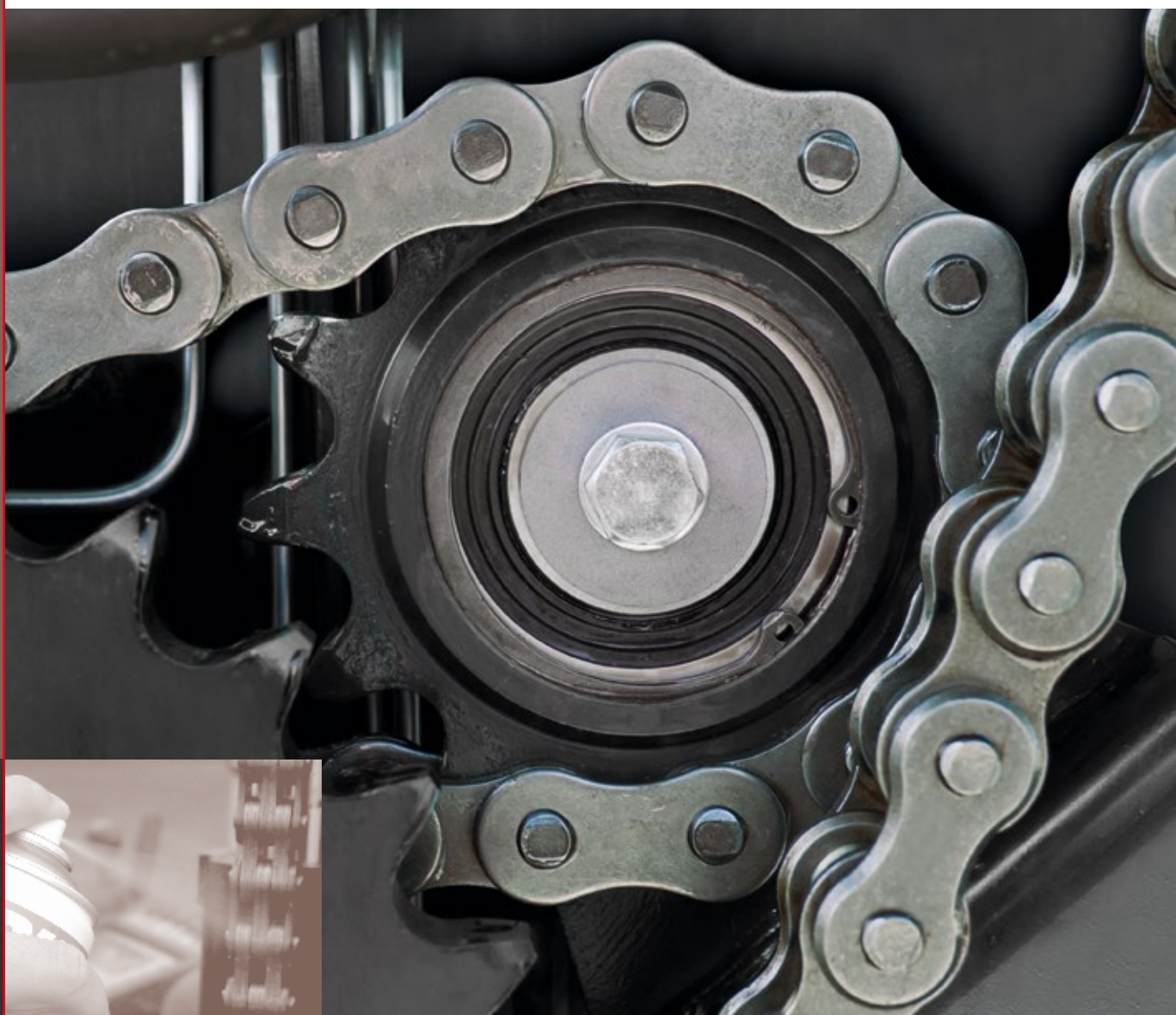




OKS Speciality lubricants  
***for chain lubrication***

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***INNOVATIVE PRODUCTS FOR  
PRODUCTION AND MAINTENANCE TECHNOLOGY***

Speciality Lubricants  
Maintenance Products

## Optimum chain lubrication provides safety and cost advantages

### Design and function of a chain

As machine elements, chains enable the transmission of movements and tractive forces. Today roller chains are used most often in technology applications. Their chain joints consist of inner and outer links connected with pins. The pins of the inner links are located in sleeves, which are in turn seated in a roller. This roller causes a reduction in the drive forces and the wear when operating the chain.

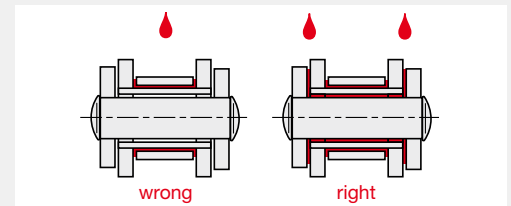
Chain drives consist of a drive pinion, a chain, a chain tensioner and a chain sprocket. The tractive force is transmitted to the chain via the drive pinion. This force is absorbed in the chain by both the links and the pins, which lie in linear contact to the bushings, and then have contact with the rollers via the bushings. The actual movement of the chain takes place during deflection over the chain sprocket.

### Lubricating chains

An optimum chain lubrication has a considerable effect on the wearing behaviour and with it on the service life of the chain. Statistical tests have shown that approx. 60 % of all chain defects can be traced back to incorrect or insufficient lubrication.

To achieve effective lubrication, a sufficient quantity of lubricant must be brought into the chain joints during each lubricating process. Here the lubricant must pass through a narrow gap between the links to penetrate into the chain joint. The amount of lubricant required for this purpose is relatively small.

The lubricant must always be applied to the link edges. Lubrication can be effected by manual or drip lubrication for chain drives with a speed of up



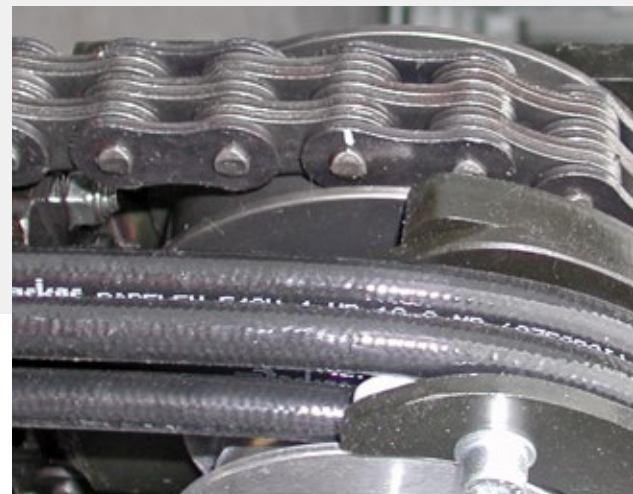
to approximately 3 m/s. In this case oil is applied by brush, oil can, spray or drip oiler. The lubricant should only be applied to the link top. Higher chain speeds require automatic lubrication systems.

With manual and drip lubrication, the quantity of lubricant should be sufficient to prevent rapid ageing of the lubricant within the relubricating intervals. With manual lubrication of a continuously running chain, relubrication should be carried out at least once a day or every eight operating hours if possible.

### OKS speciality lubricants for chain lubrication

OKS offers you a broad range of speciality lubricants for chain lubrication under various conditions of use.

The enclosed products table will help you when selecting a suitable lubricant for your individual case



## Selection criteria for chain lubricants

The design of chains and their operation exclusively in the mixed friction range result in many problems in use. These include material abrasion due to line contact, oscillating movements and jolts, high surface pressures on the links and pins and the effects of environmental influences, such as high or low temperatures, dust, and moisture on the function of the chain. This results in demanding requirements for the chain lubricants used.

### Adhesive strength

The lubricant is not to be thrown off at the deflection points of the chain, where high centrifugal forces can occur.

### Regenerability

Abrasive old lubricant residues and remains can result in heavy wearing. These must be dissolved by the lubricant and transported out of the joints.

### High-temperature stability

As the decision in favour of a chain drive is often made due to high operating temperatures, the lubricant must retain its full functionality within these temperature ranges.

### Corrosion protection

Is important for all chains used under corrosive conditions to prevent rust from forming on the chain elements.

### Protection against media

This means the lubricant must be resistant to acids and alkaline solutions or aggressive gases.

### Carbonisation tendency

Mineral oils tend to form residues at high temperatures which can considerably increase wearing or can block the chain joint up to the point of immobility.

### Wetting and creep properties

As the friction points are located inside the chain and, especially on small chains, the joint access points are extremely narrow, the chain lubrication must have outstanding creep properties (high penetration capacity).

### Wear protection

Due to operation in the mixed friction range, chains are subjected to heavy wearing. Therefore, wear protection is especially important. This takes place by adding solid lubricants, such as MoS<sub>2</sub>, graphite or PTFE, which act purely physically by separating the friction partners from each other. However, this can also be carried out with additive packages which cause surface refinement.

### Noise damping

As the labour protection laws no longer allow any unnecessary sources of noise, it is important here to prevent this by choosing the right lubricant. Generally, it can be said that a higher basic viscosity also results in more effective noise avoidance.

### Compatibility with plastics

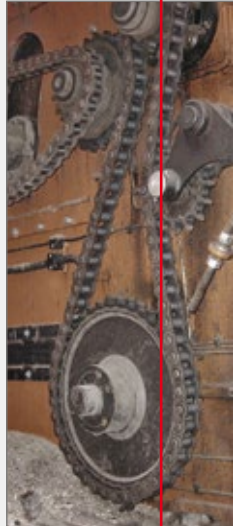
Chains frequently come into contact with plastics or partially consist of plastic materials, e.g. O-ring chains. In this case, compatibility with the lubricant must be ensured.

### Hydrocapillary effect

If a chain is exposed to water, the water will penetrate into the chain links. The task of the chain lubricant is to prevent corrosion, to creep under the water and to force it out of the chain.

### Use in food processing technology

Lubricants for which the corresponding approvals of the NSF (National Sanitation Foundation) are available are suitable for chains used in the food processing industry.



Our technical service will answer any further question you may have on the subject of chain lubrication.



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Over 150 high-performance products from one supplier



**OKS – Quality made in Germany**

The OKS brand stands for high-performance products for reducing friction, wear and corrosion. The success of OKS, which has continued uninterrupted for 40 years, is decisively shaped by the high quality and reliability of our products developed and produced by experience experts at our headquarters in Maisach near Munich with modern testing systems and equipment.

**OKS – your professional partner**

Our high tribologic expertise, our comprehensive technical service, smooth availability and our innovative solutions for specific lubricant requirements make us a preferred partner to demanding customers the world over.

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For a world in motion



Product	Designation	Viscosity at 40°C	Fields of application													Main Components	Characterisation	Examples of use					
			Speed			Load				Temperature application range (°C)													
			Low	Medium	High	Low	Medium	High	Very high	-40	-20	0	+20	+40	+60				+80	+100	+120	+140	+160
<b>OKS 310</b>	MoS <sub>2</sub> High Temperature Lubricating Oil ISO VG 100	108 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				up to +200°C/+450°C						<ul style="list-style-type: none"> <li>• Polyglycol</li> <li>• MoS<sub>2</sub></li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Liquid lubrication up to +200°C, also suitable as a dry lubricant at temperatures above this</li> <li>• Residue-free evaporation of basic oil</li> <li>• Good media resistance/plastic compatibility</li> <li>• Emergency lubrication with MoS<sub>2</sub></li> </ul>	<ul style="list-style-type: none"> <li>• Chains in painting, stoving and drying systems</li> </ul>					
<b>OKS 340</b> <b>OKS 341</b>	Chain Protector, strongly adhesive ISO VG 460	470 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-30°C to +180°C						<ul style="list-style-type: none"> <li>• Polyisobutylene</li> <li>• Mo<sub>x</sub>-Active</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Extreme adhesive strength and excellent wear protection under heavy loads</li> <li>• Good corrosion protection</li> <li>• O-ring neutral</li> </ul>	<ul style="list-style-type: none"> <li>• Fast-running chains in transport systems with stacker trucks</li> </ul>					
<b>OKS 350</b>	High-Temperature Chain Oil with MoS <sub>2</sub> , synthetic ISO VG 220	240 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-30°C to +250°C						<ul style="list-style-type: none"> <li>• Synthetic oil</li> <li>• MoS<sub>2</sub></li> <li>• Mo<sub>x</sub>-Active</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent wear protection under heavy loads and at high temperatures</li> <li>• Low evaporation losses</li> <li>• Resistant to water and steam</li> <li>• Emergency lubrication with MoS<sub>2</sub></li> </ul>	<ul style="list-style-type: none"> <li>• Chains in painting, stoving and drying systems, escalators and treadmills</li> </ul>					
<b>OKS 352</b> <b>OKS 3521</b>	High-Temperature Oil, light-coloured, synthetic	270 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-10°C to +250°C						<ul style="list-style-type: none"> <li>• Ester</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent wear protection at high temperatures and at medium speeds and loads</li> <li>• Low evaporation losses</li> <li>• Resistant to water and steam</li> </ul>	<ul style="list-style-type: none"> <li>• Chains in painting, stoving and drying systems, escalators and treadmills</li> <li>• Joints and slideways</li> </ul>					
<b>OKS 353</b>	High-Temperature Oil, light-coloured, synthetic ISO VG 100	100 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-25°C to +250°C						<ul style="list-style-type: none"> <li>• Ester</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Good wear protection at high temperatures and at medium speeds and loads</li> <li>• High cleaning effect</li> <li>• Low evaporation losses</li> <li>• Resistant to water and steam</li> </ul>	<ul style="list-style-type: none"> <li>• Chains in painting, stoving and drying systems, escalators and treadmills</li> <li>• Joints and slideways</li> </ul>					
<b>OKS 354</b> <b>OKS 3541</b>	High-Temperature Adhesive Lubricant, synthetic	4,000 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-10°C to +250°C						<ul style="list-style-type: none"> <li>• Ester</li> <li>• Mo<sub>x</sub>-Active</li> <li>• Additives</li> </ul>	<ul style="list-style-type: none"> <li>• Highly adhesive</li> <li>• Resistant to water</li> <li>• Low evaporation losses</li> <li>• Good media resistance</li> <li>• Noise-damping</li> </ul>	<ul style="list-style-type: none"> <li>• Chains in car washes, wastewater treatment plants, harbour, lock and wharf systems</li> </ul>					
<b>OKS 3570</b> <b>OKS 3571</b>	High-Temperature Oil for Food Processing Technology ISO VG 320	300 mm <sup>2</sup> /s	[Green bar]			[Blue bar]				-10°C to +250°C						<ul style="list-style-type: none"> <li>• Synthetic oil</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent wear protection at high temperatures, medium speeds and loads</li> <li>• High cleaning effect</li> <li>• Low evaporation losses</li> <li>• NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>• Chains, joints, levers, springs and hinges and at higher temperatures in the food processing and packaging industries</li> </ul>					



Product	Designation	Viscosity at 40°C	Fields of application														Main Components	Characterisation	Examples of use				
			Speed			Load				Temperature application range (°C)													
			Low	Medium	High	Low	Medium	High	Very high	-40	-20	0	+20	+40	+60	+80				+100	+120	+140	+160
<b>OKS 370</b> <b>OKS 371</b>	Universal Oil for Food Processing Technology ISO VG 15	14 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-10°C to +180°C							<ul style="list-style-type: none"> <li>White oil</li> </ul>	<ul style="list-style-type: none"> <li>Good creep properties for low loads and at low speeds</li> <li>High cleaning effect</li> <li>NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>Slat-band and roller chains</li> <li>Drives, piston rods and air oilers</li> </ul>				
<b>OKS 3710</b>	Low-Temperature Oil for Food Processing Technology ISO VG 10	7,25 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-60°C to +135°C							<ul style="list-style-type: none"> <li>Polyalphaolefin</li> </ul>	<ul style="list-style-type: none"> <li>Fully synthetic oil for permanently low temperatures down to -60°C</li> <li>NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>Chains, joints, and hinges in deep-freeze facilities, on shock freezers or other cooling areas in food processing technology</li> </ul>				
<b>OKS 3750</b> <b>OKS 3751</b>	Adhesive Lubricant with PTFE ISO VG 100	110 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-35°C to +135°C							<ul style="list-style-type: none"> <li>Polyalphaolefin</li> <li>PTFE</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Highly adhesive with PTFE</li> <li>Good wear protection at medium temperatures, loads and speeds</li> <li>Emergency lubrication with PTFE</li> <li>NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>Slat-band and roller chains in transport and conveyor systems</li> </ul>				
<b>OKS 3760</b>	Multipurpose Oil for Food Processing Technology ISO VG 100	100 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-35°C to +135°C							<ul style="list-style-type: none"> <li>Polyalphaolefin</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Good lubricating properties at medium temperatures, loads and speeds</li> <li>NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>Slat-band and roller chains in transport and conveyor systems</li> </ul>				
<b>OKS 387</b>	High-Temperature Chain Lubricant for Food Processing Technology ISO VG 220	190 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	max. +600°C							<ul style="list-style-type: none"> <li>Polyglycol</li> <li>Graphite</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Liquid lubrication up to +200°C, also suitable as a dry lubricant at temperatures above this</li> <li>Residue-free evaporation of basic oil</li> <li>Good media resistance/plastic compatibility</li> <li>Emergency lubrication with graphite</li> <li>NSF H1-registered</li> </ul>	<ul style="list-style-type: none"> <li>Chains in baking lines, painting, stoving and drying systems</li> </ul>				
<b>OKS 450</b> <b>OKS 451</b>	Chain Lubricant, transparent ISO VG 320	300 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-30°C to +200°C							<ul style="list-style-type: none"> <li>synthetic oil mixture</li> <li>Mo<sub>x</sub>-Active</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Excellent adhesive properties and good wear protection at heavy loads and medium chain speeds</li> <li>Good corrosion protection</li> <li>O-ring neutral</li> </ul>	<ul style="list-style-type: none"> <li>Fast-running chains in transport systems with stacker trucks</li> </ul>				
<b>OKS 536</b>	Graphite Bonded Coating, water-based air-drying	Not applicable	Low	Medium	High	Low	Medium	High	Very high	-35°C to +600°C							<ul style="list-style-type: none"> <li>Water</li> <li>Graphite</li> <li>Binder</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Excellent wear protection at temperatures over +250°C and at medium loads and speeds</li> <li>Can be diluted with water in ratio of up to 1:5</li> <li>Dry lubricant</li> <li>NSF H2-registered</li> </ul>	<ul style="list-style-type: none"> <li>Chains in annealing, stoving and baking ovens</li> </ul>				
<b>OKS 670</b> <b>OKS 671</b>	High-Performance Lube Oil with white Solid Lubricants	18 mm <sup>2</sup> /s	Low	Medium	High	Low	Medium	High	Very high	-30°C to +60°C							<ul style="list-style-type: none"> <li>Mineral oil</li> <li>White solid lubricants</li> <li>Additives</li> </ul>	<ul style="list-style-type: none"> <li>Excellent wear protection under heavy loads and at low temperatures and medium speeds</li> <li>High cleaning effect</li> <li>Emergency lubrication with white solid lubrication</li> </ul>	<ul style="list-style-type: none"> <li>Slat-band and roller chains in transport and conveyor systems at low temperatures</li> </ul>				