



**Steel
continuous casting**
High performance
industrial lubricants

Dedicated solutions to
improve your productivity



TotalEnergies

Summary

- Reliable solutions for the entire production chain
- A trusted partner approved by the major OEM's
- Benefits offered by TotalEnergies Lubrifiants
- Five good reasons for choosing TotalEnergies Lubrifiants



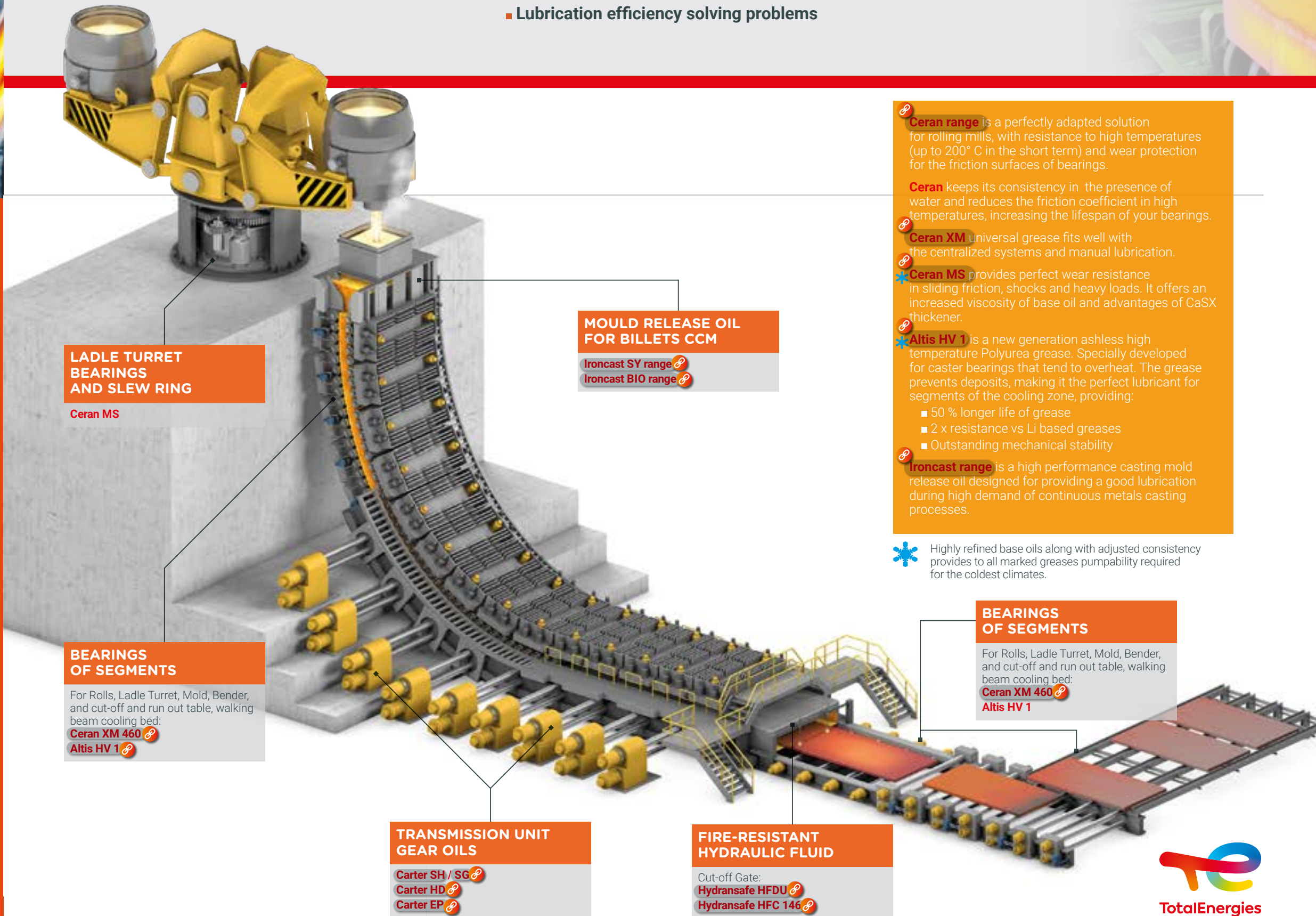
Your challenges

- Reduce downtime
- Decrease the consumption of spare parts
- Minimize lubricant consumption
- Reduce 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



LADLE TURRET BEARINGS AND SLEW RING
Ceran MS

MOULD RELEASE OIL FOR BILLETS CCM
Ironcast SY range
Ironcast BIO range

BEARINGS OF SEGMENTS
For Rolls, Ladle Turret, Mold, Bender, and cut-off and run out table, walking beam cooling bed:
Ceran XM 460
Altis HV 1

TRANSMISSION UNIT GEAR OILS
Carter SH / SG
Carter HD
Carter EP

FIRE-RESISTANT HYDRAULIC FLUID
Cut-off Gate:
Hydransafe HFDU
Hydransafe HFC 146

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.

Altis HV 1 is a new generation ashless high temperature Polyurea grease. Specially developed for caster bearings that tend to overheat. The grease prevents deposits, making it the perfect lubricant for segments of the cooling zone, providing:

- 50 % longer life of grease
- 2 x resistance vs Li based greases
- Outstanding mechanical stability

Ironcast range is a high performance casting mold release oil designed for providing a good lubrication during high demand of continuous metals casting processes.

Highly refined base oils along with adjusted consistency provides to all marked greases pumpability required for the coldest climates.

BEARINGS OF SEGMENTS
For Rolls, Ladle Turret, Mold, Bender, and cut-off and run out table, walking beam cooling bed:
Ceran XM 460
Altis HV 1

STEEL CONTINUOUS CASTING MACHINE OFFER

One of the most important units in a steel plant since the entire production chain depends on its reliability and its constant production rate.

With over 40 years of experience in the steel industry, TotalEnergies Lubrificants has developed this dedicated lubricant range to provide steelmakers with economic benefits.

To ensure the most appropriate application, TotalEnergies works with the major OEM's and has products listed and referenced by Danieli, SMS Group, Primetals, Voestalpine, Siemens, Uralmash.

Applications	Product	Working conditions	Specific advantage	Thickener	NLGI grade	BO Viscosity*	Operating temperature range	Specifications / DIN 51502
▶ Bearings of segment rolls Ladle Turret, Mold, Bender, Segments, Runout Area	Ceran XM 220 XM 460 XM 720	<ul style="list-style-type: none"> High loads High temperatures Presence of humidity 	<ul style="list-style-type: none"> Multifunctional greases Reinforced EP properties High temperature resistant soap High mechanical stability in humid atmosphere 	Calcium Sulfonate Complex	1.5	220	-30° C to 180° C	KP1/2R-30
						460	-25° C to 180° C	KP1/2R-25
						720	-25° C to 180° C	KP1/2R-25
▶ Foot roll and bender	Altis HV 1	<ul style="list-style-type: none"> High temperatures Low rotation speed 	<ul style="list-style-type: none"> Recommended for bearings close to billets, with high temperatures and equipped with centralized systems 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 	Polyurea		500	-20° C to 180° C	KP2R-20
▶ Walking beam	Lical EP 2	<ul style="list-style-type: none"> High temperatures Very slow rotation 	Multifunctional grease with reinforced performances: <ul style="list-style-type: none"> Water resistance thanks to the LiCa soap Load resistance thanks to adjusted viscosity 	Lithium / Calcium	2	190	-25° C to 130° C	KP2K-25
▶ Cooling bed	Ceran XS 320	<ul style="list-style-type: none"> High loads 	<ul style="list-style-type: none"> High resistance in static position Synthetic base oil with high resistance to oxidation Superior pumpability 	Calcium Sulfonate Complex	1.5	320	-40° C to 180° C	KP1/2R-40
▶ Casting ladle bearing	Ceran MS	<ul style="list-style-type: none"> High loads Slow rotation Heat Shocks 	<ul style="list-style-type: none"> High viscosity base oil Reinforced EP properties High temperature resistant soap Presence of solid lubricants 	Calcium Sulfonate Complex	1.5	650	-20° C to 180° C	KPF1/2R-20
▶ Electric engines	Altis EM2	<ul style="list-style-type: none"> High velocity Heat 	<ul style="list-style-type: none"> Longer lifetime Reduction of vibrations Thixotropy Oxidation resistance 	Polyurea	2	110	-20° C to 180° C	KP2R-20
	Multi Complex S2A							
▶ Slew ring	Copal OGL 0	<ul style="list-style-type: none"> Open gears High loads Slow rotation 	<ul style="list-style-type: none"> Strong stickiness to metallic surfaces Presence of solid lubricants High viscosity base oil 	Aluminium Complex	0-00	> 1000	-20° C to 150° C	OGPF0/00N-20

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Applications	Product	Nature	Working conditions	Specific advantage	ISO VG	Specifications	
▶ Hydraulic systems Casting Platform, Strand Guide, Runout Area, Maintenance Area	Azolla AF	Mineral	<ul style="list-style-type: none"> Presence of water Heat radiation 	<ul style="list-style-type: none"> Ashless oil High resistance to hydrolyze and thermic stability: no deposit formation Outstanding filterability in humid atmospheres Longer filter lifetime 	22 to 100	<ul style="list-style-type: none"> ISO 11158 HM DIN 51524-2 HLP Eaton I-286S, M-2950S Denison HFO, HF1, HF2 	
	Azolla ZS	Mineral			10 to 150	<ul style="list-style-type: none"> ISO 11158 HM DIN 51524-2 HLP Eaton I-286S, M-2950S Denison HFO, HF1, HF2 	
▶ Hydraulic systems affected to high temperatures Ex Cut-off Gate	Hydransafe HFDU	Esters based fire resistant fluid	<ul style="list-style-type: none"> Possibility of an occasional contact with open flame or with liquid steel 	<ul style="list-style-type: none"> Compatible with mineral oils Outstanding oxidation stability Reinforced anti-wear protection 	46 / 68	<ul style="list-style-type: none"> ISO 6743-4 HFDU Factory Mutual 	
	Hydransafe HFC 146	Water-Glycol based water resistant fluid			<ul style="list-style-type: none"> Higher filterability High resistance to fire 	46	<ul style="list-style-type: none"> ISO 6743-4 HFC Danieli Müller Weingarten
▶ Mould release oil	Ironcast SY [®] range	Synthetic	<ul style="list-style-type: none"> High temperatures Less fume High surface quality of billets Good lubricity 	<ul style="list-style-type: none"> Prevents sticking with efficient lubrication of the copper mould (even with protection layers). Helps to decrease the consumption of the oil thanks to its innovative formulation. 	50	<ul style="list-style-type: none"> Danieli 	
	Ironcast BIO [®] 32	Esters based			<ul style="list-style-type: none"> Excellent lubricity to protect the mould Biodegradability 	32	
▶ Transmission units	Carter EP / XEP	Mineral	<ul style="list-style-type: none"> Shocks loads High temperatures 	<ul style="list-style-type: none"> High protection of gears Approved by major manufacturers 	68 to 1000	<ul style="list-style-type: none"> ISO 12925 CKC DIN 51517-3 CLP (grade 1500) AGMA 9005-E2, NF-F19-809 	
	Carter HD	Mineral			<ul style="list-style-type: none"> Micro-pitting resistance Thermic stability Longer drain intervals 	150 to 680	<ul style="list-style-type: none"> DIN 51517-3 CLP ISO 12925-1 CKD
	Carter SH	Synthetic PAO			<ul style="list-style-type: none"> Resistant to low or high temperatures Longer drain intervals 	150 to 1000	<ul style="list-style-type: none"> ISO 12925-1 CKD DIN 51517-3 CLP Flender FAG & SKF
	Carter SG	Synthetic PAG			<ul style="list-style-type: none"> High temperatures High loads Low friction Energy savings 	<ul style="list-style-type: none"> Very high viscosity index Longer drain intervals 	100 to 1000

The benefits offered by TotalEnergies Lubrificants

Ceran is a unique solution for Continuous Casting Machines



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 sprayed cooling water. All of this ensures an increased equipment lifetime, along with a reduced downtime.



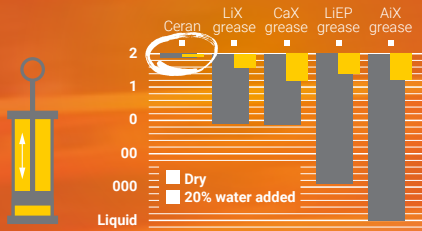
This product can boast 40 years of delivering efficient solutions in the steel industry worldwide. It offers up to 4-5 times less bearings consumption when switching from the Li or LiX conventional greases.



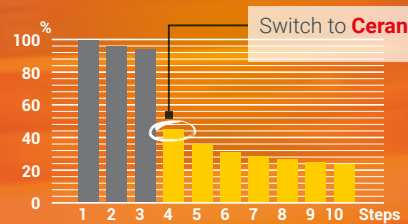
Comparative tests have shown that **Ceran**, when up against other greases, provides higher durability to bearings in the context of decreasing global grease consumption.



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: grease consumption decrease, KG/Month.

TotalEnergies Lubrificants has launched the 5th 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 160 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

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



Innovation & Research

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

Quality and environment

TotalEnergies Lubrificants ISO 9001 and 14001 certifications are the guarantee of a long term commitment to quality and environment. From the initial design stage, our R&D teams seek to develop products that minimize toxicity risks and environmental impact.



TotalEnergies



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Safety Data Sheets are available at ms-sds.totalenergies.com



TotalEnergies Industry Solutions



Steel industry solutions

Lubricants for
primary metals
process

Dedicated solutions to
improve your productivity



TotalEnergies

Your challenges

- **Reliability of equipment**
Maximize equipment lifecycle and productivity.
- **Severe working conditions**
Mitigate the impact of contamination ie: dust, dirt, water etc. and also varying temperatures.
- **Safety and sustainable production**
Operate in a safe manner while minimizing the impact on the environment.

Our solutions

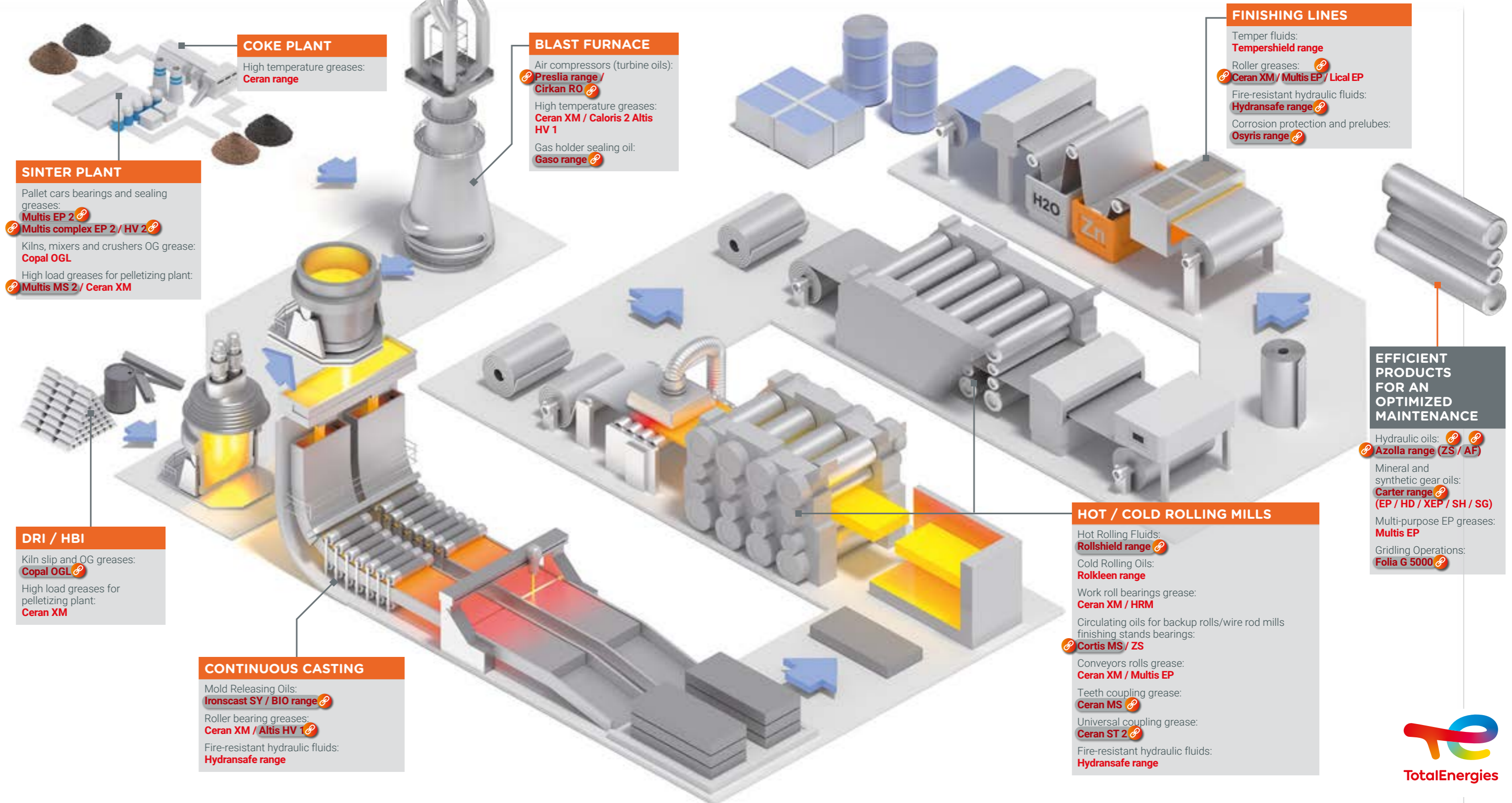
- **High performance state-of-art oils and greases**
Optimizing the lifecycle of key assets and equipment while minimizing downtime and maintenance costs.
- **Complete lubricant range dedicated for steel industry**
Long term experience handling the impact of high temperature operations with our new gear oil technologies and with Ceran, our grease range for steel as well as our fire resistant hydraulic fluids.
- **Products with reduced health and environmental impact**
Complete REACH registered product range. Ironcast release oil is an environmentally sensitive product. Optimization of lubricant consumption Ceran greases with outstanding water handling capabilities.

STEEL INDUSTRY

Since 1955, **TotalEnergies Lubrificants** has developed innovative high-performance products and solutions.

In a world of fierce competition within steel industry, any means to decrease operating costs and improve productivity is to be considered.

TotalEnergies Lubrificants is at your side to help you get the best from your machinery and to bring you both the reliability and the competitiveness you are looking for.



The **benefits** offered by TotalEnergies Lubrifiants

LubAnac provides you a full range of lube oil analysis, to allow you to anticipate and diagnose anomalies in the equipment. This solution is both preventive and corrective.

Thanks to LubAnac, you:



Reduce your operating **costs**.



Anticipate and plan maintenance operations to perform them at the **best time**.



Optimize drain intervals and **extend the lifetime** of your equipment.



Improve the reliability and performance of your equipment.

LubInsight Maintenance Planner, optimized maintenance software for your lubricants

LubInsight Maintenance Planner allows you to boost your productivity through efficient maintenance planning.

Built on the expertise of our engineers, LubInsight Maintenance Planner offers you to:



Increase efficiency and savings of your maintenance management.



Monitor lubricant parameters and analyses with a single tool.



Assert your quality and safety management through management of lubricant documentation and critical points.

Plan your orders with our Vendor Managed Inventory solution (VMI)

VMI enables you to:

- **Save costs** of stock shortage and over-stocks.
- **Optimize** and simplify your lubricant **stock management**.
- **Control** your lubricant **consumption**.



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TotalEnergies Industry Solutions



Steel rolling mills

High performance
industrial lubricants

Dedicated solutions to
improve your productivity



TotalEnergies

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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.

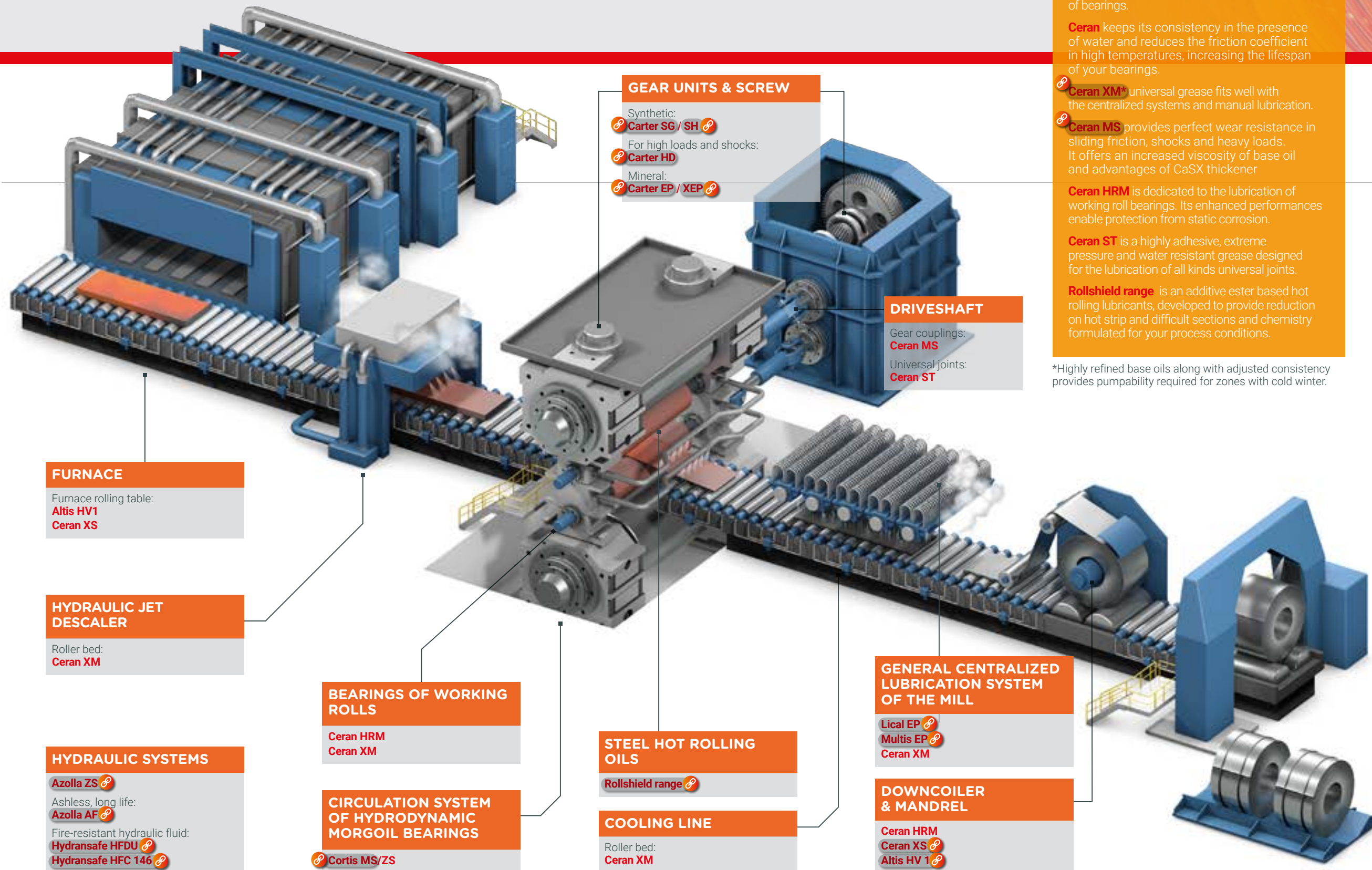
Rollshield range is an additive ester based hot rolling lubricants, developed to provide reduction on hot strip and difficult sections and chemistry formulated for your process conditions.

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

STEEL ROLLING MILLS OFFER

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

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



To ensure the most appropriate application, TotalEnergies Lubrificants works with the major OEM's and has products listed and referenced by Danieli, SMS Group, Primetals, Voestalpine, Siemens, Uralmash.

Applications	Product	Working conditions	Specific advantage	Thickener	NLGI grade	BO Viscosity*	Operating temperature range	Specifications /DIN 51502
<ul style="list-style-type: none"> General centralized lubrication system of the mill 	Lical EP 2	<ul style="list-style-type: none"> High temperatures Very slow rotation speed High loads 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Bearings of work rolls Roughing stands Finishing stands (inc manual lubrication) Coilers mandrels 	Ceran HRM	<ul style="list-style-type: none"> Shocks Extremely high loads in the presence of cooling water in bearings Stand by corrosion effect Absence of centralized lubrication 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Coilers mandrels Reheating furnace Roller bed Doors bearings 	Altis HV1	<ul style="list-style-type: none"> High velocity High temperature from the steel bobbins Slow rotation speed High loads High temperatures 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Hydraulic jet descaler Cooling line for microstructure Roller bed Roughing and Finishing Mill Work rolls bearings (inc centralized lubrication) 	Ceran XM 220 XM 460 XM 720	<ul style="list-style-type: none"> High presence of intensively sprayed cooling water Heat from the steel High loads Aggressive cooling water Great variety of rotation speeds from rough to finishing stands Pumpability at wide range of temperatures 	<ul style="list-style-type: none"> Multipurpose grease for steel industry with high mechanical stability in presence of water inherited due to CaSx thickener 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. 	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
<ul style="list-style-type: none"> Universal joints bearings of driveshaft 	Ceran ST 2	<ul style="list-style-type: none"> High loads together with centrifugal forces pushing out the grease 	<ul style="list-style-type: none"> Specific additive enhances the adhesivity to resist the centrifugal forces. 	Calcium Sulfonate Complex	2	180	-25 °C to 180 °C	KP2R-25
<ul style="list-style-type: none"> Gear couplings of driveshafts Adjusting screws 	Ceran MS	<ul style="list-style-type: none"> Very high load and sliding friction High temperature 	<ul style="list-style-type: none"> 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	KPF1/2R-20

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Applications	Product	Nature	Working conditions	Specific advantage	ISO VG	Specifications
<ul style="list-style-type: none"> Back up rolls Morgoil bearing 	Cortis MS/ZS	Mineral	<ul style="list-style-type: none"> Pollution of oil by cooling water High loads at the oil film High oil filterability requirements 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> ISO 6743/1 ISO 6743/2 ISO 6743/6 DIN 51506
<ul style="list-style-type: none"> Gear units Oil mist lubrication 	Carter EP 68 -1000	Mineral		<ul style="list-style-type: none"> High protection of opinions Approved by major manufacturers 	68 to 1000	<ul style="list-style-type: none"> ISO 12925-1 CKD DIN 51517-3 CLP AGMA 9005-E02 EP U. S. Steel 224 Flender
	Carter HD	Mineral	<ul style="list-style-type: none"> Shocks High temperatures 	<ul style="list-style-type: none"> Micro-pitting resistance Thermic stability Longer drain intervals 	150 to 680	<ul style="list-style-type: none"> DIN 51517-3 CLP ISO 12925-1 CKD
	Carter SH	Fully Synthetic - PAO		<ul style="list-style-type: none"> Resistant to low or high temperatures Longer drain intervals. 	150 to 1000	<ul style="list-style-type: none"> ISO 12925-1 CKD DIN 51517-3 CLP Flender FAG SKF
	Carter SG	Synthetic PAG	<ul style="list-style-type: none"> High temperatures High loads Low friction Energy savings 	<ul style="list-style-type: none"> Very high viscosity index Longer drain intervals 	100 to 1000	<ul style="list-style-type: none"> DIN 51517-3 CLP PG ISO 12925-CKT

* Typical kinematic viscosity of base oil at 40° C in mm2/s. Above characteristics are mean values given as an information.

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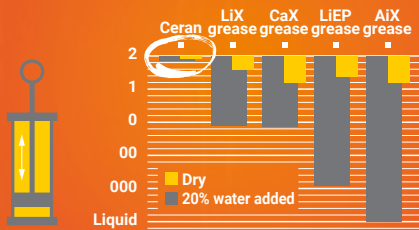
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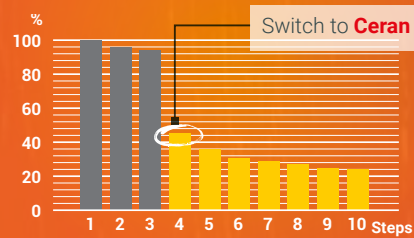
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