



Wind energy lubricants

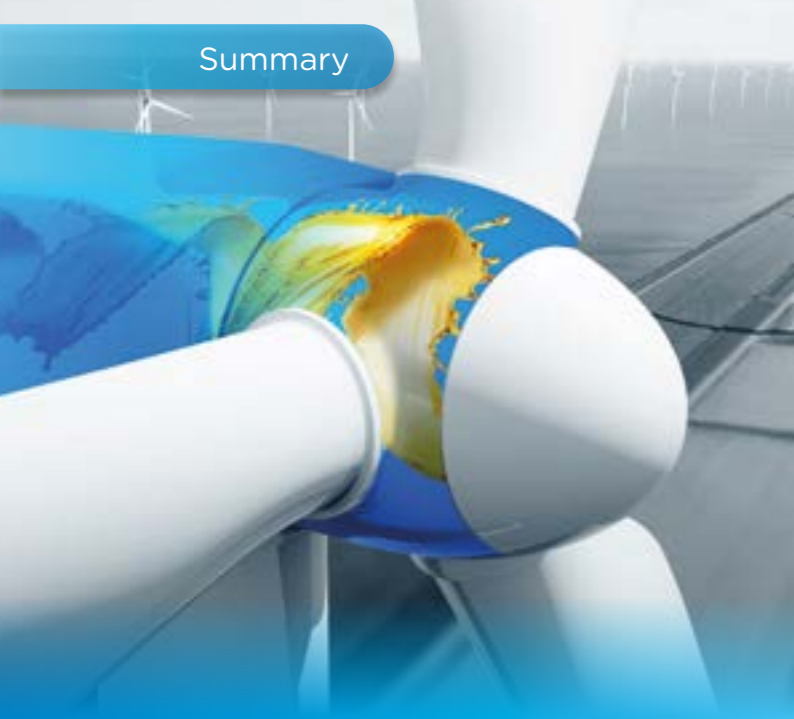
Optimizing
renewable energy
and equipment



TotalEnergies

Summary

- Discover Wind+ concept
- Our most advanced lubricants
- Decrease the number of costly operations required to lubricate your gearboxes
- Five good reasons for choosing TotalEnergies Lubrifiants



Ensure your equipment's reliability for longer

Increase your plant's lifetime by providing it with superior and continued protection.

- Prevent wear in all circumstances and reduce bearing failure.
- Regularly analyze your gearbox oil using our dedicated **LubAnac** service.

Improve your long-term competitiveness

Decrease your operating expenses by extending your maintenance cycles.

- Double the time between oil changes using our long-life oils.
- Optimize your oil change strategy with our **LubInsight maintenance planner** maintenance software and our **GO life extender** performance booster.
- Free yourself from the constraints of the Lithium market by adopting the grease technology **Ceran**.

Maximize the output of your facilities

Make use of the slightest breeze and increase efficiency.

- Prefer "high-efficiency" lubricants that reduce friction coefficients and minimize deposit build-ups in circuits.
- Team up with an industrial company involved in university wind power research.

Wind energy must become more competitive

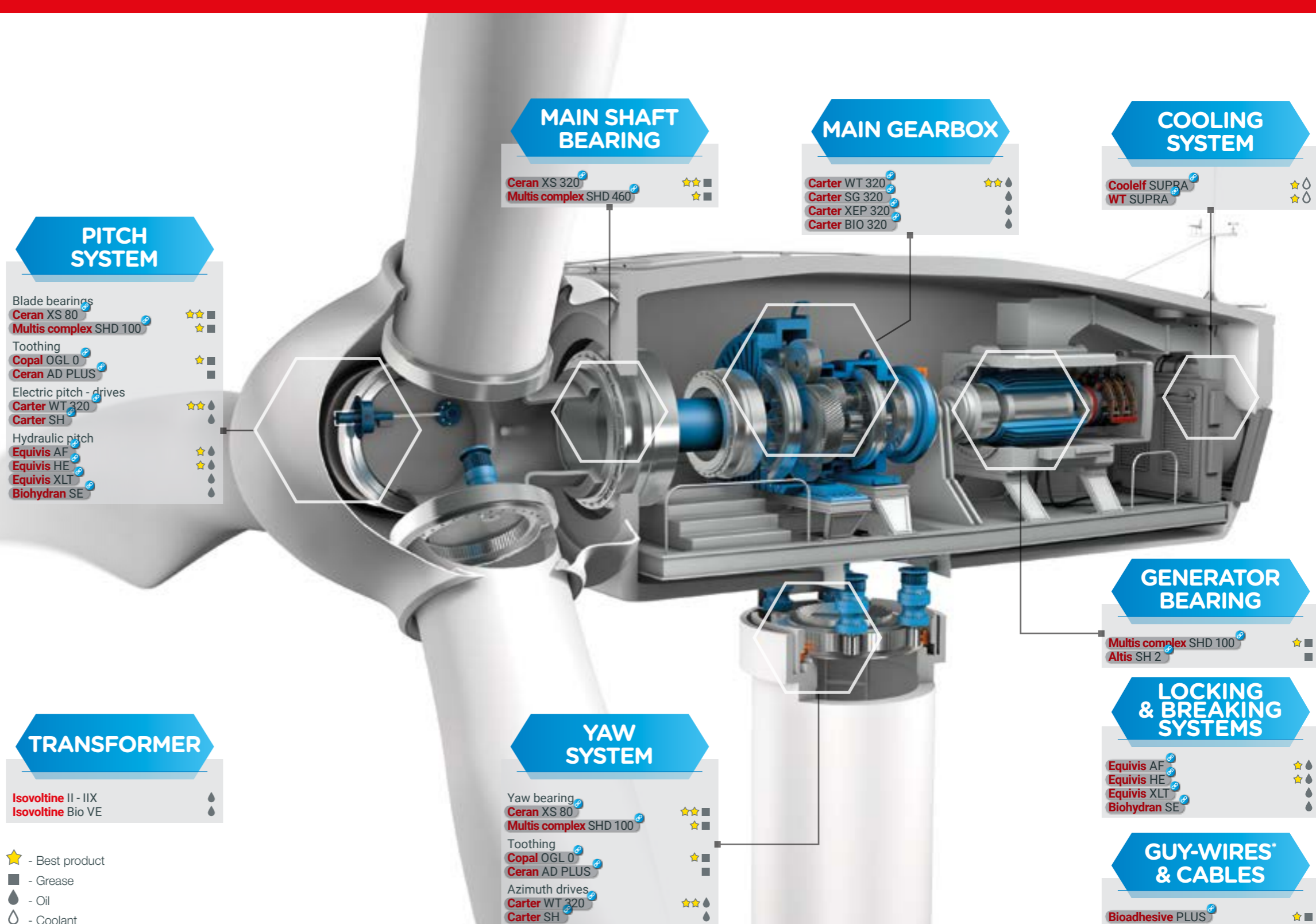
Committed to better energy, TotalEnergies provides **an innovative solution** for companies in the wind sector keen to **reduce their operating costs**.

Discover the WIND+ concept

TotalEnergies helps wind farm operators and O&M service providers to extend maintenance cycles even further by providing an **overall lubrication solution**.

Need a breath of fresh air?

Put your trust in TotalEnergies teams to generate **increased productivity**.



- ★ - Best product
- - Grease
- - Oil
- ⦿ - Coolant

*Guy wires-supported towers.

Your safety, our priority

Take no risks with your plant, your staff and your environment.

- Optimize your performance thanks to our products that are approved and recognized by manufacturers.
- Lubricate your equipments with less harmful formulas that contain no heavy metals or carcinogenic and reprotoxic substances.

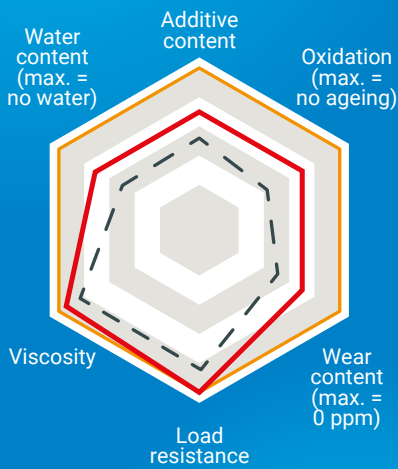
Our most advanced lubricants

Carter WT 320



Advanced gearbox oil designed to last more than 7 years*

Fully synthetic PAO gear oil



- Carter WT fresh oil
- Carter WT after 7 years
- Oil change limit

*In standard operating conditions.



BENEFITS

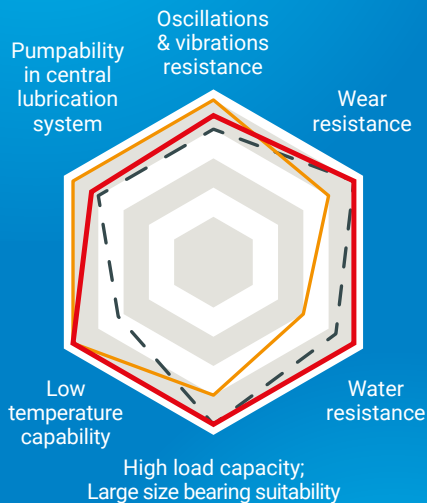
- Extended drain interval
- Enhanced gear longevity
- Improved equipment reliability

Ceran XS



Next generation grease particularly suitable for offshore wind

Fully synthetic calcium sulfonate complex grease



- Synthetic PAO - Lithium Complex
- Ceran XS
- Offshore wind standard



BENEFITS

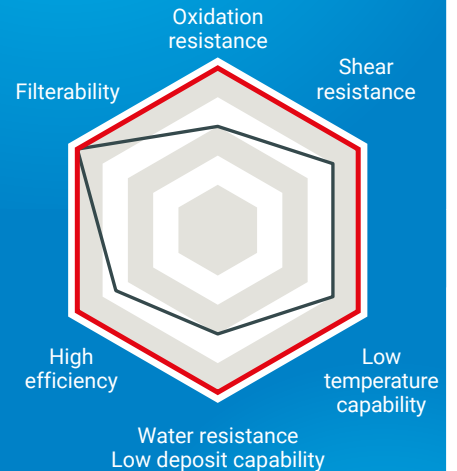
- Durable protection of the bearings against wear
- Natural protection of the bearings against marine corrosion
- Extended regreasing intervals

Equivis HE



Long-life hydraulic oil ensuring durable performance

High-performance mineral hydraulic oil



- Equivis HE
- Standard HVL hydraulic oil

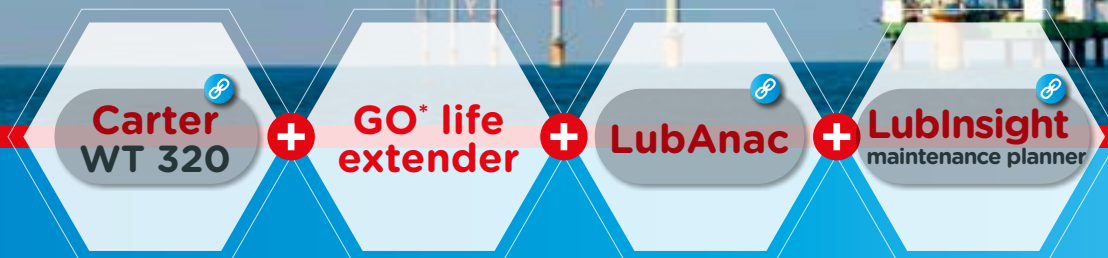
Ashless hydraulic oil Equivis HE delivers the same performance.



BENEFITS

- Increased energy efficiency
- Improved pitch system accuracy
- Extended drain intervals

Decrease the number of costly operations required to lubricate your gearboxes



Carter WT 320, experience its exceptional service life for yourself

Extend your drain interval to 10 years and improve the reliability of your gearboxes.

Carter WT 320 has demonstrated stellar performance over a long period of time. Designed to provide the optimum balance between **low ageing** and **gear longevity**, **Carter WT 320** takes gearbox lubrication to a new level.



GO* life extender, boost your oil's performance

Your wind turbine has been operating for a very long time using a gearbox oil in which performance additives are now partially depleted. When combined with **Carter WT 320**, **GO life extender** helps prolong the service life of your lubricant whilst ensuring the smooth operation of your gearbox until the next scheduled oil change.

*GO: Gear Oil

The WIND+ concept

LubAnac, customize the monitoring of your gearbox

TotalEnergies extensive experience in the monitoring of in-service gearbox oils has resulted in the development of LubAnac, a dedicated analysis for your gearbox.

LubAnac incorporates specific standards to improve the diagnosis and anticipate operating faults:

- Infrared spectrum to assess the level of degradation and oxidation of your oil in service.
- Large iron particles content of over 5 microns to better identify wear level in your gearbox.

LubInsight maintenance planner, optimize your oil change strategy

Closely monitor your wind farms' condition with our lubrication software **LubInsight maintenance planner** and **better manage your maintenance schedules**.

- **Plan** your preventive, conditional and corrective maintenance operations.
- **Incorporate** your oil analyses directly and consolidate your diagnoses at different territorial scales.
- **Analyze** your all-in maintenance cost.
- **Monitor** your stock of lubricants and spare parts.

The combined LubAnac / LubInsight maintenance planner offering can be used for all lubricated wind turbine systems.



TotalEnergies, here for you!

Our application engineers are ready to assist anytime and help you put our products into use. TotalEnergies will also put you in contact with independent and innovative partners in both onshore and offshore wind turbine maintenance for more complex operations.



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