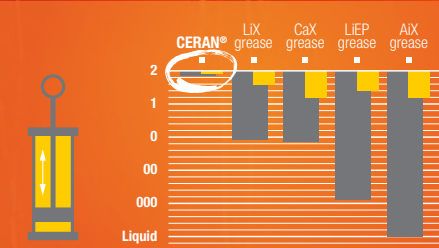


## The benefits offered by

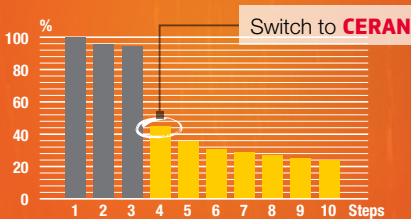


### CERAN® is an unique solution for Rolling Mills Bearings

- Compared to standard greases, the CERAN® range has a unique structure, providing outstanding grease properties, especially in regards to mechanical stability, corrosion inhibition, and water resistance.
- CERAN® range protects the friction surfaces from wear and reduces the friction coefficient of bearings. This is done in high temperatures, in the presence of cooling water. All of this ensures an increased equipment lifetime, along with a reduced downtime.
- This product can boast 40 years of delivering efficient solutions in the steel industry worldwide. It offers up to 4-5 times less bearings consumption when switching from the Li or LiX conventional greases.
- Comparative tests have shown that CERAN®, when up against other greases, provides higher durability to bearings in the context of decreasing global grease consumption.
- Choosing CERAN® greases will provide significant reduction in overall consumption, reducing general maintenance costs!



Mechanical Stability in presence of water (ASTM D217)  
NLGI grade change after 100 000 strokes.



Example: Decrease in Grease Consumption.

**TOTAL has launched the 5<sup>th</sup> generation of CERAN and is staying one step ahead of its competitors to meet present and future demands.**

#### A major player

With our production, supply chain and commercial presence in more than 150 countries, we deliver a full range of lubricants.

#### Support and partnership

Thanks to local technical presence, we provide a high level of service to optimize your Total cost of Ownership.

#### References & OEMs

TOTAL Lubricants cooperates with equipment manufacturers to create high-technology products for optimal performance and production of your machinery.

5 good reasons for choosing TOTAL

#### Innovation & Research

TOTAL invests in biotechnologies to find the most suitable components to reach energy efficiency through formulations designed in our Research Centers.

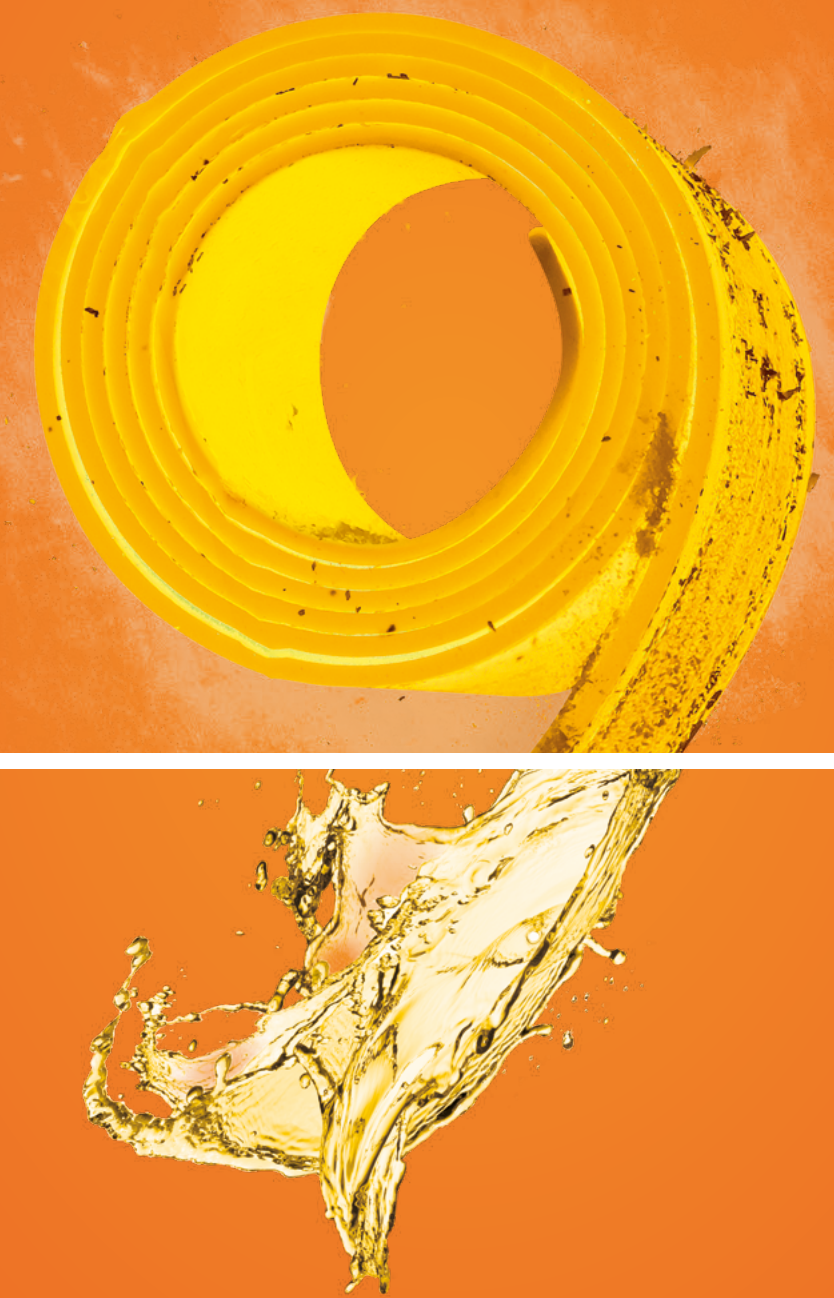
#### Quality and environment

TOTAL Lubricants ISO 9001 certification is the guarantee of a long term commitment to quality. From the initial design stage, our R&D teams seek to develop products that minimize toxicity risks and environmental impact.

Safety Data Sheets are available at [quickfds.com](http://quickfds.com)  
[lubricants.total.com](http://lubricants.total.com)



## STEEL ROLLINGS MILLS



09/2018 - TOTAL Lubricants SA 552 006 454 RCS Nanterre - Photos: 123RF - Design: GOLDEN Design





# STEEL ROLLING MILLS OFFER

Rolling mills are the key value-adding elements in the steel production process. Best-in-class lubricants by TOTAL increase the lifetime of your equipment without compromising the quality of finished products.

TOTAL has over 40 years experience in maximizing the economic benefits of its steel industry customers.

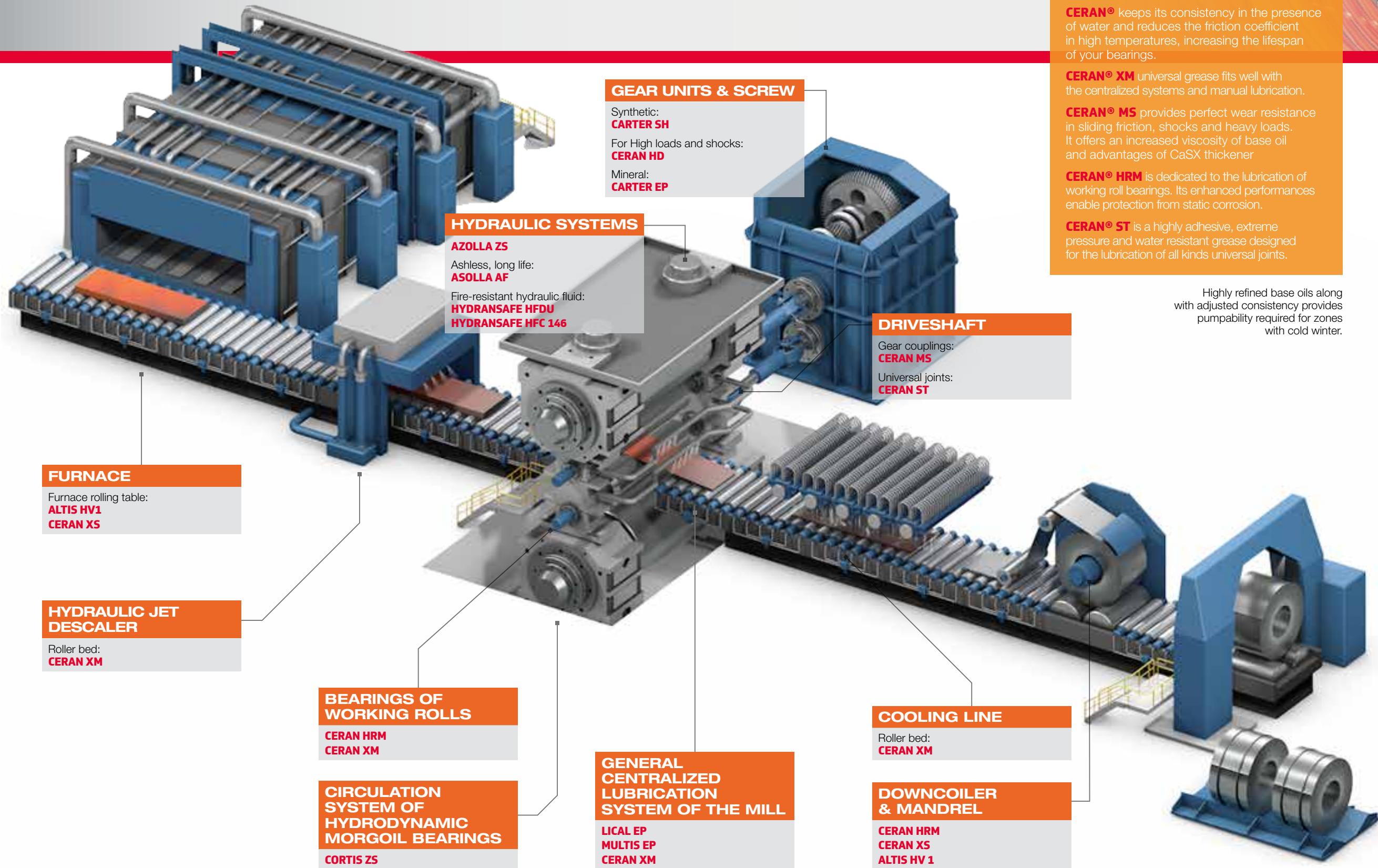
## Your challenges

- Reducing downtime
- Decreasing the consumption of spare parts
- Minimizing lubricant consumption
- Reducing time and cost of maintenance works

## Our solutions

Our outstanding products increase:

- Drain and regreasing intervals of your equipment
- Wear resistance of friction pairs
- operation ratio by improving equipment reliability
- Mean time between failures
- Lubrication efficiency solving problems



**FURNACE**  
Furnace rolling table:  
**ALTIS HV1**  
**CERAN XS**

**HYDRAULIC JET DESCALER**  
Roller bed:  
**CERAN XM**

**BEARINGS OF WORKING ROLLS**  
**CERAN HRM**  
**CERAN XM**

**CIRCULATION SYSTEM OF HYDRODYNAMIC MORGOL BEARINGS**  
**CORTIS ZS**

**GENERAL CENTRALIZED LUBRICATION SYSTEM OF THE MILL**  
**LICAL EP**  
**MULTIS EP**  
**CERAN XM**

**GEAR UNITS & SCREW**  
Synthetic:  
**CARTER SH**  
For High loads and shocks:  
**CERAN HD**  
Mineral:  
**CARTER EP**

**HYDRAULIC SYSTEMS**  
**AZOLLA ZS**  
Ashless, long life:  
**ASOLLA AF**  
Fire-resistant hydraulic fluid:  
**HYDRANSafe HFDU**  
**HYDRANSafe HFC 146**

**DRIVESHAFT**  
Gear couplings:  
**CERAN MS**  
Universal joints:  
**CERAN ST**

**COOLING LINE**  
Roller bed:  
**CERAN XM**

**DOWNCOILER & MANDREL**  
**CERAN HRM**  
**CERAN XS**  
**ALTIS HV 1**

**CERAN® RANGE** is a perfectly adapted solution for rolling mills, with resistance to high temperatures (up to 200° C in the short term) and wear protection for the friction surfaces of bearings.

**CERAN®** keeps its consistency in the presence of water and reduces the friction coefficient in high temperatures, increasing the lifespan of your bearings.

**CERAN® XM** universal grease fits well with the centralized systems and manual lubrication.

**CERAN® MS** provides perfect wear resistance in sliding friction, shocks and heavy loads. It offers an increased viscosity of base oil and advantages of CaSX thickener

**CERAN® HRM** is dedicated to the lubrication of working roll bearings. Its enhanced performances enable protection from static corrosion.

**CERAN® ST** is a highly adhesive, extreme pressure and water resistant grease designed for the lubrication of all kinds universal joints.

Highly refined base oils along with adjusted consistency required for zones with cold winter.

To ensure the most appropriate application, **TOTAL** works with the major OEM's and has products listed and referenced by **DANIELI, SMS Group, Primetals, VoestAlpina, Siemens, URALMASH...**

### GREASES

Applications	Product	Working conditions	Specific advantage	Thickener	NLGI grade	BO Viscosity*	Operating temperature range	Specifications / DIN 51502
► General centralized lubrication system of the mill	<b>LICAL EP 2</b>	• High temperatures • Very slow rotation speed • High loads	Multifunctional grease with reinforced performances: water resistance thanks to the LiCa soap, and load resistance thanks to adjusted viscosity	Lithium / Calcium	2	190	-25 °C to + 130 °C	KP2K-25
► Bearings of work rolls ► Roughing stands ► Finishing stands (inc. Manual Lubrication)	<b>CERAN HRM</b>	• Shocks • Extremely high loads in the presence of cooling water in bearings • Stand by corrosion effect • Absence of centralized lubrication	• Adjusted viscosity and consistency NLGI grade to cope with the most difficult conditions. • Protects bearings against corrosion when they stored after disassembling. • Provides sealing effect for bearings. • Can be used when bearings have poor seals.	Calcium Sulfonate Complex	2	420	- 25 °C to + 180 °C	KP2R -25
► Coilers mandrels								
► Reheating furnace ► Roller bed ► Doors bearings	<b>ALTIS HV1</b>	• High velocity • High temperature from the steel bobbins • Slow rotation speed • High loads • High temperatures	• High resistance to the heat from coiled metal • Does not create deposits in pipelines • Good pumpability • Adapted to high-speed applications • Very high resistance to oxidation thanks to a non-metallic soap. • Ashless soap diminishing the risk of pipe clogging with high temperatures. • Longer lifetime in high temperatures. • High temperatures resistant soap. • High mechanical stability in humid atmospheres.	Polyurea	1	500	-20 °C to + 180 °C	KP2R-20
► Hydraulic jet descaler ► Cooling line for microstructure ► Roller bed	<b>CERAN XM 220</b> <b>XM 460</b> <b>XM 720</b>	• High presence of intensively sprayed cooling water • Heat from the steel	• Multipurpose greases for steel industry with high mechanical stability in presence of water inherited due to CaSX thickener	Calcium Sulfonate Complex	1.5	220 460 720	-30 °C to + 180 °C -25 °C to +180 °C -25 °C to +180 °C	KP1/2R-30 KP1/2R-25 KP1/2R-25
► Roughing and Finishing Mill ► Work rolls bearings (inc. Centralized lubrication)		• High loads • Aggressive cooling water • Great variety of rotation speeds from rough to finishing stands • Pumpability at wide range of temperatures	• Complete range of greases for wide range of speed and loads. • Excellent water resistance and behavior in high temperatures. • High pumpability due to adjusted consistency. • Provides sealing effect for bearings.					
► Universal joints bearings of driveshaft	<b>CERAN ST 2</b>	• High loads together with centrifugal forces pushing out the grease	• Specific additive enhances the adhesivity to resist the centrifugal forces.	Calcium Sulfonate Complex	2	180	-25 °C to + 180 °C	KP2R-25
► Gear couplings of driveshafts ► Adjusting screws	<b>CERAN MS</b>	• Very high load and sliding friction • High temperature	• Contains solid friction modifiers to protect wearing surfaces from sliding friction. • Fits perfectly to units like screws, sliding bearings, slide ways, joints. • High extreme pressure resistance and weld load.	Calcium Sulfonate Complex	1.5	650	-20 °C to + 180 °C	KP1/2R-20

\* Typical kinematic viscosity of base oil at 40 °C in mm2/s

### OILS

Applications	Product	Nature	Working conditions	Specific advantage	ISO VG	Specifications
► Back up rolls ► Morgoil bearing	<b>CORTIS ZS</b>	Mineral	• Pollution of oil by cooling water • High loads at the oil film • High oil filterability requirements	• Quick water separation and good ageing resistance, at high temperatures • Provides strong hydrodynamic oil film • Enhanced antifoam performances • Compatible with main products on the market	220 to 460	• ISO 6743/1 • ISO 6743/2 • ISO 6743/6 • DIN 51506
	<b>CARTER EP 68 - 1000</b>	Mineral		• High protection of opinions • Approved by major manufacturers	68 to 1000	• ISO 12925-1 CKD • DIN 51517-3 CLP • AGMA 9005-E02 EP • U. S. Steel 224 • Flender
► Gear units ► Oil mist lubrication	<b>CARTER HD</b>	Mineral	• Shocks • High temperatures	• Micro-pitting resistance • Thermic stability • Longer drain intervals	150 to 680	• DIN 51517-3 CLP • ISO 12925-1 CKD
	<b>CARTER SH</b>	Mineral		• Resistant to low or high temperatures • Longer drain intervals.	150 to 1000	• ISO 12925-1 CKD • DIN 51517-3 CLP • FAG • SKF

\* Typical kinematic viscosity of base oil at 40 °C in mm2/s