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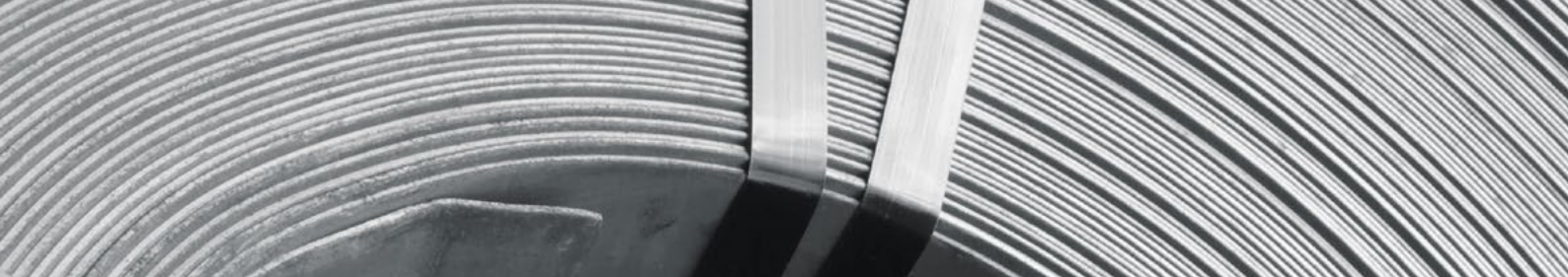
Detailed information

## A hot tip.

Speciality lubricants for steel production







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# Speciality lubricants for steel production

Steel plants face very high investment costs due to the size of their equipment and their long production lines. These investments must provide a return as soon as possible. Important criteria in achieving this include: low operational and maintenance costs and reliable operation without unplanned down-time. Each unplanned event can result in significant income losses. Additionally, every component of the steel production process is required to produce higher volumes of steel year-on-year while maintaining the quality level and satisfying tighter environmental standards. Despite these pressures, safety standards and output levels have never been higher.

In order to help the steel industry to achieve its goals, Klüber Lubrication has for decades been providing many diverse solutions tailored to the industry's extreme requirements. To satisfy these goals, lubrication must be correctly designed for components exposed to high temperatures, high loads and constant vibration, and contamination with water, steam, acid, etc. For prolonged equipment life or reduced lubricant consumption with increased uptime, Klüber Lubrication can do it.

Although most applications in the steel industry push the lubricants to their limits and each step of the process calls for a different lubricant characteristic,

Klüber Lubrication has a solution that responds to each of these challenges – no matter which part of the steel production process it is. Klüber Lubrication has the right solutions from raw material processing, steel making and rolling to galvanizing and packing.

Klüber Lubrication has been developing and producing speciality lubricants for more than 80 years. We have been the world market leader in this sector for several decades. Consequently, we have developed along with our customers and have pushed many technical innovations from the very beginning, also in the steel industry.

Besides producing a large range of products that comprises oils, greases, pastes, bonded coatings and waxes, we offer our customers the best advice regarding proper lubrication of their applications. We work in close cooperation with you to improve lubrication processes in your plant systematically, allowing you to benefit from your machines and your staff's know-how to the maximum.

Klüber Lubrication stands for highest product quality, innovation and excellent service.

## Selected Klüber lubricants for the steel industry

Process	Process step	Machine / Machine part	Component	
Raw material preparation	Storage	Stacker and reclaimer	Slew ring bearing	
		Conveyer belt	Slew ring gear	
		Vibrating screen	Drive/return cylinder rolling bearings	
	Mill plant	Grinding mill	Eccentric shaft rolling bearings	
			Rolling bearing	
		Open gear drive		
Raw material processing	Coke oven plant	Coke oven battery	Reversible gas valve	
		Pusher and guide machines	Rack rail	
		Exhaust system	Precipitator hammer rolling bearings	
	Lime plant	Rotary kiln		Rotor bearings
				Open gear
				Internal riding ring
				Support roller bearing
	Sinter plant	Rotary mixer		Thrust roller
			Open gear	
Sinter machine			Trolley wheels roller bearing	
		Slide tracks		



Differentiation	Lubricant
	Klüberplex AG 11-462
	Klüberplex AG 11-462
	Klüberlub BE 71-501 dispenser (Klübermatic)
	Klüberlub BVH 71-461
	Klüberlub BE 41-1501
Transparent	Klüberfluid series
Graphite-based	GRAFLOSCON series
	Klüberlub BVH 71-461
	GRAFLOSCON C-SG 2000 ULTRA
	COSTRAC AK 0
For bearings subject to high speed.	Klüberplex BEM 41-132
For bearings subject to high temperatures.	Klübersynth HB 74-401
Transparent	Klüberfluid series
Graphite-based	GRAFLOSCON series
	WOLFRACOAT C FLUID
For oil-lubricated bearings, service temperature up to 140 °C (284 °F).	Klübersynth GEM 4 N series
For oil-lubricated bearings, service temperature over 140 °C (284 °F).	Klübersynth GH 6 series
For grease-lubricated bearings	Klüberlub BE 41-1501
For oil-lubricated bearings, service temperature up to 140 °C (284 °F).	Klübersynth GEM 4 N series
For oil-lubricated bearings, service temperature over 140 °C (284 °F).	Klübersynth GH 6 series
For grease-lubricated bearings.	Klüberlub BE 41-1501
Transparent	Klüberfluid series
Graphite-based	GRAFLOSCON series
	Klüberlub BE 41-1501
	STABUTHERM GH 462



## Selected Klüber lubricants for the steel industry

Process	Process step	Machine / Machine part	Component	
Pig iron production	Blast furnace	Roots blower	Gear box (gears and bearings)	
		Charging system	Car	
		Ingot mould	Chain pivots and bearings	
		Torpedo ladle	Turn system	
			Gear box	
			Wheels rolling bearings	
		Raw material distributor (top of the furnace)	Bearings (centralised lubrication)	
		Tapping and drilling machine	Guides, plain bearings, rotary connections	
		Wheels of hot metal cars and slag cars	Wheels rolling bearings	
		Temperature lance	Chain drives	
		Direct reduction	Gas and pellet feed	Valve sliding parts
	Valve seals			
Steel production	Steel making plant	Ladles	Plain bearings and other sliding surfaces	
			Roller bearings	
			Open gear drives	
		Arc furnaces	Centralised system lubrication	
			Hinges of cover cooling system	
		Oxygen converters	Valves, rotary connections in contact with oxygen	
		Continuous casting	Gate valve	Sliding surface and thread
			Mould	Oscillating mechanism
		Ladle Turret	Rolling bearings	
		Continuous casting machine	Wet segment rolling bearings	
			Extractor rolling bearings	
		Torch cutters	Bearings	
			Oxygen valves & connections	
Cooling beds	Rollers and moving beams bearings			



Differentiation	Lubricant
Service temperature up to 140 °C (284 °F).	Klübersynth GEM 4 N series
Service temperature over 140 °C (284 °F).	Klübersynth GH 6 series
	STABUTHERM GH 461
	STABUTHERM GH 462
	STABUTHERM GH 461
Service temperature up to 140 °C (284 °F).	Klübersynth GEM 4 N series
Service temperature over 140 °C (284 °F).	Klübersynth GH 6 series
	Klüberlub BE 71-501
	STABUTHERM GH 461
	STABUTHERM GH 461
	Klüberlub BE 71-501
	Klübersynth CH 2-100 N
	STABUTHERM GH 461
	NOSOL GBY 2
	WOLFRAKOTE TOP PASTE
	Klüberlub BE 41-1501
For manual lubrication of small gears.	GRAFLOSCON CA ULTRA Spray
For immersion lubrication.	Klüberfluid C-F 3 ULTRA
	STABUTHERM GH 461/462
	BARRIERTA L55/2
	Klüberalfa YV 93-302
	WOLFRAKOTE TOP PASTE/FLUID
	STABUTHERM GH 461/462
For manual lubrication.	WOLFRAKOTE TOP PASTE/FLUID
	STABUTHERM GH 461 / 462
For centralised lubrication.	STABUTHERM GH 461 / 462
For manual lubrication.	Klübersynth HB 74-401
For centralised lubrication.	STABUTHERM GH 461 / 462
For manual lubrication.	Klübersynth HB 74-401
For centralised lubrication.	STABUTHERM GH 461 / 462
For manual lubrication.	Klübersynth HB 74-401
	Klüberalfa YV 93-302
	STABUTHERM GH 461 / 462

## Selected Klüber lubricants for the steel industry

Process	Process step	Machine / Machine part	Component	
Milling	Hot rolling mill	Work/back-up rolls	Rolling bearings Bearings assembly	
		Rolling mill drive shafts	Toothed couplings Cardan	
		Transport table	Rolling bearings	
		Cooling bed	Chain Bearings	
		Cold rolling mill	Work/back-up rolls	Rolling bearings Bearings assembly
			Rolling mill drive shafts	Toothed couplings Cardan
			Galvanisation	Pre-heating section

	Component/Application	
General applications	Assembling paste	
	Electric motors / fans	Rolling bearings
	Gear box	Gears
	Compressors	Rotary screws and bearings
	Cranes	Wire ropes Rolling bearings





Differentiation	Lubricant
	Klüberlub BE 71-501
	Klüberpaste 46 MR 401
	Klüberlub BE 41-1501
	STABUTHERM GH 461 / 462
	Klüberplus S 01-004
	STABUTHERM GH 461 / 462
	Klüberlub BE 71-501
	Klüberpaste 46 MR 401
	Klüberlub BE 41-1501
	Klübersynth BH 72-422

Differentiation	Lubricant
For applications subject to high load and oscillation.	Klüberpaste 46 MR 401
For components subject to very high temperatures up to 1 000 °C (1 832 °F).	WOLFRAKOTE TOP PASTE
For bearings subject to high speed.	Klüberplex BEM 41-132
For bearings subject to high temperatures.	Klübersynth HB 74-401
Synthetic oil compatible with mineral oil. Service temperature up to 140 °C.	Klübersynth GEM 4 N series
Synthetic oil for service temperatures over 140 °C.	Klübersynth GH 6 series
	Klüber-Summit SH series
For temperatures up to 120 °C.	GRAFLOSCON C-SG 2000 ULTRA
For temperatures up to 500 °C.	Klüberplus S 01-004
	Klüberlub BE 71-501 dispenser (Klübermatic)

## Details on the lubricants (products in alphabetical order)

### Lubricant

BARRIERTA L55/2

COSTRAC AK 0

GRAFLOSCON CA ULTRA Spray

GRAFLOSCON C-SG 2000 ULTRA

GRAFLOSCON series

Klüberalfa YV 93-302

Klüberfluid C-F 3 ULTRA

Klüberfluid series

Klüberlub BE 41-1501

Klüberlub BE 71-501

Klüberlub BE 71-501 dispenser (Klübermatic)

Klüberlub BVH 71-461

Klüberpaste 46 MR 401

Klüberplex BEM 41-132

Klüberplus S 01-004



## Advantages

For very high operating temperatures and very high loads.

Its high wear protection for bearings increases equipment reliability and availability.  
Recommended by leading exhaust system manufacturers.

For manual lubrication of small open gears. The spray enables easy and fast application.  
Provides high load-carrying capacity and prevents corrosion.

Good corrosion protection and good wear protection reduce maintenance costs and extend the life of your equipment.  
Excellent adhesion prevents lubricant drop-off.

Klüber offers open gear lubricants for running-in, correction and operational lubrication of large open gears. Viscosity should be selected according to your equipment manufacturer's recommendations. Please contact our experts for equipment analysis and optimum lubricant recommendations.

For applications with high concentration of pressurised oxygen.  
Wide temperature range with high load-carrying capacity.  
Recommended by main oxygen valve manufacturers.

For immersion lubrication of open gears.  
Prevents leakages with high adhesion and very high viscosity.  
Increases gear life by protecting the tooth flanks against wear.

New generation clear open gear lubricants, allowing inspection during operation, increasing productivity.  
Lubricant consumption can be reduced by 50 % compared with traditional black open gear products, contributing to cost reduction and sustainability.  
Klüber offers open gear lubricants for running-in, correction and operational lubrication of open gears. Viscosity should be selected according to your equipment manufacturer's recommendations. Please contact our experts for equipment analysis and optimum lubricant recommendations.

For highly loaded bearings and toothed couplings. High load-carrying capacity extends your equipment's life under vibration and shock.  
Its good sealing effect prevents dust contamination of your bearings and good lubricant adhesion assures equipment protection at all times.

Increases bearing lifetime and process reliability with good wear protection even under high loads and in very wet environments.  
Wide temperature range.  
Its high load-carrying capacity ensures continuity of production without unplanned downtime caused by bearing failures.

Automatic relubrication promotes workplace safety by considerably reducing work in inconveniently located equipment areas.

**Bearings:**  
Extreme adhesion prevents grease leakage from the bearing even under extreme vibration.  
Good load-carrying capacity extends the life of the bearing.

**Valves:**  
Its good sealing property and lubricity allow easy valve operation improving operational safety and environmental protection as gas leakages are prevented.  
Valve design life can be achieved due to its good antiwear and anticorrosion properties.

Reduces maintenance costs by ensuring easy assembly and disassembly, avoiding damage.  
The product prevents fretting corrosion in applications under high load and oscillation.

Extends life of bearings subject to high speed and wear.

Resistant to temperatures up to 500 °C.  
Improves safety by forming a thin and dry layer of graphite to prevent dust accumulation on the cables and improves visual inspections.  
High fluidity enables penetration through rope layers reducing fretting between wires.  
Dry lubrication of chains reduces contamination of finished products.

## Details on the lubricants (products in alphabetical order)

### Lubricant

Klüber-Summit SH series

Klübersynth BH 72-422

Klübersynth CH 2-100 N

Klübersynth GEM 4 N series

Klübersynth GH 6 series

Klübersynth HB 74-401

NOSOL GBY 2

STABUTHERM GH 461 / 462

WOLFRACOAT C FLUID

WOLFRAKOTE TOP PASTE

WOLFRAKOTE TOP PASTE/FLUID





## Advantages

Synthetic long-life compressor oils compatible with mineral oil and most commonly used sealing materials.  
Extended service life.  
Increases compressor efficiency due to its low residue formation.  
Viscosity should be selected according to your equipment manufacturer's recommendations.

Long relubrication interval even when exposed to high temperatures, compatible with most existing products.  
Recommended by leading industrial oven manufacturers.

Improved wear protection results in extended chain life even at temperatures above 200 °C.

High-performance synthetic oil series, compatible with mineral oil.  
Service temperature up to 140 °C.  
Increases life of the gears and bearings due to its very good ageing properties and scuffing load capacity.  
Proven wear protection reduces maintenance costs, increasing uptime.  
Viscosity should be selected according to your equipment manufacturer's recommendations.

High performance synthetic oil for service temperatures above 140 °C.  
Increases gear and bearing life even when exposed to extreme loads and high temperatures, very good ageing properties and high scuffing load capacity.  
Lower power consumption compared to mineral oils due to lower friction coefficient. Much extended oil life reduces operational and disposal costs.  
Viscosity should be selected according to your equipment manufacturer's recommendations.

Extended relubrication periods when exposed to high temperatures and wear particles. Excellent corrosion protection. For highly loaded rolling and plain bearings.

Lubricating grease inert to fuels, solvents, natural gas and other gases.  
Excellent sealing effect.

High temperature bearing greases providing low wear at high loads and high temperatures. Good adhesion and sealing effect for increased machine productivity.  
Suitable for many central lubrication systems with long pipework.  
Please contact our experts for selection of the right consistency.  
Recommended by main OEMs.

Ensures smooth running of riding rings due to its good wear protection and load-carrying capacity, even under high thermal stress at 1 200 °C.  
Easy application due to its fluid character.

Keeps movements smooth even under extremely high temperatures and loads.  
It promotes easy and trouble-free assembly and disassembly.

Keeps movements smooth even under the influence of extremely high temperatures and loads.









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Klüber Lubrication München SE & Co. KG  
Geisenhausenerstraße 7  
81379 München  
Germany

Local first-instance court Munich, Germany  
Certificate of registration 46624

[www.klueber.com](http://www.klueber.com)

## Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 85 years.

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