	Materials	Application instructions
rhenus FU 850[1)]	35	Polar	5	Aluminium, Steel	Universal coolant, ideal for machining centres and transfer lines, e.g. for complex aluminium processing, including threading and Mapal reaming. WGK 1.
rhenus FU 755[1)]	34	Polar	5	Non-ferrous metals and aluminium alloys	Especially for non-ferrous metals and very sensitive aluminium alloys. WGK 1.
rhenus R-FLEX	0	Polar/EP	2/2	Very machinable steel, aluminium and special alloys G, X, N, Z	The dual-component coolant: · rhenus R-FLEX lub, the Ester lubricant · rhenus R-FLEX emd/emf, the emulgator package; flexibly adjustable cutting performance, minimal foaming. (can also be delivered free from boric acid or free from formaldehyde splitters)
rhenus FU 60 T	0	Polar	5	Heavy duty machinable steel, aluminium and special alloys	Ester coolant for the heaviest machining and forming. WGK 1.
rhenus XF 80 MG	35	Polar	5	Magnesium	Special coolant for magnesium processing, minimises hydrogen formation.WGK 1.
rhenus FS 71[1)]	66		5	Steel, Alu, NE metals S, N	Whitish emulsifying universal coolant with high mineral oil content. WGK 1.
rhenus XY 120 HM	0		3	Hard metal	Grinding product for producing hard metal tools. WGK 1.
rhenus XF 61 P	0	Polar/EP	6	Heavy duty machinable steel, aluminium and special alloys	High performance coolant for borderline cases of KSS use.

Service products

Product	Combination	Application instructions
rhenus ZC 948	For all mineral oil-containing and ester-based coolants	The use of system cleaners before refilling coolant systems allows longer service life and better hygiene. This allows fully use of the coolant performance.
rhenus ZC 944	For water-soluble, mineral oil-free coolants	
rhenus ZU 900	Universal additive	To resolve inter-related problems in the long-term use of coolants – life time extension.
rhenus ZW 977	Defoamer for all coolants which contain and do not contain mineral oil	Already in small doses, it acts against interfering foam during machining.

G: Cast iron, GG, GGG, GT
S: Steel / cast iron (rust-resistant/ austenitic)
X: Stainless steel/ cast iron with austenitic structure
H: Hardened steel or cast iron
Z: Heavy-machining alloys based on Ni, Co, Fe or Ti
N: NE materials and non-metals

1) boric acid free/ amine free
2) contains boric acid/ amine

X = suitable
XX = very suitable
XXX = optimally suitable

Honing and grinding oils

Product	Viscosity (40 °C) [mm²/s]	Copper corrosion	Application instructions
rhenus GP 5 M	5	1	Universal honing oil for steel and non-ferrous metals, also suitable for very fine machining.
rhenus EG 5	5	1	Aromatic free, low-emission grinding and cutting oil with high performance.
rhenus GP 4	5	1	Low-viscosity grinding oil, aroma-free compounds, also for hard metal grinding.
rhenus CXS	10	1	Grinding oil for full-form grinding with CBN grinding discs from gear and profile parts (e.g., grinding oil for Reishauer, KAPP and Gleason machines).
rhenus EG 10	10	1	Aromatic free, low viscosity and low-emission grinding oil for high-performance grinding.
rhenus EHM 7	7.5	1	Aromatic free, low viscosity and low-emission hard metal grinding oil.
rhenus GP 20 M	20	1	Low-emission universal grinding oil for the machining of steel, aluminium and non-ferrous metals.

Low-volume spray lubricants

Product	Viscosity (40 °C) [mm²/s]	Copper corrosion	Application instructions
rhenus CBR	25	1	Thin film spray lubricant for cutting steel and aluminium.
rhenus SSL	47	1	Spray lubricant for machining non-ferrous metals, steel, high strength steel and aluminium, also used for tube extrusion from copper / nickel tubes.
rhenus SSU	39	3	EP spray lubricant for the highest demands in machining performance, can be washed off.
rhenus SSC	6	1	Sawing and machining of steel, aluminium and non-ferrous metals with low residues.

Slideway oils

Product	Viscosity (40 °C) [mm²/s]	Application instructions
rhenus SLA 68	68	The rhenus slideway oils are optimally matched to the rhenus coolants. As demulsifiers, they ensure maximum safety for the machine tool – no stick-slip – and can be easily separated from the emulsions. You achieve the best values in the SKC test.
rhenus SLB 220	220	

Cutting oils

Product	Viscosity (40 °C) [mm²/s]	Copper corrosion	Application instructions
rhenus EU 10	10	1	Aromatic free, low viscosity and low-emission multi-purpose cutting oil.
rhenus UP 21 M	21	1	Low-emission multi-purpose cutting oil.
rhenus EP 10 M	10	1	Low-emission EP cutting oil for steel, cast iron, non-ferrous metals and aluminium, grinding of camshafts.
rhenus EA 19 S	19	4	Low-emission EP cutting oil for heavy machining, such as drilling, threading, milling and cut tapping.
rhenus UA 24 S	23	4	Threading and tapping in high-alloy materials and cast iron, also suitable for broaching, milling and impact work.
rhenus UA 42 S	43	4	Same as rhenus UA 24 S, but higher viscos.
rhenus EDD 10	10	4	Aroma-free, low viscosity and low-emission deep drilling oil, especially suitable for drilling with lip drills with diameters ranging from 1 to 15 mm.
rhenus EP 15 S	15	1	Low-emission deep drilling oil for all conventional drilling methods. Multi-purpose cutting oil with higher performance.
rhenus UA 19 S	19	4	Suitable for deep drilling in BTA procedures in hardened steels, also suitable for heavy machining.
rhenus UA 28 S	28	4	Broaching, milling and deep drilling of heavy duty machining materials, high-performance cutting oil.
rhenus EA 25 S	25	4	EP broaching oil for heavy machining with high adhesion.

Punching and drawing oils

Product	Viscosity (40 °C) [mm²/s]	Copper corrosion	Materials	Application instructions
rhenus SW 35 P	40	1	Steel, Aluminium	Mineral oil free, water-miscible drawing oil for drawing steel and aluminium profiles, and for deep drawing of steel and aluminium. Use: both pure and also mixed with water to about 10% emulsion. Suitable for circulation lubrication.
rhenus SCM	225	1	Steel, Aluminium, Non-ferrous metals	Water-miscible drawing oil for heavy duty forming of all materials, such as wrench pulling for car rims made of steel and aluminium. Emulsion stability up to about 30%. Suitable for circulation lubrication.
rhenus CXI	420	1	Steel, aluminium, stainless steel and non-ferrous metals	Drawing oil, water miscible, heavy duty reforming on large parts, such as catalytic converter shells, etc. Use: both pure and mixed with water to about 30%. Suitable only for loss of lubrication.
rhenus SU 125 P	120	1	Aluminium, Non-ferrous metals	Drawing oil for deep-drawing and ironing-forming of aluminium, e.g. for the production of thin-walled tubes.
rhenus SU 190 A	180	4	Steel, stainless steel	Drawing and punching oil for heavy duty reformations, such as bending operations on steel and stainless steel.
rhenus SU 120 A	125	4	Steel, stainless steel	Universal deep drawing and punching oil for higher requirements for fine and medium sheet metal up to about 4 mm.
rhenus SE 5	2.9/20 °C	1	Steel, Aluminium, Non-ferrous metals	Evaporating punching oil VbF A III, for example for producing transformer plates, clips and similar punched bending parts.
rhenus SE 16	2.9/20 °C	1	Steel, Aluminium, Non-ferrous metals	Evaporating punching oil VbF A III, e.g. for producing perforated metal sheets up to a thickness of 2mm and punched bending parts of comparable size ranges.
rhenus SF 125 A	125	4	Steels such as: QStE 420; C 10 etc.	Chlorine-free fine cutting oil for fine cutting of all normal steel grades up to about 8mm which can be finely cut (fine grain steels, tempered steels/ hot strip GKZ quality).
rhenus SF 150 A	150	4	Steels such as: 20 MnCr5; C 35; C 40; 100 Cr 6	Chlorine-free fine cutting oil especially designed for high levels of difficulty even in less demanding steel qualities, and for abrasive materials (quenched and tempered steels, spring steels, hot and cold strip in GKZ quality).
rhenus SF 260 A	260	4	Steels such as: 20 MnCr5; C 35; 100 Cr 6	High-viscosity, chlorine-free oil especially designed for heavy duty materials at a material thickness of up to about 12 mm (quenched and tempered steels, spring steels, hot and cold strip in GKZ quality).
rhenus DU 42 P	42	1		For drawing profiles and wires made of copper, brass and aluminium. Can be applied by praying or surging.
rhenus DU 2700 P	2,700	1		For pulling rods and profiles, as well as tubes made of aluminum, brass, nickel or copper. Suitable for both internal and external lubrication.

rhenus DU 700 P	700	1		For pulling rods, profiles and tubes made of non-ferrous metals. For lubricating both the drawing ring and the stopper ring. No washing before annealing necessary. The product leaves behind no residues or discolouring.
rhenus DU 601 P	600	1		Suitable for drawing non-ferrous semi-finished products, and for calibrating Al engine housings. Good residue behaviour following annealing.
rhenus DE 12 P	12	1		Evaporating drawing oil. Is especially used for pulling soft and semi-rigid copper pipes in the last pull (plug drawing).

Special oils

Product	Viscosity (40 °C) [mm²/s]	Copper corrosion	Materials	Application instructions
rhenus FE 80	80	4		For pre-forming, bending and external lubrication of tubes and profiles made of steel and stainless steel with hydroforming presses.
rhenus FSC-IHU	12/20 °C	1		Water-soluble pressure medium for hydroforming. Approved by the company Schuler-Hydroforming.
rhenus PU 60 A	60	4	Alloyed and phosphated steel, currently soaped	Bright, odourless, low viscosity, cold forging oil for the production bolts and fasteners with a high degree of deformation.
rhenus PU 115 A	120	4	Rust and acid resistant steels	Light oil for extreme forming for the production of solid, hollow andbowl parts.
rhenus PU 135 P	135	1	Alloyed, phosphated steel, currently soaped; Aluminium, non-ferrous metals	Bright, low odour cold forging oil which is suitable for both reshaping and machine lubrication. It can be used for the production of all standard fasteners to about 6mm in diameter.

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