

PALFINGER LUBRICANTS

UNSTOPPABLE PERFORMANCE

LIFETIME EXCELLENCE



PALFINGER LUBRICANTS

GET THE MOST OUT OF
YOUR LIFTING SOLUTION



power flowing through the
veins of your product



PALFINGER PREMIUM HYDRAULIC OIL



What are the benefits of PALFINGER PREMIUM Hydraulic Oil?

PALFINGER PREMIUM Hydraulic Oil has been formulated to protect the hydraulic system against wear in a wide range of climates and severe operating conditions. Because it has been developed on a Group II base oil, it can provide outstanding shear stability which maintains a critical oil film thickness on the highly stressed hydraulic systems components.

- Available in 3 different viscosities 22, 32, and 46
- Group II* Mineral oil zinc-based
- It has succeeded in the most demanding test and certifications:
 - PALFINGER Standard PNORM 04.01.03
 - Fulfill requirements of Bosch Rexroth specification RDE 90235 and is approved by Bosch Rexroth in the RDE 90245 fluid rating list
 - ISO 11158 (HV fluids)
 - ASTM D6158 (HV fluids)
 - FZG Gear Wear test (Fluid Load Stage 11 at ISO VG32)
 - Oil cleanliness particle count of ISO 4406 20/18/15 or better
 - DIN51524 Part 3 HVLP type

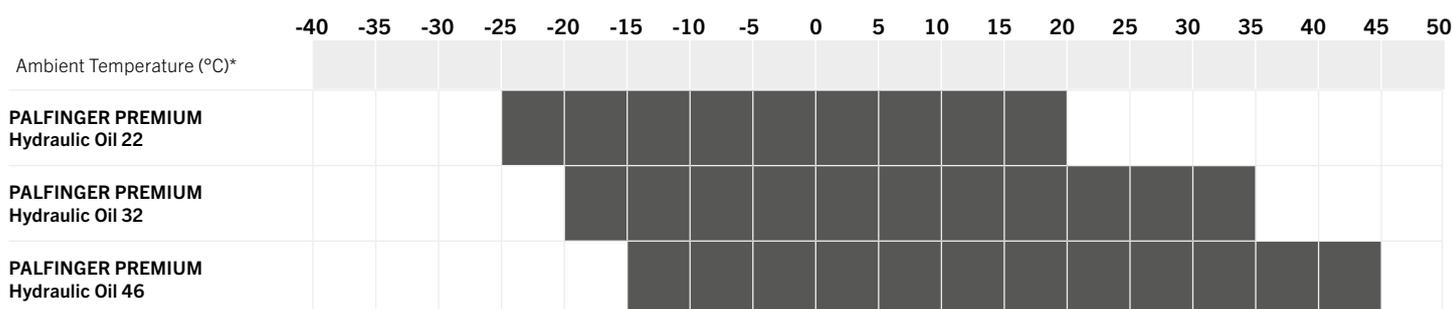
*meaning: highly refined oil with more than 90% saturates

TECHNICAL DATA

Properties	Method	22	32	46
Kinematic Viscosity at 40°C	ISO 3104	22 mm ² /s	32 mm ² /s	46 mm ² /s
Kinematic Viscosity at 100°C	ISO 3104	4.90 mm ² /s	6.15 mm ² /s	7.89 mm ² /s
Viscosity Index	ISO 2909	142	143	143
Density at 15°C	ISO 12185	833 kg/m ³	855 kg/m ³	857 kg/m ³
Flash Point (COC)	ISO 2592	210 °C	215 °C	220 °C
Pour Point	ISO 3016	-42 °C	-39 °C	-36 °C

These characteristics are typical of current production, variations may occur.

TEMPERATURE RANGE



Operating temperature should not exceed 80°C.

*Ambient temperature chart provides a general recommendation for the use of the PALFINGER Genuine oils under most typical ambient conditions. It cannot take into account extreme hot or cold conditions where equipment set up can be adjusted accordingly. However more important for the appropriate oil selection is the oil temperature in the system that directly influences operational kinematic viscosity.



PALFINGER BIO HYDRAULIC OIL



What are the benefits of PALFINGER BIO Hydraulic Oil?

PALFINGER BIO Hydraulic Oil has been formulated to answer our eco-friendly requests. Because it is a readily biodegradable oil with low ecotoxicity, is the option to-go for environmentally sensitive areas. Its naturally shear stable viscosity index (VI) delivers top performance from cold start to full load heavy-duty operation.

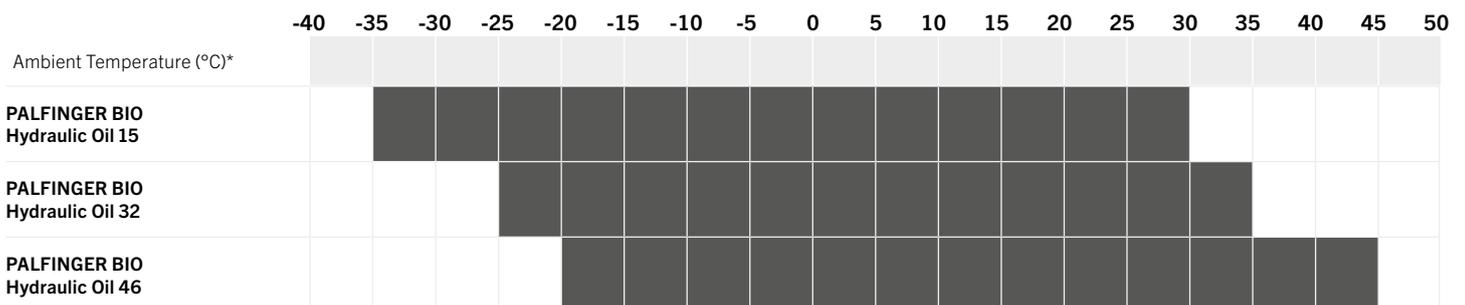
- Available in 3 different viscosities 15, 32 and 46
- Fully synthetic esters blended with ashless additives
- Biodegradable by over 60% after 28 days in the OECD 301 B carbon dioxide evolution test
- Classified as “not harmful” to bacteria, algae, freshwater and marine invertebrates, and fish when tested as water-accommodated fractions (WAFs) according to OECD and EPA test guidelines
- Mean biobased content of over 80% according to ASTM D 6866
- It has succeeded in the most demanding test and certifications:
 - PALFINGER Standard PNORM 04.01.03
 - ISO 15380 HEES
 - USDA Bio-preferred program
 - European Union Ecolabel for Lubricants
 - Swedish Standard SS 15 54 34, SP listed
 - Oil cleanliness particle count of ISO 4406 21/19/16 or better

TECHNICAL DATA

Properties	Method	15	32	46
Kinematic Viscosity at 40°C	ISO 3104	15 mm ² /s	32 mm ² /s	46 mm ² /s
Kinematic Viscosity at 100°C	ISO 3104	4.03 mm ² /s	7.20 mm ² /s	9.3 mm ² /s
Viscosity Index	ISO 2909	181	199	190
Density at 15°C	ISO 12185	910 kg/m ³	919 kg/m ³	923 kg/m ³
Flash Point (COC)	ISO 2592	220 °C	246 °C	320 °C
Pour Point	ISO 3016	-36 °C	-39 °C	-42 °C

These characteristics are typical of current production, variations may occur.

TEMPERATURE RANGE



Operating temperature should not exceed 80°C.

*Ambient temperature chart provides a general recommendation for the use of the PALFINGER Genuine oils under most typical ambient conditions. It cannot take into account extreme hot or cold conditions where equipment set up can be adjusted accordingly. However more important for the appropriate oil selection is the oil temperature in the system that directly influences operational kinematic viscosity.

PALFINGER EXTREME HYDRAULIC OIL



What are the benefits of PALFINGER EXTREME Hydraulic Oil?

PALFINGER EXTREME Hydraulic Oil has been designed for machines working under extremely low ambient temperatures. It delivers responsive operation all year round; it has the widest operating temperature range from the PALFINGER Hydraulic Oil portfolio. Its very high viscosity index (VI) ensure the hydraulic fluid flows at low temperatures where conventional hydraulic would become too thick to allow equipment operation. Additionally, its extra-low pour point enhances easy and safe start-up with no or minimum heating of the hydraulic system.

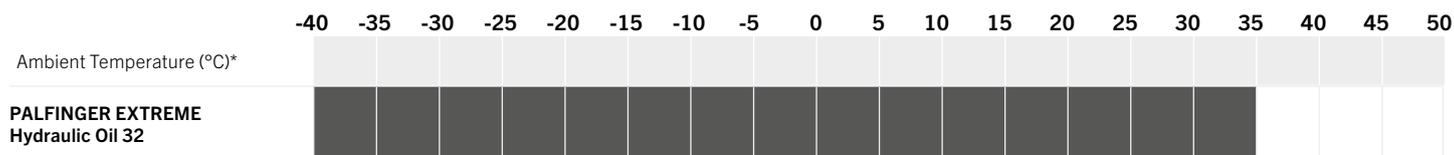
- Available in viscosity 32
- Mineral oil with carefully designed ashless (zinc-free) anti-wear additives, achieving a top wear protection
- It has succeeded in the most demanding test and certifications:
 - PALFINGER Standard PNORM 04.01.03
 - ISO 11158 (HV fluids)
 - Oil cleanliness particle count of ISO 4406 21/19/16 or better

TECHNICAL DATA

Properties	Method	32
Kinematic Viscosity at -40°C	ATSM D445	2,629 mm ² /s
Kinematic Viscosity at 40°C	ATSM D445	32 mm ² /s
Kinematic Viscosity at 100°C	ATSM D445	9.91 mm ² /s
Viscosity Index	ISO 2909	318
Density at 15°C	ISO 12185	882 kg/m ³
Flash Point (COC)	ISO 2592	100 °C
Pour Point	ISO 3016	-60 °C

These characteristics are typical of current production, variations may occur.

TEMPERATURE RANGE



Operating temperature should not exceed 75°C

*Ambient temperature chart provides a general recommendation for the use of the PALFINGER Genuine oils under most typical ambient conditions. It cannot take into account extreme hot or cold conditions where equipment set up can be adjusted accordingly. However more important for the appropriate oil selection is the oil temperature in the system that directly influences operational kinematic viscosity.

PALFINGER GEAR OIL



High-performance genuine PALFINGER Gear Oil has been designed to answer SAE 80W-90, 90 or 80W fluids requirements in exposed environments subjected to wide variations in temperature. It is suitable for moderately to heavily loaded on and off-road driveline applications, including automotive gearboxes; hypoid gear axles; general and ancillary equipment gear sets; non-synchronized transmissions; and some industrial equipment.

Based on selected base oil with modern anti-wear additive technology, PALFINGER Gear Oil:

- reduces friction which reduces power loss, offering higher mechanical efficiency and cutting down fuel costs
- improves flow properties and shiftability at low temperatures due to its shear-stable formulation
- stabilizes oxidation
- resists physical & chemical breakdown, limiting fluid degradation and preventing the formation of damaging deposits in the gears

All of these before mentioned features provide gear sets protection against wear, pitting and corrosion for a longer time, extending component life and maximizing your return on investment.

TECHNICAL DATA

Properties	Method	80W-90
Kinematic Viscosity at 40°C	ISO 3104	169 mm ² /s
Kinematic Viscosity at 100°C	ISO 3104	16,9 mm ² /s
Density at 15°C	ISO 12185	899 kg/m ³
Flash Point (COC)	ISO 2592	220 °C
Pour Point	ISO 3016	-36 °C

These characteristics are typical of current production, variations may occur.



WALFINGER



PALFINGER OIL CHECK

Due to the improved formulation of PALFINGER Lubricants, an annual oil change is no longer necessary. Therefore, it is strongly recommended to do an annual oil check to know when to change the oil as well as determine the condition of your hydraulic system. Therefore, PALFINGER now offers the PALFINGER Oil Check through its authorised workshops. The oil analyses are carried out by an external oil laboratory which always provides a comprehensive oil report together with an easy to understand evaluation.



RED for an oil that needs to be changed

YELLOW for an oil where „action must be taken“, such as a filter change

GREEN for an oil that is good for one more year

If you don't want to take any risk, we suggest you take the PURE package of the PALFINGER Service Contracts, which covers oil maintenance and oil change in case the PALFINGER Oil Report indicates so.

WHY PALFINGER DEVELOPED ITS OWN LUBRICANTS?

Because our products have evolved, our lubricants must evolve as well!
In the past we have:

- Increased the pressure in the hydraulic system up to 385 bar to get the most out of our products
- Improved the controllability due to the new comfort and safety features such as rope tension control or smart control
- Reduced our tank volumes to save weight and space on the vehicles – this means the hydraulic oil is being reused in the hydraulic cycle quicker

All these points and many years of experience on the market have led us to the decision to develop genuine PALFINGER Hydraulic fluids that can handle these high requirements and still deliver top performance under the harshest circumstances all over the world!



IMPROVEMENTS

NO FIXED OIL CHANGE INTERVAL

Thanks to its excellent thermal and chemical resistance the oil change interval has been extended. Hence, instead of a yearly oil change, an annual oil check is recommended. This oil check will not only tell you whether or not you need to change the oil but also the condition of the hydraulic components. Preventive measures are the best way to reduce downtime and save money!

Other benefits that accompany the high anti-ageing* capability of PALFINGER Lubricants are:

- Reduced oil changes due to minimal variations in fluid properties over the life of the fluid. This means less oil to buy, less oil discharge costs and less oil waste, which are both economical and environmentally friendly
- Excellent filterability thanks to high-performance water separation, air release and anti-foam characteristics, improving the efficiency of hydraulic systems, and therefore the performance of your machine
- Diminished stick-slip effects due to optimised anti-friction characteristics
- Excellent chemical stability and corrosion resistance, especially in wet conditions

*Strong anti-ageing capability has been proven during the TOST test, with results showing a minimum of 5,000 hours of protection. Relevant for PALFINGER PREMIUM and EXTREME hydraulic oil.

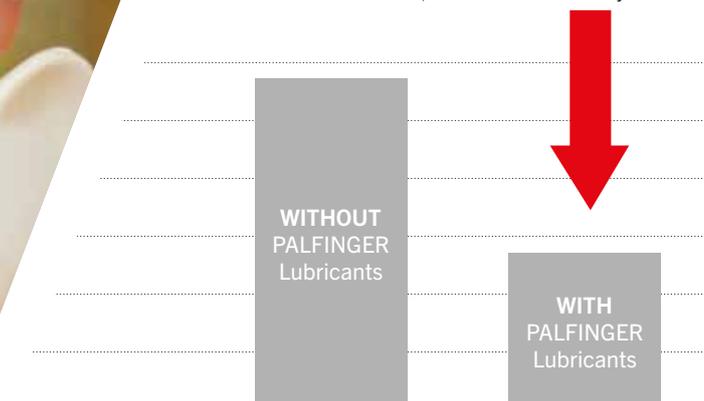


Difference between a product with and without PALFINGER Lubricants*:

SAVE UP TO 45 %

OIL RELATED COSTS

with well maintained PALFINGER Lubricants. Possible with PURE package from PALFINGER Service Contracts, which takes care of your oil.

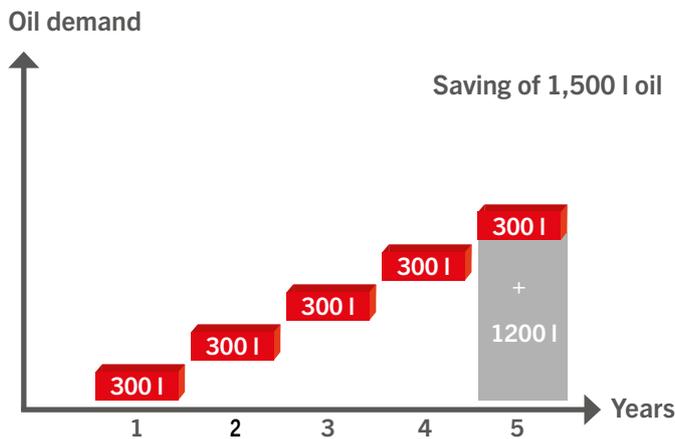


*This calculation has been done for PURE contract period of 5 years, for a machine with a 200l tank size and an Austrian labour rate.

REDUCE CO₂ FOOTPRINT BY 83% DUE TO PALFINGER LUBRICANTS

Using PALFINGER Lubricants will reduce the oil consumption significantly:

As an example, we can refer to a 90 mt loader crane with a 300 l oil tank. Based on regularly filter change and oil check we expect an oil lifetime of 5,000 h. Normally the oil will be changed 5 times according to the PALFINGER Service plan* – this means a saving of 1500 l oil compared to the usage of standard lubricants.

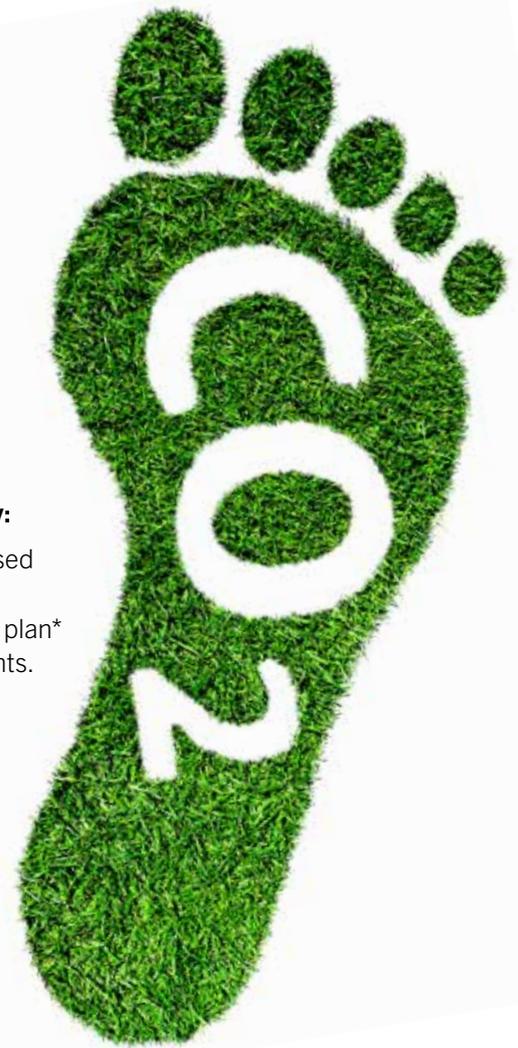


The CO₂ footprint of one liter PALFINGER Lubricant mineral oil is equivalent to 1.3 kg CO₂.

This means according to our example we can avoid within 5 years product lifetime 1.95 t of CO₂.

Last but not least, using PALFINGER Lubricants will help you to save the recycling and logistic costs for used oil as well.

*Oil change to be executed only according to recommendation of the PALFINGER Oil check process. Based on data analysis one oil change in six years need to be considered.



COMPATIBILITY & MISCIBILITY

PALFINGER Lubricants are used as running in & initial fill in PALFINGER production. It can be used in all current and older PALFINGER equipment. They are also suitable for marine application where ISO HV type hydraulic fluids are recommended.

If changing from any PALFINGER PREMIUM or EXTREME to BIO oil it is recommended to follow the fluid changeover guidelines, from the PALFINGER Hydraulic Fluids Guidelines; respecting a maximum residual mineral oil limit of 2% vol. – taken from ISO Standard 15380.

PALFINGER recommends to not mix these fluids with other available types on the market, without doing specific miscibility testing. There is no guarantee of chemical behavior when mixing any different hydraulic oil types or brands. The use of one single hydraulic lubricant prevents undesired effects that can arise when different hydraulic oil types are mixed, that is why we have been filling our products throughout the whole production process with the same top-quality PALFINGER Hydraulic Oil since summer 2019.



HEALTH, SAFETY & ENVIRONMENT

Health and Safety Guidance is available on the appropriate Safety Data Sheet of each product.

Protect the environment, take used oil to an authorized collection point. Do not discharge into drains, soil, or water.



WHAT ARE YOUR BENEFITS?

Our PALFINGER Research & Development team and PALFINGER's suppliers of critical parts in the hydraulic system have tested and approved our portfolio, confirming that PALFINGER Lubricants benefits are:

- Extended lifespan of the machine
- Extended oil change interval thanks to its improved formulation and the Oil Check process
- Enhanced performance of PALFINGER's products filled with Genuine PALFINGER Oil, achieving an impeccable controllability
- Improved cold-start behaviour
- Maximized uptime by avoiding miscibility problems by using the same oil as in the production sites; oil cleanliness secured
- Reduced life cycle costs because of fewer oil changes
- Decreased environmental impact because of less oil waste
- Access to PALFINGER Service Contracts

For more technical support, please contact oilexpert@palfinger.com

Kristoffer Szalach from
'K:S Krantranz i väst AB'
in Sweden can confirm:

**'THANKS TO THE NEW OIL, MY CRANE PERFORMS
OUTSTANDINGLY ALL DAY LONG, EVEN WHEN
THE OIL IS COLD. THE ENTIRE SYSTEM OPERATES
CONSISTENTLY AND SMOOTHLY.'**

MAXIMIZE YOUR UPTIME WITH PALFINGER SERVICE CONTRACTS

To optimize your business performance, by reducing machine downtimes and repairs costs, we offer you the PALFINGER Service Contracts in 4 different packages, from 1 to 6 years.

- Available for Loader Cranes, Epsilon Timber & Recycling Cranes, Hookloaders, Skiploaders and Truck Mounted Forklifts



- For new products filled only with PALFINGER Lubricants
- Service possible at any authorized PALFINGER Service Partner

Our goal is to offer prevention and backup with complete cost transparency. You can plan your expenditure and do not have to worry about unforeseen workshop costs. We simplify your processes and allow you to focus on your core business.

PACKAGES

	 PURE	 PERFORM	 PRO	 PRIME
Oil Maintenance	●	●	●	●
Regular Service	–	●	●	●
Legal Inspection *	–	●	●	●
Connected Premium**	○	○	●	●
Repair Service	–	–	●	●
Wear Parts Service	–	–	–	●
Monthly Maintenance	–	–	–	○

● Standard ○ Optional – Not available

*Legal inspection subject to country specific laws.
**Hardware to be purchased with product, availability for your product has to be checked.

All the mentioned services include labor work and material expenses. We only work with top-quality genuine PALFINGER products.

**SCAN HERE TO GET MORE INFORMATION
ABOUT SERVICE CONTRACTS:**



