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GLOBIZ TECHWORKS

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YOUR INTEGRATED TRIBOLOGY PARTNER

THE OIL & GAS INDUSTRY



REFINING FACILITIES



1. **Pumps** (Fluid Transportation) - Centrifugal Pumps / Positive Displacement Pumps (PD Pumps) / Screw Pumps & Gear Pumps.)
2. **Compressors** (Gas Compression & Circulation) - Centrifugal Compressors / Reciprocating Compressors / Screw Compressors / Axial Compressors.)
3. **Turbines** (Power Generation & Drive Systems) - Steam Turbines / Gas Turbines)
4. **Fans & Blowers** (Ventilation & Process Air Supply) - Induced Draft (ID) Fans / Forced Draft (FD) Fans / Blowers.)
5. **Agitators & Mixers** (Chemical Processing & Blending) - Tank Agitators / Static Mixers.)
6. **Gearboxes & Couplings** (Power Transmission) - Speed Reducers & Gear Drives / Flexible & Rigid Couplings.)
7. **Other Rotating Equipment** - Decanter Centrifuges / Cooling Tower Fans / Rotary Valves)



Explore the next level
of automatic lubrication:
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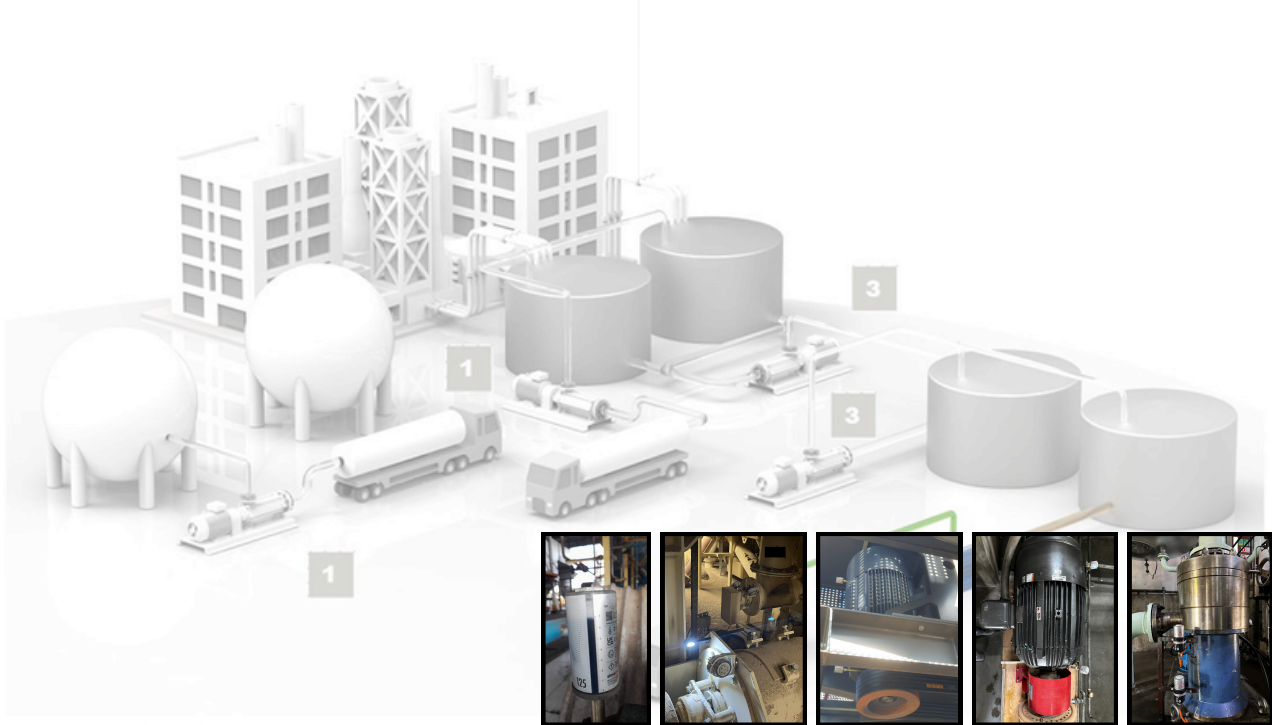
CHEMICAL FACILITIES



1. **Pumps** - Centrifugal Pumps (ISO VG 32, 46, or 68 turbine oil for bearings) / Reciprocating Pumps (ISO VG 68, 100 mineral-based oils with anti-wear additives) / Gear Pumps (ISO VG 150–320 gear oil) / Screw Pumps (ISO VG 68–150 synthetic or mineral oil)
2. **Compressors** - Centrifugal Compressors (ISO VG 32–46 synthetic compressor oil) / Reciprocating Compressors (ISO VG 68–100 synthetic or mineral oil) / Screw Compressors (ISO VG 46–68 synthetic oil).
3. **Turbines** - Steam Turbines (ISO VG 32, 46 turbine oil) / Gas Turbines (ISO VG 32 synthetic turbine oil)
4. **Gearboxes** (Light-load gearboxes → ISO VG 150–220 mineral gear oil, Heavy-load gearboxes → ISO VG 320–680 synthetic EP (Extreme Pressure) gear oil, High-temperature gearboxes → PAO-based synthetic gear oil)
5. **Fans and Blowers** (NLGI #2 lithium complex grease)
6. **Electric Motors** (NLGI #2 polyurea or lithium complex grease)
7. **Agitators and Mixers** (Gearboxes → ISO VG 220–320 gear oil, Bearings → NLGI #2 lithium-based grease)
8. **Conveyors** (Roller chains → ISO VG 220 synthetic chain oil, Bearings → NLGI #2 grease or ISO VG 100 oil, Gear motors → ISO VG 220 gear oil)



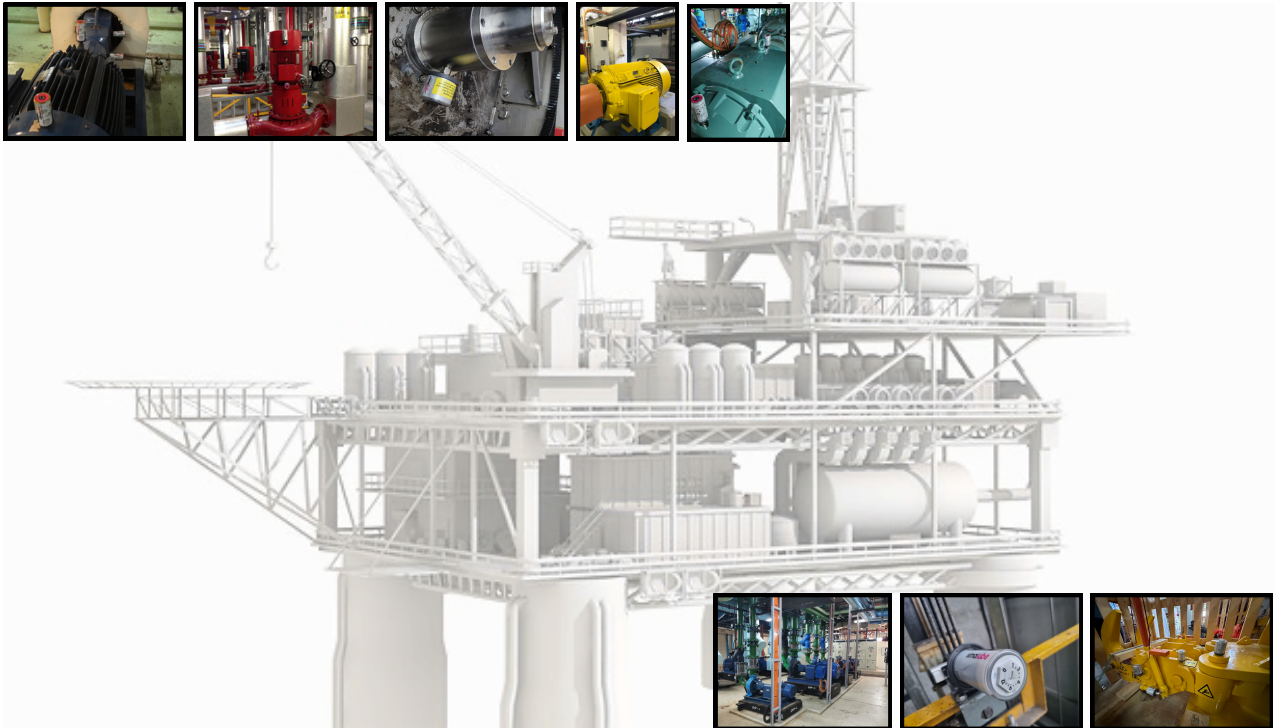
TERMINAL & STORAGE



1. **Pumps** (Crude Oil, Product Transfer, Booster Pumps)
2. **Compressors** (for vapor recovery systems, loading operations)
3. **Loading Arms & Swivel Joints**
 - Swivel Joints & Bearings → NLGI #2 lithium or calcium complex grease
 - Telescopic Sections → Dry-film lubricant or molybdenum-based grease
 - Hydraulic Components → ISO VG 32–46 hydraulic oil
4. **Storage Tank Equipment** (Floating Roofs, Seals, Valves, Mixers)
 - Floating Roof Seals → PTFE-based dry film lubricant
 - Mixer Bearings & Agitators → ISO VG 150–320 synthetic gear oil
 - Valves (manual & actuated) → NLGI #2 grease with anti-seize additives
5. **Conveyor Systems** (for bulk fuel handling, pipelines, additives storage)
 - Roller Chains → ISO VG 220 synthetic chain oil
 - Bearings → NLGI #2 lithium complex grease
 - Gear Motors → ISO VG 150–220 synthetic gear oil



OFFSHORE PLATFORM



1. **Pumps** (Seawater, Crude Oil, Injection, Firewater, Booster)
2. **Compressors** (Gas Lift, Injection, Air, Refrigeration, Vapor Recovery)
3. **Gas & Steam Turbines** (Power Generation, Mechanical Drives)
4. **Gearboxes** (Crane, Winches, Hoists, Mud Pumps, Rotary Tables)
5. **Electric Motors** (Pumps, Fans, Drilling Equipment, HVAC, Generators)
6. **Fans & Blowers** (Ventilation, Gas Flaring, HVAC, Cooling Systems)
7. **Drilling Equipment** (Top Drives, Drawworks, Mud Pumps, Rotary Tables)

Recommended Lubricant Brands for Offshore Use:

- Shell → Shell Omala (gear oil), Shell Turbo (turbine oil), Shell Corena (compressors)
- Mobil → Mobil SHC 600 (gear oil), Mobil DTE 700 (turbines), Mobil Rarus (compressors)
- Chevron → Chevron GST (turbines), Chevron Meropa (gearboxes)
- TotalEnergies → Total Carter (gear oil), Total Preslia (turbines)



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REFINING CASESTUDY

Rotating Equipment

Background

The Melaka Refinery Complex, located in Sungai Udang, Malaysia, has been a cornerstone of the nation's energy infrastructure since its inception in 1994. In May 2024, to commemorate its 30th anniversary, the complex was rebranded as the Melaka Energy Park.



Challenges Faced

Lubricating 1,098 rotating equipment in the refinery presents several challenges which include scales of content, accessibility, environmental impact, scheduled practises and management, over/under lubrication, regulatory & compliance, repair and breakdown.

Solutions Implemented

To tackle these challenges, MRC adopted several strategic measures:

- **Automatic lubrication systems**

To address best practise and assurance of asset well being lubricated with regularity and management.

- **Implementation and documentation**

Advance combine efforts with digital administration on implmentating, monitoring and preventive knowledge.

- **Continuation and advancement**

Integrate resources knowledge initiative for improving sustainability practices throughout the organization.

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the implementation of these strategies, a recovery in profit margins achieving a 55% saving within 2 years. Creating safe workplace satisfaction with feedback indicating a stronger appreciation from employee and agency for the company's commitment to building sustainability.

Conclusion

With collaboration through MRC, UBF and Globiz, addressing challenges through integrated approach to enhanced employee involvement. This success create another milestone of the importance of adaptability and sustainability in the refining sector.

References

- <https://www.petronas.com/media/media-releases/one-malaysias-largest-refineries-renamed-melaka-energy-park-marking-30-years>
- <https://ubf.com.my>

PETROCHEMICAL CASESTUDY

Fin Fan System

Background

The Refinery and Petrochemical Integrated Development (RAPID) is a pivotal component of Malaysia's Pengerang Integrated Petroleum Complex (PIPC), located in Pengerang, Johor. Initiated by PETRONAS, Malaysia's national oil company, RAPID represents a significant advancement in the nation's downstream oil and gas sector.

Challenges Faced

Lubricating 98 points of Fin San System presents several challenges which include accessibility, human error and maintenance practises, safety, environmental, lack of monitoring data, un-deter content of lubrication, regularity, time consuming, regulatory and compliance, unproductivity and audit non-conformance

Solutions Implemented

To tackle these challenges, RAPID adopted several strategic measures:

- **Automatic lubrication systems**

Replace lubricator in compliance to regulatory and safety.

- **Commercial and documentation**

Meet regulatory and safety compliance, ex-proof certified, proper lubricant application and financial gain.

- **Predictive maintenance**

Integrate resources knowledge initiative for improving sustainability practices and deepen asset knowledge.

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the studies and evaluation of these strategies, a recovery in profit margins achieving a 40% saving. Safety at work place satisfaction also improved, with productivity, safety and environmental effort meet in building a sustainable workplace.

Conclusion

With collaboration through RAPID, UBF and Globiz, addressing challenges through integrated approach to enhanced employee involvement. This success create the importance of adaptability and sustainability in the petrochemical sector.

References

- <https://www.petronas.com/pic/project-milestones>
- <https://ubf.com.my>
- <https://www.petronas.com/flow/technology/pengerang-integrated-complex>

LNG CASESTUDY

Rotating Equipment

Background

Hibiscus Petroleum, a Malaysian independent oil and gas exploration and production company, has expanded its operations into Brunei Darussalam through a strategic acquisition. In June 2024, Hibiscus entered into an agreement to acquire TotalEnergies EP (Brunei) B.V., a wholly-owned subsidiary of TotalEnergies, for \$259.4 million. This acquisition was finalized in October 2024, marking Hibiscus's entry into the Brunei market.

Challenges Faced

Degrading equipment, new infrastructure, rotating and power transmission equipment maintenance records, Optimizing production, Integration with BLNG, navigating transition and compliance, Local resource, and competition in the regional LNG sector.

Solutions Implemented

To tackle these challenges, HIBISCUS adopted several strategic measures:

- **Automatic lubrication systems**

Revisit all aging equipment and component of auto-lubrication for proper management.

- **Commercial and documentation**

Meet regulatory and safety compliance, certification, resource management and build collective data.

- **Predictive maintenance**

Integrate resources knowledge initiative for improving sustainability practices and increase asset life-span

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the studies and evaluation of these strategies, a recovery in wastage achieving a 50% saving. Safety at work place satisfaction also improved, with productivity, safety and environmental effort meet in building a sustainable workplace.

Conclusion

With collaboration through HIBISCUS, TENDRILL and Globiz, addressing challenges through continues approach to maintain, protect and extend asset usability to its maximum. Establish lean production plan to maximise return in the shortest period of investment.

References

- <https://www.hibiscuspetroleum.com>
- <https://www.tendrill.com>
- <https://www.tendrillwood.com>
- <https://totalenergies.com/news/press-releases/totalenergies-sells-its-subsiary-brunei>

TERMINAL CASESTUDY

Pump, Motor & Loading Arm

Background

PV Oil Nha Be is a subsidiary of PetroVietnam Oil Corporation (PVOIL), located at 54A Street 30/4, Thang Nhat Ward, Vung Tau City, Ba Ria-Vung Tau, Vietnam. It operates as part of PVOIL's extensive network of petroleum depots across Vietnam, which collectively have a total capacity exceeding 960,000 cubic meters. This infrastructure supports PVOIL's core activities, including the import, export, and distribution of petroleum products both domestically and internationally.

Challenges Faced

Lubricating rotating equipment in the oil terminal presents several challenges which include contamination, schedule regularity and accessibility, regulatory and environmental issue, human error and maintenance practises, commercial and financial devaluation.

Solutions Implemented

To tackle these challenges, PV Oil adopted several strategic measures:

- **Automatic lubrication systems**

To address best practise and assurance of asset well being lubricated with require regularity.

- **Training and documentation**

Educating tribology approach with digital administration in monitoring of equipment, system and process.

- **Predictive maintenance**

Integrate resources knowledge initiative for improving sustainability practices within the company.

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the implementation of these strategies, a recovery in profit margins achieving a 32% saving within nine months. Safety at work place satisfaction also improved, with feedback indicating a stronger appreciation for the company's commitment to sustainability.

Conclusion

With collaboration through Globiz and PV Oil, addressing challenges through strategic process improvements and enhanced employee involvement. This success underscores the importance of adaptability and sustainability in the petrochemical sector.

References

- <https://sg.linkedin.com/company/globiz-connect>
- <http://www.pvoil.com.vn>
- <https://pvpower.vn/en/post/etrovietnam-on-course-for-sustainable-development-5260.htm>

ELASTOMER CASESTUDY

Pump & Motor

Background

Kuraray Asia Pacific Pte. Ltd. serves as the regional headquarters for Kuraray Co., Ltd., a leading Japanese specialty chemical company, overseeing operations in the Asia Pacific region.

Challenges Faced

Polymer Contamination in Lubricants, Frequent Start-Stop Cycles & Variable Speeds, Chemical & Corrosive Environment, Lubricant Solidification & Clogging, Bearing Failures & Misalignment, Contamination by Moisture & Particulates, Inadequate Lubrication Practices & Training.

Solutions Implemented

To tackle these challenges, KURARAY adopted several strategic measures:

- **Automatic lubrication systems**

Implementation of self contain and stand alone power auto lubricator with regulatory compliance.

- **Commercial and documentation**

Meet regulatory and safety compliance, ex-proof certified, proper lubricant application and financial gain.

- **Predictive maintenance**

Integrate resources knowledge initiative for improving sustainability practices and deepen asset knowledge.

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the training program, studies and evaluation of these strategies, a recovery in profit margins achieving a 60% saving. Safety at work place satisfaction also improved, with productivity, safety and environmental commitment from management.

Conclusion

With collaboration through KURARAY, IB and Globiz, addressing challenges through integrated approach to enhanced employee involvement. This success create the importance of adaptability and sustainability in the Elastomer sector.

References

- <https://www.kuraray.com>
- <https://www.intbearing.com>
- <https://www.kuraray.com/csr>

LUBRICANTS CASESTUDY

Pump & Motor

Background

Kuraray Asia Pacific Pte. Ltd. serves as the regional headquarters for Kuraray Co., Ltd., a leading Japanese specialty chemical company, overseeing operations in the Asia Pacific region.



Challenges Faced

Lubricating rotating equipment in a lubricant production facility presents unique challenges due to the presence of raw materials, high-speed machinery, contamination risks, and extreme operating conditions. It is critical to maintaining equipment reliability, reducing downtime, and optimizing production efficiency.

Solutions Implemented

To tackle these challenges, PSP adopted several strategic measures:

- **Automatic lubrication systems**

Implement digital auto-lubrication device for rotating equipment to the main facilities.

- **Commercial and documentation**

Meet regulatory and safety compliance, lubrication data for analysis, maintenance records and financial gain.

- **Predictive maintenance**

Integrate resources knowledge initiative for improving sustainability practices and deepen asset knowledge.

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Japan, Middle East

Introduction

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Results and Impact

Auto-lubrication (automatic lubrication systems, or ALS) proactively provide maintenance solution that delivers precise amounts of lubricant to machinery at the right intervals. Along with BT impulse, data has been collected for lubrication and equipment analysis in determine of breakdown and failure.

Conclusion

With collaboration through PSP, Pan-Asia and Globiz, addressing challenges through integrated approach to enhanced employee involvement. This success create the importance of adaptability and sustainability in the Lubricant sector.

References

- <https://www.psp.co.th/en/home>
- <https://globiztechworks.com>
- <https://simatec.com>

TRAINING CASESTUDY

Tribology Approach

Background

Globiz Techworks offers a "Train-the-Trainer" program focused on enhancing lubrication practices within industrial settings. This initiative aims to equip participants with the knowledge and skills necessary to effectively implement and teach lubrication solutions, particularly those related to Simalube machinery automatic lubricators.

Challenges Faced

Tribology, the science of friction, wear, and lubrication, plays a critical role in the Oil & Gas industry due to the harsh operating conditions and extreme environments. Knowledge gap in lubricant, lubrication system, application, and maintenance. Due to extreme operating conditions, contamination (water, dust, sand, and gas), high loads and heavy-duty applications, high-speed and high-friction components, corrosive & chemical degradation, lubricant compatibility & stability issues, wear and failure of bearings & seals, environmental & sustainability regulations.

Solutions Implemented

To tackle these challenges, GLOBIZ adopted several strategic measures:

- **On-Site Training (Lubricant, Auto-Lubricator, Process Management)**

Integrate resources knowledge initiative deepening of knowledge from field expertise with education and exchange program for operator and end-user. Certified courses for "Train-the-Trainer".

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Introduction

Globiz Techworks Pte. Ltd. is a Singapore-based company specializing in maintenance solutions for rotating and power transmission equipment across APME through environmental and advance technologies.

Results and Impact

Following the program initiative, more profession gather in-depth knowledge on the important of lubrication which result in building sustainable operation, safer work[place and process, data collective analysis of equipment, enhance procurement control, applied preventive measures for maintenance to gain financial advantage.

Conclusion

In collaboration with Lubricant producer, Auto-lubrication OEM, Engineering Consultant, Contractor and Operator. Owner and manager enhance regulatory, productivity and financial benefit in protecting its asset.

References

- <https://globiztechworks.com>
- <https://sg.linkedin.com/company/globiz-connect>

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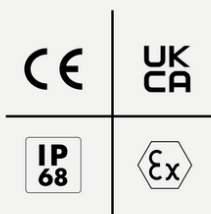
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