

福斯工业润滑剂 FUCHS Industrial Lubricants

创新产品 Innovative Lubricants

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福斯工程师乐于为您推荐合适的产品
也向您介绍我们对于润滑的理解

Consultation with an experienced Application Engineer should precede every lubricant change-over. This guarantees that the optimum lubricant system is selected. Our experienced FUCHS engineers will be glad to advise on products for the application in question but also inform you about our comprehensive range of lubricants.

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福斯工业润滑剂
FUCHS Industrial Lubricants

专家的选择
Specialites for Specialists

RATAK
ECOCUT
ECOCOOL
THERMISOL
RENOCLEAN



福斯金属加工产品 FUCHS Metal Working Products

福斯润滑油(中国)有限公司
上海市南翔镇嘉绣路888号, 201802
电话: +86 21 39122000
传真: +86 21 39122100
www.fuchs.com.cn

FUCHS LUBRICANTS (CHINA) LTD.
No.888 Jiaxiu Road,
Nanxiang, Shanghai, 201802
Phone: +86 21 39122000
Fax: +86 21 39122100
www.fuchs.com.cn

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对于所给定的技术数据及其检测方法存在可重复性及可比性。

LUBRICANTS.
TECHNOLOGY.
PEOPLE.





福斯金属加工液核心产品 FUCHS Metalworking Core Products

作为全球最大的独立润滑油生产商，福斯集团已成为润滑油行业的领导者。对产品开发，技术和应用的专注使得福斯集团成为世界上最成功和最认可的金属加工液生产商之一。

福斯能够提供品种齐全的金属加工液产品：
ECOCOOL, ECOCUT 和 RATAK – 世界专利品牌水溶性、纯油性切削及磨削产品
RENOCLEAN – 全面的工业清洗剂
THERMISOL – 淬火油
PLANTO 和 ECOCUT MIKRO 系列 – 快速生物降解高科技产品和注重职业安全的微量润滑产品

福斯可以为我们的客户提供高品质产品，可靠的服务和最好的经济性价比。

The global operating FUCHS Group, as the world's largest independent lubricant manufacturer in the industry, has become the market leader for lubricants. The strong focus on product development, know-how and application engineering has created the foundation for FUCHS to be one of the most successful and most recognized metal working fluid suppliers in the world.

FUCHS offers products for all metal working areas:
ECOCOOL, ECOCUT and RATAK - worldwide patented brands for water miscible coolants, neat cutting and grinding oils
RENOCLEAN - the comprehensive line of industrial cleaners
THERMISOL - quenching oils
PLANTO and ECOCUT MIKRO series – most advanced technology in fast bio-degradable and occupational safe Minimum Quantity Lubricants (MQL)

FUCHS provides high quality standards, reliable service and superior products to our customers.

福斯金属加工液 核心产品 FUCHS Metalworking Core Products

水溶性切削液
Water Miscible Cutting Fluids

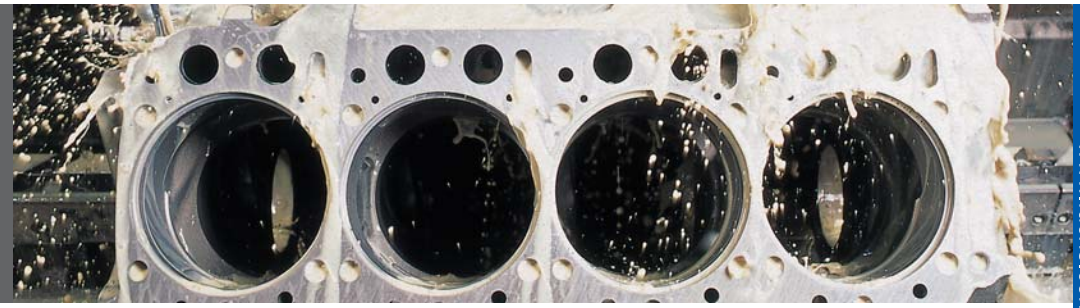
低油雾切削油
Low Mist Neat Cutting Oils

淬火油
Quenching Oils

工业清洗剂
Industrial Cleaners



福斯金属加工液核心产品
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水溶性切削液

产品名称	pH 值 (10% 溶液)	乳液类型	防锈性能 (3% 溶液)	适用材质	性能概述及应用
ECOCOOL 600 NBF C	9.7	微乳液	0-0	黑色金属, 如铸铁、碳钢、合金钢	乳液稳定, 低泡, 良好的润滑性、防锈性和抗菌性。 广泛应用于各种单机和集中供液系统。
ECOCOOL 700 NBF C	9.6	微乳液	0-0	黑色金属, 如铸铁、碳钢、合金钢	出色的抗菌性及排杂油性, 极强的抗泡性。 为高速机加工和磨削加工的首选产品。
ECOCOOL 800 NBF C	9.5	微乳液	0-0	黑色金属, 如铸铁、碳钢、合金钢	出色的抗菌性及排杂油性, 极强的抗泡性及润滑性。 广泛应用于各种单机和集中供液系统。
ECOCOOL 1030 S	8.9	微乳液	0-0	铝合金、合金钢及铸铁	乳液稳定, 低泡, 优异的极压、润滑、防锈和抗菌性能。
ECOCOOL 2030 S	9.4	微乳液	0-0	铝合金、合金钢及铸铁	乳液稳定, 低泡, 优异的极压、润滑、防锈和抗菌性能。 广泛用于难度较大的各种加工工艺, 特别是铝合金零部件的加工, 在配合MAPAL刀具方面也有出色的表现。
ECOCOOL 3030 S	9.2	微乳液	0-0	铝合金、铸铝、合金钢及铸铁	乳液稳定, 低泡, 优异的极压、润滑、防锈和抗菌性能。 广泛用于难度较大的各种加工工艺, 特别是铝合金零部件的加工, 在配合MAPAL刀具方面也有出色的表现。
ECOCOOL S CO 5	8.9	全合成	0-0	碳钢、钨钢	不含氯, 锌和亚硝酸盐, 生物稳定性好, 尤其适用于硬质合金刀具的加工, 可防止钴的析出。
ECOCOOL S 67 NA	9.5	全合成	0-0	钢及铸铁	具有良好的磨削性能, 防锈性和清洗性。专为黑色金属中等负荷磨削加工而开发。
ECOCOOL 7630	9.4	微乳液	0-0	铝合金 (包括航空铝材)、钢及钛合金	优良的润滑, 抗菌, 抗泡, 抗腐蚀性能。 适用于中高负荷的各种机加工, 磨削加工, 特别是航空用零部件加工的极佳选择。
ECOCOOL 4807	9.4	乳化液	0-0	铸铁、碳钢、合金钢、铸铝, 一般有色金属	优良的润滑性及防锈性, 加工性能极佳。 适用于表面光洁度要求高的加工。
ECOCOOL S 761	9.2	乳化液	0-0	锻铝、铸铝、钢件, 不锈钢, 钛合金及镍合金	优秀的润滑性及抗菌性, 抗硬水能力强, 最佳的抗泡性适用于高压下使用 (>7MPa), 可用于珩磨, 普通加工甚至铰等多种加工。 具有医疗及航空行业的认证或使用案例。
ECOCOOL S 761 B	9.2	乳化液	0-0	锻铝、铸铝、钢件, 不锈钢, 钛合金及镍合金	优秀的润滑性及抗菌性, 抗硬水能力强, 最佳的抗泡性适用于高压下使用 (>7MPa), 可用于珩磨, 普通加工甚至铰等多种加工。 具有Airbus, Boeing, Rolls Royce, Pratt&Whitney 和 Lockheed Martin 认证。

Water Miscible Cutting Fluids

Product Name	pH Value (10% Emulsion)	Emulsion Type	Corrosion Test (3% Emulsion)	Applied Materials	Description and Applications
ECOCOOL 600 NBF C	9.7	Semi-synthetic	0-0	Ferrous metals such as cast iron, carbon steel and alloy steel	Stable emulsion; low foam, excellent lubricity; corrosion protection and biostability. Mainly used in operations both in individual machines and central systems.
ECOCOOL 700 NBF C	9.6	Semi-synthetic	0-0	Ferrous metals such as cast iron, carbon steel and alloy steel	Excellent microbial control and tramp oils rejection properties; low foam tendency. Mainly used in operations both in individual machines and central systems.
ECOCOOL 800 NBF C	9.5	Semi-synthetic	0-0	Ferrous metals such as cast iron, carbon steel and alloy steel	Excellent microbial control and tramp oils rejection properties; low foam. Recommended for high speed cutting and grinding operations
ECOCOOL 1030 S	8.9	Semi-synthetic	0-0	Aluminum alloy, steel alloy and cast iron	Stable emulsion with low foam, high EP properties; excellent lubricity, corrosion prevention and microbial controlling properties. Used in difficult machining operations, especially for aluminum alloy parts; compatible with MAPAL tools.
ECOCOOL 2030 S	9.4	Semi-synthetic	0-0	Aluminum alloy, steel alloy and cast iron	Stable emulsion with low foam, high EP properties; excellent lubricity, corrosion prevention and microbial controlling properties. Used in difficult machining operations, especially for aluminum alloy parts; compatible with MAPAL tools.
ECOCOOL 3030 S	9.2	Semi-synthetic	0-0	Aluminum alloy, steel alloy and cast iron	Stable emulsion with low foam, high EP properties; excellent lubricity, corrosion prevention and microbial controlling properties. Used in difficult machining operations, especially for aluminum alloy parts; compatible with MAPAL tools.
ECOCOOL S CO 5	8.9	Synthetic	0-0	Carbon steel, tungsten steel,	Free of chlorine, zinc and nitrite, good bio-stability. Especially used for grinding operations of tungsten carbides where cobalt leaching has to be avoided.
ECOCOOL S 67 NA	9.5	Synthetic	0-0	Ferrous metals	Excellent grinding performance, anti-corrosion and rinsing behavior. Special designed for moderate duty grinding of ferrous metals.
ECOCOOL 7630	9.4	Semi-synthetic	0-0	Ferrous, aluminum alloys including those for air craft manufacturing, titanium alloys	Excellent lubricity, microbial controlling. Anti foam and corrosion prevention. Highly recommended for heavy duty machining operations, especially for aerospace and medical manufacture.
ECOCOOL 4807	9.4	Emulsion	0-0	cast iron, carbon steel, alloy steel, cast aluminum and standard non-ferrous metals	Excellent lubricity and rust prevention properties; good machinability. Recommended for operations which require excellent surface finish quality.
ECOCOOL S 761	9.2	Emulsion	0-0	Wrought aluminum, cast aluminum, steel, stainless steel, titanium and inconel	Excellent lubricity and microbial control for use both in ferrous and non-ferrous metal working application, low foaming fluid and stability in hard water. Approved product in medical and aerospace industry.
ECOCOOL S 761 B	9.2	Emulsion	0-0	Wrought aluminum, cast aluminum, steel, stainless steel, titanium and inconel	Excellent lubricity and microbial control for use both in ferrous and non-ferrous metal working application, low foaming fluid and stability in hard water. Approved by Airbus, Boeing, Pratt&Whitney, Rolls Royce and Lockheed Martin.



福斯金属加工液核心产品
FUCHS Metalworking Core Products



低油雾切削油

产品名称	粘度 (40 °C) [mm ² /s]	开口闪点 (COC) [°C]	适用材质	性能概述及应用
ECOCUT HFN 5 LE	5	130	碳钢、铸铁、铝合金、有色金属	多用途切削油，低油雾，卓越的防腐蚀性，不含氯和锌。适用于切削，钻孔，齿轮加工和磨削。还能用作机床设备用油。
ECOCUT HFN 10 LE	10	160		
ECOCUT HFN 16 LE	16	170		
ECOCUT HFN 22 LE	22	180		
ECOCUT HFN 32 LE	32	210		
ECOCUT 610 LE	10	160	铸铁、碳钢、合金钢、不锈钢	优良的抗磨和抗极压性能，无氯，低油雾。可用于枪钻，深孔钻，攻丝，拉削及齿轮加工等重负载工艺。
ECOCUT 628 LE	28	200		
ECOCUT 715 LE	16	180		
ECOCUT 732 LE	32	200		
ECOCUT HSG 915 J LE	16	180	钢，有色金属	低油雾，优异的清净分散性能。满足高速磨削的冷却和润滑要求。
ECOCUT HSG 211 LE	11	160	铸铁、钢、有色金属	耐老化，良好的极压性能，低油雾，低泡，不含氯和锌。广泛用于高速切削，磨削用油，还可用作设备液压油和主轴油。
ECOCUT HFN 13 LE UNI	13	190	合金钢、铜及铜合金、铸铁	低油雾，低残留，优良的润滑和极压性能。特别适用于高速磨削和齿轮磨削
ECOCUT MICRO PLUS 20	28	190	铝合金、有色金属、合金钢、铸铁	专门为微量润滑技术（MQL）而设计的切削油。可快速生物降解，快干无残留。可用于内冷和外冷装置，属绿色环保型产品。
ECOCUT 7520 LE-S	17	205	钛合金，难加工钢，碳钢，合金钢，不锈钢及铸铁	无氯，优异的极压抗磨性，低油雾。推荐用于重负荷加工，特别用于医疗及航空航天加工。

Low Mist Neat Cutting Oils

Product Name	Viscosity (40 °C) [mm ² /s]	Flash Point (COC) [°C]	Applied Materials	Description and Applications
ECOCUT HFN 5 LE	5	130	Carbon steel, cast iron, aluminum alloys and non-ferrous metals	Multi-purpose cutting oils with low evaporation properties; chlorine and zinc free; good corrosion protection. Used for cutting, drilling, grinding and gear operations; also used as machine equipment oils.
ECOCUT HFN 10 LE	10	160		
ECOCUT HFN 16 LE	16	170		
ECOCUT HFN 22 LE	22	180		
ECOCUT HFN 32 LE	32	210		
ECOCUT 610 LE	10	160	Cast iron, carbon steel, steel alloys, stainless steel	Excellent anti-wear and EP effects with LE properties; chlorine free. Used for gun drilling, deep hole drilling, tapping broaching and gear machining with high requirements.
ECOCUT 628 LE	28	200		
ECOCUT 715 LE	16	180		
ECOCUT 732 LE	32	200		
ECOCUT HSG 915 J LE	16	180	Steel and non-ferrous metals	Excellent cleaning and dispersion properties. Used for high speed grinding which requires cooling and lubricity.
ECOCUT HSG 211 LE	11	160	Cast iron, steel and non-ferrous metals	Anti-aging, low evaporation (LE), EP and low foam properties; Chlorine and zinc free. Used as high speed cutting and grinding oil; also can be used as hydraulic and spindle oil.
ECOCUT HFN 13 LE UNI	13	190	Steel alloys, cast iron	Good lubricity and EP properties with low evaporation (LE) and low residue benefits Recommended for High-speed grinding and gear grinding.
ECOCUT MICRO PLUS 20	28	190	Aluminum alloy, non-ferrous metals, steel alloys, cast iron	Designed as MQL product, bio-degradable, dries with no residue. Suitable for internal or external cooling systems.
ECOCUT 7520 LE-S	17	205	Titanium alloy, difficult machining steel, carbon steel, steel alloy, stainless steel and cast iron alloy, stainless steel and cast iron.	Excellent anti-wear and EP effects with LE properties; chlorine free. Highly recommended for heavy duty machining operations, especially for aerospace and medical manufacture.

淬火油

产品名称	粘度 (40 °C) [mm²/s]	开口闪点 (COC) [°C]	使用温度 [°C]	性能概述及应用
THERMISOL QH 10 Series THERMISOL QH 18 Series THERMISOL QH 25 Series	10 17 25	>160 >180 >180	50 - 80 50 - 80 50 - 80	快速淬火油，具有淬火速度快，变形小，热稳定性佳等优点。主要用于合金和非合金的渗碳钢，调质钢，高合金工具钢的淬火。
THERMISOL M 750 K	85	>220	70 - 140	分级淬火油，具有速度适宜，变形小，热稳定性佳等优点。主要用于汽车齿轮，弹簧，轴承，螺杆等的淬火。
THERMISOL PQ 200	500	N/A	< 65	水溶性淬火液，不含亚硝酸盐和苯酚。主要用于钢，低合金钢等的感应淬火和火焰淬火。
THERMISOL QZS 150 MM THERMISOL QZS 400 THERMISOL QZS 500	320 430 451	N/A	20 - 50	THERMISOL 聚合物淬火油系列的开发是为了提供更优的冷却性能，极低的泡沫，提高油槽的使用周期，与水混溶，使用浓度低。是一个全新的聚合物技术。

Quenching Oils

Product Name	Viscosity (40 °C) [mm²/s]	Flash Point (COC) [°C]	Applied Temperature [°C]	Description and Applications
THERMISOL QH 10 Series THERMISOL QH 18 Series THERMISOL QH 25 Series	10 17 25	>160 >180 >180	50 - 80 50 - 80 50 - 80	High speed quenching oils with small distortion and excellent thermal stability properties. Mainly used for hardening of alloy and non-alloy carbon steel, brewage steel and high alloy tool steel.
THERMISOL M 750 K	85	> 220	70 - 140	Martempering quenching oils with suitable speed, small distortion and excellent thermal stability. Mainly recommended for hardening of automotive gears, springs, bearings and screws.
THERMISOL PQ 200	500	N/A	< 65	Water miscible quenching fluid; free of nitrite and phenol. Mainly for induction and flame hardening of steel and low alloy steel.
THERMISOL QZS 150 MM THERMISOL QZS 400 THERMISOL QZS 500	320 430 451	N/A	20 - 50	THERMISOL polymeric quenchant family was developed to provide optimized cooling performance, very low foaming, long bath durability, water miscible, very low concentrations. This is a new polymeric technology.



福斯金属加工液核心产品
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工业清洗剂

产品名称	pH 值 (10% 溶液)	防锈性能 (3% 溶液)	清洗方式	操作温度	应用浓度推荐
RENOCLEAN VR 1021 CXV	9.7	0-0	喷淋或浸洗	40 - 80	铝合金及其它有色金属: 2.5% 铸铁, 铜等黑色金属: 3-5%
RENOCLEAN SPEZIAL 2000	10.5	0-0	喷淋和涂抹	常温	钢, 铸铁, 铝, 有色金属 2-4% 机器 场地 5-10%
RENOCLEAN KU	闪点 [°C]	乳液类型	喷淋和涂抹	常温	金属, 某些聚合物 直接使用, 无须稀释
	53	溶剂型			

Industrial Cleaners

Product Name	pH Value (10% Solution)	Corrosion Test (3% Solution)	Cleaning Method	Operating Temperature [°C]	Applied concentration
RENOCLEAN VR 1021 CXV	9.7	0-0	Spraying, immersion	40 - 80	Aluminum and non-ferrous metals: 2.5%; Cast iron and ferrous metals: 3-5%.
RENOCLEAN SPEZIAL 2000	10.5	0-0	Spraying, brushing	Room temperature	Steel, cast iron, aluminum and non-ferrous metals: 2-4%; Machine and floor: 5-10%.
RENOCLEAN KU	Flash Point [°C]	Emulsion Type	Spraying, brushing	Room temperature	Metals and some polymers; Use as provided, no dilution.
	53	Solvent based			

