

**SEN** protect **SEN** lube

**LUBRICANTS AND AUXILIARIES** 









Quality that pays off: with premium lubricants from SENlube, you can ensure that your SENNEBOGEN machine delivers top performance over its entire service life. SENlube is also ideally suited to many machines from other manufacturers.

Maximum performance with low consumption
This makes every use even more efficient. You save time and money!

Extremely durable Meaning you are well prepared for use in extreme weather and the toughest of conditions.

Highest level of protection SENIube protects your machine from wear and corrosion through specially adapted compositions.

Especially long-lasting Thanks to the perfect formulation, you benefit from a long service life and extended maintenance intervals.

Low total cost of ownership

SENlube ensures maximum machine availability and low maintenance and operating costs.







### **PRODUCT OVERVIEW**

AREA OF APPLICATION	PRODUCT	APPLICATION TEMPERATURE	
ENGINE THE T	SENLUBE ENGINE LONGLIFE 5W-30-LA	-30°C to +50°C	
HYDRAULICS	SENLUBE HYDRO D46	-20°C to +50°C	
	SENLUBE HYDRO POLAR	-30°C to +40°C	
HYDRAULICS + AXLES	SENLUBE GEAR LONGLIFE	-20°C (axles)/-10°C (hydraulics) to +50°C	
GEARS (C)	SENLUBE GEAR HYPOID LS	-30°C to +50°C	
	SENLUBE GEAR SYNTH 220	-30°C to +50°C	
LUBRICATED BEARINGS	SENLUBE MULTI GREASE	-25°C to +150°C	
TELESCOPIC BOOM	SENLUBE TELE GREASE	-30°C to +110°C	
		0 40	



AVAILABLE IN	PROPERTIES	SENNEBOGEN NO.
5 L	Synthetic, low-ash high-performance Longlife engine oil with a wide temperature range for state-of-the-art diesel	403401
20 L	engines with exhaust aftertreatment systems	295129
20 L	Longlife HVLP-D Multigrade hydraulic oil with proven	295116
209 L	wear protection and excellent stick-slip properties	295115
20 L	Premium cryogenic hydraulic oil for up to -30°C ambient temperature	295119
20 L	Premium special oil for hydraulic systems in connection	295122
209 L	with free-fall winches and for axles (e.g. Dana, ZF)	406990
20 L	Premium gear oil 85W-90 GL-5 with robust Limited Slip performance	295124
20 L	Synthetic premium gear oil CLP 220 based on PAO	295126
400 g cartridge (Lube Shuttle)	Semi-synthetic high-performance grease for the lubrication of pressure loaded rolling and plain bearings -	303098
25 kg	even at elevated operating temperatures and in humid environments. Special adhesion and corrosion protection.	295133
400 g cartridge (Lube Shuttle)	Semi-synthetic special grease for lubrication of telescopic	303097
25 kg	booms. Special adhesion and very high corrosion protection. Anti-stick-slip equipment to prevent stick-slip during telescoping.	295135



# **SEN** lube



### **RECOMMENDED FOR ALL SENNEBOGEN MACHINES.**





# ENGINE OIL ENGINE LONGLIFE 5W-30-LA



Synthetic, low-ash high-performance life-long engine oil with a wide temperature range for state-of-the-art diesel engines with exhaust aftertreatment systems.

#### Save fuel

The long-life engine oil has an innovative composition with which you will notice significant fuel savings compared to higher-viscosity oils.

### Reduce emissions

The synthetic engine oil is particularly low in ash and so prevents blockage or poisoning of exhaust gas aftertreatment systems. This guarantees low emissions during the entire service life of the machine.

### Reduce maintenance costs

By using the SENIube Engine Longlife 5W-30-LA, you can optimize your maintenance regime by extending oil change intervals – and thus save money.

### Reduce wear

The unique composition of the additives prevents engine wear and ensures high piston cleanliness. That's why the high-performance oil is recommended by leading manufacturers such as Cummins\*.







HYDRAULIC OIL

**HYDRO D46** 

Long-life HVLP-D Multigrade hydraulic oil with proven wear protection and excellent stick-slip properties.



Smooth operation thanks to the high purity of the oil, outstanding stick-slip properties and resistance even in harsh operating conditions.

Enduring performance

Longer service life and maintenance intervals due to excellent corrosion protection and excellent filterability.

### Innovative composition

Anti-wear technology protects both the oil and the machine from water and contamination.

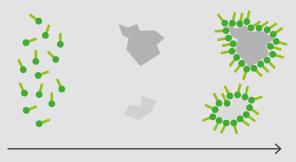
### Flexible operation

Perfect performance across a wide temperature range – from low start to high end temperatures.

### Anti-wear technology

Special additives bind dirt and water and separate them from the oil. This noticeably extends the service life of the hydraulic oil, even under the toughest of conditions!

### **Peptization process**



Dispersant molecules Solid particles

### Solubilization process



Dispersant molecules Oil insoluble liquid



**▶** RECOMMENDED FOR ALL SENNEBOGEN MACHINES WITH HYDRAULIC APPLICATIONS.







# HYDRAULIC OIL HYDRO POLAR

Premium cryogenic hydraulic oil for up to -30°C ambient temperature.

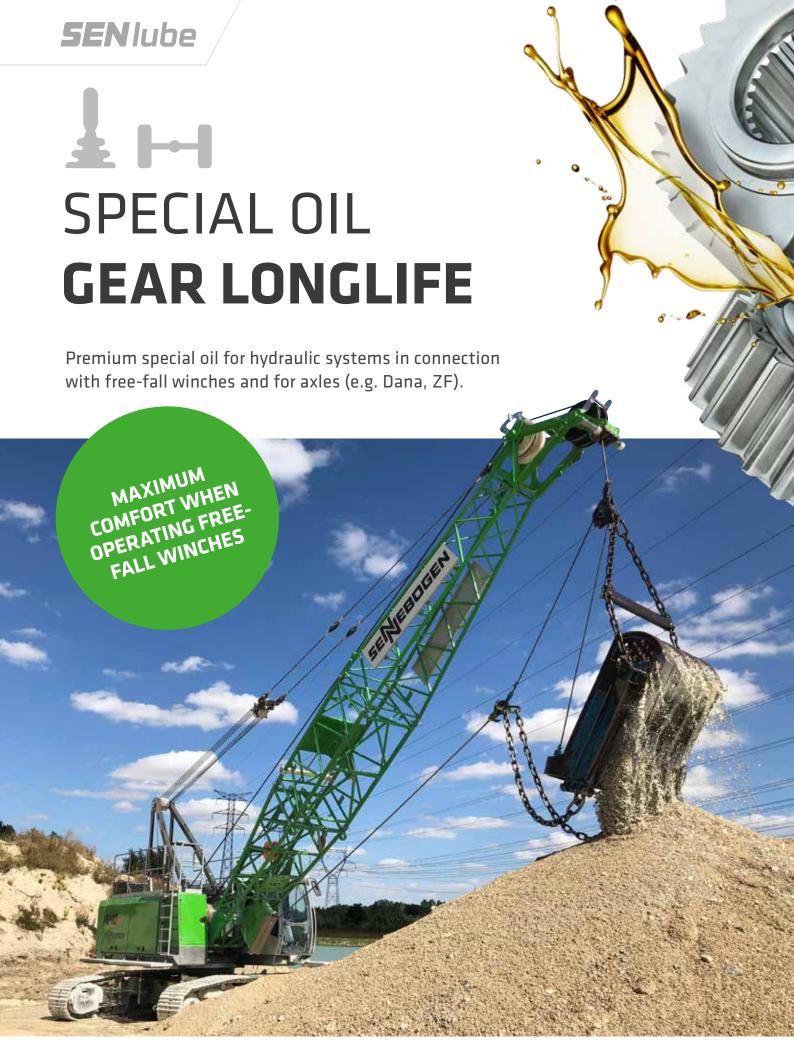
















Reliable partner for hydraulics and axles

State-of-the-art additive technology protects against wear and oxidation, reduces downtime and at the same time lowers maintenance costs.

### Friction-reducing composition

Special additives reduce friction in the systems and so contribute to maintaining the value of the machine.

### Work smoothly all the time

The excellent flow characteristics enable the hydraulic systems of free-fall winches to work smoothly and quickly, even at low temperatures.

PROPERTIES			
KINEMATIC VISCOSITY	@ -40°C	cSt	46
	@ 100°C	cSt	9.3
VISCOSITY INDEX			138
TEMPERATURE RANGE			-20°C (axles)/ -10°C (hydraulics) to +50°C
AREA OF APPLICATION			Axles, free-fall winches



RECOMMENDED FOR ALL SENNEBOGEN MACHINES, ESPECIALLY FOR MACHINES WITH FREE-FALL WINCHES.

### **AVAILABLE IN**

**/** 20 liters (295122)

**2**09 liters (406990)





### **GEAR OIL GEAR HYPOID LS**

Premium gear oil 85W-90 GL-5 with robust limited slip performance.

### Intelligent protection

Relies on innovative additives with particularly good wear and corrosion protection.

### Persistent

Excellent limited slip additive, specially developed for axles with limited-slip differential and wet brakes.

### Resilient

Ensures high thermal and oxidative stability and withstands large loads.

### Especially durable

Not only does the axle oil have good low-temperature properties, but it also has high aging stability.

PROPERTIES			
KINEMATIC VISCOSITY	@ 100°C	cSt	16.5
VISCOSITY INDEX			101
TEMPERATURE RANGE		°C	-30°C to +50°C
AREA OF APPLICATION			Axles

**RECOMMENDED FOR ALL SENNEBOGEN MACHINES.** 



**AVAILABLE IN** 



**2**0 liters (295124)



## SYNTHETIC **GEAR OIL GEAR SYNTH 220**

Synthetic premium gear oil CLP 220 based on PAO.



KINEMATIC VISCOSITY	@ -40°C	cSt	220
	@ 100°C	cSt	30
VISCOSITY INDEX			171
TEMPERATURE RANGE		°C	-30°C to +50°C
AREA OF APPLICATION			Gears

**▶** RECOMMENDED FOR ALL SENNEBOGEN MACHINES.



### Long oil service life

Synthetic base oils and innovative additives enable extended service intervals.

### Runs smoothly

Significantly reduced friction increases the efficiency of your machine compared to mineral oil-based products.

### Robust

The premium gear oil withstands long operating times and high temperatures. Can also be used at low start temperatures.

### Protects your machine

Excellent wear and corrosion protection - for long component service life even under impact loads or in contact with water or solids.

**AVAILABLE IN** 



**2**0 liters (295126)







### HIGH-PERFORMANCE **MULTI GREASE**

Semi-synthetic high-performance grease for the lubrication of pressure loaded rolling and plain bearings

### Multi-talented

Withstands elevated operating temperatures and humid environments. Premium quality for best component protection and variety simplification.

### / Impressive in use

SENIube Multi Grease is particularly strong and offers very high corrosion protection.

### Intelligent active agent system

Semi-synthetic technology offers high lubrication and pressure absorption capacity as well as the best protection against vibration wear and rust. Solid lubricants enable excellent emergency running properties.

### Flexible to use and durable

Universally usable lifetime grease for highly stressed lubrication points.

PROPERTIES		
TEMPERATURE RANGE	°C	-20°C to +140°C
FOUR BALL TEST WELDING LOAD		> 4,000 N
THICKENER		Lithium complex
AREA OF APPLICATION		Bearings

RECOMMENDED FOR ALL SENNEBOGEN MACHINES.

### **AVAILABLE IN**

400 g LUBE SHUTTLE (303098)

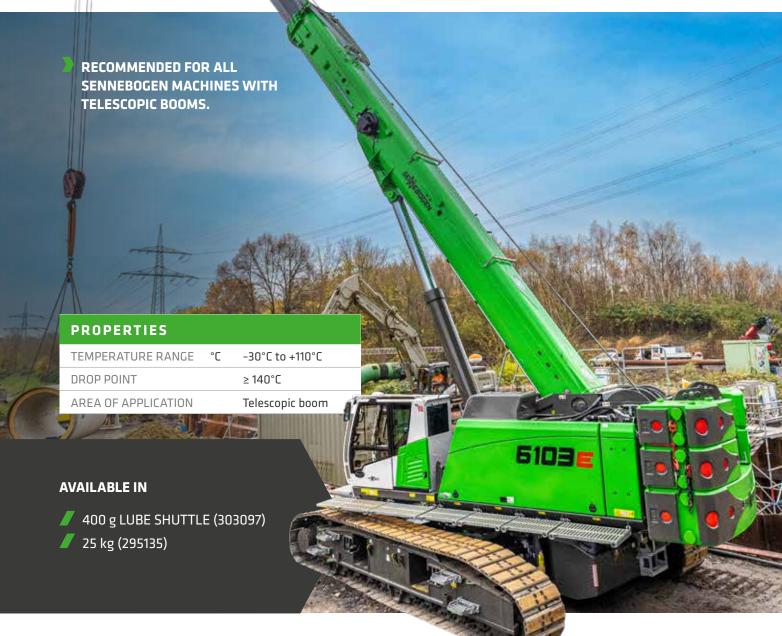
25 kg (295133)



# SPECIAL GREASE TELE GREASE

Semi-synthetic special grease for lubrication of telescopic booms.

- Special adhesion and very high corrosion protection
- Premium quality for component protection and optimized friction characteristics
- Anti-stick-slip equipment to prevent stick-slip during telescoping thanks to semisynthetic technology
- Highly weather-resistant





## MODERN CUSTOMER SERVICE FROM A SINGLE SOURCE

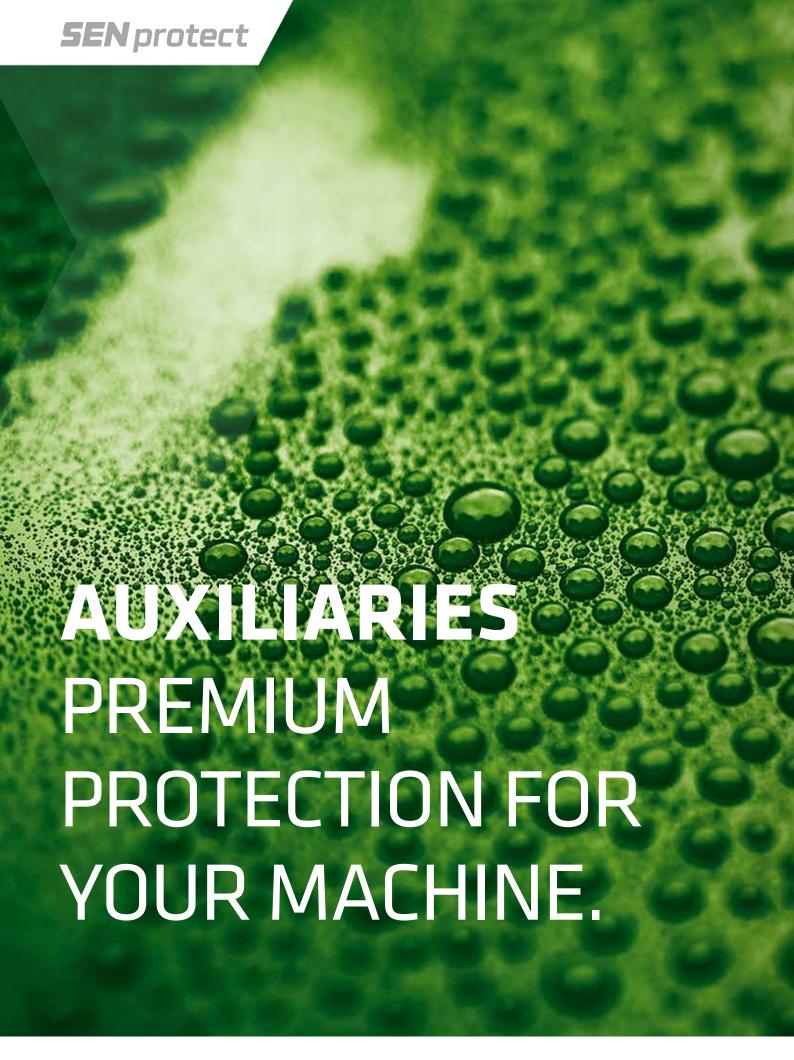
Just outside Straubing, we are combining international spare parts and customer service in our new Customer Service Center. This will provide you with even faster order processing and the best possible support.

- Warehouse automation for fastest order processing
- Optimized logistics processes and direct motorway connection
- State-of-the-art equipment and combined expertise for customer service





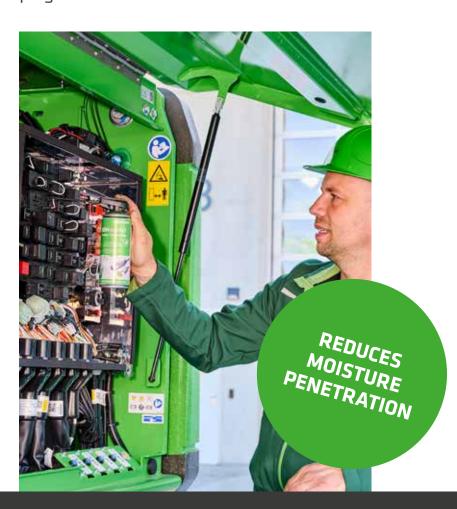






# PROTECTIVE FLUID CHROME / ELECTRIC PLUG

Protective fluid for piston rods and electrical plug connectors.



- Water displacing properties to protect predominantly smooth surfaces
- Protects your machine against aggressive environmental influences such as salt water
- Reduces corrosion even during extended shutdowns and optimizes conductive contact surfaces
- Free from paint-wetting impairment substances (PWIS), VOC-free solvent
- No cleaning required

Recommended as protective fluid for piston rods during longer downtimes

**AVAILABLE IN** 

**/** 400 ml (303095)

# PROTECTIVE FLUID PAINT

Protective fluid for painted surfaces under extreme operating conditions.



### Premium quality

for lifetime surface protection under adverse conditions

### **✓** Well-coated

Non-slip, waxy, transparent protective layer – protects surfaces over a long period of time with highly effective inhibitors!

### Long-lasting

Prevents paint damage over several months depending on environmental conditions and keeps your machine in as-new condition



**AVAILABLE IN** 

400 ml (303096)

LIFETIME COOLANT



Lifetime coolant with 4,000 hours service intervals

■ RECOMMENDED FOR ALL SENNEBOGEN MACHINES WITH CUMMINS OR DEUTZ ENGINES.

### **AVAILABLE IN**

**2**0 liters (187301)

- **Reduces maintenance costs:** 4,000 hours service interval and increased lifetime of the water pump
- Optimized cooling system performance and protection against pitting and corrosion
- Aluminum and solder joint protection
- **■** Boiling and frost protection (down to -37°C)
- Ready-to-use mixture
- Meets ASTM D-6210 and Cummins CES 14602 requirements

# GLOBAL CUSTOMER FOCUS – ON A LOCAL LEVEL

SENNEBOGEN will provide you with comprehensive technical support from your first contact right through to after sales, whether that be with project planning, maintenance requirements or repairing your machine.

- More than 180 sales partners worldwide
- More than 300 service stations
- Subsidiaries and agents in all the most important key regions





Are you interested in SENIube and SENprotect? Contact your SENNEBOGEN dealer for advice.

www.sennebogen.com

### KNOWLEDGE FROM A TO Z

### ADDITIVES

Additives are used to give lubricants specific properties. The composition of high-quality base oils and additives determines the quality of the lubricant. Depending on the area of application and requirements, SENlube products contain different types of perfectly matched additives, such as antioxidants (delays oil aging), detergents (removes impurities from the surfaces), dispersants (binds impurities and transports them to the filter), corrosion protection (neutralizes harmful impurities) or wear protection (prevents metal surfaces from welding).

### **I** DROP POINT

The drop point is the temperature at which a substance starts to flow under standardized test conditions.

### **■ FOUR BALL TEST WELDING LOAD**

The four-ball device is a test device for determining the welding load and wear characteristics of lubricating greases and lubricating oils. The welding force is given in N (Newton). The higher the value of the lubricant, the better its lubricating effect under load pressure.

### FRICTION COEFFICIENT

Measure of the frictional force in relation to the contact force between two bodies.

### **HVLP-D OIL**

These high-performance oils (e.g. SENIube HYDRO D46) have particularly good viscosity-temperature behavior and are used in highly stressed systems with fluctuating temperatures.

### **INHIBITORS**

Additives (see above) that change certain properties of the lubricant in such a way that a chemical or physical reaction (e.g. corrosion) is slowed down, inhibited or prevented.

### LIMITED SLIP ADDITIVE

Addition of additives specially developed for axles with multi-disc self-locking differentials and wet brakes.

#### **MULTIGRADE OIL**

Through the use of special base oils and additives, multigrade oils are designed in such a way that they can be used at both low and high temperatures. They have a high viscosity index.

### **PAO BASE**

Synthetic oil composed from a modern base oil based on polyalphaolefins (PAO), see also synthetic oils.



### **■ THE ROLE OF LUBRICANTS**

Lubricants are all-rounders. They not only lubricate the systems in which they are used, they also cool, protect, transport, seal, transmit forces and keep the components clean.

### **■ SEMI-SYNTHETIC TECHNOLOGY**

Semi-synthetic lubricants consist of a mixture of mineral oil, synthetic oil and additives. They combine the special properties of synthetic lubricants with the proven advantages of mineral oils.

### **SOLID LUBRICANTS**

Thanks to their special properties, solid lubricants are always used when the lubricant has to adhere to the friction point for as long as possible.

#### **STICK-SLIP EFFECT**

The stick-slip effect refers to the undesired jerk-slip of solids moving against each other, for example on piston rods and pistons. If the friction is reduced by using SENlube products, this effect can be significantly reduced.

### SYNTHETIC OIL

Manufactured with especially high-quality base oils and special additives. They offer many advantages over conventional oils. These include, for example, improved cold-start properties and higher, excellent aging stability under high thermal loads in machines, systems and engines.

### **■ TEMPERATURE RANGE**

The properties of lubricants change depending on the ambient temperature. The higher the temperature, the thinner the oil becomes, the lower the thicker the oil becomes. Various properties and additives of the oil optimize the properties in the desired operating temperature range (see also viscosity index, multigrade oil).

### **■ VISCOSITY/TEMPERATURE RANGE**

Lubricants differ in their viscosity, i.e. in their flow behavior. The higher the viscosity, the less well the oil flows. The possible areas of application and temperatures of a lubricant can be determined, among other things, by its viscosity (see viscosity index). The indicated kinematic viscosity is derived from the ratio of dynamic viscosity and density, the "viscosity-density ratio".

### **■ VISCOSITY INDEX**

Viscosity index (VI) describes the behavior of a lubricant as a function of temperature. The higher the viscosity index of an oil, the less its flowability changes at different temperatures (see also multigrade oil).





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100%

family company

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experienced specialists worldwide

5 production plants

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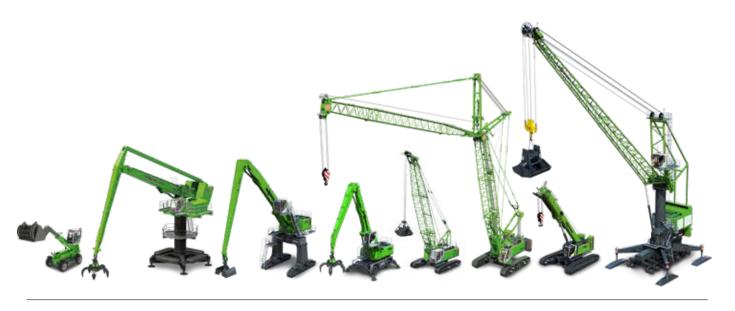
over 180

sales and service partners worldwide

we export to

over 100

countries



Telehandler 4-5.5 t

Balancer 130-300 t Material handler

Duty cycle crane 13.5-300 t

Crawler crane 50-300 t

Telescopic crane
16-130 t

Port crane 300 t

### **SEN** protect **SEN** lube

This catalog details the lubricants and auxiliaries in the SENNEBOGEN Maschinenfabrik GmbH range. Please contact your local SENNEBOGEN sales partner for information about the lubricants and auxiliaries that can be used on your machine.

The specifications of the operating and maintenance instructions valid for the respective machine apply. All information, including the availability of the specified container sizes, technical specifications and approvals, is provided without guarantee. Subject to product range changes and further developments. All product designations used may be trademarks of SENNEBOGEN Maschinenfabrik GmbH or other supplying companies, and any use by third parties for their own purposes may violate the rights of the owners.

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**SENNEBOGEN Maschinenfabrik GmbH**Hebbelstraße 30
94315\_Straubing, Germany

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SALES CRANE LINE Tel. +49 9421 540 146 cranes@sennebogen.de **GREEN LINE SALES** 

Tel. +49 9421 540 146 materialhandling@sennebogen.de

MULTI LINE SALES
Tel. +49 9421 540 146
telehandler@sennebogen.de