Blaser. SWISSLUBE

Cutting oils and Grinding oils

Performance is paramount.

Our customers' requirements drive the development of all new Blaser products.

The performance of our cutting oils is paramount. The latest technological trends, user safety and environmental compatibility are the main features of our new products and recommendations.

«Your productivity is our business!»

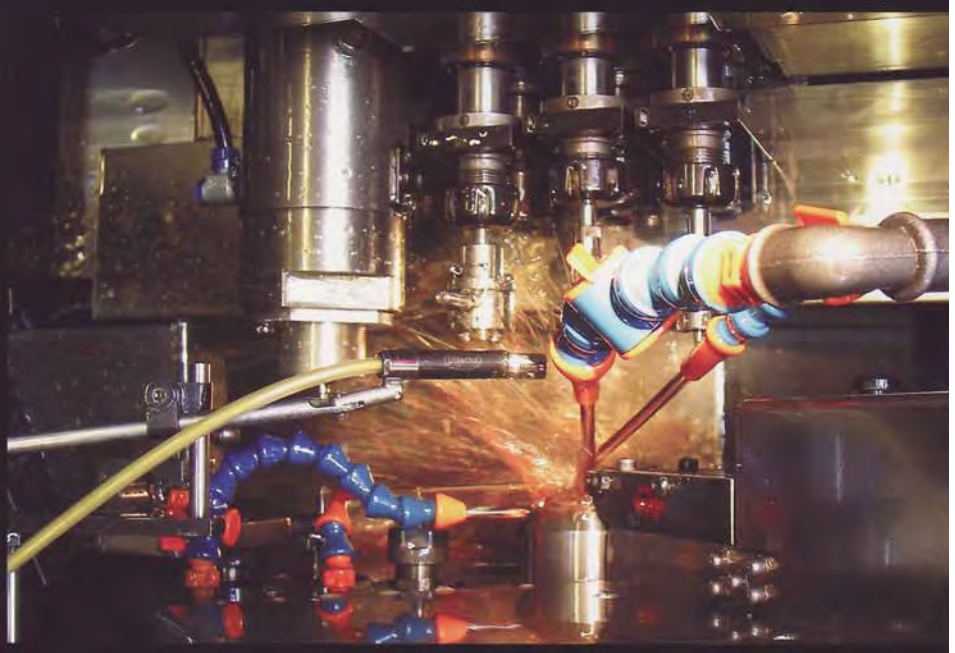


Photo: Blaser cutting oil in use at TRICO AG, Grenchen (Switzerland)

«Tests have shown that a performance increase of up to 40% is possible with our cutting oils.»

Three questions enable you to select the product with the greatest benefits:

Which types of machining?
Which cutting speed?
Which materials?

D. Schär

Daniel Schär
Product Manager
Mechanical Engineer Dipl. Ing. FH

Technology

All Blaser Swisslube cutting and grinding oils compliment each other for optimum performance within their machining spectrum.

Each application demands a specific viscosity and additives to attain the best cutting performance, tool life and surface quality.

In all our activities we consider the interests of people and the environment.

Each machining operation places specific requirements on the cutting tool. These requirements influence the cutting fluid selection!

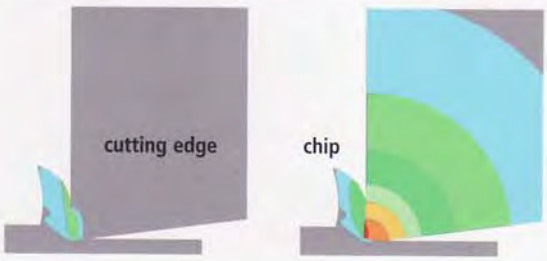
The cutting speed is a relevant factor in the formulation of the product.

Each material to be machined has its own values for strength (σ) and elongation (ε) – the requirements of the cutting oil are correspondingly different.

The best cutting performance in all chip-removal and grinding operations.

Photo: Blaser cutting oil in use at WIFAG AG, manufacturer of webpresses for newspapers and magazines in Berne (Switzerland)

Temperature and pressure curves measured at the cutting edge



Temperature and pressure at the cutting edge are the two parameters that lead to wear on the tool. In the development of our product lines, the interaction of these variables has been taken into account, guaranteeing the optimum solution for economic production.

Factor I

Factor II

Factor III

Viscosity

Pumping pressure and filter area of a system determine the maximum viscosity for adequate volumetric flow of oil to the workpiece. The higher the viscosity, the thicker the cutting oil. The correct choice of viscosity assures good wetting.

Our product lines are available in viscosities that compliment each other.

Low viscosity

Small chips, small workpieces, small tools, mean that a low viscosity should be used.

High viscosity

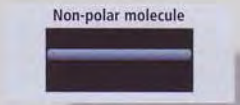
Large chips, large workpieces, large tools, mean that a high viscosity should be used.

Blaser provides cutting and grinding oils based on mineral oil and vegetable ester oil. They differ in their molecular structure.

Mineral oil-based products:

Blasogrind, Blasomill, Blasomill UNI

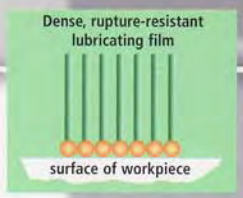
Cover practically all technical requirements. Ideal matching of base oil and additives to performance requirements guarantees economic production.



Ester oil-based products:

Vascomill, Vascomill HD

Greater lubricating effect than with mineral oils. Cover practically all technical requirements. The lubricating film is significantly stronger than that of a mineral oil.



Ecology

Our cutting and grinding oils are designed to give long service with low consumption.

The environment is best protected when cutting oils can be used over a long period of time without significant loss in the form of vapor, mist and smoke. These particular requirements were prominent in the development of our new products.

Cutting and grinding oils remain longer in service if they are properly maintained. This includes good filtration, avoidance of tramp oil contamination, and mixing with other products.

Workplace

Less emission, high flash points

Workplace safety is most important: high flash points and low mist/vapor generation – less smoke formation and good human compatibility are conditions for a safe work environment.

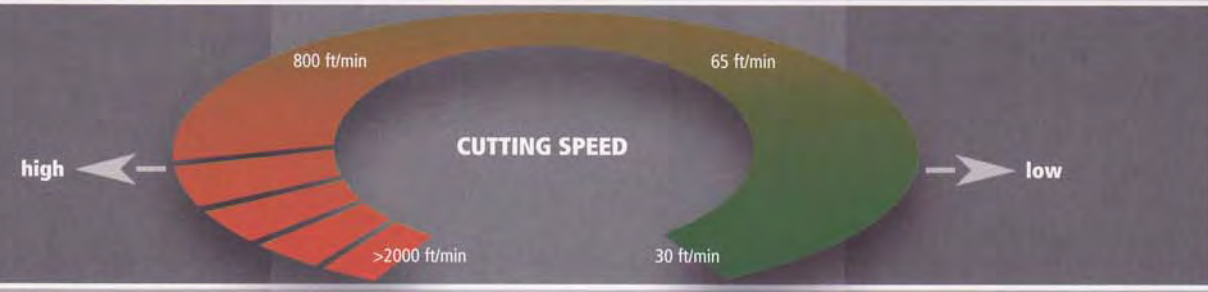
Skin compatibility

Clinical studies show significantly improved acceptance of the skin towards our ester based cutting oils. Low viscosities and large amounts of additives can be detrimental to human skin. If good skin compatibility is essential, we recommend the use of our Vascomill range of cutting oils based on ester.

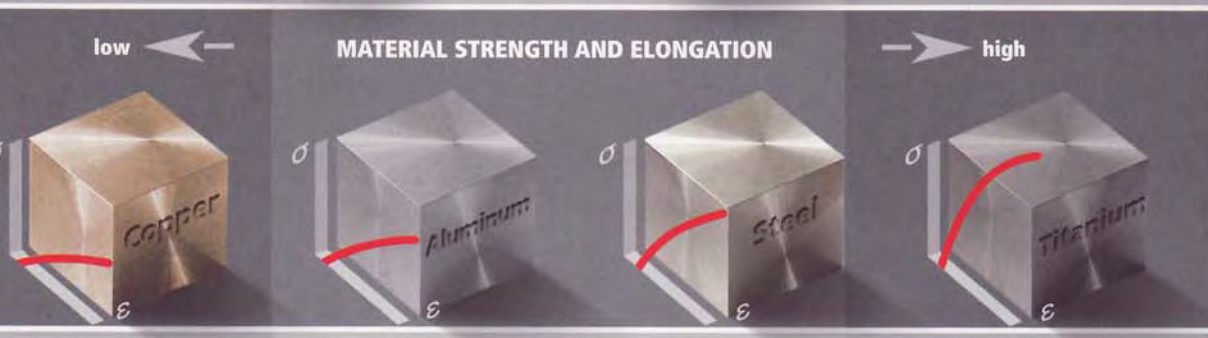
GRINDING | GENERAL METAL REMOVAL | HEAVY-DUTY METAL REMOVAL

Factor I

Factor II



Factor III



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PRODUCT APPLICATION RECOMMENDATION

Vascomill CSF **Blasomill CSF** **Blasogrind HC**	**Vascomill** **Blasomill**	**Blasomill UNI**	**Vascomill HD**

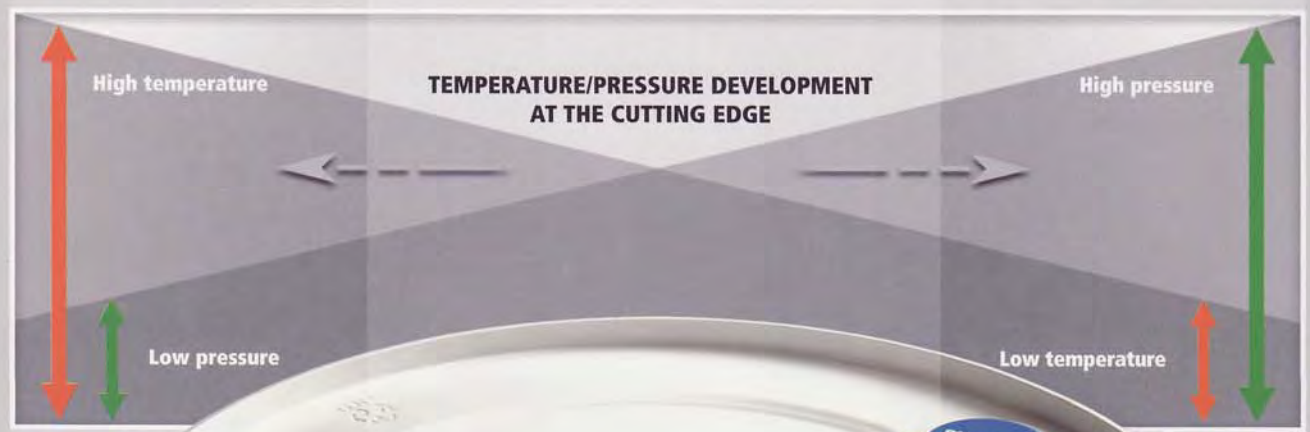
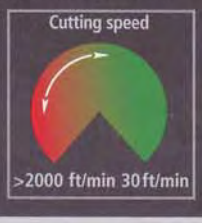


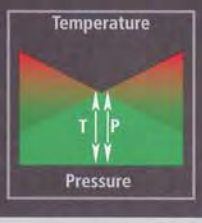
Photo: Blaser cutting oil in use at TRICO AG, manufacturer of precision turning parts in Grenchen (Switzerland)

Optimum cutting performance

With average strength or elongation of the materials, for metal-removal operations.



Medium to high cutting speeds (240-600 ft/min).



Balanced temperature and pressure at the cutting edge or grinding zone.

Operations

- Milling, hobbing
- Reaming, turning
- Drilling, deep-hole drilling
- Heavy-duty requirements

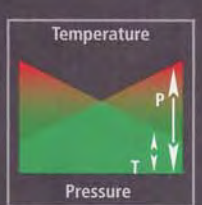
Materials

Suitable for all metallic materials

Optimum cutting performance

High strength or elongation of the materials.

Low cutting speed.



Development of high pressure at the cutting edge.

Operations

- Slotting
- Broaching
- Thread cutting
- Deep-hole drilling
- Heavy-duty requirements

Materials

- Titanium alloys
- Stainless steels
- Ni-Based alloys

Chip removal

Mineral oil-based cutting oils

Blasomill

- chlorine free
- especially good for medium to high cutting speeds
- universal oil for most operations and materials

Blasomill CSF

- chlorine & sulfur free where applications demand such properties
- best for copper and aluminum alloys
- free machining materials

Blasomill UNI

- very good cutting performance and lubricating properties in metal-removal operations with medium to high cutting speed
- good corrosion protection of the parts after machining
- universal cutting oil for practically all machining operations
- wide application cutting oil for most materials
- light color

Ester oil-based cutting oils

Vascomill

- extraordinary cutting performance and lubricating properties, especially in metal-removal operations with high cutting speeds
- allows increased cutting speeds and feed rates to be used
- universal cutting oil for practically all materials
- very high flash point for corresponding viscosity
- minimal mist, vapor and smoke formation generated by heat
- reduced oil mist formation from high pressure or centrifugal forces
- better skin compatibility compared to mineral oil-based products with large amounts of additives
- renewable raw materials
- environmentally conscious
- the chlorine free high performance oil

Vascomill CSF

- highest flash point
- chlorine & sulfur free where applications demand such properties
- no smoke formation
- odorless
- very good skin compatibility

Vascomill HD

- superior cutting performance and lubricating properties, especially in metal-removal operations with low to high cutting speeds
- universal cutting oil for practically all materials
- minimal mist, vapor and smoke formation generated by heat
- reduced oil mist formation from high pressure or centrifugal forces
- the ultimate in cutting performance

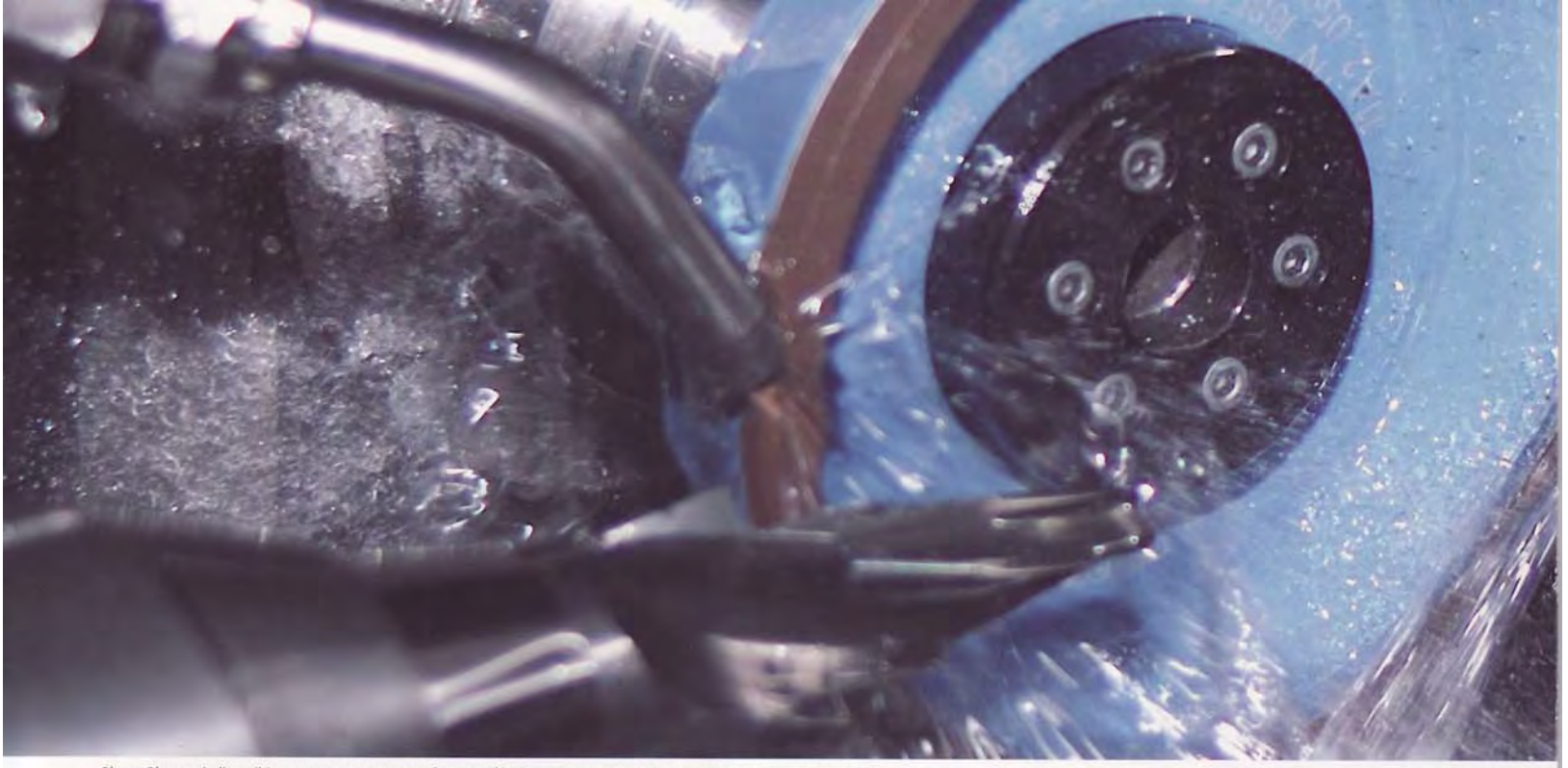


Photo: Blaser grinding oil in use at EWAG AG, manufacturer of high precision tool grinding machines, Etziken (Switzerland)

Optimum grinding performance

With low strength or elongation of the materials, also for milling, turning etc.

High cutting speeds.

High temperature generation at the cutting edge or grinding zone.

Operations

- Heavy-duty grinding requirements
- General grinding requirements

Materials

- All materials on grinding
- Soft materials (Aluminum, Brass, Copper) also for milling, turning etc.

Grinding

Synthetic oil-based grinding oils

Blasogrind HC

- hydrocracked quality base oil
- universal high performance grinding oil for tools and parts
- minimal cobalt release in the oil due to special additives
- low oil emissions from heating
- higher flash point than conventional mineral-oil based products
- gentle on human skin compared to conventional mineral-oil based products
- good paint and seal compatibility
- good acceptance of this product philosophy by machine manufacturers
- colorless
- inhibited against Co-leaching

Blasogrind PAO

- polyalphaolefine quality base oil (fully synthetic)
- universal high performance grinding oil for tool and parts
- minimal cobalt release in the oil due to special additives
- very low oil emissions from heating
- higher flash point than conventional mineral-oil based products
- very low foam behavior
- gentle on human skin compared to conventional mineral-oil based products
- very good paint and seal compatibility
- very good acceptance of this product philosophy by machine manufacturers
- colorless
- inhibited against Co-leaching

Blasogrind EDM 5

- polyalphaolefine quality base oil (fully synthetic)
- for grinding and electroerosion applications (e. g. PCD tool manufacturing on EWAG and Walter machines)
- very low oil emissions from heating
- higher flash point than conventional mineral-oil based products
- very low foam behavior
- gentle on human skin compared to conventional mineral-oil based products
- very good paint and seal compatibility
- very good acceptance of this product philosophy by machine manufacturers
- colorless
- inhibited against Co-leaching

Technical data

The overview shows the suitability of our products, arranged according to machining operations, application areas and materials. The physical data shown offers further criteria for determining the cutting oils to be used. Call us if you cannot find an oil to meet your needs.

		Machining operations																	Application area/materials							
		Milling	Hobbing	Bevel gear generation	Turning	Swiss style CNC/sliding head lathes[1]	Drilling	Deep-hole [gun] drilling[2]	Reaming	Threading and tapping	Broaching/Slotting	Honing	Lapping	Sawing	Punching	Grinding	Electroerosion	Hydraulic/Guideway	Aluminum/aluminum alloys	Magnesium/Magnesium alloys	Copper alloys	Noble metals	Cast iron	Steel/Free cutting steel	Hardened and tool steel	Stainless and High temp alloys
Vascomill 10	2903																									
Vascomill 22	2904																									
Vascomill 35	2907																									
Vascomill 42	2900																									
Vascomill HD 20	3263																									
Vascomill CSF 10	2908																									
Vascomill CSF 22	2519																									
Vascomill CSF 35	2516																									
Blasogrind HC 5	3280																									
Blasogrind HC 10	3281																									
Blasogrind EDM 5	3275																									
Blasogrind PAO 5	3270																									
Blasogrind PAO 10	3271																									
Blasomill CSF 15	3165																									
Blasomill CSF 22	3167																									
Blasomill 10	3161																									
Blasomill 22	3160																									
Blasomill 32	3162																									
Blasomill Uni 20	3170																									
Blasomill Uni 32	3171																									
Blasomill Uni 46	3172																									
Blasomill HD 15	832																									

- best suited
- well suited
- suitable with limitations
- unsuitable

1 for fixed guide bushing chlorinated oils
2 for BTA, Steel/Stainless Steel chlorinated oils

Titanium/Titanium alloys	Tungsten carbide	Physical data							Chemical data/seal material compatibility								
		Color	Viscosity at 68°F [SUS]	Viscosity at 104°F [SUS]	ISO-Viscosity at 20°C [cST]	ISO-Viscosity at 40°C [cST]	Flash point [°C]	Flash point [°F]	Polar content, total [%]	Chlorine content [%]	Zinc content [%]	Sulphur content, total [%]	Copper corrosivity [3 hours at 60°C] 1a = best	Seal compatibility NBR [Buna-N] *	Seal compatibility FPM [Viton]	Seal compatibility MVQ [Silicone rubber]
		amber	102	59	21	10	208	406	95	0	0	1.6	1a			
		amber	213	106	46	22	218	424	95	0	0	1.8	1a			
		amber	361	164	78	35	240	464	95	0	0.2	1.7	1a			
		amber	476	195	103	42	255	491	95	0	0.3	1.5	1a			
		amber	208	98	45	20	210	410	53	10	0	1.2	1a			
		amber	97	59	20	10	230	446	99	0	0	0	1a			
		amber	194	106	42	22	249	480	99	0	0	0	1a			
		amber	393	164	85	35	333	631	99	0	0	0	1a			
		colorless	62	42	11	5	150	302	2.5	0	0	0.8	1a			
		colorless	106	59	22	10	180	356	2.5	0	0	0.8	1a			
		colorless	55	42	9	5	165	329	0	0	0	0	1a			
		colorless	55	42	9	5	160	320	2.5	0	0	0.8	1a			
		colorless	77	59	15	10	178	352	2.5	0	0	0.8	1a			
		amber	145	78	31	15	188	370	8	0	0	<0.05	1a			
		amber	278	106	60	22	179	354	10	0	0	<0.05	1a			
		amber	97	59	20	10	171	340	15	0	0	1.2	1a			
		amber	259	106	56	22	180	356	15	0	0	1.2	1a			
		amber	376	150	81	32	196	385	15	0	0	1.2	1a			
		amber	218	98	47	20	202	396	10	4	0	1.2	1a			
		amber	435	150	94	32	186	367	10	4	0	1.2	1a			
		amber	638	213	138	46	194	381	10	8	0	1.0	1a			
		amber	163	78	35	15	152	306	0	12	0	0.2	1a			

very stable
stable
limited stability
unstable

*Chlorinated oils are problematic to certain Buna-N seals containing <30% nitrile content.

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