FORMULATED FOR PROTECTION. DESIGNED FOR YOUR CAT[®] ENGINE

Cat[®] Diesel Engine Oil (DEO) & DEO ULS

No other product on the market can out perform Cat® DEO when it comes to the combined characteristics of:

PAT

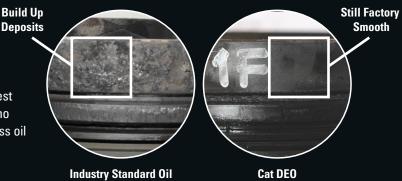
• Wear protection

PAI

325

- Extended oil drain intervals
- Engine cleanliness with sludge protection
- Performance in extreme conditions

To prove Cat DEO's superior performance, we tested it side-by-side against an industry standard oil. This piston test shows the results. The engine that used Cat DEO showed no rough deposits, protecting against engine liner wear, excess oil consumption and decreased engine performance.



CAT° Cat° DEO™ ULS Engine Oil

፼ 4

HA

Balanced Formulation

Cat DEO & DEO ULS goes through a robust formulation process that considers not just one, but all the critical factors that contribute to engine performance. That means your Cat engine operates at peak performance and efficiency, and gets the protection it needs to achieve maximum life.

- Oxidation control
- Soot handling
- Extended oil drain intervals*

A American

- Increased fuel efficiency**
- Deposit prevention
- Low temperature pumpability

CAT

- Cleanliness
- Shear stability

*Extended drain intervals dependent on using Cat DEO & DEO ULS along with Cat fluids, filters and S.O.S Fluid Analysis **Relative to conventional 15W-40 engine oil. Actual fuel economy is dependent on vehicle/equipment type, outside temperature, driving conditions and your current fluid viscosity.

THE BOTTOM LINE? PROVEN CUSTOMER SAVINGS.

Don't let something as critical as engine oil drains go unchecked. It might seem like all oils are similar in quality and only differ in price, but a couple dollars saved on a cheaper oil today may cost you on machine component breakdown in the long term.

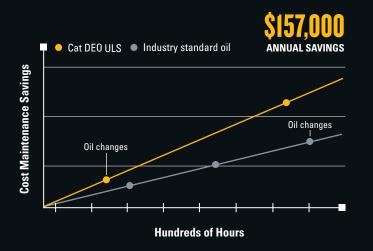
Cat DEO & DEO ULS offers outstanding protection compared to conventional and synthetic oils.

- Designed as part of the Cat System engineers and formulation specialists work together to create the best protection and performance for Cat engines.
- Endurance tested on Cat equipment validated for the tough conditions our engines are designed to operate in.

Customer Savings

A customer that owns and operates the largest fleet in their regional industry is outfitted with 96 Cat engines. They recently switched from using an industry standard oil to Cat DEO ULS 15W-40, along with Cat filters and S.O.S. Fluid Analysis, at the advice of their Cat dealer.

The result? The company quickly extended their drain intervals from every 250 hours with the industry standard oil to 400 hours with Cat DEO ULS— and the savings stacked up.



LET'S DO THE WORK.

www.cat.com

PEHJ0758

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Superior Products Lead to Better Profits

Real savings were achieved for the operation by switching to Cat DEO ULS.



Productivity

Eliminated four routine filter/fluids changes per year, plus reduced labor hours



Equipment performance

Extended oil drains by 150 hours per engine across 96-engine fleet



Product savings

Decreased spending on oil supply and disposal

CAT DEALERS DEFINE WORLD-CLASS Product support

We offer you the right parts and service solutions, when and where you need them. The Cat dealer network of highly trained experts keeps your entire fleet up and running to maximize your equipment investment.



DISCOVER THE DIFFERENCE

Cat[®] Extreme Application Grease

Cat[®] grease uses advanced thickening agents, so grease stays where you put it.

Enhanced Corrosion Protection... means **Longer Component Life.**

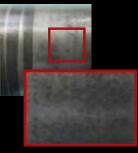
Resists oxidation and protects metal against rust

Less Grease Consumption ... equals **Better Sustainability**.

High quality calcium sulfonate resists grease breakdown

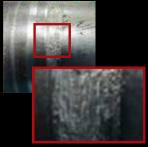
Best Equipment Protection... delivers **Lower Operating Costs**.

 5% moly provides impact protection for extended component life It's easy to see Cat grease provides superior protection in demanding applications.



452-5996

lication



Pin protected with Cat Extreme Application grease

Pin galled from using industry standard grease

Pictures show actual results from a Cat 329 HEX pin & bushing test. Cat grease and a leading competitor's grease ran side by side for the duration of the test.

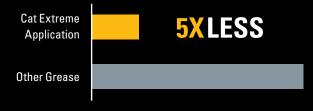


Cat Grease— Performance You Can See

Why pay more for grease?

It can be difficult to justify purchasing a premium grease product when you can't easily see the difference between a good and a bad grease. But when you test greases side by side in a demanding application, the difference is clear.

Grease Consumption and Time Spent Greasing



Grease comparison study conducted:

- The Test: Ran grease side by side on actual work-site for one month monitoring grease consumption and time spent greasing
- Equipment utilized: Hydraulic Excavator
- Grease Tested: Cat Extreme Application & Industry Standard Grease
- The Result: 5X less grease and time required to grease when using Cat grease

LET'S DO THE WORK."

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Cat Grease - More Money In Your Pocket

Your choice of grease to maintain your machine might not seem like an important decision but it can significantly impact your business. Equipment performance, uptime, and overall profitability are all affected.



What does 5x less greasing look like over a year?

- Days a year not greasing your machine **A week more of uptime!**
- Days a year of more production A week of additional profit!

When your machine is being greased, the machine isn't working and you're not making money. Using Cat grease ensures you are maximizing equipment performance and your profitability.

CAT DEALERS DEFINE WORLD-CLASS PRODUCT SUPPORT.

We offer you the right parts and service solutions, when and where you need them. The Cat dealer network of highly trained experts keeps your entire fleet up and running to maximize your equipment investment.



Cat[®] Fluids - Oils



Recommended Use

Cat[®] Oils are genuine Cat parts that have been developed and tested to provide the full performance and service life that has been designed and built into Cat machines and engines. Cat Oils provide superior system protection and are required to pass multiple industry tests as well as various proprietary testing. This provides a consistent source of high performance fluids for Cat dealers and customers that exceed industry fluid standards and are updated along with machine and engine design changes.²





Cat® Fluids - Oils

		Use
DIESEL ENGINE OIL Cat DEO Cold Weather SAE 0W-40		Fully-synthetic engine oil specially developed for and tested in Cat engines. Used in ambient temperature ranges of -40°C to +40°C. Cat DEO Cold Weather exceeds the performance requirements of Cat ECF-3 (Engine Crankcase Fluid Specification) and the API CJ-4 and API SM categories. It supports consistent emissions performance in engines equipped with aftertreatment devices which can include Diesel Particulate Filters (DPF), Diesel Oxidation Catalyst (DOC), Selective Catalytic Reduction (SCR), and/or Lean NOx Trap (LNT). Designed to meet: 2007/2010 On-Highway exhaust emissions standards (USA), Tier 4 (USA), Stage IIIB/IV (EU) and Step 4 (Japan)
Cat DEO ULS 10W-30		Cat [®] DEO-ULSTM is the highest quality diesel engine oil for Caterpillar® on- and off-highway engines equipped with aftertreatment systems (On-Highway 2007/2010 and Off-Highway Tier 4, Stage IIIB/IV, Step 4), as well as, diesel engines without aftertreatment and automotive gasoline engines. Cat DEO-ULS exceeds the performance requirements of Caterpillar ECF-3 (Engine Crankcase Fluid Specification) and the API CJ-4 and
Cat DEO-ULS 15W-40		API SM categories.
Cat DEO 10W-30	-Olice	Especially developed for and tested in Cat engines. Oil change intervals of up to 500 hours are possible with use of S+O+S SM Services and Cat Oil Filters. Used in ambient temperature ranges of -18°C to 40°C.
Cat DEO 15W-40		Especially developed for and tested in Cat engines. Oil change intervals of up to 500 hours are possible with use of S+O+S SM Services and Cat Oil Filters. Used in ambient temperature ranges of -9.5°C to 50°C.
Cat DEO 40	Suit A	Cat DEO Monograde is recommended for older Cat engines equipped with precombustion fuel injection systems that permit the use of American Petroleum Institute CD or CF oil.
Cat SAEO SAE 30 Cat SAEO SAE 40	Contes.	Developed for use in Cat 3116 and 3126 MUI Marine Engines.
NATURAL GAS ENGINE	P-0-	
Cat NGEO Advanced 40 Natural Gas Engine Oil	Sumin	Specifically developed for and tested in Cat Natural Gas Engines. Extended oil drain intervals can be seen with use of Cat S-O-S SM Services and Cat Oil Filters.
Cat NGEO SAE 40 Natural Gas Engine Oil	and the second	Specifically formulated for and tested in Cat Natural Gas Engines.
HYDRAULIC OIL		
Cat HYDO Advanced 10	120 C	This oil is a combination of premium additives and high quality base oils that is designed to provide extended drain intervals and extra protection to hydraulic system components. It can also be used for hydrostatic operation and complies with Vickers 35V025. Use in ambient temperature ranges of: -20C to 40C.
Cat HYDO Advanced 30		This oil is a combination of premium additives and high quality base oils that is designed to provide extended drain intervals and extra protection to hydraulic system components. It can also be used for hydrostatic operation and complies with Vickers 35V025. Use in ambient temperature ranges of: 10C to 50C.
Cat BIO HYDO Advanced	Nac.	An environmentally friendly hydraulic fluid that performs like a standard mineral-based oil for use in eco-sensitive areas
TRANSMISSION OIL		
Cat TDTO SAE 10W		
Cat TDTO SAE 30	Contraction of	Designed for use in power shift transmission, axles and final drives, and wet brakes.
Cat TDTO SAE 50		
Cat TDTO Cold Weather 0W-20		A synthetic blend that provides outstanding protection and performance in transmissions, torque converters, final drives, hydraulics, and wet brakes in cold weather operation of Cat equipment.
Cat TDTO TMS		Designed for use in Cat transmissions, wet brakes, and hydraulic compartments that must operate in wide temperature ranges.
AXLE OIL & FINAL DRIVE OIL		
Cat FDA0 60 Cat FDA0 SYN		Designed for use in front drive, differential, axle drives of off-highway trucks, large bulldozers, pipelayers, and where FD-1 oil is specified.
Cat MTO	X	Recommended for older Cat Backhoe Loader rear axles and Cat Challenger Tractors. Cat MTO can also be used in Cat components, most Cat Hydraulic Systems and systems recommending multipurpose tractor fluid that meet Ford/New Holland M2C134D specification.
GEAR OIL	60	
Cat GO 80W-90		Multigrade gear oil for differential and axle drive on Cat scrapers, wheel type excavators, and where API GL-5 oil is specified.
Cat GO 85W-140	COM	

Cat® Fluids - Oils

Characteristics	Specifications	Container	Part
A fully synthetic high performance engine oil (PAO base) that can improve fuel economy. Designed with an extremely stable formula tailored to provide long-lasting engine protection over a wide temperature range, well suited for mixed fleets of new and old machines.	Cat ECF-3 / API CJ-4, Cat ECF-2 / CI-4 PLUS/CI-4, Cat ECF-1-a/ CH-4; Gasoline: SM, Cummins CES 20081, Mack EO-N PP '03	4 L 20 L 205 L Bulk L	361-0923 347-8469 347-8470 347-8471
A special Ultra Low Sulfur SAE 10W-30 Contains an advanced additive package that improves protection of the engine and the Diesel Particulate Filter (DPF).	API Diesel Groups CJ-4, CI-4 PLUS/CI-4, CH-4, CG-4, CF-4/CF. API Gasoline Groups SM/SL		346-0465 376-4782 317-3085 308-1476 378-8296
A special Ultra Low Sulfur SAE 15W-40 Contains an advanced additive package that improves protection of the engine and the Diesel Particulate Filter (DPF).	Produstnik Groups Stri/GE OEM Performance Level Caterpillar - ECF-3 / Volvo - VDS-4 / DDC - PGOS 93K218 / Cummins - CES 20081 / Mack - EO-O Premium Plus / ACEA - E9-08/E7-04 / MAN - M3275 / DETZ - DQC 11-05	Bulk 1000 208 20 4	349-2581 376-3781 301-2233 300-7915 378-6535
A special formulation of high performance SAE 10W-30 diesel engine oil developed for Cat engines.	Cat ECF-2, API CI-4/CH-4/SL, Cummins CES 20071/76, Mack EO-M Plus, Volvo VDS-2	Bulk 1000 208 20 5	5P-2586 148-3539 3E9707 3E9844 335-9830
A special formulation of high performance SAE 15W-40 diesel engine oil developed for Cat engines.	Cat ECF-2, API CI-4/CH-4/SL, ACEA E5/B3/A2, Cummins CES 20071/72/76/77, Mack EO-M Plus, MB 228.3, MAN M3275, Volvo VDS-3, RVI RLD	Bulk 1000 208 20 4	8T-9548 3E-9838 3E-9840 3E-9848 3E-9902
The large-bore, medium-speed Cat 3600 engines require oils that meet a unique standard not defined by any industry classification. Cat DEO Mono- grade meets that proprietary Caterpillar standard.	API CF	208L	9X-6463
A single grade engine oil specially developed for 3116 and 3126 Marine Engines.	API CF-4, CF-2, CF/ SJ		9X-6462 9X-6463
Eligines.		20 L 208 L	7X-7840 7X-7843
A special blend of the highest quality base stock and additives to meet the demanding environment of natural gas engines.	Not applicable to Natural Gas Engine Oil	Bulk 208 20	331-7032 331-7031 331-7030
Formulated as a low ash, low phosphorous economical engine oil for natural gas engine applications.	Not applicable to Natural Gas Engine Oil	208 L	105-3336
		D.III.	214 5100
Cat HYDO provides better wear protection, a wider operating temperature range, longer drain interval, lowering owning and operating cost. It also reduces filter plugging and improves contamination control due to better filtration.	SAE 10, Vickers 35VQ25	Bulk 1000 208 20 5	314-5169 309-6937 309-6938 309-6942 309-6945
	SAE 30, Vickers 35VQ25	208 20	319-5923 319-5921
Non-toxic formulation that is readily biodegradable	Cat BF-2	208 20	143-3220 143-3219
	Cat TO-4, Vickers 35V025, Allison C-4	Bulk 1000 208 20	3P0659 166-0393 103-2528 7X7852
Apart from TO-4, TDTO has passed five other internal Cat tests and has proven	Cat TO-4, Allison C-4	Bulk 1000 208 20 5	2P9869 7X7611 9X6466 7X7855 9X6467
its enormous capabilities in field tests. Combination of friction and anti-wear properties ensures high load carrying capacity and longer clutch, gear, and bearing service life.	Cat TO-4	Bulk 1000 208 20 5	5P1228 7X7612 3E9478 7X7858 9X8443
	Cat TO-4, Allison C-4, Komatsu Micro-Clutch, Vickers 35V025	205 20	228-6070 228-6069
	Cat TO-4 and TO-4M, Allison C-4	208 20L	154-0197 154-0196
FDA0 will significantly increase bearing life and is capable of doubling oil change intervals when compared to TDTO in certain compartments.	Cat FD-1	1000 208 20	221-3445 184-8056 184-8055
Cat MTO improves braking and clutching, lowering maintenance costs, cold-weather operation, simplifying maintenance, and giving long-lasting performance.	API GL-4, CNH MAT3525, Ford New Holland FNHA-2-C-201.00, Kubota UDT, Volvo WB 101/BM, Agco Powerfluid 821 XL, Allison C4 (Agriculture Applications Only), Denison HF-0/HF-1/HF-2 (T5D & P46), Ford ESN-M2C 134 D, JI Case MS 1204-07/09, John Deere JMD J20C, Massey Ferguson MF 1135/1141, Vickers 35V025	208 20 5	120-5286 109-4395 172-6894
Provides excellent protection against wear and scoring which can be caused by high speeds and high loads on the tooth profile. Does not meet Cat T0-4 –	API GL-5 API GL-5, MT-1		9X6469 7X7867 9X6470
thus not suitable for components which must be filled with TO-4 oil.		20 L 208 L	7X-7617 161-1246

Cat® Fluids - Oils



S•O•S[™] Services for early problem detection

Protect your investment with Cat S•O•S oil analysis, the ultimate detection and diagnostic tool for your equipment. S•O•S helps you detect potential problems before they can lead to major failures resulting in costly and unscheduled downtime.

Cat Filters: Complete protection for your engine

Combine Cat Fluids with Cat Filters for the highest level of contamination control and protection for your machine. We recommend Cat Filters for all Cat machine applications.

Health and Safety

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. Read and understand the Material Safety Data Sheet (MSDS) before using this product. For a copy of the MSDS, visit us on the web at www.catmsds.com.

CAT DEALERS DEFINE WORLD-CLASS PRODUCT SUPPORT.

We offer you the right parts and service solutions, when and where you need them.

The Cat dealer network of highly trained experts can help you maximize your equipment investment.



HEHS3003-03 www.cat.com



CUSTOMER SUCCESS SAVE WITH CAT[®] DIESEL ENGINE OIL

Al Shiokh Crushers Co. is a quarry company producing various aggregates for the building and construction industry in the Southern West Bank of Palestine.



THE CHALLENGE

- Experiencing engine low power instances in a 966K
- Inspection showed the OCV Filter was clogged, filter was replaced and after 100 hours the problem repeated

THE SOLUTION

 Working with the local Cat dealer, Palestine Tractor & Equipment Co., the customer switched oil from the local competitive brand, Petropal Oil, to CAT DEO ULS 15W40

LET'S DO THE WORK.

The information contained herein are actual customer results obtained under conditions specific to the customer site, application, environment, and operation and maintenance practices. Caterpillar implies nothing further, and no one should infer that using the Cat products described herein will result in the same or similar benefits as defined in this document.

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THE CUSTOMER RESULTS

\$15k USD Annual Savings

Product Performance:

Immediate improvements in machine operation. OCV filter life extended and engine low power instances eliminated.

2X Extended Drain Interval

Product Savings:

ODI was extended from less than 250 hours to 500 hours.



CUSTOMER SUCCESS SAVE WITH CAT[®] DIESEL ENGINE OIL

Aqaba Port Marine Services Company is located in the small portion of the Jordan Territory overlooking the sea and utilizes four 3512 and 3508 Marine Engines.



THE CHALLENGE

- At the first oil drain using competitive Shell product, the customer experienced engine oil foaming.
 - · Foaming was found in the next three drain intervals.
- Customer stated the engine was overheating causing premature shut downs and loss of power leading to cavitation.

THE SOLUTION

 Working with the local Cat dealer, Jordan Tractor, Aqaba Port was able to quickly change engine oils from Shell Rimula R3 x 15W-40 to CAT DEO 15W-40.

LET'S DO THE WORK."

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THE CUSTOMER RESULTS

LESS DOWNTIME

ANNUAL

SAVINGS

Product Performance:

Using Cat DEO 15W-40 avoided overheating, loss of pump pressure, loss of power, cavitation and failure of the engine system.

Product Savings:

By eliminating the foaming while using the Shell oil the customer has potential engine overhaul savings of \$40,000 USD per engine



CUSTOMERSUCCESS SAVE WITH CAT[®] GREASE

Macadam Quarry is located in the Southern region of Russia. This area is a high dust environment that experiences extreme heat in the summer and bitter cold during the winter. Macadam Quarry has two 390D Excavators that are a crucial part of their mining fleet.





THE CHALLENGE

- Manual greasing of pins and bushings requires a considerable amount of man-hours.
- The manual process introduces a high risk of human error.

THE SOLUTION

- Zeppelin Russland worked with the customer to install an automatic lubrication system with Cat Extreme Application Grease's.
- Cat Extreme Application Grease 2 would be used in the summer months and Cat Extreme Application Grease- Artic would be used in the Winter.
- Inspection to be preformed every 500 hours.

LET'S DO THE WORK."

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THE CUSTOMER RESULTS

1,440 Fewer Hours Greasing 1,910 Less Hours Downtime

64k USD Annual Savings

50% More Component Life

Safety:

Less hours spent on manual greasing and less risk for human error.

Product Performance:

Less downtime annually equals more working time during the year.

Product Savings:

Annual savings on parts and repair costs lower owning and operating costs.

Productivity Savings:

Excavators reached 20,000 respectively without a change of pins or bushings.



CUSTOMER SUCCESS SAVE WITH CAT[®] NATURAL GAS ENGINE OIL

Mozyrsalt is the largest manufacturer of vacuum-evaporating salt in the CIS and Western Europe. The main line of the company is mining and production of table salt that is exported to over 19 countries. Mozyrsalt utilizes two Caterpillar G3516C engines.



THE CHALLENGE

- After warranty period the customer switched from Cat NGEO 40 and Cat NGEO Advanced 40 to SHELL MYSELLA S5.
- Oil change intervals for Shell were 1500-2000 hours, customer was looking to lower maintenance costs.

THE SOLUTION

• Local Cat dealer Zeppelin proposed to reduce costs by optimizing oil and filter change intervals. The program included field testing and monitoring, S.O.S. and **CAT NGEO ULTRA 40.**

LET'S DO THE WORK.

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THE CUSTOMER RESULTS

1.5x Extended Drain Interval

2,037 L Less Oil Used

\$2,400 USD Annual Savings

> 8 Hours Reduced Downtime

Product Performance:

Extended drain intervals from 1500/2000 hrs to 2500 hrs with Cat NGEO Ultra 40 and reducing oil changes to twice a year.

Sustainability:

Customer significantly reduced he amount of oil consumed and exposed to the environment.

Product Savings:

Reduced the cost of maintenance parts over the year.

Productivity Savings: Increase in production hours over the year.



CUSTOMER SUCCESS SAVE WITH CAT[®] NATURAL GAS ENGINE OIL

Nesvizh LLC is a food processing facility that produces 500 tons of baby food every day. Located in Belarus this plant operates 3 units based on gas engines Caterpillar Energy Solutions GmbH, model CG170V16.



THE CHALLENGE

• Customer is looking to reduce maintenance costs.

THE SOLUTION

 Local Cat Dealer Zeppelin Cat offered to optimize filter and oil change intervals by launching a field test along with S.O.S and monitoring. This included Cat NGEO Ultra 40.

LET'S DO THE WORK.

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THE CUSTOMER RESULTS

14x Extended Drain Interval

9,075 L Less Oil Used

\$29k USD Annual Savings

36 Hours Reduced Downtime

Product Performance:

Successful field tests resulted in extending intervals from 1,000 to 14,000 hours.

Sustainability:

Drains were reduced to 9 a year resulting in significantly less oil consumed.

Product Savings:

Savings on oil and filters over the course of the year equals a lower owning and operating cost.

Productivity Savings: Customer gained an additional 36 hours in operating time.



CUSTOMER SUCCESS SAVE WITH CAT[®] PRIME APPLICATION GREASE

Pens Industries Sdn. Bhd. (PISB) is active in stone quarry and premix. They have a 330C and 336D Excavators as well as Wheel Loaders 950L, 950H and a 938G as part of their fleet.



"We only used one drum Cat® Prime Application Grease per year compare to other competitive grease which are two drums per year. It could save 150 hours of productivity and RM1000 annually for greasing." - Mr. Rozaimi (Assistant Director), Pens Industries Sdn. Bhd.

THE CHALLENGE

- Customer was concerned with the loss of operation time associated with the regreasing process.
 - Pins and bushings were being regreased every two days
 - · Track adjusters needed greased every two weeks
- There was also a concerned on the suitability as well as life expectancy of their current grease used due to the heavy dust environment of the quarry site.

THE SOLUTION

Local dealer Tractors Malaysia recommended PISB replace the current competitive grease with **Cat® Prime Application Grease** while the customer monitored grease consistency and dust adhesion.

LET'S DO THE WORK.

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THE CUSTOMER RESULTS

Extended Grease Interval

3x

Product Performance

Customer used significantly less grease which reduces the environmental impact.

150 hrs Increase in Production

Productivity Savings

Less time spent regreasing is a gain in operation time for the customer.

\$240 USD Annual Savings

Product Savings

Customer is saving more than RM1000 in grease by extending intervals.

