

Expert Solutions

Your progress. Our priority.

By partnering with you to solve the problems you face today and tomorrow, we can help you move ahead and develop your business. Our insight-driven services help you improve reliability, reduce your operating costs and free up your potential – all because we share your goals and priorities. Expert Solutions from PETRONAS is your secret weapon in your mission to do more, use less and grow faster. It's how our passion for progress can help take you to an exciting and more sustainable future.

Equipment

Downtime is the enemy of progress. With predictive maintenance and support for your equipment and fluids, we can identify problems before they take hold – so you can plan ahead and focus on success.

- Diagnostics - Oil condition monitoring
- Fluid recommender



Operations

With so much happening in your business, it's easy to lose sight of what matters. Our Expert Solutions use tools, services and support to help you achieve greater progress more quickly – and improve efficiency while reducing operational costs.

- Fleet survey
- Fluid-i



People

With the right knowledge in your team, you can progress further, faster. That's why we work with your people to build their skills and help them work more effectively day in, day out.

- Technical training programme



www.pli-petronas.com

Scan the QR code for more information



WIND

PETRONAS
Industrial
Solutions
Future Focused

Strengthening progressive businesses from within

Wind turbines are vital in the clean energy transition, but maintaining them can be tough, especially with gearbox issues causing downtime and costs. Using the right lubricants and embracing technologies such as condition monitoring and predictive maintenance can boost competitiveness, extend maintenance cycles, and improve efficiency for wind farm operators and Operation and Maintenance (O&M) providers.

PETRONAS Industrial Solutions shares the determined passion, focus and commitment of our customers to do business responsibly. Our approach to fluids is to focus on whole system performance, with bespoke fluids that protect and prolong the working life of every part of your wind turbine system. Operating in state-of-the-art labs, our world-class technologists strive to develop lubricants that lead the field and earn the all-important endorsements of leading OEMs.

We're passionate about helping our customers stay focused on their progress no matter what and provide the services and support needed to overcome the challenges of today and tomorrow.

PETRONAS Industrial Solutions. Future Focused.



PETRONAS is ready for the world of tomorrow, today

PETRONAS Lubricants International (PLI) is part of the PETRONAS Group. With 10 blending plants, over 30 sales offices and products distributed in more than 90 countries worldwide, PLI's global network of over 240 scientists, technical professionals and engineers anticipate future mobility and mechanical challenges and opportunities, then research and develop advanced fluid technology solutions to meet tomorrow's challenges, today.



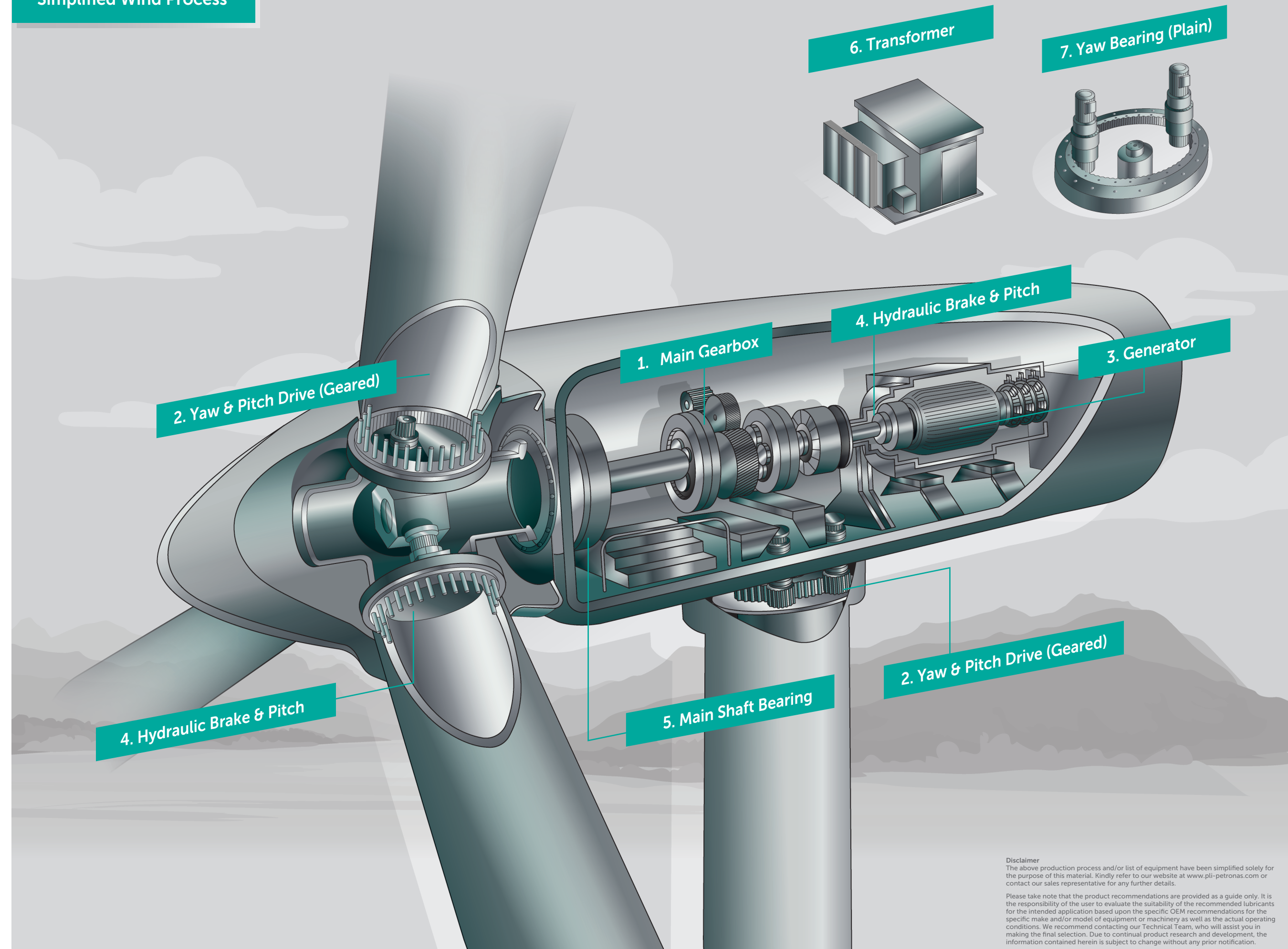
Your key to maximizing performance

With our expert knowledge and the latest advances in lubrication technologies, we have developed a comprehensive range of state-of-the-art lubricants to meet the requirements of your equipment. Contact your PETRONAS representative or visit www.pli-petronas.com to find out more.



APPLICATION	PRODUCT	PRODUCT FROM PETRONAS	BENEFITS
Main Gearbox, Pitch & Yaw Drives (Geared)	Gear Oil	PETRONAS Gear Syn mPAO 320	Excellent extreme pressure and anti-wear protection Protection against corrosion, shock loading Excellent performance including energy saving
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		PETRONAS Gear Syn WTS	Protection against corrosion, wear & shock loading Significantly less micropitting Wider operating temperature Anti-foam protection
Pitch, Yaw & Generator Bearings	Grease	PETRONAS Grease PU 1.5	Excellent rust and corrosion protection Excellent thermal and oxidation stability Excellent oil bleed High antiwear protection High adhesive and cohesive properties
		PETRONAS Grease LiX Syn 2/100 PETRONAS Grease LiX Syn 2/460	Excellent temperature performance Excellent load carrying capacity Excellent rust & corrosion protection Excellent thermal and oxidation stability High resistance to water wash-out High mechanical stability
Hydraulic Systems (Rotor & Yaw Brakes)	Hydraulic Oil	PETRONAS Hydraulic ESF 32	Energy saving up to 6% Excellent anti-wear protection Excellent and highly stable performance over wide temp. range
		PETRONAS Hydraulic HVZF	Excellent anti-wear protection High and stable performance over wide temp. range
		PETRONAS Hydraulic Syn Bio	Renewable content >80% Biodegradability of >60% against OECD 301B High Viscosity Index Excellent thermal and oxidation stability
Transformer	Transformer Oil	PETRONAS Elektron M	Excellent oxidation stability Excellent compatibility with materials Excellent breakdown voltage High dielectric strength Low viscosity and low pour point Ultra low sulphur
Generator	Coolant	PETRONAS Tutela Coolant LL-ELC PREMIX	Excellent corrosion resistance Excellent heat transfer properties to prevent overheating Enhanced protection against freezing when outside temperature is -37° C (-35° F) Enhanced protection against boiling in case of circuit temperature up to 132° C (270° F) Very good elastomer and plastic compatibility for longer component's life

Simplified Wind Process



Unlock the Full Potential of Your Wind Turbines with PETRONAS Industrial Solutions

PETRONAS fluid solutions and expert services are tailored to supercharge the performance of your wind turbines, ensuring you get the most out of your investment.



Optimized Performance in Any Weather

PETRONAS fluid solutions are engineered to maintain viscosity and lubricating properties across a wide temperature range. From extreme cold to scorching heat, you can count on consistent performance.

Reliability Through Shear Stability

PETRONAS fluid solutions exhibit exceptional shear stability, withstanding the mechanical forces and loads experienced by gearbox gears and bearings for continuous protection.

Tough on Extreme Pressures

Wind turbine gearboxes endure extreme pressures and shock loads. With PETRONAS fluid solutions, top-notch extreme pressure (EP) additives protect against wear and micro pitting under the most strenuous conditions.

Rust and Corrosion Protection

PETRONAS fluid solutions come equipped with potent corrosion inhibitors, safeguarding against rust and corrosion. Even in the harshest environmental conditions and in the presence of moisture, your components stay protected.

Water-Resistant Excellence

Rain, humidity, or water ingress – no problem. PETRONAS fluid solutions are specially formulated to resist water, ensuring your components remain in top shape.

Seals and Materials Harmony

PETRONAS fluid solutions seamlessly integrate with various seals and materials used in wind turbine components, ensuring seal integrity and material preservation.

Extended Service Intervals

Enjoy reduced downtime and lower maintenance costs. PETRONAS fluid solutions extend service intervals by maintaining their lubricating properties over longer periods.

Enduring Oxidation Resistance

PETRONAS fluid solutions exhibit exceptional oxidation resistance, enduring prolonged exposure to heat and oxygen without breaking down or leaving deposits.



Join us in the wind energy revolution – ensuring efficiency, reliability, and peace of mind. Explore the future of wind energy with PETRONAS Industrial Solutions and unlock the full potential of your wind turbines.