

STEEL CONTINUOUS CASTING






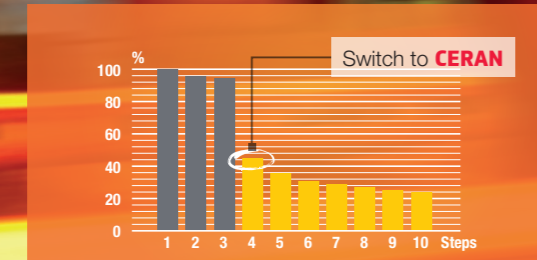
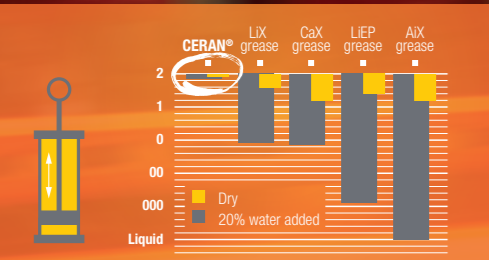
12/2018 - TOTAL Lubriliants SA 552 006 454 RCS Nanterre - Photos: 123RF - Design: GOLDEN design

The benefits offered by



CERAN® is an 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.

TOTAL 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 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.

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.

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Safety Data Sheets are available at quickfds.com
lubricants.total.com

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:

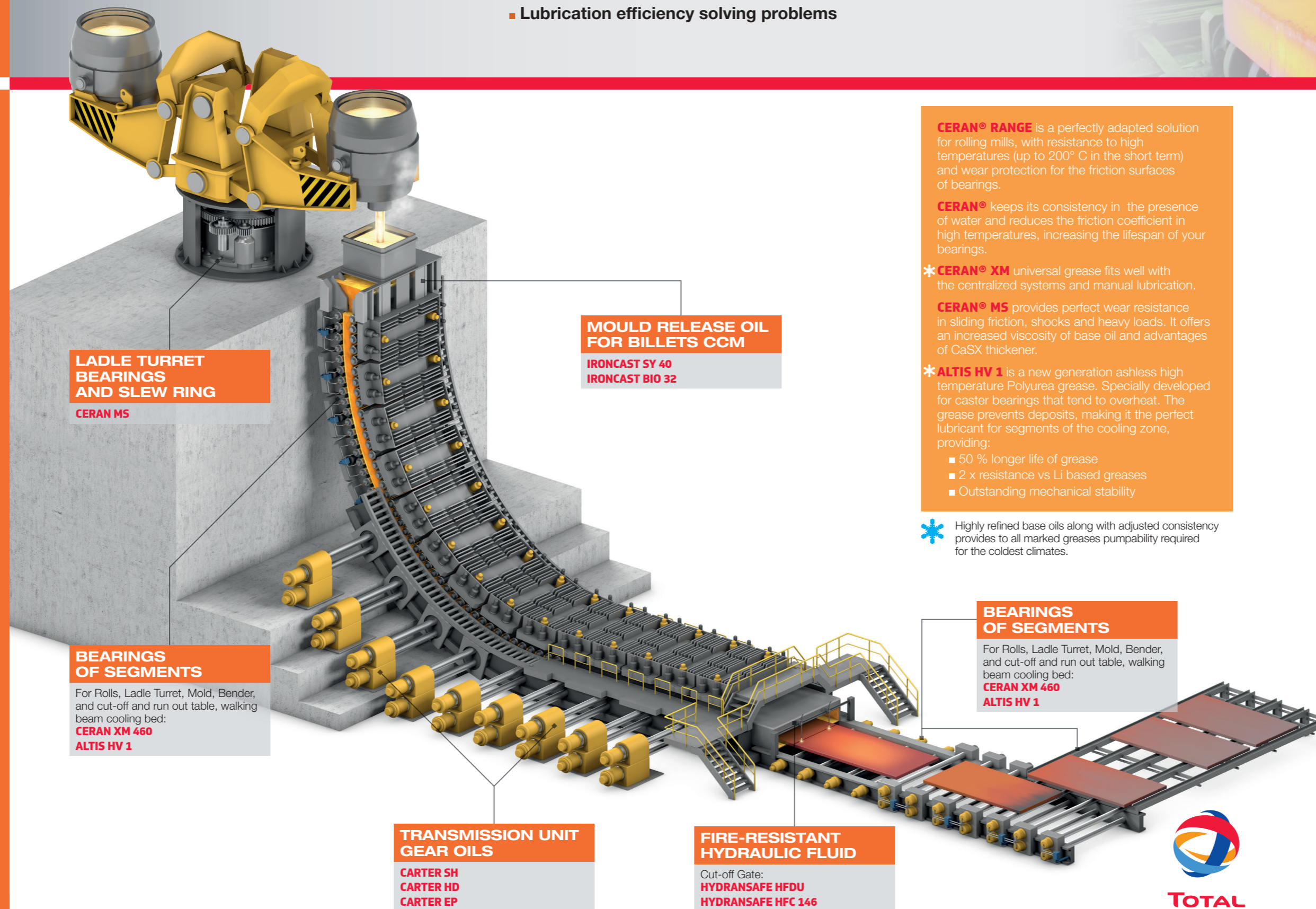
- Drain and regreasing intervals of your equipment
- Wear resistance of friction pairs
- Operation ratio by improving equipment reliability
- Mean Time Between Failures
- Lubrication efficiency solving problems

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...

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 consistent production rate.

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



LADLE TURRET BEARINGS AND SLEW RING
CERAN MS

MOULD RELEASE OIL FOR BILLETS CCM
IRONCAST SY 40
IRONCAST BIO 32

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
CARTER HD
CARTER EP

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

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

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

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

GREASES

Applications	Product	Working conditions	Specific advantage	Thickener	NLGI grade	80 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 ▶ Cooling bed	LICAL EP 2 CERAN XS 320	<ul style="list-style-type: none"> • High temperatures • Very slow rotation • High loads 	<ul style="list-style-type: none"> • Multifunctional grease with reinforced performances: • Water resistance thanks to the LiCa soap • Load resistance thanks to adjusted viscosity 	Lithium / Calcium	2	190	-25° to +130° C	KP2K-25	
									<ul style="list-style-type: none"> • High resistance in static position • Synthetic base oil with high resistance to oxidation • Superior pumpability
▶ Casting Ladle bearing	CERAN MS	<ul style="list-style-type: none"> • High loads • Slow rotation • Heat • Shocks 	<ul style="list-style-type: none"> • 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 MULTIS COMPLEX S2A	<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	
									<ul style="list-style-type: none"> • High protection of bearings at high speed
▶ 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	OGPFO/00N-20

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

OILS

Applications	Product	Nature	Working conditions	Specific advantage	ISO VG	Specifications
▶ Hydraulic systems Casting Platform, Strand Guide, Runout Area, Maintenance Area	AZOLLA AF AZOLLA ZS	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	ISO 11158 HM • DIN 51524-2 HLP • Eaton I-286S, M-2950S • Denison HFO, HF1, HF2
						10 to 150
▶ Hydraulic systems affected to high temperatures Ex Cut-off Gate	HYDRANSAFE HFDU HYDRANSAFE HFC 146	Esters based fire resistant fluid Water-Glycol based water 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	ISO 6743-4 HFDU • Factory Mutual
						46
▶ Mould release oil	IRONCAST SY® 40 IRONCAST BIO® 32	Synthetic Esters based	<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. • Excellent lubricity to protect the mould • Biodegradability 	50 32	• Danieli
						68 to 1000
▶ Transmission units	CARTER EP CARTER HD CARTER SH	Mineral Mineral Synthetic PAO	<ul style="list-style-type: none"> • Shocks loads • High temperatures 	<ul style="list-style-type: none"> • High protection of gears • Approved by major manufacturers 	150 to 680 150 to 1000	DIN 51517-3 CLP • ISO 12925-1 CKD
						<ul style="list-style-type: none"> • Micro-pitting resistance • Thermic stability • Longer drain intervals
						<ul style="list-style-type: none"> • Resistant to low or high temperatures • Longer drain intervals.

TOTAL LUBRICANTS