



PRODUCT GUIDE MANUAL



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PRECISION LUBRICANTS

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HEAVY DUTY DIESEL ENGINE

Ultra Euro 10W-40

Code: 2009

Ultra Euro Full Synthetic is the ultimate state of the art lubricant conforming to European IV & V emission standards and meets the highest levels for Ultra High Performance Diesel (UHPD). Incorporating Low SAPS technology and provides greater lubricant life and protects all moving parts from wear and soot damage. **Ultra Euro** has been formulated with unique synthetic base oil specifically to meet the requirements of European, American and Japanese design emission engines specifically those engines which incorporate Exhaust Gas Recycling (EGR) and Diesel Particulate Filters (DPF) and full electronic management of fuel and emissions systems to provide fuel efficiency, high wear protection and long drain capability.

Specifications: API: CI-4/SL, SAE Viscosity: 10W-40, ACEA: E6-12E7-12, 2008, JASO: DH-2, Volvo: VDS-3, Mack: EO-N (also suitable for previous EO series), Cummins: CES 20076/77 and previous series, Detroit: DDC Power Guard 93K218, Caterpillar: ECF-3, Mercedes Benz: MB 228.51/226.9, MTU: Type 3.1, MAN: M3477/M3271-1, Scania: Long Drain, Renault: RLD-2, RXD, RGD, Deutz: DQC 111-10 LA.

Product Size: 1L, 5L, 10L, 20L, 205L



Topline Platinum 15W-40

Code: 2008

Topline Platinum is a new generation CK-4/E9-12 diesel engine lubricant. Its advanced additive technology provides improved fuel economy, unparalleled shear stability and oxidation control. Optimised developments in precision lubrication chemistry has resulted in this cutting edge diesel engine oil for greater lubricant life and protection of all moving parts from wear and soot damage. This advanced formulation allows extended oil drain intervals compared to conventional CJ-4 lubricants and has been developed to replace Royal Precision Lubricants Ultra LD diesel engine oil.

Topline Platinum is a heavy-duty diesel engine lubricant that not only meets but genuinely exceeds all requirements of high speed, turbocharged European, American and Japanese designed emission engines. This includes those engines which incorporate Selective Catalytic Reduction (SCR), Exhaust Gas Recycling (EGR), Diesel Particulate Filters (DPF) and full electronic management of fuel and emissions systems to provide fuel efficiency, high wear protection, long drain capability and optimisation of the systems life thereby decreasing the maintenance costs.

Specifications: API: CK-4/ CJ-4/CI-4 +/CI-4, SAE Viscosity: 15W-40, ACEA: E9 - 12, Volvo: VDS-4.5, Mack: EOS- 4.5, Cummins: CES 20086, Detroit: DDC Power Guard 93K222, Deutz DQC III-10LA, Caterpillar: ECF-3, JASO: DH-1,DH-2, MAN: M 3575, Mercedes Benz: MB 228.3 & 228.31, MTU: Category 2.1, Renault: RLD-4, Ford: WSS-M2C171-E

Product Size: 5L, 10L, 20L, 205L

HEAVY DUTY DIESEL ENGINE

Ultra 9000 15W-40

Code: 2003

Ultra 9000 the most advanced development in lubrication chemistry resulting in a world capable diesel engine oil for greater lubricant life and protection of all moving parts from wear and soot damage. **Ultra 9000** is a heavy-duty diesel engine oil that meets the requirements of high speed, turbocharged European, American and Japanese design emission engines. This includes those engines which incorporate an Exhaust Gas Recycling (EGR) and Diesel Particulate Filters (DPF) and full electronic management of fuel and emissions systems to provide fuel efficiency, high wear protection, long drain capability and optimization of the EGR system life thereby decreasing the maintenance costs.

Specifications: API: CJ-4/ CI-4 +/CI-4, SM/CF, SAE Viscosity: 15W-40, ACEA: E7-04, E9 - 08, Global DHD -1, Volvo: VDS-4, Mack: EO-O Premium Plus 07, Cummins: CES 20081, Detroit: DDC Power Guard 93K218, Caterpillar: ECF-3, JASO: DH-1,2, MAN 3575, Mercedes Benz: MB 228.31, MTU: Type 2.1, Renault: RLD-3.

Product Size: 1L, 5L, 10L, 20L, 205L



Topline Express 15W-40

Code: 2002

Topline Express the most advanced development in lubrication chemistry resulting in a world capable diesel engine oil. **Topline Express** has been formulated specifically to meet the requirements of European, American and Japanese design emission engines including those engines which incorporate Exhaust Gas Recycling (EGR) to provide fuel efficiency, high wear protection and long drain capability. EGR can add to deposits forming in the combustion chamber, and therefore Topline Express low sulphated ash content assists in maintaining engine and injector cleanliness.

Specifications: API: CI-4 Plus/SL, CI-4, CH-4, SAE Viscosity: 15W-40, ACEA: E7-08, E5-02, E3-96, Caterpillar: ECF-2, ECF-1-a, Global: DHD-1, JASO: DH1, Mack: EO-M Plus, EO-M, Mack EO-N Premium Plus 03, Cummins: CES 20071, 20073, 20076, 20077, 20078, Mercedes Benz: 228.3/229.1, MAN: 271, 3275, Renault: RLD-2, Volvo: VDS-3, Allison: Type C-4 (SAE: 30), Detroit Diesel: DDC Series 2000/4000, Type 1 (Series 40, 50, 55, 60 engines) Detroit Diesel does not endorse multi-grade engine oils in their two stroke engines.

Product Size: 1L, 5L, 10L, 20L, 205L, 1000L



HEAVY DUTY DIESEL ENGINE

Ultra 5000 5W-40

SEMI-SYNTHETIC

Code: 2007

Ultra 5000 Semi-Synthetic a premium quality diesel engine oil, that combines new edge technology additives, extra dispersant and low shear rate viscosity modifiers to ensure additional protection against wear, corrosion, oil oxidation and sludge build up under the toughest conditions. Designed for use in latest generation light duty diesel engines including the new generation of common rail and hydraulically actuated injector equipped units such as BMW Td6, Hyundai Terracan, Land Rover Td5, Range Rover Td6 and Holden Jackaroo 3.0L diesel engines.

Specifications: API: CH-4/SL, SAE Viscosity: 5W-40, ACEA: A3/B4/E4 (Europe), Mercedes Benz: MB 229.5, VW: 505.01, 505.00, 506.00, 506.01, Opel: B040 2098, Ford: M2C153-G/H, M2C171-C, Global: DLD-3/DLD-2, Peugeot: D-02.

Product Size: 1L, 5L, 20L, 205

Ultra 4000 15W-40

Code: 2001

Ultra 4000 an oil for use in high-speed, four stroke diesel engines to meet the requirements of European, American and Japanese engine manufacturers. Designed to meet 1998 emission standards and specifically compounded for use with those diesel fuels ranging in sulphur content up to 0.5% weight.

Please note this was formerly known as Ultra Diesel.

Specifications: API: CH-4/SL, CG-4/CF-4/CF, SAE Viscosity: 15W-40, ACEA: E7-04, A3, B3, E2, Mack: EO-M, EO-M Plus, Mercedes: 229.1, 228.1, MAN: M3 275, Volvo: VDS-2, Cummins: CES 20076, 20072, 20071, MTU DDC: Type 1, Caterpillar: ECF-1-a, Ford: M2C-153-E, M2C-121-B, Global: DHD-1, JASO: DH-1, Allison: C-4.

Product Size: 5L, 10L, 20L, 205L, 1000L



HEAVY DUTY DIESEL ENGINE

Turbo Diesel 15W-40

Code: 2032 (replaces old code 2000CF)

Turbo Diesel high performance engine diesel engine oil to meet the requirements of naturally aspirated and moderately turbo-charged engines. It incorporates current anti-wear and engine cleanliness technology and controls bore polishing and glazing.

Specifications: API: CF-4, CD, SJ/SH, SAE Viscosity: 15W-40, Mack: EOK-2, 271, Volvo: VDS, US Military: MIL-L2104E and IL-L-46152E, Allison C-4.

Product Size: 20L, 205L

Ultra Mono 10W, 30, 40, 50

Code: 10W - 2210, 30 - 2230, 40 - 2240, 50 - 2250

Ultra Mono a high performance, mid ash, mixed fleet mono-grade automotive engines oils designed for a wide range of diesel and petrol engines operating under severe conditions. Recommended for a wide range of European, Japanese and pre-1994 American makes of diesel engines. **Ultra Mono** can be used in non-engine applications such as off-highway, agriculture and stationary plant operations. Widely used in hydraulics and transmissions, where appropriate.

Ultra Mono is available in SAE Viscosity: 10W, 30, 40, 50. Formerly referred to as Prema Diesel

Specifications: API: CF/SJ, SAE Viscosity: 10W, 30, 40, 50, ACEA: E2 (SAE: 30, 40), Mercedes Benz: MB 228.0 (SAE: 30, 40), MAN: 270, US Military: MIL-L-2104F (SAE: 30, 40), US Military: MIL-L-46152D (SAE: 10, 30), SABS: 1516/17, Mack: EO-K/2, Japan: Japanese CD, Allison: -4, Detroit Diesel: DDC Category 1 (SAE: 30, 40), MTU: Category 1 (SAE: 30W, 40W), ZF: TE-ML 03B (SAE: 10W).

Product Size: 20L

HPDD 40

Code: 2200

HPDD 40 are high quality mono-grade diesel engine oils, to meet the minimum requirements of most diesel engines.

Specifications: API: CF/CF-2/SG, SAE Viscosity: 40, ACEA: E1, Mercedes Benz: MB 227.1.

Product Size: 20L, 205L

MultiFarm 15W-40

Code: 2600

Multifarm a formulated as a super tractor oil that is universal for engines, transmissions, differentials, wet brake systems, power take off and hydraulic units.

Specifications: API: CE, CD, CG-4/ SF, GL-4SAE Viscosity: 15W-40, Mercedes Benz: MB 227.1, John Deere: JDM J27, J20A, J20C, Ford: M2C-159-B/C, M2C 86-A, 134-C/D, Massey Ferguson: M1135, M1139, M1144, M1145, Mercedes: MB 228.1, MB 228.3 , Allison: C-4, MAN: 271Caterpillar: TO-2, ZF: TE-ML 06, 07, ACEA: E2.

Product Size: 20L, 205L

PASSENGER & LIGHT COMMERCIAL

Syntec Ultra 0W-20

Code: 9190

Syntec Ultra 0W-20 is full synthetic passenger car motor oil formulated to provide excellent fuel efficiency and minimal engine wear, particularly at cold start-ups. It meets the latest advances in low to mid SAPS additive technology and features low volatility synthetic base oil that minimises oil loss as well as an enhanced corrosion protection. **Syntec Ultra 0W-20** meets the highest API SN and ILSAC GF-5 performance levels and exceeds most demanding requirements in relation to modern engine's emission controls as well as oil consumption. It is designed for use in modern 4, 6 & 8+ cylinder multi-cam, multi-valve (including VVT), naturally aspirated, supercharged & turbocharged petrol, low emission engines including Hybrids.

Specifications: SAE Viscosity 0W-20, API SN, ILSAC GF-5, GM 6094M

Product Size: 1L, 5L, 10L, 20L, 205L



Syntec Ultra C2 0W-30

Code: 9188

Syntec Ultra C2 0W-30 is a high performance, fully synthetic, mid SAPS engine oil suitable for use in selected late model diesel and petrol fuelled cars that call for an ACEA C2 rated oil, such as some Toyota, Peugeot, Land Rover, and Citroens, including those fitted with Diesel Particulate Filters (DPF's). Meeting API SN, **Syntec Ultra C2 0W-30** is formulated with the latest development in additive technology delivering maximum wear protection, minimal sludge formation, reduced piston deposits and the highest level of engine protection and fuel efficiency. **Syntec Ultra C2 0W-30** is designed for use in modern multi-cam, multi-valve (including VVT) naturally aspirated, supercharged and turbo charged engines and is suitable particularly suitable for use in the new Toyota 2.8L Turbo diesels fitted to the Fortuner, Landcruiser and Hilux where ACEA C2 0W-30 oils are specified.

Specifications: SAE 0W-30, API: SN/CF, ACEA: C2-12 ACEA:, A5/B5-08, BMW Longlife 04, Mercedes: 229.51, Porsche, Approved, PSA B71 2312, Toyota: Diesel + DPF, VW:502.00, 505.00, 505.01

Product Size: 1L, 5L, 10L, 20L, 205L



PASSENGER & LIGHT COMMERCIAL

Syntec Ultra F 5W-30

Code: 9187

Syntec Ultra F 5W-30 is a full synthetic fuel efficient passenger car motor oil formulated for Ford passenger car engines. Especially suitable for Ford Dura Torque Diesel engines. **Syntec Ultra F 5W-30** meets the latest Ford and ACEA performance levels and exceeds the most demanding requirements in relation to modern engine's emission controls as well as oil consumption. **Syntec Ultra F 5W-30** is suitable for use in approved European and US passenger cars and 4WD's.

Specifications: SAE Viscosity 5W-30, ACEA A3/B4, ACEA, A5/B5, API SN/CF, Ford M2C 913-A, B, C, D, Chrysler MS 6395, Iveco 18-1811 S1/S2, Jaguar M2C 913-B, Jaguar Land Rover ST JLR.035003, Mercedes 229.1, 229.3, Opel GM-LL-B-025, Renault RN0700, 0710, VW 502.00, 505.00

Product Size: 1L, 5L, 10L, 20L, 60L, 205L



Syntec Elite 5W-40

Code: 9160

Syntec Elite is full synthetic, high performance engine oil formulated and blended to achieve the highest levels of engine protection from the latest available technology. As one of the top-tier Low SAPS lubricants, **Syntec Elite** is specially designed for use in high performance passenger car and light duty vehicles fitted with diesel/petrol engines where advanced after treatment systems such as Three Way Catalysts (TWC) and Diesel Particulate Filters (DPF) are used.

Specifications: API: SN/CF, SAE Viscosity: 5W-40, A5/B5-04, ACEA: C2-08/C3-08/ C3-10, GM:Dexos 2, VW: 502.00, 505.00, 505.01, Mercedes Benz: MB 229.51, BMW: Long Life 04, PSA B71-2290, Porsche A40, Renault RN0700/RN0710.

Product Size: 1L, 5L, 10L, 20L, 205L



PASSENGER & LIGHT COMMERCIAL

Syntec C1 5W-30

Code: 9186

Syntec C1 5W-30 is a high performance, fully synthetic low SAPS engine oil suitable for use in diesel and some petrol fuelled cars that call for an ACEA C1 or DL-1 rated oil, such as some Mazda, Ford, Mitsubishi and Citroen diesels fitted with Diesel Particulate Filters (DPF's).

Formulated using the latest cutting edge additive technology, **Syntec C1 5W-30** maximises fuel economy while at the same time extends Diesel Particulate Filter Life (DPF) and drain intervals.

Specifications: SAE 5W-30, ACEA: C1-10, DL-1, FORD: M2C932-B, MAZDA: Diesel + DPF, Mitsubishi: Diesel + DPF

Product Size: 5L, 20L, 205L.



Syntec C4 5W-30

Code: 9183

Syntec C4 5W-30 is a full synthetic, SAE 5W-30 engine oil formulated using the latest advances in low SAPS additive technology. **Syntec C4 5W-30** is recommended for modern gasoline (petrol), LPG and diesel engines with or without turbo charging in the latest generation passenger cars equipped with diesel particulate filter and/or selective catalytic reduction (DPF and/or SCR).

Specifications: ACEA C4, Renault RN 0720.

Product Size: 5L, 20L, 205L



Syntec GF-5 5W-30

Code: 9182

Syntec GF5 5W-30 is full synthetic passenger car motor oil GM Dexos 1 oil formulated to provide excellent fuel efficiency and minimal engine wear, particularly at cold start ups. **Syntec GF5 5W-30** meets the highest API SN and ILSAC GF-5 performance level and exceeds most demanding requirements in relation to modern engine's emission control as well as oil consumption. **Syntec GF5 5W-30** is suitable for use in US, Australian and Japanese petrol fuelled cars and 4WD's as well as many engines from other Asian car manufacturers.

Specifications: SAE Viscosity 5W-30, API SN, ILSAC GF-5, GM Dexos 1, GM 6094M, Ford M2C946-A, Ford M2C945-A, Chrysler MS 6395.

Product Size: 1L, 5L, 20L, 205L



PASSENGER & LIGHT COMMERCIAL

Syntec Ultra 0W-30

Code: 9180

Syntec Ultra Full Synthetic, a 100% fully synthetic motor oil that complies with modern European emission standards. As one of the top-tier Low SAPS lubricants, it is specially designed for use in high performance passenger car and light commercial petrol and diesel engines where advanced after treatment systems such as Diesel Particulate Filters (DPF) and Three Way Catalysts (TWC) are used. **Syntec Ultra** aligns well with many OEM performance specifications and can be used in most advance European, American and Japanese model vehicles.

Specifications: API: SN/CF, SAE Viscosity: 0W-30, ACEA: A5/B5-08, C3-10, BMW: Long Drain Long Life 04, Mercedes Benz: MB 229.30, 229.51, VW: 502.00, 505.00, 505.01, ILSAC: GF-5, Porsche C30 Approved.

Product Size: 1L, 5L, 20L, 205



Syntec Ultra 0W-40

Code: 9185

Syntec Ultra 0W-40 is a full synthetic motor oil formulated with ultra high performance synthetic base stocks fortified with a precisely balanced component system. **Syntec Ultra 0W-40** is for use in modern engine technologies for both on road and in competition applications. It is suitable for use in modern 4, 6 & 8+ cylinder, multi cam, multi-valve including Variable Valve Timing (VVT), naturally aspirated, supercharged & turbocharged engines, including light duty diesel engines.

Syntec Ultra 0W-40 minimizes oil hydrodynamic friction, allowing fuel economy especially when oil is cold and improves oil flow at start-up, faster oil pressure build up, faster rev raisings and faster operating temperature reach. Environment friendly, **Syntec Ultra 0W-40** allows fuel consumption reduction and therefore minimizes greenhouse gases (CO₂) emissions. Suitable for use where SAE 0W-30 grade engine oils are specified.

Specifications: API SN/CF, SAE Viscosity: 0W-40, ACEA A3/B4, BM LL-01, MB-Approval 229.5, Porsche A40, VW 502 00 – 505 00

Product Size: 5L, 20L, 205L, 1000L



Syntec Ultra V 5W-30

Code: 9280

Syntec Ultra V Full Synthetic, long life petrol & diesel, energy conserving engine oil designed for the VAG group of vehicles (Volkswagen, Audi, Skoda, SEAT) for VW engines conforming to European IV emission standard which provides the highest level of protection from combustion deposits, heat induced oil oxidation and sludge deposits. Note: Touareg R5 and V10 Tdi must use VW 503.00, 506.00, 506.01 specification lubricants.

Specifications: SAE Viscosity: 5W-30, VW 504.00 (petrol), 507.00 (diesel), Mercedes Benz: MB 229.51, ACEA: A3/B4-04 (2004), ILSAC: GF-4, BMW: Long Life 04.

Product Size: 5L, 20L, 205L



PASSENGER & LIGHT COMMERCIAL

Ultra 7000 5W-30

Code: 9240

Ultra 7000 Full Synthetic is a Long Life, 100% synthetic engine oil that complies with modern European Union emission standards. As one of the top-tier Low SAPS lubricants, it is specially designed for use in high performance passenger car and light duty vehicles fitted with diesel/petrol engines where advanced after treatment systems such as Diesel Particulate Filters (DPF) and Three Way Catalysts (TWC) are used.

Specifications: API: SN/CF, SAE Viscosity: 5W-30, ACEA C2/C3-10 (2010), ACEA C2-08 (2008), ACEA A5/B5-04, ACEA A3/B4-04 (2004), GM Dexos 2, BMW: Long Life 04, MB229.1, Volkswagon VW502.00, Volkswagon VW505.00, Volkswagon VW505.01, Porsche, PSA Peugeot Citroen B712290.

Product Size: 1L, 5L, 10L, 20L, 205L

 PURE SYNTHETIC



Syntec Semi 10W-40

Code: 9125

Syntec Semi Synthetic a high performance petrol engine lubricant formulated and blended to achieve an optimum level of engine protection from the most advanced chemical technology. The formulation of unique base fluids provides protection for all car engines, including leaded and unleaded petrol, LP gas, diesel powered cars and turbocharged or naturally aspirated engines. *Please note this was formerly known as M5 Supreme.*

Specifications: API: SN/CF/CF-4, SAE 10W-40, ACEA A3, B3/B4, Ford: ESE - M2C 153-E, Daimler/Chrysler: 229.1, VW: 501.01, 505.00.

Product Size: 1L, 5L, 8L, 20L, 205L

SEMI-SYNTHETIC

Senso Lovis 10W-30

Code: 1202

Senso Lovis a high performance, energy conserving engine oil. It has been designed to provide excellent fuel efficiency and exceptional engine wear protection, particularly at cold start-ups.

Senso Lovis has been designed for use where the engine manufacturer recommends low viscosity oil such as 10W-30 or 7.5W-30. It is recommended for use in Ford AU model, imported Ford US and European models such as Festiva, Mondeo, Taurus, Explorer and the petrol Transit van. It is also suitable for many other US models such as Chrysler and Nissan where a 7.5W-30 oil is specified. Formerly referred to as LOVIS Supreme

Specifications: API: SN/CF, SAE Viscosity: 10W-30, ILSAC GF-5, Ford: MC2-153-E

Product Size: 1L, 5L, 8L, 20L, 205L

PASSENGER & LIGHT COMMERCIAL

Senso Classic 20W-50

Code: 1002

Senso Classic a super high performance product blended with the finest quality mineral base oils and top quality additive materials to provide the user with the best protection for the extensive range of vehicles requiring this specification. It gives superior engine cleanliness and wear protection. Formerly referred to as M4 Supreme.

Specifications: API: SN/CF, SAE Viscosity: 20W-50, ACEA: A2/B2-02, A3/B3-98, Ford:M2C153-E, VW:500, 501, 505, Daimler/Chrysler: 229.1, BMW: Special Oil.

Product Size: 1L, 5L, 20L, 60L, 205L



Senso Supreme 15W-40

Code: 1502

Senso Supreme a multifunctional petrol/diesel oil representing a new generation motor oil which provides better protection from piston deposits, less oil thickening and sludge deposits, and exceptional anti-wear protection under high speed high stress motoring conditions. **Senso Supreme** has a high viscosity index, ensuring quick circulation of oil to all moving parts during cold weather starts, providing additional wear protection during this critical time of an engines operation. *Please note this was formerly known as Senso 5000.*

Specifications: API: SN/CF, SAE Viscosity: 15W-40, ACEA: A2/B2-02, A3/B3-98, Mercedes Benz: 229.1, VW: 501.01, 505.00, Ford: M2C153-E.

Product Size: 1L, 5L, 20L, 205L

Senso Gold 15W-50

Code: 1102

Senso Gold a premium quality passenger car lubricant recommended for high performance, turbo charged and multi valve petrol, diesel and gas car engines. Formerly referred to as Protecta Multivalve

Specifications: API: SN/CF, SAE Viscosity: 15W-50, ACEA: A2/B2-02, A3/B3-98, Ford:M2C 153-E, VW: 500, 501, 505, BMW: Special Oil, Daimler/Chrysler: 229.1.

Product Size: 1L, 5L, 20L, 205L

Senso Heavy 25W-60

Code: 1601

Senso Heavy a heavy-duty passenger car lubricant recommended for protection of engines especially where low oil pressure or high consumption is involved. Also suitable for noisy or worn engines that burn oil or blow smoke, in high ambient operating temperatures and high loading associated with caravan or trailer towing. *Please note this was formerly known as Guardol.*

Specifications: API: SL/CF, SAE Viscosity: 25W-60.

Product Size: 5L, 20L

PASSENGER & LIGHT COMMERCIAL

Senso Run-In Oil 15W-40

Code: 1622

RPL Run-In Oil is formulated with the highest quality mineral base stocks treated with specially designed additive system to provide exceptional lubrication during the critical run-in period while allowing the engine parts to achieve the correct level of wear to enable good gas sealing of piston rings to cylinder walls. **RPL Run-In Oil** is designed for the running-in of mainly older design, rebuilt petrol and diesel engines.

Specifications: Meets or exceeds the following international performance specifications:
SAE 15W-40, API: SF/CC.

Product Size: 5L

M3 Supreme 20W-50

Code: 1001

M3 Supreme a high performance engine oil that meets the requirements of modern engine manufacturers.

Specifications: API: SJ/CF, SAE Viscosity: 20W-50, ACEA: A2-96 Issue 2, A3-98, B2-98, B3-98, E2-96 Issue 2, VW: 500, 501, Ford: ESE-M2C-153E, MIL-L-46152E, 2104E.

Product Size: 20L, 205L

TITANIUM RACING OILS

Endurance

Titanium Racing 5W-30

Code: 1710

Endurance Titanium Racing 5W-30 is specifically designed to offer superior lubrication for high-performance race tuned spark ignition engines. Blended with full PAO / Ester base oils, **Endurance Titanium Racing 5W-30** is fortified using advanced Titanium anti-wear and High ZDDP (Zinc) additive system.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and increased ZDDP (Zinc) levels work together synergistically to ensure **Endurance Titanium Racing 5W-30** delivers exceptional performance under high loads, high temperatures and speeds typically experienced by high revving engines in competition racing conditions.

Specifications: API: SN/CF, ACEA: A3/B3, SAE Viscosity: 5W-30.

Product Size: 5L, 20L, 205L



Endurance

Titanium Racing 5W-40

Code: 1711

Endurance Titanium Racing 5W-40 is specifically designed to lubricate high-performance race tuned spark ignition engines. Blended with full PAO / Ester base oils, **Endurance Titanium Racing 5W-40** is fortified with an advanced Titanium anti-wear and High Zinc ZDDP (Zinc) additive system.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and increased ZDDP (Zinc) levels work together synergistically to ensure **Endurance Titanium Racing 5W-40** delivers exceptional performance under high loads, high temperatures and speeds typically experienced by high revving engines in competition racing conditions.

Specifications: API: SN/CF, ACEA: A3/B3, SAE Viscosity: 5W-40

Product Size: 5L, 20L, 205L



TITANIUM RACING OILS

Endurance

Titanium Racing 10W-50

Code: 1712

Endurance Titanium Racing 10W-50 is specifically designed to lubricate high-performance race tuned spark ignition engines. Blended with full PAO / Ester base oils, **Endurance Titanium Racing 10W-50** is fortified with an advanced Titanium anti-wear and High ZDDP (Zinc) additive system.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and increased ZDDP (Zinc) levels work together synergistically to ensure **Endurance Titanium Racing 10W-50** delivers exceptional performance under high loads, high temperatures and speeds typically experienced by high revving engines in competition racing conditions.

Specifications: API: SN/CF, ACEA: A3/B3, SAE Viscosity: 10W-50

Product Size: 5L, 20L, 205L



Competition

Titanium Racing 25W-60

Code: 1701

Competition Titanium Racing 25W-60 is specifically designed to lubricate high-performance race tuned engines that have been modified to incorporate high volume oil pumps and wider main and connecting rod bearing clearances.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and increased ZDDP (Zinc) levels work together synergistically to ensure **Competition Titanium Racing 25W-60** delivers exceptional performance under high loads, high temperatures and speeds typically experienced by high revving engines in competition racing conditions.

Specifications: API: SN/CF, ACEA: A3/B3, SAE Viscosity: 25W-60

Product Size: 5L, 20L, 205L



TITANIUM RACING OILS

Competition

Titanium Racing 40-70

Code: 1702

Competition Titanium Racing 40-70 is specifically designed to lubricate high-performance race tuned engines that have been modified to incorporate high volume oil pumps and wider main and connecting rod bearing clearances.

Competition Titanium Racing 40-70 has been scientifically formulated with a precise combination of high viscometrics, ZDDP (Zinc) and Borate Esters to work together to ensure **Competition Titanium Racing 40-70** delivers exceptional performance under high loads, high temperatures and speeds typically experienced by high revving engines in competition racing conditions.

Specifications: API: SL/CF, ACEA: A3/B3,SAE Viscosity: 40-70

Product Size: 5L, 20L, 205L



PREMIUM MOTOR CYCLE OILS

Nexus 4TS Ultra 5W-40

Code: 1730

Nexus 4TS Ultra 5W-40 is a premium, full synthetic, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine, clutch and gearbox protection from the latest available technology. Blended with full PAO Ester base oils, **Nexus 4TS Ultra 5W-40** is fortified with an advanced Titanium anti-wear and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4TS Ultra 5W-40** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 5W-40.

Product Size: 1L, 4L, 20L, 205L



Nexus 4TS Ultra 10W-40

Code: 1731

Nexus 4TS Ultra 10W-40 is a premium, full synthetic, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine, clutch and gearbox protection from the latest available technology. Blended with full PAO Ester base oils, **Nexus 4TS Ultra 10W-40** is fortified with an advanced Titanium anti-wear and ZDDP (Zinc) additive system.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4TS Ultra 10W-40** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 10W-40.

Product Size: 1L, 4L, 20L, 205L



PREMIUM MOTOR CYCLE OILS

Nexus 4TS Ultra 15W-50

Code: 1732

Nexus 4TS Ultra 15W-50 is a premium, full synthetic, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine, clutch and gearbox protection from the latest available technology. Blended with full PAO Ester base oils, **Nexus 4TS Ultra 15W-50** is fortified with an advanced Titanium anti-wear and ZDDP (Zinc) additive system.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4TS Ultra 15W-50** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 15W-50.

Product Size: 1L, 4L, 20L, 205L



Nexus 4T Super 10W-40

Code: 1720

Nexus 4T Super 10W-40 is a premium, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine and gearbox protection from the latest available technology.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4T Super 10W-40** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 10W-40.

Product Size: 1L, 4L, 20L, 205L



PREMIUM MOTOR CYCLE OILS

Nexus 4T Super 15W-50

Code: 1721

Nexus 4T Super 15W-50 is a premium, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine and gearbox protection from the latest available technology.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4T Super 15W-50** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 15W-50.

Product Size: 1L, 4L, 20L, 205L



Nexus 4T Super 20W-50

Code: 1722

Nexus 4T Super 20W-50 is a premium, four stroke motorcycle engine oil formulated and blended to achieve the highest levels of engine and gearbox protection from the latest available technology.

Scientifically formulated, the combination of ultra-shear stable base oils, Titanium additive and ZDDP (Zinc) levels work together synergistically to ensure **Nexus 4T Super 20W-50** delivers exceptional performance providing outstanding wear protection, low temperature and high temperature performance.

Specifications: JASO MA2 (T903:2011), API: SN, SAE Viscosity: 20W-50,

Product Size: 1L, 4L, 20L, 205L



PREMIUM MOTOR CYCLE OILS

Nexus 2TS Ultimate

Code: 1750

Nexus 2TS Ultimate is a premium, full synthetic 2-Stroke motor cycle engine oil formulated and blended to achieve the highest levels of engine protection from the latest available technology. Blended with Ester and Poly ISO Butylene base oils, **Nexus 2TS Ultimate** is fortified with an advanced additive system delivering ultimate protection under racing conditions for all 2-Stroke premix and direct injection systems.

Scientifically formulated, the combination of ultra-shear stable base oils successfully coupled with advanced additive technology systems work together synergistically to ensure **Nexus 2TS Ultimate** delivers exceptional wear protection, ultra-clean burning, high temperature and low ash performance.

Nexus 2TS Ultimate is designed for use in most modern 2-Stroke road, dirt bikes, scooters, snow mobiles and chainsaws fitted with 2-Stroke engines. Especially recommended for high performance air and water cooled 2-Stroke engines and exceeds the requirements for Sea Doo Jet Ski high performance engines. Other Jet Ski brands should use Royal 2-Stroke marine oil. **Nexus 2TS Ultimate** is suitable for all conventional petrol fuel grades including E10 and is NOT compatible with Methanol and E85 formulations.

Specifications: JASO: FD, API: TC, ISO: L-EGD, SAE Viscosity: 20W, Aprilia Ditech SR 50 approval, Piaggio Hexagon approval, TISI requirements for Detergency and Lubricity

Product Size: 1L, 4L, 20L, 205L



TRANSMISSION

Syntrans MV

Code: 9340

Syntrans MV Full Synthetic is a multi vehicle fully synthetic transmission fluid formulated to meet the requirements of most modern and older automatic transmissions. This advanced formulation has passed extensive testing for European, American and Asian vehicles and offers enhanced transmission shift and anti-shudder performance with high torque capacity. Suitable for extended drain intervals up to 150,000 km's for general use and 80,000 km's for heavy-duty applications, **Syntrans MV** covers a wide range of specifications making it a true multi-functional product.

Specifications: Aisin Warner AW-1, Allison: C4, TES 295, Audi: G052-162, G052-990, G055-025, G055-005, G055-162, G060-162, BMW: 7045E, LA2634, LT71141, P/N 83-22-0-142-516, Chrysler: ATFs, Mopar AS68RC, DEXRON® II, IID, IIE, IIF, IIIG, IIH, VI, Esso: LT-71141, Ford: FNR5, MERCON® V, Honda: ATF-Z1, DW-1, Hyundai/Kia: SP-II, SP-III, JWS-3314, JWS-3317, SP-IV, Hyundai: NWS-9638, Kia: Red-1, Idemitsu: K17, JASO: 1-A, JWS: 3309, 3314, 3317, 3324, MAN: 339F, 339-V1, 339-V2, 339-Z1, 339-Z2, Mazda: ATF-MIII, ATF-MV, Mercedes Benz: 236.1, 236.2, 236.3, 236.5, 236.6, 236.7, 236.9, 236.10, 236.11, Mitsubishi: SP-II, SP-III, SP-IV, ATF-J2, Nissan: 402, Matic-D, J, K, S, Saab: 93-165-147, Shell: 3403, LA2634, M-1375.4, M1375.5, M1375.6, Subaru: ATF, ATF-HP, Suzuki: 3314, 3317, Texaco: ETL-7045E, ETL-8072B, N402, Toyota: T-III, T-IV, WS (WS 3324), Voith: 55.6335.XX (G607), 55.6336.XX (G1363), Volvo: Pass Car (4-6sp), 97340, 97341, VW: G052-162, G052-990, G055-025, G055-005, G055-162, G060-162, ZF: TE-ML 03D, 04D, 05L, 09, 11B, 14A, 16L, 17C, 14B.

Product Size: 1L, 5L, 20L, 205L

Syntrans E

Code: 9341. Can also use 9340.

Syntrans E Full Synthetic automatic transmission fluid is blended to meet the requirements of most modern and older European automatic transmissions such as those specified by Mercedes Benz, BMW and ZF including the ZF 6 speed installed in Ford vehicles. It is a very versatile fluid and can be used in all vehicles fitted with European transmissions as a service fill including wherever ESSO ATF LT 71141 is recommended. This advanced formulation has improved oxidation stability and shear stability, and friction durability to enhance transmission shift performance.

Specifications: Daimler Benz: DB 236.6, ZF: TE-ML 06D/04D/09/14A/14B/14C/16L/17C, Volvo: 97340, Mercedes Benz: MB 236.1, 236.2, 236.5, 236.6, 236.7, 236.9, 236.10, 236.11, Esso: LT71141, BMW: 7045E, LA2634, LT71141, VW/Audi: G 052-025-A2, G 052-162-A1, Voith Diwa: 502-2, 502-3, D851, G607.

Product Size: 5L, 20L, 205L

 PURE SYNTHETIC



 PURE SYNTHETIC



TRANSMISSION

Syntrans J

Code: 9342. Can also use 9340.

Syntrans J Synthetic a fully synthetic automatic transmission fluid formulated to meet the requirements of most modern and older Asian manufacturer's automatic transmissions. **Syntrans J** meets most manufacturer requirements such as JASO 1-A plus many others. It is also suitable for use in Asia Pacific OEM automatic transmissions such as Toyota and Honda. This advanced, full synthetic formulation has improved oxidation stability and shear stability, and friction durability to enhance transmission shift performance.

Specifications: Toyota: Type TII, TIII, TIV, WS, JASO: 1-A, Mazda: ATF D III, ATF M III, Nissan: Matic C/D/J/K, Mitsubishi: Diamond ATF SP II, SP III, ELC-4-SP2/M, Hyundai: SP, I, SP III, Subaru ATF, Daihatsu: Alumix ATF Multi, Honda: Z1, Isuzu: Besco ATF II, ATF III, Suzuki: ATF Oil, ATF Oil Special, Idemitsu: K17, Kia: SP II, SP III, Proton: ATF-SP.

Product Size: 5L, 20L, 205L



Syntrans CVT

Code: 9360

Syntrans CVT fluid a unique, long drain, Continuously Variable Transmission (CVT) fluid formulated using special synthetic base stocks developed to enhance oxidation stability and thermal resistance, improve low temperature operation, impart specified friction control, improve load-carrying ability and resist corrosion and foaming tendency. **Syntrans CVT** fluid has been designed to give outstanding performance in the Van Doorne push-belt CVT's.

Note: **Syntrans CVT** is not recommended for use in the LuK Chain Type CVT's. **Syntrans CVT H** is recommended for Honda full service requirements. **Syntrans CVT** although not designed for Honda CVTs, can obtain satisfactory performance with 30,000km drain intervals.

Specifications: Audi/VW: G 052 180, G052 516-A, Nissan: NS-1, NS-2 & NS-3, Mopar CVTF+4GM: Saturn DEX-CVT, Honda (HMMF, HCF-2), ESSO EZL: 799A, Mercedes Benz: MB 236.20, Ford: M2C 928-A, M2C 933-A, M2C 199-A, Toyota: TC, FE, Suzuki: TC, Volvo: 4959, Subaru CV-30, Diaqueen CVTF J1, J4.

Product Size: 5L, 20L, 205L



TRANSMISSION

Syntrans CVT H



Code: 9380. Can also use 9360.

Syntrans CVT H fluid is specifically for Honda CVT's that require a fluid with frictional properties to satisfy Honda's clutch and belt design. Using any other CVT fluid can cause shudder and potential long-term damage to transmission components.

Syntrans CVT H fluid is a unique long drain Continuously Variable Transmission (CVT) formulated using specific synthetic base stocks and CVT additive technology developed to suit Honda's acceleration clutch frictional characteristics. It provides enhanced oxidation stability and thermal resistance, improved low temperature operation, imparts specified friction control, improves load-carrying ability and resists corrosion and foaming tendency.

Specifications: This product is specifically for Honda (HMMF) CVT's.

Product Size: 20L, 205L.

Syntrans DCT



Code: 9105

Syntrans DCT fluid is a highly advanced, full synthetic, multi-purpose, Dual Clutch Transmission (DCT) fluid. This application is also known as Direct Shift Gearbox (DSG). **Syntrans DCT** is specifically designed for the latest DCT/DSG equipped vehicles and is engineered for severe operating conditions encountered in high performance street and racing applications. It is formulated using 100% synthetic base oils and additive technologies designed to perform under extreme loads, high operating temperatures and high speed conditions.

Syntrans DCT is recommended for a very wide range of DCT/DSG equipped vehicles including: Audi, BMW, Citroen, Ford/Getrag, Mercedes-Benz, Mitsubishi, Nissan, Peugeot, Porsche (ZF), Seat, Skoda, Volkswagen, Volvo, etc. SynTrans Fluid also meets or is suitable for:

Audi's and VW's 6 speed, wet DCT from 2003 to present, Ford's and Renault's 6 speed, dry DCT from 2010 to present, Ford's, Volvo's, Mitsubishi's, PSA's and Chrysler's 6 speed, wet DCT from 2003 to present, Audi's and VW's 7 speed DCT from 2007 to present.

Specifications: BMW 83 22 2 148 578, BMW 83 22 2 148 579, BMW 83 22 0 440 214, BMW 83 22 2 147 477, Ford M2C936-A, Mercedes Benz 236.21, Mitsubishi Dia Queen SSTF-1, Peugeot/Citroen 9734.S2, Porsche Oil No. 999.917.080.00, VW TL 052 182, VW TL 052 529.

Product Size: 5L, 20L, 60L, 205L.

Syntrans DX6



Code: 9311

Syntrans DX6 is a high performance, fully synthetic automatic transmission fluid that is especially developed for the requirements of General Motors Dexron VI and other manufacturer's requiring a low viscosity fluid. **Syntrans DX6** also provides improved performance in older General Motor vehicles and provides better protection against rust and corrosion while the excellent foam control leads to long lasting, smooth shifting behavior.

Specifications: Dexron VI, Mercon LV, JASO 1-A, Aisin Warner AW-1, Honda DW-1, Hyundai/Kia SP-IV, Hyundai NWS-9638, JWS 3324, Mitsubishi SP-IV, Mitsubishi ATF J2, Nissan Matic-S, Saab 93 165 147, Toyota WS.

Product Size: 1L, 5L, 20L, 60L, 205L, 1000L

TRANSMISSION

Auto Trans 95LE

Code: 3200

Auto Trans 95LE a quality automatic transmission fluid to meet the requirements of the four speed automatic transmissions made by BTR engineering and also of the former General Motors Dexron®11 specification.

Specifications: General Motors: BTR: 85LE, 91LE, 95LE & 97LE, BTR: Specification No. 5M-44, 5M-52, Ford Part No: R1-38/R1-48.

Product Size: 1L, 5L, 20L, 60L, 205L

Auto Trans M

Code: 3300

Auto Trans M has been specially developed to meet the friction co-efficient requirements of the damper clutch system in Mitsubishi Magna automatic transmissions, and is recommended for use in the KM175 and KM177 automatic transmissions fitted to Mitsubishi Magnas from January 1988. **Auto Trans M** can be used as top up or fill for the automatic transmissions of the following Mitsubishi models: Colt, Cordia, Gallant, Lancer, Nimbus, Pajero, Starwagon and Triton. This product must not be used in Borg Warner transmissions or power steering.

Specifications: Mitsubishi: Magna, ES-X64022SP3, Hyundai: Automatic Transmissions (suitable for most).

Product Size: 5L, 20L

Auto Trans DX3

Code: 3100

Auto Trans DX3 a transmission fluid designed for use in automatic transmissions where Dexron® III, Dexron® II or Mercon® fluids have been specified. It is also commonly used as a power steering fluid. It is suitable for use with new technology transmission components and meets the need for improved fluid stability and reliability under increased operating temperature. **Auto Trans DX3** meets the most demanding of all ATF specifications.

Specifications: General Motors: Dexron® III (F30556), Caterpillar: TO-2, Allison: C4, Ford: Mercon®, Ford: M2C 138-CJ, M2C 166-H, Mercedes: MB 236.1, 236.5, 236.7.

Product Size: 1L, 5L, 20L, 60L, 205L.

Torque 10W, 30, 50

Code: 10W - 3710, 30 - 3730, 50 - 3750

Torque a high quality transmission oils to meet the requirements of Allison, Caterpillar and Komatsu in power shift transmissions, final drives, hydrostatic transmissions, torque converters and hydraulic systems in off-highway equipment or any systems requiring Allison C-4 or Caterpillar TO-4 specification oils.

Specifications: API: CD/GL3, SAE Viscosity: 10W, 30, 50, Allison: C4, Caterpillar: TO-4/M, ZF: TE-ML 03 & 07 approvals in the appropriate viscosity grade, Komatsu: Kes 07.868.1 (2002).

Product Size: 20L, 205L



TRANSMISSION

Agritrans 10W-30

Code: 4200

Agritrans a universal tractor transmission oil, it is a multi-purpose oil suited to tractors requiring a common oil for transmissions, hydraulics, differentials, final drives, wet clutches and brakes. The anti-squawk additive ensures effective operation of wet brakes. It has been specifically developed to meet a wide range of specifications from most modern tractor and hydraulic pump OEM's.

Specifications: API: GL-4, SAE Viscosity: 10W-30, Case-IH: MS 1206, 1207, MS-1210, Case New Holland: MAT 3525, 3526, Allison: C-4, John Deere: JDM 20A/B/C/D, JDM J14B/C, JDM J21A, JDT 303, Quatrol, Caterpillar: TO-2, VCE: WB101, Ford: M2C 86-B/C, M2C-134 A/B/C/D, ZF: TE-ML 03E, TE-ML 03F, TE-ML 05F, TE-ML 06K, Kubota: UDT, AGCO: Allis, Chalmers: Power Fluid 821XL, Deutz, Allis: 272843, 257541, 246634, Massey Ferguson: M1127A, M1135, M-1141, M-1143, M-1145.

*Further product specifications available upon request.

Product Size: 5L, 20L, 205L



Syntrans AGRI

Code: 4205

Syntrans AGRI is a new generation ultra high performing Universal Tractor Transmission Oil (U.T.T.O), formulated to provide superior performance and protection in new generation agricultural and heavy construction machinery. **Syntrans AGRI** is a 100% synthetic lubricant designed to offer superior performance and protection in wet brakes, transmissions including (power shift and agricultural CVT types), hydraulic systems and PTO's. Proprietary anti-wear additives offer superior gear wear and bearing protection and provides exceptional hydraulic pump wear protection, cleanliness and reduced varnishing.

Boasting an exceptionally high Viscosity Index (VI of 209), **Syntrans AGRI** is highly resistant to oil viscosity break down at high temperature and load. The high VI of **Syntrans AGRI** can only be achieved by using 100% synthetic base oils that withstands broad variations in temperature whilst maintaining pump-ability at low temperatures and superior film strength throughout the most severe operating conditions

Specifications: API GL-4, Allison: C-2, C-4, AGCO /Allis Chalmers: Power fluid 821XL, Case Corp.(J.I.Case and International Harvester): MS-1204 (TFD), MS-1205 (TFD-II), MS-1206 (PTF), MS-1207 (HyTran® Plus) MS-1209, MS-1210 (TCH Fluid (JIC145)), MS-1230 (Poclair Equipment) B5, B6, Caterpillar: TO-4, TO-2, Claas/Renault: Renault Transmissions, Clarke: TA-12, TA-18, HR500, HR600 CNH Case/New Holland: MAT 3505 (MS1207, 1209), MAT 3506 (MS1210), MAT 3509 (MS1230), MAT 3510 (MS1317= GL-4), MAT 3525 (FNHA-2-C-201.00 =M2C 134-D), MAT 3526 (FNHA-2-C-200.00) MAT 3540, Deutz-Fahr: 272843, 257541, 246634, Fendt: (Non Vario) and (Vario), Ford: M2C 134-A, B, C, D, M2C 41-B, M2C 48-C, M2C 53-A, M2C 86-A, B, C, Ford New Holland: FNHA-2-C-201.00 (M2C 134-D), FNHA-2-C-200.00* (Super All Season Driveline and Hydraulic Fluid -F200-A") (*Winter grade), Hesston Fiat: Olio Fiat, Tutela Multi-F, John Deere: JDM J20C, J20D (Current Specification), J21A, J20A, J20B, J14B, J14C, JD303, Quatrol™, Komatsu Dresser: B-06-0001/0002, Kubota: UDT Hydraulic Fluid Landini: Tractor II Hydraulic Fluid, Massey Ferguson: M-1141(EP), M-1135(Trans Hydraulic Europe), M-1143 (Trans Hydraulic Europe), M-1145, M-1129 A' M-1127 A/B, M-1110, Same: Same Transmissions, Valtra: G2-08 VCE (Volvo): WB 101, WB 102, Versatile: M2C134-D, (FNHA-2-C-201.00), White Farm (Oliver): Q-1826 (HTF), Q-1802 (Type 55), Q-1766/B, Q-1722, Q-1705

Product Size: 20L, 205L, 1,000L

MANUAL GEAR

Syngear 75W-85 GL-4

Code: 9390

Syngear 75W-85 GL-4 is a premium, full synthetic gear box oil manufactured utilizing the most advanced, cutting edge additives, formulated to meet the performance requirements of API GL-4 as well as many manufacturer requirements. **Syngear 75W-85 GL-4** is designed mainly for manual transmission and transaxle application where API GL-4 is recommended and is intended for use in axles with spiral bevel gears under moderate to severe speed and load conditions. Suitable for use in many passenger cars, 4WDs and trucks **Syngear 75W-85 GL-4** can also be used in place of an SAE 80 or SAE 80W-85 gearbox oil, especially to improve cold shift problems, where the lower start up viscosity will provide an easier shift.

Note: Syngear 75W-85 is not suitable for use in differentials that require API GL-5 or higher.

Specifications: API GL-4, Ford; ESW-M2C 83A/B, GM; HN 1046,1070,1820, 1855, 2276, MB 235.1, 235.4, Chrysler MS-9224, ZF TE-ML 01/02/08, MAN 341.

Product Size: 1L, 2.5L, 5L, 20L, 205L



Syngear 75W-80 GL-4

Code: 9403

Syngear 75W-80 is a full synthetic, energy efficient gear oil formulated for a wide variety of commercial vehicle manual transmissions. Recommended for all types of ZF manual transmissions fitted to commercial vehicles. **Syngear 75W-80** is recommended where transmissions are subject high loads and temperatures and the following specifications are required. Also suitable for cars and SUVs requiring a GL-4 75W-80 gear oil.

Specifications:

SAE Viscosity 75W-80, API GL-4, MIL-L-2105, ZF TE-ML 01L, 02L,08,16K, ZF TE-ML 02A, 02B,02D,02E, Volvo 97305, 97307, Renault, Mercedes 235.4, MAN 341 Type Z-4, Z-3, Z-2, Z-1, MAN 341 Type E-3, E-2, E-1, 341ML, 341N, Iveco, Eaton Europe 300,000km or 3 years.

Product Size: 2.5L, 5L, 20L, 205L



MANUAL GEAR

Syngear LS 75W-90

Code: 9410

Syngear LS a multi-grade lubricant containing a selected blend of synthetic base and extreme pressure additives, and is designed to give maximum protection to gearboxes and differentials under the most arduous operating conditions where heat and load are major factors.

Specifications: API: GL-5, MT-1, SAE Viscosity: 75W-90, US Military: MIL-L-2105D, General Motors: HN-1561, HN-2040, Ford: MC20119A, MC2-104, Mack: GO-J, Borg Warner: 5M-48, Rockwell: 0-76E, 0-76N, (Synthetic 75W-90).

Product Size: 2.5L, 5L, 20L



Syngear LS 80W-140



Code: 9420

Syngear LS a multi-grade lubricant containing a selected blend of synthetic base and extreme pressure additives.

Syngear LS designed to give maximum protection to gearboxes and differentials under the most arduous operating conditions where heat and load are major factors such as in modern trucks, four wheel drives and caravan and boat towing.

Specifications: API: GL-5, MT-1, SAE Viscosity: 85W-140, US Military: MIL-L-2105D, MIL-PRF-2105E, General Motors: HN-1561, HN-2040, Ford: MC20119 A, MC2-104, Mack: GO-J, Borg Warner: 5M-48.

Product Size: 2.5L, 5L, 20L

GearPro LS 85W-140

Code: 4001

GearPro LS 85W-140 is a premium quality, multi-purpose gear lubricant primarily intended for the lubrication of commercial fleet axles and final drives in heavy duty service. The unique additives used offer outstanding protection against low speed / high torque wear and against high speed scoring. This oil inhibits rust and corrosion and can be used for limited slip differential axles.

GearPro LS 85W-140 is suitable for initial fill, topping up and refill of enclosed automotive gears for manual transmissions, drive axles and final drives of passenger cars, trucks and earthmoving equipment operating under severe service conditions.

Specifications: API GL-5, MT-1, PG-2, MIL-PRF-2105E, Mack GO-J, Limited Slip Rated.

Product Size: 1L, 2.5L, 5L, 20L, 60L, 205L

MANUAL GEAR

GearPro LS 80W-90

Code: 4002

GearPro LS 80W-90 is a multi-purpose, thermally stable, extreme pressure, friction modified gear oil formulated using advanced extreme pressure additives supplemented with anti-wear additives to provide maximum protection. It also contains Limited Slip protection. **GearPro LS 80W-90** is engineered to provide excellent performance in heavy duty limited-slip differentials, axles, and final drives where extreme pressures and shock loading is a common occurrence. **GearPro LS 80W-90** is suitable for passenger car manual transmissions, spiral bevel, hypoid final drive differentials and steering gear boxes operating under severe service conditions.

Specifications: API GL-5, PG-2, MT-1, MIL-PRF-2105E, MACK GO-J, Limited Slip Rated.

Product Size: 1L, 2.5L, 5L, 20L, 60L, 205L

Gear Lube 80W-90, 85W-140

Code: 80W - 4004, 85W - 4007

Gear Lube heavy-duty gear oil for extreme pressure, recommended for hypoid or spiral bevel axles, gears and steering boxes of automotive equipment. It is available in SAE Viscosity grades 80W-90 and 85W-140. The multi-grade characteristics of this oil will enable maintenance of wear protection over a wide range of operating temperatures and reduces drag at start up. The need for seasonal oil changes is eliminated.

Specifications: API: GL-4, GL-5, SAE Viscosity: 80W-90, 85W-140, US Military: MIL-L-2105E, Ford: M2C 197-A (80W-90).

Product Size: 1L, 2.5L, 20L, 60L, 205L

Gear Lube TL 75W-90

Code: 4013

Gear Lube TL a high performance multi-grade manual transmission oil designed for transmissions and transaxles, which require an API GL4, SAE Viscosity 75W-90 lubricant. Maximises transmission life and enhances gear selection.

Specifications: API: GL-4, SAE Viscosity: 75W-90, Ford: ESP-M2C83-C, Borg Warner: 5M-42, Mitsubishi: ES-X-64021.

Product Size: 1L, 2.5L, 5L, 20L, 60L, 205L

MANUAL GEAR

Diff Oil LS 90

Code: 4006

Diff Oil LS 90 a limited slip automotive differential oil. It is a high quality, extreme pressure automotive gear oil specifically designed for limited slip rear drive differentials, particularly those with 'cone clutch' design. Recommended for the majority of limited slip hypoid differentials, either plate or cone clutch in rear wheel drive cars, 4WD vehicles and light trucks under all operating conditions. Heavy duty lubricant recommended for hypoid or spiral axles, both with and without "limited slip" design.

Caution: **Diff Oil LS 90** is not approved for use in the differential of Commodore V8 and Holden 6 and 8 cylinder utilities that require a special GMH/BTR approved synthetic lubricant available from GMH dealers. **Diff Oil LS 90** can be used in differentials of Falcons with V8 engines.

Specifications: API: GL-5 (was GL6 when this was a recognized performance level), SAE Viscosity: 90, Mack: GO-G, US Military: MIL-L-2105E, General Motors: HN1561, HN 1187, HN 1386, Ford: M2C-1006A, M2C-105A, M2C-104A, BTR-5M-31, 5M-41.

Product Size: 1L, 2.5L, 5L, 20L, 60L, 205L

Diff Oil LS 140

Code: 4009

Diff Oil LS 140 a limited slip automotive differential oil, it is an extreme pressure, heavy duty lubricant recommended for hypoid or spiral axles, both with and without "limited slip" design. It is particularly recommended in higher ambient conditions, or for quieting noisy differentials where the noise is due to wear, thus prolonging the life of the unit before rebuild is required.

Specifications: SAE Viscosity: 140

Product Size: 1L, 2.5L, 5L, 20L, 60L, 205L

Syngear Road Ranger 50



Code: 9430

Syngear Road Ranger 50 is a purpose designed synthetic based lubricant for manual transmissions. It is designed for the trucking industry where manual gearboxes such as Road Ranger, Eaton, Fuller, Rockwell and Spicer are commonly fitted. It gives maximum protection to gearboxes under the most arduous operating conditions where high heat and heavy load are major factors in modern trucks. It contains anti-wear, anti-foam, oxidation, corrosion and rust inhibiting additives which are harmless to copper or soft alloy bearing materials which are often used in these types of transmissions.

Specifications: API: GL-1/3, Ford: ESW-FM2C-85A, General Motors: HN1223 for non-EP or mild EP type lubricants, Eaton PS-164.

Product Size: 20L

Gear Road Ranger 50

Code: 4010

Road Ranger 50 is ideally suited to truck gear boxes such as Road Ranger, Eaton, Spicer, Fuller, Rockwell and other manual transmissions including industrial gearboxes operating under heavy load where the manufacturer calls for a synthetic.

Specifications: SAE 50, API MT-1, Caterpillar TO-4, TO-4M, Komatsu KES 07.868.1(2002), ZF TE-ML-03C, 07F.

Product Size: 20L, 60L, 205L

ADDITIVES

Concentrate Diesel Treatment

Code: 6052

Concentrate Diesel Treatment has been developed for use in all diesel vehicles including trucks, earthmoving, agricultural and marine equipment. Concentrate Diesel Treatment's unique chemistry cleans blocked or partially blocked injectors in modern diesel engines and helps maintain a clean running diesel system with regular use. **Concentrate Diesel Treatment** passes all testing methods for injector cleaning including the latest DW10 testing procedure and can restore a badly running system to 97% clean after treatment

Product Size: 1L



Diesel Treatment

Code: 6120

Diesel Treatment is an advance formula diesel additive developed to provide additional cleanliness to all diesel engines and fuel systems. **Diesel Treatment** contains powerful cleaning agents that work on removing soot and carbon build up on vital engine components and fuel system components such as injectors. Additionally Diesel Treatments advance formula also works to kill fungal growth in the diesel fuel tank and system. **Diesel Treatment** helps eliminate water by allowing it to be picked up and burnt off with the Diesel Treatment.

Product Size: 250ml



Injector Cleaner

Code: 6121

Injector Cleaner is an advance formula petrol and injector cleaner developed to all petrol fuel systems and components including injector, carburetors, fuel tanks and lines. **Injector Cleaner** contains powerful cleaning agents that work on removing gum, soot and carbon build up on vital engine fuel systems and components such as injectors. With the advent of modern Bio Fuels running a fuel injector cleaner every third or fourth tank helps keep the system clean and optimises fuel economy and delivers a better driving feel and response.

Product Size: 250ml



ADDITIVES

EGR Cleaner

Code: 6122

Royal Precision Lubricants **EGR Cleaner** has been developed to clean blocked or restricted EGR valves. Suitable for use in all diesel powered vehicles fitted with EGR Units and is extremely effective in removing soot and build up from the entire EGR system. **EGR Cleaner** is also extremely effective in cleaning other engine components such as intake manifolds, throttle bodies, intake butterflies and anywhere where carbon and build up forms.

Product Size: 250ml



DPF Cleaner

Code: 6123

DPF Cleaner has been developed to clean blocked or restricted Diesel Particulate Filter. Suitable for use in all diesel powered vehicles fitted with a DPF System and is extremely effective in removing soot and build up from within the DPF unit while the car is running under normal driving conditions. Royal Precision Lubricants **DPF Cleaner** achieves this by blending a proprietary formulation that dissolves carbon and build up upon contact. Additionally to this 1st stage of cleaning Ceramic Nano particles are also formulated to help burn through soot and any residual contaminants clinging to the walls of the DPF unit. The Nano particles heat up and glow hot helping the dissolved carbon into a liquid, any liquid and build-up is effectively burnt off as it passes through the exhaust system.

Product Size: 250ml



Fuel Stabiliser

Code: 6124

Fuel Stabiliser is effective with diesel, petrol, E10 and 2 stroke fuel mixes. Suitable for use in Direct Injection, Common Rail, premixed and carburetor engines, its unique formulation allows fuel to be stored for up to 12 months without loss of performance and power and makes starting easy after long laydown periods. **Fuel Stabiliser** is an ideal preventative maintenance product designed to allow easy re-instatement of equipment left idle for periods of time that effect fuel quality and performance.

Product Size: 250ml



TWO & FOUR STROKE ENGINES

Two Stroke 20

Code: 1900

Two Stroke low ash high performance two stroke engine oil for use in non-outboard applications which provides better protection from piston and exhaust port deposits and exceptional anti-scuff protection. The engine manufacturer's recommendation regarding fuel/oil ratios should be strictly followed.

Specifications: API: TC, SAE Viscosity: 20.

Product Size: 1L, 1L Chamber, 5L, 20L, 205L

Two Stroke Marine

Code: 1950

Two Stroke Marine an ash less high performance two stroke, marine engine oil for use in water cooled outboard applications. It is formulated with a special solvent to disperse quickly and readily throughout the fuel in the fuel tank and is designed for engines requiring NMMA TC-W3 certified lubricants.

Specifications: API: TD, ISO: LE-ETD, NMMA: TCW 3.

Product Size: 1L, 1L Chamber, 5L, 20L

Four Stroke 30

Code: 1830

Four Stroke 30 Lawn Mower and Stationary Engine Oil is a monograde SAE 30 crankcase oil designed for small petrol and diesel engines. It controls oil consumption and deposits and protects against rust, corrosion and wear, leading to longer engine life. It is recommended for four stroke petrol lawn mower engines running on leaded, unleaded or lead replacement petrol, especially Briggs and Stratton engines. ISO for small four stroke petrol and diesel stationary engines. It is not recommended for two stroke petrol or two stroke diesel engines.

Specifications: API: SG/CF, SAE Viscosity: 30, ACEA: E2, General Motors: 6094M, Ford: M2C-121E3, US Military: MIL-L-2104F, MIL-L-45152D, Briggs & Stratton Service: SE/SF/SG SAE 30W, Japan: Japanese CD.

Product Size: 1L, 5L, 20L, 205L

HYDRAULIC

C4 Hydraulic 10W

Code: 3700

C4 Hydraulic 10W a high temperature hydraulic fluid designed to satisfy a wide range of heavy-duty hydraulic equipment where high temperatures can be experienced. Suited to both on-highway and off-highway mobile hydraulic applications.

Specifications: SAE Viscosity: 10W, MIL-L-2104D & E, Allison C4, Caterpillar TO-2.

Product Size: 20L, 205L

Hydraulic Jack Oil 46

Code: 5112

Hydraulic Jack Oil premium quality hydraulic oil made from selected base stocks and an advanced anti-wear additive. It is recommended for use in all types of hydraulic jacks and hoists. It also suitable for use in systems that use vane, piston or gear pumps, airline lubricators, vacuum pumps, lightly loaded gear sets and bearings (such as headstocks, windmill gears) and hydraulic hoists and jacks.

Product Size: 500ml



Hydrol AW 22, 32, 46, 68, 100, 150

Code: 22 - 5001, 32 - 5002, 46 - 5003, 68 - 5004, 100 - 5005, 150 - 5006

Hydrol AW oils are premium quality, anti-wear hydraulic fluids, designed for use in mobile and stationary high pressure hydraulic systems. They also find application as circulating oils, bearing oils and as gear lubricants. *Please note this was formerly known as Superdraulic AW.*

Specifications: AFNOR:NF E 48-603(HM, HV), AFNOR:NF E 48-690, 691 Filterability, Denison: HF-1, HF-2, HF-0, DIN 51 524 Part 2 and 3 (HLP, HVLP), Eaton Vickers: I-286-S, Eaton Vickers: M-2950-S (35VQ25 vane) , Racine, variable volume vane pumps; , Cincinnati MMachine: P-68, P-69, P-70; DIN 51524 Part 2, Ford: M6C 32, General Motors LH-04-1, LH-06-1, LH-15-1, BF Goodrich: 0152, US Stee:l 136, 127.

Product Size: 5L, 10L, 20L, 60L, 205L, 1000L

Note: 5L available in ISO 46 & 48 only.



Hydrol AW HVI 32, 46, 68

Code: 32 - 5102, 46 - 5103, 68 - 5104

Hydrol AW HVI products are specifically designed for use where extremes of temperature are encountered. This is a mineral based polymer enhanced fluid designed to ensure maximum effective operation of the hydraulic equipment in conditions where extremes of temperatures are encountered. *Please note this was formerly known as Superdraulic AW HVI.*

Specifications: AFNOR: NF E 48-603, AFNOR: NF E 48 690, 691 Filterability, Cincinnati Machine: P-68, P-69, P-70, Denison HF-0, HF-2, DIN 51524 Part 2 & 3 (HVLP) , Eaton Vickers: I-286-S, Eaton Vickers: M-2950-S (35VQ25)M, Ford: M6C 32 , General Motors: LH-04-1, LH-06-1, LH-15-1, BF Goodrich: 0152, US Steel: 136, 127.

Product Size: 20L, 205L, 1000L

INDUSTRIAL

Syngear IGO 150, 220, 320, 460, 680, 1000

Code: 150 - 7629, 220 - 7630, 320 - 7631, 460 - 7632, 680 - 7633, 1000 - 7634



Syngear IGO full synthetic gear oil range of high quality lubricants enhanced with sulphur/phosphorus extreme pressure additive technology providing outstanding thermal stability and high load carrying capacity.

Specifications: DIN 51517 Part 3, AGMA 9005 - D94, US Steel 224, David Brown Type E, Hansen Transmissions, Flender, Suitable for Müller Weingarten equipment.

Product Size: 20L, 205L

Ingear 68, 100, 150, 220, 320, 460, 680, 1000

Code: 68 - 7020, 100 - 7021, 150 - 7022, 220 - 7023, 320 - 7024, 460 - 7025, 680 - 7026, 1000 - 7027

Ingear a premium quality extreme pressure gear oil for use in enclosed gear boxes in industrial applications and may also be used for plain bearings where high loadings or stresses are encountered.

Specifications: API: GL3, ISO: 68, 100, 150, 220, 320, 460, 680, 1000, U.S Steel 224, David Brown S1. 53. 101(E), AGMA 9005-D94, DIN 51517(Part 3).

Product Size: 20L, 205L

ComAir P 100, 150

Code: 100 - 7013, 150 - 7014

ComAir P a reciprocating Air Compressor Oil is a premium air compressor lubricant formulated from selected highly stable base stocks with a special non-hydrolyzing anti wear additive.

Product Size: 20L, 205L

ComAir RS 32, 46, 68

Code: 32 - 7010, 46 - 7011, 68 - 7012

ComAir RS a screw Air Compressor Oil is a premium air compressor lubricant formulated from selected highly stable base stocks with a special non-hydrolysing anti wear additive.

Product Size: 20L, 205L

ComAir RSS 46, 68

Code: 46 - 7111, 68 - 7112

ComAir RSS a rotary Sliding Vane and Screw Air Compressor Oil is superior compressor lubricants formulated from synthesized base stocks with special non-hydrolyzing anti-wear additive. It is suitable for all rotary screw & rotary compressors operating under severe conditions. Also both grades can be used as hydraulic oil where the application calls for a non-zinc type oil to protect pumps with silver-plated surfaces.

Product Size: 20L, 205L

INDUSTRIAL

Taptech

Code: 7149

Taptech a high performance mineral oil based liquid for use with reaming, tapping and drilling a wide variety of metals that gives extended tool life and a superb finish. It is far superior to conventional oils with higher Extreme Pressure to oil ratio for superb friction reduction. It contains no dangerous nitrites, phenols, nitrates, mercurial, PCBS, or PTTBA, and is recommended for most metals, including hardened steels, titanium, and stainless steels.

Taptech is applied by hand directly to the part neat. For great lubricity and flow, Improved thread formation and a superb finish. It has increased tool and die life and consistent part quality. A Safe product to use with non-ferrous metals and has great rust preventative qualities when used with ferrous metals. Pleasant to use as it has no ammonia odours and leaves a soft residual film.

Product Size: 500ml, 5L



Solcut Ultra

Code: 7128

Solcut Ultra a concentrated, full synthetic soluble metal cutting formulated to meet the most demands of stamping, milling, machining, drilling and grinding. Far superior to conventional oils in reducing or eliminating workplace temperature build up caused by these operations.

Product Size: 500ml, 5L, 20L



Solcut EP

Code: 7125

Solcut EP an extreme pressure, general-purpose chlorine, phenolic and nitrate free soluble cutting fluid. It forms a stable milky emulsion of high lubricant when diluted with water and is resistant against bacterial spoilage.

Product Size: 500ml, 5L, 20L, 205L



Long Life Air Compressor Oil

Code: 7018

Long Life Air Compressor Oil formulated from hydro cracked base stocks with special non-hydrolysing anti wear additive. It is suitable for rotary screw, reciprocating and centrifugal compressors operating under severe conditions.

Product Size: 500ml, 5L

INDUSTRIAL

Maxim HT 32, 46, 68, 100

Code: 32 - 7100, 46 - 7101, 68 - 7102, 100 - 7103

Maxim HT a Heat Transfer fluid formulated from selected highly stable base stocks blended with anti-oxidation additives.

The result is a finished product, which is minimum deposit forming, has long life, protects pump components from wear and is also thermally stable.

Product Size: Various

Maxcut AM

Code: 7120

Maxcut AM extreme pressure mineral neat cutting oil with low odour characteristics for machine operators comfort. It contains a sulphur compound extreme pressure additive system, rust and anti-foam additives for long tool life, good heat transfer and surface finish.

Product Size: 20L, 205L, 1000L

Tableway 68, 220

Code: 68 - 7080, 220 - 7081

Tableway a special product for lubricating the slide-ways of machine tools. It contains friction modifiers and extreme pressure additives to provide smooth operation, free from stick slip, and to protect against wear and corrosion. It also contains a tackiness agent to prevent squeeze out of the lubricant.

Product Size: 20L, 205L

CR Form: Concrete Mould Release

Code: 7063

Concrete work is normally formed. Hence, we refer to the oil as a release agent suitable for form materials, e.g. steel, wood, plywood, hardboard etc. A release agent is applied to formwork prior to placing concrete against the form. It provides a film at the formwork/concrete interface, which facilitates stripping and at the same time minimises blemishes to the concrete surface.

Product Size: 20L, 205L, 1000L

BR200: Brick Mould Release

Code: 7060

Clay products are normally extruded through a die to give the required cross sectional shape. Here we refer to the oil as a die lubricant in the extrusion process. The die lubricant is fed into the laminates of the extruder mouth of the die under controlled pressure and feed rates to suit the application, e.g. bricks, roofing tiles, pipe work, etc.

Product Size: 20L, 205L, 1000L

INDUSTRIAL

Hammer Drill Oil 150, 320, 460

Code: 150 - 7354, 320 - 7356, 460 - 7357

Hammer Drill Oil - Pneumatic Percussion Lubricant for Mining Equipment. Is designed to give optimal performance at extreme temperatures, high speed repetitive impact loads, high air humidity content and down-hole or above ground use.

Product Size: 1000L

Rock Drill Oil 100, 150, 320

Code: 100 - 7034, 150 - 7035, 320 - 7036

Rock Drill Oils are specially formulated for the lubrication of percussion type air tools. They have good EP properties, provide good rust protection, are non-corrosive to air tool parts and resist water washing. They are available in ISO viscosity grades 100, 150 and 320 to provide the correct choice for most operating or climatic conditions in Australia.

Application: Percussion type air tools of all kinds, including rock drills, concrete and paving breakers (jack hammers), pneumatic pile drivers, ballast tampers, rammers, riveting and chipping hammers etc. It is suitable for use with equipment from Atlas Copco, Consolidated Pneumatic, Gardner Denver, Ingersoll Rand, Yamamoto and other manufacturers except for Holman and Broomwade.

Product Size: Various

Pneumatic Air Tool Oil

Code: 7040

Pneumatic Air Tool Oil protects and lubricates percussion type air tools of all kinds, including rock drills, concrete and paving breakers, pneumatic pile drivers, rammers, riveting and chipping hammers. It is a high adhesive, extreme pressure and anti-corrosion lubricant with excellent cling characteristics that resists throw off, water wash off and corrosion from water condensate in air lines.

Product Size: 500ml, 5L, 20L



Nail & Staple Gun Oil

Code: 6004

Nail & Staple Gun Oil a premium quality, mineral based oil formulated with anti-wear, anti-oxidation, anti-foam and anti-corrosion additives. It offers superior performance in oxidation protection, foam resistance, thermal stability and water tolerance. It is suitable for manual and automatic lubricating. Note: Oil daily to increase the tools efficiency. For use in nail and staple guns and hydraulic jacks.

Product Size: 500ml, 5L



INDUSTRIAL

Procoil 12, 22, 32, 46, 68, 100, 150, 220

Code: 12 - 7047, 22 - 7048, 32 - 7049, 46 - 7050, 68 - 7051, 100 - 7052, 150 - 7053, 220 - 7054

Procoil lubricants are a range of straight mineral oils, their prime uses being for other than lubrication. They are used in the manufacturing process where they may, or may not, form a component of the finished product and where their chemical composition may be of particular importance.

Product Size: Various

Vacuum Pump Oil 68, 100

Code: 68 - 7070, 100 - 7071

Vacuum Pump Oil a highly refined mineral based products manufactured specifically for the lubrication of vacuum pumps used in the dairy industry and some laboratory applications.

Product Size: 20L

RL(BP) White Oil 68

Code: 9931

RL(BP) White Oil 68 is white mineral oils specially processed and packaged to ensure full compliance with the purity standards of the US Pharmacopoeia (USP) and British Pharmacopoeia (BP). All grades comply with US Food and Drug Administration (FDA) Regulation CFR 172.878 for light mineral oil that is permitted to be included, within restrictions, in foods and CFR 178.3620 (a) for mineral oil for use in non-food articles that will come in contact with food. All grades are stabilised with an FDA approved inhibitor to improve shelf life.

Product Size: 205L

Turbine 32, 46, 68, 100, 150

Code: 32 - 8000, 46 - 8001, 68 - 8002, 100 - 8003, 150 - 8004

Turbine are premium performance, anti-wear type turbine oil formulated from severely refined turbine grade base stocks, an ash less anti-wear additive system and special rust, oxidation and foam inhibitors, and metal passivation. It is specifically designed for use in gas turbines with reduction gear sets.

Product Size: Various

Stellus 460

Code: 7110

Stellus 460 an ISO 460 viscosity steam cylinder oil, compounded with a fatty oil to improve lubricity in the presence of wet steam to ensure adequate lubrication and low wear rates in all types of reciprocating steam engines.

Product Size: 20L, 205L

INDUSTRIAL

Log End Sealer 45

Code: 9099

Log End Sealer a wax emulsion timber sealer. It is applied at a rate of approximately 4-6 square meters per litre, using a brush, roller or spray.

Product Size: 200L

GREASE & COMPOUNDS

Syntec XP

Code: 9010

Syntec XP Waterproof Synthetic, 'state of the art' high tech grease that has a smooth texture, and is the prime recommendation for automotive, marine and industrial applications. **Syntec XP** is a supreme performance product suitable for a large variety of applications at extremes of temperature. It is manufactured with a lithium complex thickener, selected paraffinic and PAO base oils combined with a PTFE powder, rust, oxidation and corrosion inhibitors. It is recommended for bearing lubrication under all operating conditions from normal to unusually severe loads.

Operating Temperature Range: Usable temperature range in continuous service is -40 to 210°C. Maximum temperature for short term exposure is 220°C. NLGI No. 2.

Product Size: 450g, 20kg



Versatile Bearing EP

Code: 9009

Versatile Bearing EP Waterproof, extra high performance multi-purpose grease intended for a large variety of applications. It is based on a blend of high viscosity index mineral oils, a lithium complex soap thickener, specially selected lead free extreme pressure additives, rust and oxidation inhibitors plus a tackiness agent.

Operating Temperature Range: Usable temperature range in continuous service is -25 to 170°C. Maximum temperature for short term exposure is 220°C.

Product Size: 450g, 500g, 2.5kg, 20kg



Multipurpose Automotive EP

Code: 9001

Multipurpose Automotive EP a premier quality general-purpose automotive grease. It is based on a blend of high viscosity index mineral oils, a lithium hydroxyl-stearate soap thickener, lead free extreme pressure additives and rust and oxidation inhibitors

Operating Temperature Range: The recommended temperature range is from -20°C to +130°C, however it may be used at higher temperatures with the lubrication frequency to be increased accordingly.

Product Size: 450g, 2.5kg, 20kg



Lithplex EP

Code: 9003

Lithplex EP a NLGI No. 2 multipurpose, extreme pressure, high melting point, lithium complex grease which contains a tackiness agent. It offers significant advantages over conventional soap based and clay based greases in terms of shear stability, thermal stability, water resistance and pump ability. It has a high drop point and may be used at temperatures as high as 180°C.

Product Size: 450g, 2.5kg, 20kg

GREASE & COMPOUNDS

Red-Tac EP

Code: 9008

Red-Tac EP Waterproof, Premium multipurpose, heavy-duty extreme pressure grease containing special EP additives, rust and oxidation inhibitors and tackiness agent. Displays 'stay in place' properties, outstanding water resistance and resists 'squeeze out'. Temperature range -20°C to +140°C (to +165°C intermittently), NLGI Grade No.2.

Operating Temperature Range: Usable temperature range in continuous service is -20°C to 140°C. Maximum temperature for short term exposure is 165°C.

Product Size: 450g, 500g, 2.5kg, 20kg



Constant Velocity EP

Code: 9011

Constant Velocity EP a premium anti-wear, extreme pressure, lithium soap based grease containing molybdenum disulphide. It contains rust and oxidation inhibitors, and sulphur phosphorus EP additives. It possesses good mechanical stability, water resistance and low temperature properties.

It is a black grease and is available in an NLGI No. 2 consistency.

Operating Temperature Range: Usable temperature range in continuous service is -30°C to 130°C. Maximum temperature for short-term exposure is 175°C.

Product Size: 500g



Moly Hi-Load EP

Code: 9006

Moly Hi-Load Waterproof is a special long life grease recommended for high load service conditions in hostile environments or where extended service is intended, due to the additional anti-wear protection provided by the presence of molybdenum disulfide. **Moly Hi-Load** is manufactured with lithium hydroxyl-stearate base thickener molybdenum disulfide selected high viscosity index mineral oils combined with rust, oxidation and corrosion inhibitors and very effective lead free extreme pressure additives.

Operating Temperature Range: The recommended temperature range is from -20 to 130°C however it may be used at higher temperatures with the lubrication frequency to be increased accordingly.

Product Size: 450g, 2.5kg, 20kg



GREASE & COMPOUNDS

Multipurpose EP2

Code: 9001

Multipurpose EP2 grease is a multipurpose, extreme pressure, industrial and automotive grease made from lithium soap, sulfur phosphorus extreme pressure additives, a high quality base oil and rust and oxidation inhibitors. Recommended as a multipurpose automotive and industrial grease for general applications on passenger cars, trucks, busses, trailers, farm tractors and industrial equipment. These include wheel bearings, ball joints, all chassis points, universal joints, splines, linkages, water pumps and steering gears. This product is Non-Conductive.

Product Size: 450g, 2.5kg, 20kg

Marine XP

Code: 9012

Marine XP is engineered to meet a wide variety of boat and boat towing equipment requirements. It is a NLGI No. 2 grade grease that meets NLGI's highest standards for both wheel bearing and chassis lubrication (GC-LB). It's inherent water resistance, adhesive texture, and the fact that it is denser than water result in excellent resistance to water washout. This feature, coupled with good rust and corrosion protection, makes it an ideal choice for both fresh- and salt-water use.

Operating Temperature Range: Usable temperature range in continuous service is -25°C to 170°C. Maximum temperature for short-term exposure is 220°C.

Product Size: 500g



Copper Anti-Seize Compound

Code: 9015

Copper Anti-Seize Compound a superior quality, high temperature Anti-Seize and Lubricating Compound. It provides lubrication allowing easy assembly and disassembly of metal parts. It provides maximum protection in highly corrosive environments and in the most adverse temperature conditions and protects assemblies exposed to extreme temperatures.

Operating Temperature Range: Prevents Seizure Up to 1100°C.

Product Size: 500g



Nickel Anti-Seize Compound

Code: 9016

Nickel Anti-Seize Compound a product that provides lubrication allowing easy assembly and disassembly of metal parts. It provides maximum protection in highly corrosive environments and in the most adverse temperature conditions.

Operating Temperature Range: Prevents Seizure Up to 1300°C.

Product Size: 500g



GREASE & COMPOUNDS

Rubber EP X-9

Code: 9014

Rubber EP X-9 a premium grease for Industrial, Automotive and Consumer Rubber component applications containing castor oil for use when contact with natural and/or synthetic rubber is likely to occur. **Rubber EP X-9** can be used as a general purpose, non-harmful grease for industrial, automotive and consumer rubber parts such as hydraulic dust covers, braking system components, seals and washers. It is specially designed for use on rubber components in hydraulic systems where compatibility with the rubber seals is essential. It is also suitable for use with other rubber components such as gaiters or boots used on these systems. This grease is also recommended in other applications where the resistance to hydrocarbon solvents is required, such as automotive shock absorbers. In the assembly of platen rollers used in the printing industry this type of grease is used as a lubricant to aid the insertion of the steel mandrel into the very tight rubber outer. It is not recommended for the lubrication and protection of brake backing plates and plunger housings.

Operating Temperature Range: Recommended operating range is -9°C to 80°C.

Product Size: 500g

Machinery Food Grade

Code: 9005

Machinery Food Grade a premium, up-market, quality NLGI No. 2 grease composed entirely of ingredients that meet the requirements of Section 21 CFR 178.3570 of the Food and Drug Administration regulations. It has been ruled acceptable by the U.S. Department of Agriculture for the processing machinery in federally inspected meat and poultry processing plants.

The Department of Primary Industries and Energy as Food Grade Lubricant Type A also approve **Machinery Food Grade**. This approval is a very specific and mandatory requirement when lubricants are used in processing food and food support products, such as packages, cartons etc. where incidental contact with the lubricants may occur in the process.

Machinery Food Grade will satisfactorily lubricate most machinery and equipment used in producing, manufacturing, packaging, processing, preparing, treating, transporting or holding food.

Machinery Food Grade is pure white, odourless and tasteless. It is made with a USP white mineral oil and a special aluminium complex thickener. It contains additives to provide protection against rust and to resist oxidation.

Product Size: 450g, 20kg



SPECIALTY

Chain & Bar Oil 150, 220, 320

Code: 150 - 7031, 220 - 7032, 320 - 7033

Chain & Bar Oil a blended oil to protect chains and bars of high performance chain saws. This product contains anti-wear additives and a tacky agent to lubricate and minimize throw-off and has excellent adhesion properties.

Specifications: 150, 220, 320.

Product Size: 1L, 5L, 20L, 205L, 1000L

Note: 1L & 5L available in ISO 150 only

Dot 4 Brake & Clutch Fluid

Code: 6010

Dot 4 Brake and Clutch Fluid a moisture resistant, high performance brake fluid. It is designed for the braking systems of all cars, trucks and buses and meets the latest Australian and international standards. Dot 4 Grade 3.

Specifications: SAE Viscosity: J1703 JUN 91, AS/NZ 1960:1 1995 Grade 3, Brake Fluids (non-petroleum types), FMVSS No.116 Dot 3 and 4, Ford ESW-FM6C-2, ESZ-M6C-55A, GMH HN 1796.

Product Size: 500ML, 1L, 5L, 20L

Dot 3 Brake & Clutch Fluid

Code: 6011

Dot 3 Brake and Clutch Fluid is a premium quality, non silicone, non-mineral/petroleum based, fully synthetic brake fluid designed for use in a wide range of brake and clutch applications. **Dot 3 Brake and Clutch Fluid** is recommended for re-fill or top-up of brake and clutch systems in passenger cars, 4WD's, motorcycles, light and heavy commercial vehicles, mining, construction and agricultural equipment that require a non petroleum based DOT 3 brake & clutch fluid.

Specifications: Australian Standards AS 1960-2005 Grade 1, SAE J1703, FMVSS 116 DOT 3, ISO 4925 Class 3

Product Size: 500ML, 1L, 5L, 20L



SPECIALTY

Long Life Coolant

Code: 7092

Long Life Coolant a universal ethylene glycol based antifreeze coolant concentrate (contains 1060 g/litre ethylene glycol) incorporating an advanced formula technology with virtually non-depleting organic acid corrosion inhibitors. The product is dyed a red colour for ready identification.

Specifications: ASTM D3306 (and D4656) MAN 324 (Diesel Engines) JIS K2234 (Japan) LLC General Motors GM 1899M, ASTM D4985 (and D5345) VOLVO JASO M325 (Japan) LLC Ford WSS-M97B44-C, ASTM D6210 Scania (Tech Info. TI 02-98) Afnor R15-601 Volkswagen VW TL774D, BS 6580 (British Standard) Mercedes-Benz Sheet 325.3 Önorm V5123 Audi/SEAT/Skoda, UNE 26-361-88/1 Mack-RVI BR 637 ISUZU, FVV Heft R443 (Germany) Caterpillar EC-1 DCEA 615 (MIL-France) BMW N600 69.0, NATO S-757 Cummins 90 T8-4 FSD 8704 (MIL-Sweden) SAAB, BT-PS-606A (MIL-Belgium) Detroit Diesel/Perkins AS/NZS 2108.1:1997 (Aus Standard) Type A DAF-Leyland 74001,E/L-1415b (MIL-Italy) Komatsu Navistar Mazda MES 121C, SAE J1034 General Motors GM 6277M Mitsubishi ES-X64216 Toyota TS K2601 G, Honda Daihatsu.

Product Size: 1L, 5L, 20L, 205L

Anti-Freeze/Boil Coolant

Code: 6030

Antifreeze/Boil Coolant a mono-ethylene glycol based product containing inhibitors to protect cooling systems from corrosion and scale formation. The product is a green liquid.

Specifications: AS2108-84, AS/NZS 2108.1 1997 TYPE A, Ford ESE-M97B44-4, Ford ESE-FM97B18-C, General Motors GM-1825M, General Motors GM-6043, Cummins 92T8-9, Detroit 7SE298, Nissan NES 5059 LLC.

Product Size: 20L, 205L

Premix Coolant 50/50

Code: 7094

Premix Coolant 50/50 Extended Life Coolant is a premium performance, environmentally sensitive pre-diluted and corrosion inhibitor, based on extended life organic acid plus an additional nitrite corrosion inhibitor in ethylene glycol. Provides long term protection of the cooling systems of heavy and light duty diesel engines and gasoline engines. Specifically designed for use where the engine manufacturer requires nitrite inhibited product (e.g. Caterpillar).

Specifications: Caterpillar EC-1, Cummins, Detroit Diesel, Mack trucks (014 GS 17009), Paccar (Kenworth and DAF Trucks), International, Volvo Trucks (North America), Freightliner Thermo-King, TMC RP329, Meets the phosphate free requirements of European manufacturers, Meets the silicate free requirements of Japanese manufacturers, ASTM D6210, ASTM D4985, nASTM D3306.

Product Size: 20L, 205L

Power Steering Fluid Synthetic



Code: 3150

RPL Power Steering Fluid Synthetic is a 100% synthetic fluid suitable for use in a wide range of power steering systems in European, Japanese and American vehicles. It is specifically suitable for Chrysler, Ford, Honda, Mercedes Benz, Saab and Subaru vehicles.

Specifications: General Motors 9985935, General Motors 9985010, Chrysler MS-1872, Chrysler MS-5931, Honda PN 08206-9002 PE, MB PN 30 09 800, Saab PN 30 09 800, Subaru PN KOZ09A0080.

ECO

ECO **CR20WB**: Concrete Mould Release

WATERBASED

Code: 7064

ECO **CR20WB** a general purpose, water based release agent formulated for the easy release of spun concrete pipes from non-porous moulds. This product may also be used as a release agent for pre-cast concrete.

Application: Some agitation prior to use is advisable. Mould or formwork surfaces must be clean and should be dry. ECO **CR20WB** may be applied by spray, brush or mop.

Application rate coverage: 10-12m² per litre. Allow to dry clear before pouring concrete.

Important: If starting up a new mould or freshly cleaned mould apply a second coat as per above directions after the first coat has dried. Test runs should be conducted first before proceeding with full production.

Product Size: 1000L

ECO **CR35WB**: Concrete Mould Release

WATERBASED

Code: 7065

ECO **CR35WB** formulated for the easy release of increasingly more complex **spun concrete pipes** from non-porous moulds. This product may also be used as a release agent for **pre-cast** concrete.

Some agitation prior to use is advisable. Mould or formwork surfaces must be clean and should be dry. ECO **CR35WB** may be applied by spray, brush or mop. Application rate coverage: 10-12m² per litre. Allow to dry clear before pouring concrete.

Product Size: 1000L

ECO **ARA12**: Asphalt Release

BIODEGRADABLE

Code: 9089

ECO **ASA12** a ready to use release agent and lubricant that is 100% biodegradable and non-hazardous. It utilizes unique, advanced film technology that will not damage equipment.

Product Size: 1000L

ECO **SB100**: Saw Blade Oil

BIODEGRADABLE

Code: 9028

ECO **SB100** biodegradable saw blade oil is a fortified vegetable based fluid that is biodegradable and therefore ultimately harmless to the environment. It biodegrades to yield carbon dioxide and water as the end products.

Product Size: 205L

ECO

ECO BioDraulic 22, 46, 68

BIODEGRADABLE

Code: 22 - 9024, 46 - 9025, 68 - 9026

ECO **BioDraulic** hydraulic oils are fortified vegetable based fluids that are biodegradable and therefore ultimately harmless to the environment while meeting the requirements of conventional Hydraulic lubricant. ECO **BioDraulic** hydraulic oils are suitable for all types of machinery where leaks of fluid would be unacceptable to the surrounding environment including forklift in cool stores, golf course equipment, wineries, fruit processing plant, food production areas, grape harvesting equipment, meat works etc.

ECO **BioDraulic** hydraulic oils are highly rated hydraulic oils that have been used in applications where temperatures range from - 5°C to + 80°C. ECO **BioDraulic** hydraulic oils due to their oil characteristics will give good service life under normal conditions and protect working surfaces from wear due to their special non-zinc additive system. ECO **BioDraulic** hydraulic oils may deteriorate under severe service conditions of high temperature and pressure and therefore should be conditioned moderated to ensure their service life has not been exceeded. Ore frequent fluid changes will assist in maintaining system cleanliness and pump life.

Product Size: 20L, 205L

ECO Chain & Bar Fluid 150, 220, 320

BIODEGRADABLE

Code: 150 - 8031, 220 - 8032, 320 - 8042

ECO **Chain & Bar** oils are a readily biodegradable chain saw bar and chain lubricant designed for chain saws used in forestry, landscaping and similar applications. Its excellent lubricity and temperature stability provide smooth mechanical performance and superior anti-wear protection while its added tackiness minimizes sling loss.

ECO **Chain & Bar** are suitable for all types of chainsaws where loss of fluid would be unacceptable to the surrounding environment including State and National Parks, water catchment areas, golf courses, wild life habitat and sensitive logging areas.

ECO **Chain & Bar** are moderate rated oils for use where constant operating temperatures should not exceed 80°C in order to achieve optimum fluid life.

ECO **Chain & Bar** base oil characteristics will give good service life under normal conditions and protect working surfaces from wear due to their special non-zinc additive system.

Product Size: Various

ECO Rock Drill Fluid 150, 220, 320

BIODEGRADABLE

Code: 150 - 8735, 220 - 8736, 320 - 8737

ECO **Rock Drill Fluids** Lubricant are superior natural bio fluids suitable for severe operation in pneumatic systems formulated from vegetable base stocks with a special non-hydrolyzing anti wear and tackiness additive. ECO **Rock Drill Fluids** are environmentally responsible fluids that are readily bio-degrade, minimum deposit forming, long service life, protect system components from wear and also are miscible with water. ECO **Rock Drill Fluid** is suitable for all types of machinery where loss of fluid would be undesirable to the surrounding environment including mining equipment, tunnel boring machines, timber mills, steel mills, die-casting plants, drilling rigs etc.

ECO **Rock Drill Fluid** suitable for drilling rig tool bits working in soft or hard rock conditions and will adhere to the working surfaces of pneumatic rams and air motors operating under high speed assisting in increasing equipment life.

Product Size: Various

OIL GUIDE

Royal Precision Lubricants (RPL) has designed this section to help you understand a little more about oils and greases, their specifications and how they work. The level of detail has been kept fairly basic and can be used as a simple reference.

SAE Viscosity Grades for Engine Oils

SAE stands for Society of Automotive Engineers. The SAE developed a classification system to define the viscosity, or thickness, of the oil. This system has been progressively modified over the years.

It defines "operating" engine oil viscosities for different grades and contains specifications for "cranking" viscosity and pump ability at start up, the "W" grades or winter. A multi-grade oil is one that meets both a "W" low temperature viscosity requirement and a 100°C "operating temperature" requirement. For engine oils there is a specification that must be met at 150°C, known as a High Temperature/High Shear (HT/ HS) viscosity. This is to simulate what happens in high stress areas of the engine e.g. bearings. Centipoise (cP) and Centistokes (cSt) are the units each is measured in. In addition, gear oils require a KRL test. This is a severe oil shear test, and the oil must stay in grade or within a nominated range after shear. Its severity is the main reason why 75W-x gear oils are expensive as these are difficult to make. SAE Viscosity has little relevance to industrial oils but some compressor oils are stated as meeting SAE 30 for example.

For more information please refer to the SAE Viscosity Grades Classification chart on page 54 and the Comparative Viscosity Classifications chart on page 48.

API Engine Service Classifications

API stands for American Petroleum Institute. In 1970 along with the SAE and ASTM (American Society for Testing and Materials), they established the API Service Classification System to define the performance level of a given oil, unrelated in the main, to oil viscosity. The API requirements 'S' for Spark Ignition (petrol) and 'C' for Compression Ignition (diesel).

For more information please refer to the API Classification chart on page 51 and the 'S' and 'C' Service charts on pages 49 and 50.

ACEA Engine Service Classifications

ACEA stands for Association des Constructeurs Européens de l'Automobile. This classification system is the European equivalent of the API classification system, but is stricter and has more severe requirements. Hence the oil meets both API and ACEA specifications uses a better additive package than one that is designated to meet only API specifications. Unlike the API, ACEA has three main groups - "A/B" for gasoline and light duty (passenger car, 4WD etc.) diesel engines, "C" for light duty three way catalyst (TWC) and diesel particulate filter (DPF) compatible oils and "E" for heavy duty diesel engines.

For more information please refer to the ACEA Classification chart on page 52.

ILSAC Engine Service Classifications

ILSAC (International Lubricants Standardisation and Approval Committee) includes the major automobile manufacturers that manufacture vehicles in the USA. This includes the Japanese manufacturers. Effectively, ILSAC specifications are the fuel economy version of the API specifications.

For more information please refer to the ILSAC Classification chart on page 53.

ISO Viscosity

This is the defining category for industrial oils. The chart on page 56 shows the kinematic viscosity limits for each ISO Viscosity Grade. Each viscosity grade is 50% higher in viscosity than the preceding viscosity grade. These limits are set at a 10% tolerance level above and below the mid-point of a grade. Any product with a viscosity outside these tolerance levels is not a recognized ISO Viscosity Grade.

For more information please refer to the ISO Classification chart on page 56.

OIL GUIDE

Oil Functions

To properly lubricate, an oil or grease must:

Lubricate Parts and Prevent Wear

This is the basic function of all oils. Keeping the moving parts separated. In general the thicker the oil film, the better the wear protection, but the oil additives also play an important role. Modern additives often allow an oil of slightly lesser viscosity to be used and still provide the same level of protection.

Reduce Friction

The film of oil reduces friction simply because there is no metal-to-metal contact. The heavier the oil though, the greater the drag and hence more heat may be generated. Correct oil election is therefore a balance of what is needed to protect the component without generating excessive drag.

Protect Against Rust and Corrosion

As oils degrade they form corrosive by-products so the oil contains anti-corrosion and acid neutralizing additives to protect components.

Keep Components Clean

Oils need to be very stable under heat and not cause system deposits. Different oils will last different lengths of time in a given application.

Be Compatible with Seals

The oil must lubricate and not cause deterioration of seals.

Prevent Foam

Foam reduces the lubrication properties of the oil, therefore industrial oils must be resistant to foaming or be able to 'release' any foam quickly.

Engine Oil Functions

Permit Easy Starting

Most wear occurs in an engine at start up. Therefore, the oil must have the correct low temperature viscosity to flow quickly to the bearings and valve train to prevent wear. Some engines require low viscosity oils to start at all, especially some of the new diesel engines found in four wheel drives, where the oil is used to operate the pump to prime the fuel injectors.

Cool the Engine

At least 40% of the engine is cooled by the oil, not the radiator system. This means the oil is always under heat stress (oxidation) as it transfers heat from hot spots back to the sump. This includes main and big end bearings, the crankshaft, rods, other bearings plus timing gear and pistons.

Reduce Combustion Chamber Deposits

Some oil will always reach the combustion chamber - either via the cylinder walls or via the valves. It is then burned off with the fuel. So it must burn clean enough that it does not build up on valve seats or pistons tops which can cause problems.

Automatic Transmission Fluid Functions

- They are a power transmission medium for the torque converter.
- Act as a hydraulic fluid for the hydraulic - and electronic - control systems.
- They must transmit sliding friction energy in bands and clutches. This property varies between transmission makes, and is why there are so many ATFs on the market. Friction is the key.
- They transmit this energy in such a way that the shift is always smooth.

OIL GUIDE

Manual Transmission Fluid Functions

- Be capable of providing an easy gear shift for the life of the oil drain. This is a function of both viscosity and friction modifiers
- Maintain long clutch life and prevent seal leaks

Gear and Differential Oil Functions

- Must protect against pitting, scoring and scuffing caused by the large shear loads placed on the oil by the gear set.
- Protect against copper corrosion. Older technologies were not kind to copper alloys and used to turn them black via chemical attack. Most modern hypoid oils do not tend to do this due to advances in technologies.
- Limited slip oils must enable the cone or clutch to work properly when distributing power to the drive wheels.
- As such, these contain a friction modifier to achieve this. It should be noted that oils designed for use in limited slip differentials can be used in standard hypoid differentials.

Additives

There are many types of oils and greases and they use many of the same types of ingredients. However, these are put together a little differently. Not all of these are found in every oil or grease.

Firstly you have base oils, made from either crude oil at a refinery, or man-made (synthetics). To achieve the functions required by finished lubricants, you must then put additives in the oil. These all do different things.

Detergents

Any oil with an API engine rating of SC or above has a level of detergency. This detergency level is not necessarily related to all of the quoted API ratings of the oil, as some high detergent diesel oils may only meet lower petrol engine oil specifications. It is a balance. Detergents are usually metallic compounds and they control deposits and keep engines clean.

They can clean up dirty engines depending on the product.

Dispersants

These are usually ash less (non-metallic) organic chemicals. They keep contaminants and by-products dispersed in the oil helping to prevent deposits from forming. They are highly effective in controlling low temperature contaminants. They can keep them so fine in suspension they pass through the oil filter with the oil additives!

Extreme Pressure Additives

API GL-2 and up oils, all contain extreme pressure (EP) additives of some description. They tend to be sulphur phosphorus based although chlorine is also used. Some types are also found in compressor and hydraulic oils, and especially in slideway oils and chain lubricants.

Friction Modifiers

These reduce friction and vary in chemical nature depending on the type of oil.

Friction Modifiers - Engine Oils

Used to reduce internal engine friction and are common in low viscosity oils where fuel economy is important. They are also effective anti-wear agents. Current technologies do not cause the same problems with bore glazing as in the past.

OIL GUIDE

Friction Modifiers - Transmission and Gear

The most important part of an ATF and a purpose designed MTF is the friction modifier. These enable the transmission to function correctly so the end user has smooth gear changes. In limited slip differentials, these prevent chatter and squawk and ensure the differential works as it should. They are all different types of chemistry.

Oxidation Inhibitors

Reduce oxygen attack on the oil, reducing oil thickening, especially at high temperatures.

Rust and Corrosion Inhibitors

Prevent rust and attack on metal surfaces from acids.

Anti-Wear Agents

Prevent wear due to seizure or scuffing of scrubbing surfaces. They are normally zinc, phosphorus or other organo-metallic types.

Foam Depressants/Air Release Agents

Prevent foam from forming, thereby maintaining a lubrication film and the ability of the oil to be pumped at the required rate.

Pour Point Depressants

Reduce the oils tendency to crystallise at low temperatures, i.e. its ability to pour.

Viscosity Index Improvers (VII)

These change the oil's rate of thinning of the Viscosity Index (VI) as temperatures increase - i.e. make multigrade oils. They are polymers that expand as temperature increases - think of them as like a slowly uncoiling spring. VIIs change the Viscosity Index (VI) of a product - the higher this number is, the less the oil viscosity will change with temperature. There are many different types and those used in engine oils are very different to those in gear oils, as an example.

Base Oils

All oils must contain base oils! They go with the additives mentioned previously. Not all base oils are created equally however. The API classifies these into 6 main groups.

Group	Sulphur %	Saturates %	VI	Manufacturing Method
I	>0.03	<90	80-119	Solvent Refined
II	<0.03	>90	80-119	Hydro-processed
III	<0.03	>90	120+	Severely hydro-processed
IV	Poly Alpha Olefins (PAO)			Oligomerization (man-made)
V	All Others (including Esters)			Various
VI	Poly Internal Olefins (PIO)			Oligomerization (man-made)

Group III oils are accepted as being synthetic. Some very high quality Group II oils (called Group II Plus) are also accepted as having synthetic performance. When looking at the table, think of saturate (relates to aromatics and other hydrocarbon molecules) and sulphur levels as the degree of purity of the oil. The Group III products used by **RPL** are over 99% pure, and hence as good as the man made PAO products. Group III products have many marketing names such as XHVI (Shell) and VHVI (Petro-Canada). These synthetic base oils are used for two main reasons - greater oxidation stability (for longer oil life) and low volatility (to decrease oil consumption).

From a **RPL** perspective, we choose the combination of the above base oils to ensure maximum performance for a given oil.

OIL GUIDE

Industrial Oils

There are many different types of industrial oils. Let's take a little time to look at some of them.

Hydraulic Oils

The primary application of hydraulic oil is to transmit force applied at one point in a system to another. As well as this it must also protect seals, lubricate and transfer heat.

The viscosity of the oil is important to ensure efficient power transfer. Too heavy and high-pressure drops may occur, the system becomes sluggish and power usage increases. If too low, then wear can be a problem, efficiency decreases and leaks may occur. Typically these products contain anti wear, anti-rust/ corrosion and anti-oxidation inhibitors. These may be ash-less (non-metallic) or use a zinc di-thiophosphate type system. Some older higher zinc additives can be corrosive to silver. Hydraulic oils can be a 'monograde' (HM) or 'multigrade' (HV) type.

Industrial Gear Oils

Typically API GL-3 oils which use low doses of conventional sulphur-phosphorus additives. They tend to be straight grade oils.

Compressor Oils

Compressors may use a multitude of products, depending on the type of compressor and its service. Types of oils include:

- Conventional motor oils
- Non-metallic hydraulic oils
- Ash-less engine oils
- Specialised fluids (mineral or synthetic)
- Automatic transmission fluids
- Refrigeration oils

The use of the wrong oil can cause wear, failure, carbon build up and even reaction with the gas being compressed, so great care must be taken when recommending fluids.

Heat Transfer Fluids

As the name suggests they transfer heat in a system. They must be highly oxidative stable to minimize build-up of carbon deposits (which of course inhibit heat transfer).

Cutting Fluids

These are 'neat fluids' which are straight petroleum oils with specialised additives or 'soluble oils' which are designed for use in water. They are used for many different machining applications and come in a wide range of viscosities and additive types. Some are clear, some not. Use of the wrong type of oil can lead to bit wear problems or staining of the metal surfaces.

Transformer Oils

Highly specialised fluids used in electrical transformers. They are characterised by extremely low water content and good oxidation stability.

White Oils

Ever wonder what baby oil is? Highly refined mineral oil, 100% paraffinic and approved by health and food authorities. Used by the food and cosmetic industry as a lubricant or carrier fluid.

Process Oils

Straight oils used in various industrial processes such as in rubber or as flushing fluids. Large quantities of these are used by heavy industry.

OIL GUIDE

Miscellaneous

There are many special products used by industry that are not covered here. The mining and food industries have some special lubricants for very specific applications. These may be fire resistant fluids, specialised greases, control fluids and many others.

Greases

Greases are defined as solid or semi-solid materials produced by the dispersion of a thickening agent in a liquid lubricant (like adding a sponge to water). Greases are manufactured in either a grease kettle or in a contactor. Soap based grease uses a thickener made by reacting a metallic hydroxide with a fatty acid, which is where we get our basic types from, e.g. lithium soap. Non-soap greases include silica, polyuria and clay (bentone). Depending on what the grease needs to achieve, different thickener and base oils can be used.

Grease Characteristics

The most important factors affecting the properties and characteristics of a grease are:

- Amount and type of thickener
- Additives

Grease is expected to:

- Reduce friction and wear
- Provide corrosion protection
- Seal bearings from water and contaminants
- Resist leakage, dripping and throw-off
- Resistance change in structure or consistency during service
- Maintain mobility under conditions of application
- Be compatible with seals
- Tolerate or repel moisture

Grease Definitions

Consistency – is the degree of hardness of grease and may vary considerably with temperature. This has been classified by the National Lubricating Grease Institute (NLG) into the following categories:

NLGI – Grade Penetration @25°C (1/10th mm)

000	445 - 475
00	400 - 430
0	355 - 385
1	310 - 340
2	265 - 295
3	220 - 250
4	175 - 205
5	130 - 160
6 (block grease)	85 - 115

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Oil Separation – is the percentage of oil which separates from the grease under static (e.g. storage) conditions. It cannot predict separation tendencies in use under dynamic conditions.

High Temperature Stability – is the ability of grease to retain its consistency, structure and performance at temperatures above 125°C.

Grease Service Classification

There are 5 categories for Automotive Service Greases developed by the NLGI. The classification (ASTM D 4950) covers greases designed for the lubrication of chassis components and wheel bearings of passenger cars, trucks and other vehicles. The NLGI classifies automotive service greases into two main groups. Chassis greases, designed by the prefix L and Wheel Bearing greases designated by the prefix G. These are shown in the table.

Category	Service	Performance
LA Chassis	Frequent re-lubrication intervals (<3200km) Mild duty (non-critical applications)	Oxidation resistant, shear stable and corrosion and wear protective
LB Chassis	Prolonged re-lubrication intervals (<3200km) Mild to severe duty (high loads, vibration, exposure to water)	Oxidation resistant shear stable and corrosion and wear protective even under heavy loads and in presence of aqueous contamination. Temperature range: -40°C to 120°C
GA Wheel Bearings	Frequent lubrication intervals Mild duty (non-critical applications)	Temperature range: -20°C to 70°C
GB Wheel Bearings	Mild to moderate duty (cars, trucks in urban and highway service)	Oxidation and evaporation resistant, shear stable and corrosion and wear protective Temperature range: -40°C to 120°C with occasional excursions to 160°C
GC Wheel Bearings	Mild to heavy duty (vehicles in frequent stop-and-go service, trailer hauling, mountain driving, etc)	Oxidation and evaporation resistant, shear stable and corrosion and wear protective Temperature range: -40°C to 120°C with frequent excursions to 200°C

Grease Shelf Life

The shelf life of any grease is affected by the type and amount of thickener used, consistency of the grease, manufacturing method employed and the formulation complexity. Generally straight Lithium, Lithium Complex and Calcium Complex greases remain stable for a long time. Aluminum complex greases tend to set and harden, but remain stable. Bentone and Barium greases tend to soften on ageing. Based on these observations:

The shelf life of most **RPL** greases is about 5 years. However, Steering Box Lubricant and Semi Fluid Grease only have a 2 year shelf life.

OIL GUIDE

Grease Types

There are many types of greases which are shown below. As can be seen they have different properties which helps to define where they are best suited.

Thickener	Drop Point °C	Max Service Continuous Operation Temp. °C	High Temperature Use	Structure	Shear Stability	Water Resistance
Calcium	100	<80	Very Poor	Smooth	Fair	Good
Lithium	160 - 200	125	Good	Smooth	Good	Good
Calcium Complex	>260	150	Excellent	Smooth/Buttery	Good	Excellent
Lithium Complex	<240	160	Excellent	Smooth	Excellent	Excellent
Aluminium Complex	>260	150	Excellent	Smooth/Gel	Good	Excellent
Barium Complex	>200	150	Good	Fibrous	Fair	Excellent
Polyurea	>230	150	Excellent	Opaque	Good	Excellent
Bentone	NA	150	Excellent	Smooth	Fair	Good
Sodium	170 - 190	125	Good	Fibrous	Good	Very Poor

Grease Applications

Greases are used instead of oils in many applications.

The find use where:

- A good seal from the elements is required
- Leakage is a problem
- Exposed gears or chains are used and water wash-off is a problem
- Less frequent application of lubricant is possible due to isolation or inaccessibility

Some examples where greases are used include:

- Wheel bearings
- Universal joints
- Chassis lubrication
- Track rollers
- Rolling bearings
- Shackles and pins
- CV Joints
- Electric motor bearing*

* Note: Extreme Pressure greases are not generally recommended in electric motors.

OIL GUIDE

Grease Compatibility

Occasionally, grease substitution in an application may be necessary to correct problems arising from the original product in service. If the thickeners are incompatible, the mixture will not meet the properties of the individual greases and in some cases, the greases will fall apart.

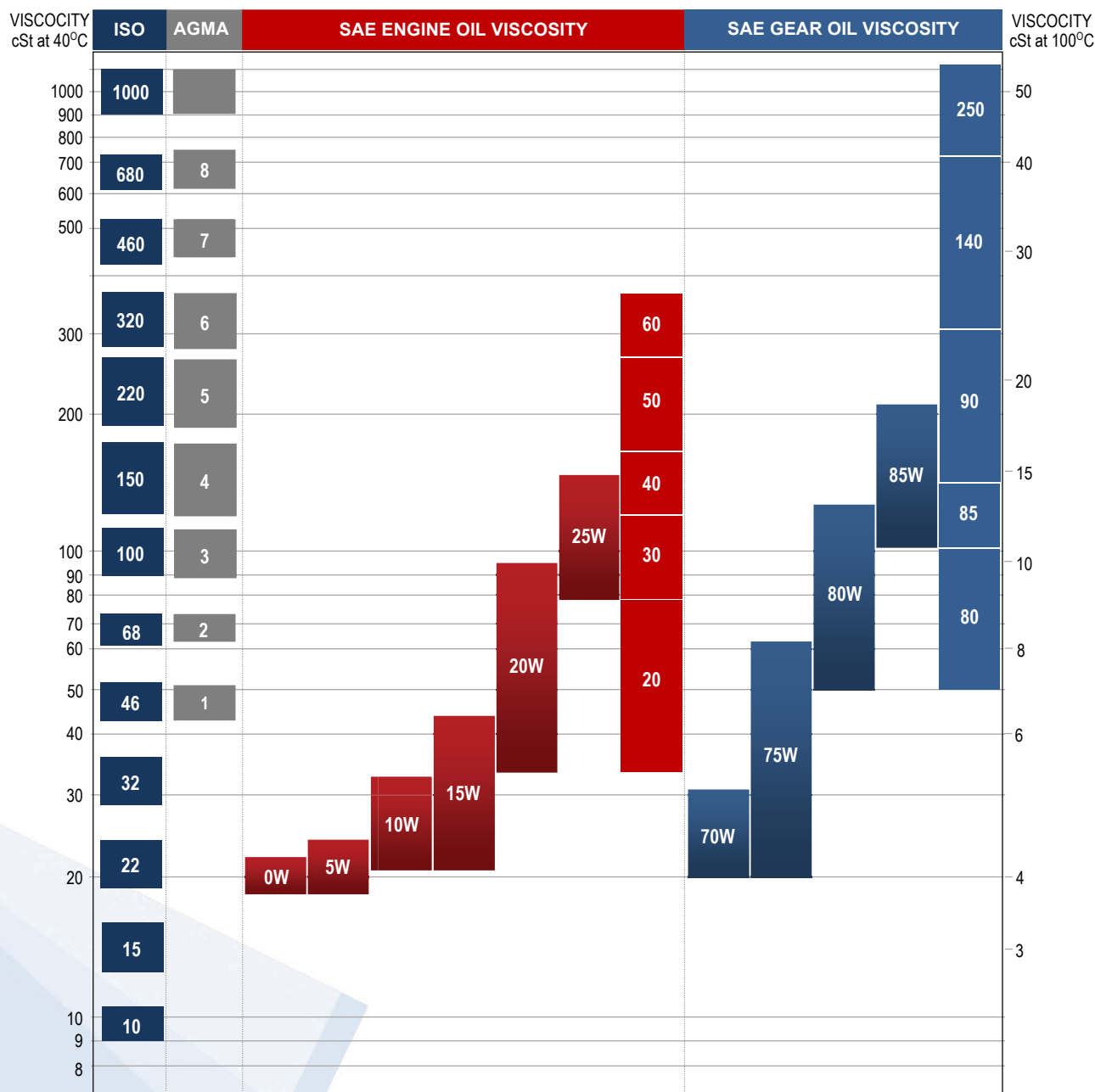
It is strongly advised that, in all cases, the old grease be purged or cleaned out from the system before a new one is introduced. However, compatibility between greases is temperature dependent. As the temperature rises, the problems associated with incompatibility also increase. With unknown competitors' products, it is strongly advised to treat them as incompatible.

	Calcium	Lithium	Calcium Complex	Lithium Complex	Aluminium Complex	Barium Complex	Polyurea	Bentone	Sodium
Calcium		□	□	□	○	×	□	×	×
Lithium	□		□	□	○	○	□	×	○
Calcium Complex	□	□		○	×	○	○	×	×
Lithium Complex	□	□	○		○	○	□	×	○
Aluminium Complex	×	○	×	○		×	○	×	×
Barium Complex	×	○	○	○	×		○	×	×
Polyurea	□	□	○	□	○	○		×	×
Bentone	×	×	×	×	×	×	×		×
Sodium	×	○	×	○	×	×	×	×	

Key: □ **Compatible** ○ **Borderline** × **Incompatible**

CLASSIFICATION CHARTS

Comparative Viscosity Classifications



Winter (W) grade oil viscosities are also defined at low temperatures as well as minimum viscosities at 100°C (shown here). This chart gives an approximate comparison between different commonly used viscosity classification systems.

CLASSIFICATION CHARTS

API Engine Service Classifications

'S' Service Classifications

Classification	Description	Related Specifications
SN	Introduced in October 2010 for 2011 and older vehicles, designed to provide improved high temperature deposit protection for pistons, more stringent sludge control, and seal compatibility. API SN with Resource Conserving matches ILSAC GF-5 by combining API SN performance with improved fuel economy, turbocharger protection, emission control system compatibility, and protection of engines operating on ethanol-containing fuels up to E85.	ILSAC GF-5
SM	Meets 2004-on requirements of Automotive manufacturers. XW-20 and XW-30 grades have chemical limits.	ILSAC GF-4
SL	Introduced July 2001. For all automotive engines presently in use. SL oils are designed to provide better high temperature deposit control and lower oil consumption. Meets 2001-2004 on requirements of Automotive manufacturers.	ILSAC GF-3
SJ	Introduced in 1997 (First available 15 October 1996). Provides improvements over SH in oil volatility, filterability, gelation, deposits and catalyst compatibility. SJ oils are been tested in accordance with the Chemical Manufacturers Association (CMA) Code of Practice and may be used where earlier categories have been recommended. Meets 1998-2000 requirements of Automotive manufacturers.	ILSAC GF-2
SA to SH	Are obsolete	
SH*	Introduced 1994. Exceeds SG in deposit control, oil oxidation, wear, rust and corrosion. SH oils are rested in accordance with the Chemical Manufacturers Association (CMA) Code of Practice, and may be used where earlier categories have been recommended. Meets 1994-1997 requirements of Automotive manufacturers.	MIL-L-46152E ILSAC GF-1
SG*	Introduced 1989. Provides improved control of engine deposits, oil oxidation, and engine wear compared to previous categories. Also provides protection against rust and corrosion. Meets 1989-1993 requirements of Automotive manufacturers.	Ford: ESE-M2C-153E GM: 6048M MIL-L-46152D
SF*	Introduced 1980. Provides oxidation stability and anti-wear performance compared to SE. Also provides protection against engine deposits, rust and corrosion. Meets 1980-1988 requirements of Automotive manufacturers.	Ford: ESE-M2C-153B/C/D GM: 6048M, Chrysler: MS 6395 MIL-L-46152B/C
SE*	Introduced 1972. Provides more protection against oil oxidation, high temperature engine deposits, rust and corrosion compared to SD or SC. Meets 1972-1979 requirements of Automotive manufacturers	Ford: ESE-M2C-101C GM: 6136M, MIL-L-46152A
SD*	Introduced in 1968, and meets 1968-1971 requirements of Automotive manufacturers.	
SC*	Introduced in 1964, and meets 1964-1967 requirements of Automotive manufacturers.	
SB*	For minimum Duty Petrol Engines. Some antioxidant and anti-scuff properties.	Inhibited oil (non-detergent)
SA*	For Utility Petrol and Diesel Engines. Oil without additive.	Straight mineral oil.

*Obsolete

CLASSIFICATION CHARTS

'C' Service Classifications

Classification	Description	Related Specifications
CJ-4	Released in 2006 for 15ppm maximum fuel sulphur. Enhanced wear, protection 1.0% ash maximum.	US EPA '07
CI-4 PLUS	As per CI-4 but with further restrictions on after shear viscosity and performance. (released September 2004) Aust. 2008.	CI-4
CI-4	High speed four stroke engines fitted with cooled EGR (released Dec 2001) and using low-sulphur fuel.	
CH-4	High speed four stroke engines meeting 1998 emission standards (less than 0.5% fuel sulphur).	
CG-4	Severe Duty four stroke engines meeting 1994 emission standards (less than 0.5% fuel sulphur).	
CA to CF-4	Are obsolete	
CF-4*	Severe Duty four stroke diesel engine service for lower emission diesel engines (from 1988).	
CF-2*	Severe duty two stroke diesel engine service from 1994.	
CF*	Off road indirect injection diesel engines and others using a broad range of fuel types including high sulphur. May be used to replace API CD oils.	CD
CE*	Turbo/Supercharged heavy duty diesels from 1983.	
CD-II*	API CD plus Detroit Diesel 6V53T approval for two stroke engines. For Severe Duty Two Stroke Cycle Diesel Engines. Service typical of two stroke cycle diesel engines requiring highly effective control over wear and deposits. Oils designed for this service also meet all the performance requirements of API Service Category CD.	CD, Detroit Diesel: 6V-53T MIL-L-2104D
CD*	Severe duty diesel, including turbo. For Moderate Duty Diesel and Petrol Engines. Typically for certain naturally aspirated, lightly turbocharged or supercharged diesel engines operated in moderate to severe duty, and certain heavy duty petrol engines. Oils designed for these conditions provide protection from high temperature deposits and bearing corrosion in diesel engines and also from rust, corrosion and low temperature deposits in petrol engines. These oils were introduced in 1961.	Caterpillar Series 3, MIL-L-2104C/D MIL-L-45199
CC*	Moderate to severe duty diesel and gasoline service.	MIL-L-2104B, 1964
CB*	Moderate duty, lower quality (high sulphur) fuel.	MIL-L-2104A Supp. 1
CA*	Light duty, high quality fuel.	MIL-L-2104A, 1954

*Obsolete

CLASSIFICATION CHARTS

API Gear Lubricants Service Classifications

For gear oils (loosely including MTFs) there is the set of standards:

Axle and Manual Transmission Lubricants SAE J308

Classification	Description	Related Specifications
MT-1	For non-synchronized manual transmissions in buses and trucks at a higher level than GL-4. GL-2, GL-3 and GL-6 are not normally used for automotive applications. Protection against the combination of thermal degradation, component wear and oil seal deterioration. May or may not contain EP additives. Non synchronized manual transmission used in buses and heavy duty trucks	
GL-6*	For severe service involving high offset hypoid gears. Often used to describe oils used in limited slip differentials. Hypoid gears with very high pinion offset	
GL-5	Equivalent to PRF-2105E. Primary field service recommendation for passenger cars and trucks worldwide. Contains higher concentration of EP additives. Equivalent to MIL-L-2105 B/C/D. Hypoid and all other types of gears in severest service including shock loading. Primary field service recommendation for most passenger cars and trucks. Also may be used in manual	PRF-2105E transmissions
GL-4	Contains EP additives. Equivalent to MIL-L-2105B and is usually satisfied by a 50% GL-5 additive level. Manual transmissions and transaxles, spiral bevel and hypoid gears in normal service without shock loading	MIL-L-2105B
GL-3*	Contains a mild EP additive. Manual transmissions and spiral bevel final drives under moderate service conditions	
GL-2*	Usually contains fatty materials. Worm drives and some individual gear boxes	
GL-1	Straight mineral oil without additive. Some automotive manual transmissions under mild service	

*Obsolete

MIL-PRF-2105E – designed by the US military it takes conventional GL-5 and adds more demands to the specification. Most hypoid oils conform to this standard. Now superseded by SAE J2360 (2003).

CLASSIFICATION CHARTS

ACEA Engine Service Classifications

Classification	Description
A1/B1	For use in gasoline and light duty diesel engines capable of using low friction, low viscosity, and low HT/HS shear (2.9 to 3.5cP) oils. A fuel economy specification, this oil may not be able to be used in all engines.
A3/B3	Stable, stay in grade oil intended for use in high performance gasoline and diesel engines or extended drain intervals.
A3/B4	For use in direct injection diesel engines where special oils may be required, but also suitable for applications described under A3/B3.
A5/B5	Similar to A3/B3 but for engines capable of using low friction, low viscosity and low HT/HS oils. May be unsuitable for use in some engines.
C1	Stable, stay in grade oil of A5/B5 performance level and a phosphorus limit of 0.05% (low SAPS). These oils cannot meet API SM.
C2	Stable, stay in grade oil of A5/B5 performance and mid-SAPs (Phosphorus 0.08%)
C3	Stable, stay in grade oil with mid-SAPs (phosphorus 0.08%). These oils may also meet A3/B4 and API SM. HT/HS>3.5Cp.
C4	Stable, stay in grade oil similar to CI but with tighter volatility limits and no lower limit on phosphorus.
E2	General purpose oil for naturally aspirated and turbocharged diesel engines, medium to heavy duty service and mostly normal drain intervals.
E4	Stable, stay in grade oil more severe than E7, for significantly extended oil drain intervals. Usually synthetic or predominantly synthetic. Also for Euro 3 and Euro 4 engines.
E6	As for E4 but with chemical limits to allow use in engines with particulate filters and SCR Nox reduction systems. Only for diesel with >50ppm sulphur. 1.0% ash, 0.08% phosphorus.
E7	Designed for use in Euro 1, Euro 2 and Euro 3 emission diesel engines in severe heavy duty service and extended drain intervals where allowed. More severe than E2/E3 but not as severe as E4.
E9	<p>E9 Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability.</p> <p>It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines with or without particulate filters, and for most EGR engines and for most engines fitted with SCR NOx reduction systems.</p> <p>E9 is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so Drivers Manuals and/or Dealers should be consulted if in doubt.</p>

ACEA Specification oils have tighter shear stability and oil volatility requirements than equivalent ASPI specification oils.

CLASSIFICATION CHARTS

ILSAC Engine Service Classifications

Classification	Description
GF-5	Introduced in October 2010 for 2011 and older vehicles, designed to provide improved high temperature deposit protection for pistons and turbochargers, more stringent sludge control, improved fuel economy, enhanced emission control system compatibility, seal compatibility, and protection of engines operating on ethanol-containing fuels up to E85.
GF-4	Is equivalent to API SM.
GF-3	Is equivalent to API SL plus the Sequence VI B fuel economy engine test.
GF-2	Is equivalent to API SJ plus the Sequence VI A fuel economy engine test.
GF-1*	Is obsolete - API SH plus the Sequence VI fuel economy engine test.

*Obsolete

ILSAC grades only apply to viscosities XW-20 and XW-30. GF-4 has introduced a phosphorus limit of 0.08% maximum and a sulphur limit of 0.2% maximum. ILSAC, API and ACEA specifications require a large range of engine tests and laboratory tests on the oil. Parameters such as high and low temperature wear, oxidation, soot control, oil thickening, deposit control, volatility, stay in grade performance, fuel economy, chemical composition and many others are tested against limits and rates.

In the case of the API, the oil specifications become more severe as the letters climb the alphabet, e.g. SL is more severe than SJ. This is not necessarily the case with ACEA as their specifications are more application specific.

The standard, known as ILSAC GL-1, was issued in October 1990 and revised in October 1992. An upgraded standard, known as ILSAC GL-2, was commercially released in 1996 and ILSAC GF-3 was released in 2000.

CLASSIFICATION CHARTS

SAE Viscosity Grades for Engine Oils

Engine Oil Viscosity Classification SAE J300

SAE Viscosity Grade	Low-Temperature (°C) Cranking Viscosity ² , mPa-s Max	Low-Temperature (°C) Pumping Viscosity ³ , mPa-s Max With No Yield Stress	Kinematic Viscosity ⁴ (mm ² /s) at 100°C Min	Kinematic Viscosity ⁴ (mm ² /s) at 100 °C Max	High Shear Viscosity ⁵ mPa-s at 150 °C and 10 ⁶ s ¹ Min
0W	6200 at - 35	60,000 at - 40	3.8	-	-
5W	6600 at - 30	60,000 at - 35	3.8	-	-
10W	7000 at - 25	60,000 at - 30	4.1	-	-
15W	7000 at - 20	60,000 at - 25	5.6	-	-
20W	9500 at - 15	60,000 at - 20	5.6	-	-
25W	13000 at - 10	60,000 at - 1.5	9.3	-	-
20	-	-	5.6	<9.3	2.6
30	-	-	9.3	<12.5	2.9
40	-	-	12.5	<16.3	2.9 0W-40, 5W-40, 10W-40 grades
40	-	-	12.5	<16.3	3.7 15W-40, 20W-40, 25W-40 & 40 grades
50	-	-	16.3	<21.9	3.7
60	-	-	21.9	<26.1	3.7

1. All values are critical specifications as defined by ASTM D3244.
2. ASTM D5293.
3. ASTM D4684. Note that the presence of any yield stress detectable by this method constitutes a failure regardless of viscosity.
4. ASTM D445.
5. ASTM D4683, CECL-36-A-90, ASTM D 4741 and D5481.

CLASSIFICATION CHARTS

SAE Viscosity Classifications

Axle and Manual Transmission Lubricants Viscosity Classification SAE J306

SAE Viscosity Grade	Maximum Temperature For Viscosity of 150,000 cP, °C	Viscosity (cSt) @100°C Min	Max	Approx. Equivalent ISO Grading
70W	-55	4.1	NR	22.32
75W	-40	4.1	NR	22.46
80W	-26	7.0	NR	46-100
85W	-12	11.0	NR	100-150
80	NR	7.0	<11.0	46-100
85	NR	11.0	<13.5	100
90	NR	13.5	<24.0	150-320
140	NR	24.0	<41.0	320-680
250	NR	41.0	NR	1000

NR – No Requirement

*Limit must be met after testing in CEC L-45-T-93 (20 hours).

Note: Limit must also be met after testing in 20 hour KRL Shear Stability Test (CEC-L45-T-93 Method C).

CLASSIFICATION CHARTS

ISO Viscosity

ISO - Viscosity System for Industrial Lubricants

ISO Viscosity Grade	Mid Point cSt @40°C	Kinematic Viscosity Limits			
		Minimum		Maximum	
		cSt	SUS	cSt	SUS
2	2.2	1.98	32.0	2.42	34.0
3	3.2	2.88	35.5	3.52	37.5
5	4.6	4.14	39.5	5.06	42.5
7	6.8	6.12	46.0	7.48	50.5
10	10	9.00	55.5	11.0	62.5
15	15	13.5	71.5	16.5	83.5
22	22	19.8	97.0	24.2	116
32	32	28.8	136	35.2	165
46	46	41.4	193	50.6	235
68	68	61.2	284	74.8	347
100	100	90.0	417	110	510
150	150	135	625	165	764
220	220	198	917	242	1121
320	320	288	1334	352	1631
460	460	414	1918	506	2344
680	680	612	2835	748	3465
1000	1000	900	4169	1100	5095
1500	1500	1350	6253	1650	7643

CLASSIFICATION CHARTS

AGMA Viscosity Numbers

The American Gear Manufacturers Association (AGMA) has set up a numbering system to define gear oil viscosities required for various gear boxes and applications. These AGMA Lubricant Numbers are normally stamped on the manufacturer's metal name plate.

AGMA Viscosity Ranges Lubricants (ANSI/AGMA 9005-D94)

Rust & Oxidation Inhibited Gear Oils	Extreme Pressure Gear Lubricants	Synthetic Gear Oils	Viscosity Range cSt @ 40°C	Equivalent ISO Grade
AGMA Lubricant No.	AGMA Lubricant No.			
0	--	0S	28.8 - 35.2	32
1	--	1S	41.4 - 50.6	46
2	2EP	2S	61.2 - 74.8	68
3	3EP	3S	90 - 110	100
4	4EP	4S	135 - 165	150
5	5EP	5S	198 - 242	220
6	6EP	6S	288 - 352	320
7.7 Comp	7EP	7S	414 - 506	460
8.8 Comp	8EP	8S	612 - 748	680
8A Comp	8AEP	--	900 - 1100	1000
9	9EP	9S	1350 - 1650	1500
10	10EP	10S	2888 - 3520	--
11	11EP	11S	4140 - 5060	--
12	12EP	12S	6120 - 7480	--
13	13EP	13S	190 - 220 cSt @ 100°C	--

GLOSSARY OF TERMS

ACEA	Association des Constructeurs European d'Automobiles.
Additive	Any material incorporated into a lubricant to provide new properties or enhance existing properties.
Anti-foam Agent	An additive included in some lubricants to suppress foam formation.
Antioxidant	An additive included in some lubricants to inhibit the chemical breakdown of the base oil and some additive constituents by reaction with oxygen.
Anti-wear Agent	An additive, either physical or chemical in nature, included in some lubricant formulations to reduce friction and wear.
API	American Petroleum Institute.
API Service Classification	System of letter designations agreed on by API, SAE and ASTM to define broad classes of engine oil service. Also a system of service classifications for automotive gear lubricants.
Ash	Metallic deposits formed in the combustion chamber and other engine parts during high-temperature operation.
Ash (Sulphated)	See Sulphated Ash.
ASTM	American Society for Testing and Materials.
Complex Grease	Lubricating grease thickened by a complex soap consisting of a normal soap and a complexion agent. Use of soap complexes gives products higher dropping points than similar lubricants made from normal soaps.
Corrosion Inhibitor	An additive included in some lubricants and coolants to help to protect against metal corrosion.
Defoamant	Additive used in lubricating oils to assist the collapse of surface layers of foam caused by agitation or (Foam Inhibitor) the release of entrained or entrapped air.
Demulsibility	The ability of a lubricant to separate from water.
Deposits	Oil insoluble materials that result from oxidation and decomposition of lubricating oil and contamination from external sources and engine blow-by. Examples are sludge, varnish, lacquer and carbon.
Detergent	An additive included in most engine oils to inhibit deposit formation and keep lubricated surfaces clean.
Dispersant	An additive included in most engine oils to disperse and suspend insoluble contaminants so that they can be removed from the system when the oil is drained.
Diesel Particulate Filter (DPF)	This is a filter in the exhaust line of many new diesel vehicles, particularly light passenger vehicles like four wheel drives. The filter traps tiny particles in the exhaust gasses resulting in cleaner exhaust emissions. These DPFs self clean at regular intervals, but if the wrong engine oil is used, the filter will remain blocked and the vehicle will eventually stop. May also be called a CPF (Catalysed Particulate Filter) by some OEMs.
Drop Point	The temperature at which the first drop of oil separates from a grease when it is heated under prescribed conditions.

GLOSSARY OF TERMS

Em-ulsibility	The ability of a non-water soluble fluid to form an emulsion with water. Emulsifiers are used to promote the formation of emulsions.
Emulsion	A mixture of two insoluble liquids, such as oil and water, consisting of droplets of one liquid throughout the other.
EP Additive	See Extreme Pressure (EP) Additive.
Exhaust Gas Recirculation (EGR)	EGR is a method by which a portion of the engine's exhaust gas is reintroduced to the combustion chamber through the intake system. The primary of effect of EGR, reduction of NO _x , is created by reduction in combustion temperatures.
Extreme Pressure (EP) Additives	Chemical compounds which provide lubricants with extra protection against wear. Under heavy loads, EP additives form a protective chemical film on the surfaces in contact.
Flash Point	The temperature to which a combustible liquid must be heated to give off sufficient vapour to form momentarily a flammable mixture with air when a small flame is applied under specified conditions.
Foam Inhibitor	See Defoamant.
ISO	International Standards Organisation. The body which, among other things, lays down the standard for the viscosity at 40°C mostly used in industrial gear lubricants and hydraulic oils.
JASO	Japanese Automobile Standards Organisation.
Load-Carrying Capacity	Qualitative term to describe the ability of a lubricant to resist film rupture and protect against wear and surface destruction under conditions of high speeds, high loads, high temperatures or combinations of these.
LPG	Liquefied Petroleum Gas.
Low SAPS	Low SAPS means that the motor oil is to contain lower concentrations of Sulphated-Ash, Phosphorus and Sulphur when compared to traditional lubricant technologies – all of which can be detrimental to the after treatment devices which are installed to protect both the environment and our health from harmful emissions.
Lubrication	Control of friction and wear by the introduction of a friction reducing film between moving surfaces in contact. The film may be fluid, solid or plastic.
MIL-	Prefix designation for US Military Specifications.
Miscibility	The ability or tendency of one liquid to mix or blend uniformly with another. Alcohol is miscible in water; petrol and water are immiscible.
Monograde	A single SAE grade across the normal temperature range.
Multigrade	An oil with a viscosity which satisfies the requirements of more than one grade of the SAE system i.e. the viscosity limits, e.g. 15W-40, 20W-50.
Multipurpose Grease	Lubricating grease suitable for a variety of applications such as chassis, wheel bearings, universal joints and water pumps on automotive equipment.
Multiviscosity	See Multigrade.

GLOSSARY OF TERMS

Nitration	Process whereby nitrogen oxides attack petroleum fluids at high temperatures, often resulting in viscosity increase, corrosion and deposit formation.
NLGI	National Lubricating Grease Institute is a body which, among other things, designates the NLGI number which is an indication of the grease consistency or relative hardness ranging from NLGI 6 (hardest) to NLGI 000 (fluid) grease.
Oxidation Stability	Ability of a lubricant to resist oxidation and deterioration resulting from high temperatures and/or exposure to air.
PAO	Polyalpha-olefin. Synthetic oil as a base for lubricant.
Paraffinic	Having the characteristics of paraffins, saturated hydrocarbons of open chain structure.
Penetration	The depth, in tenths of a millimeter, that a standard cone penetrates a semi-solid sample, e.g. grease, petroleum jelly etc. under specified conditions, usually at 25°C.
Pour Point	The lowest temperature at which a lubricant will pour or flow under specified conditions.
SAE	Society of Automobile Engineers.
SAE Viscosity Classification	Society of Automobile Engineers. The SAE system classifies engine and transmission and axle lubricants according to their viscosity, e.g. Engine Oils SAE 15W-40; SAE 30, Gear Oils SAE 85W-140 etc.
Shear Stability	The ability of a liquid to resist being degraded by mechanical shearing forces. Particularly applicable to multigrades containing viscosity index improvers.
Sludge	Insoluble material formed as a result either of deterioration reactions in oil or of contamination of an oil, or both.
Soap	General term for the 'salt' of a fatty acid. Ordinary washing soaps are those of sodium and potassium. Soaps of lithium, sodium, calcium, barium and aluminium are the principle thickeners used in grease making.
Sulphated Ash	Residue that remains after a sample of oil has been oxidized under prescribed conditions and the resulting residue reduced to a constant weight by heating with sulfuric acid. Used as a measure of the amount of metallo-organic additives present in new oils. In used oils, the determination may be affected by the presence of incombustible contaminants such as lead alkyls, dust and wear metals.
Supplement 1	Abbreviation for obsolete military specification US Army 2-104B (Supplement 1).
Synthetic Lubricant	Lubricant made chemically by reacting materials of a specific chemical composition to produce a compound with planned and predictable physical and chemical properties.

GLOSSARY OF TERMS

Tacky	A term applied to greases and lubricants that are particularly sticky or adhesive to metal surfaces.
Thermal Stability	Property of a fuel or lubricant which indicates its ability to resist cracking and decomposition on prolonged exposure to elevated temperatures.
Thickener	Solid particles which are uniformly dispersed to form the structure of a grease in which the liquid lubricant is held.
Timken OK Load	Maximum load a lubricant will withstand without failure due to breakdown of the lubricant film, as determined on the Timken EP Lubricant Tester.
Viscosity	A measure of the resistance of flow, or internal friction, of a fluid. Viscosity changes with temperature so the temperature at which the measurement was made must always be specified.
Viscosity Index (VI)	An arbitrary scale which indicates how the viscosity of a fluid varies with changes in temperature. The higher the VI the less the viscosity changes with temperature and vice versa.
VI Improvers	Additives which increase the viscosity index of mineral oils thereby decreasing the effects of temperature on the lubricant.
Worked Penetration	The penetration of a sample of lubricating grease immediately after it has been brought to 25°C and then subjected to 60 strokes in a standard grease worker.

EQUIVALENTS

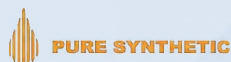
DIESEL ENGINE

RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
ULTRA EURO 10W-40 2009	VECTON LONG DRAIN LS 10W-40	DELVAC XHP LE 10W-40	RIMULA R6 LM	TITAN CARGO MAXX 10W-40	VANELLUS ECO 10W-40	PRO FLEET 10/40	DELO XSD 10W-40
ULTRA 7000 5W-30 9240	EDGE PROFESSIONAL OE-X 5W-30	--	HELIX PRO AG 5W-30	TITAN GT1 PROFLEX 5W-30	--	SYNPOWER MST 5W-30	HAVOLINE C3 FULL SYN
ULTRA 4000 15W-40 2001	GTX DIESEL 15W-40	DELVAC 1300 SUPER 15W-40 CH	RIMULA RX 3	TITAN TRUCK 15W-40	-	SUPER DIESEL	DELO GOLD
ULTRA 9000 15W-40 2003	VECTON 15W-40 CJ-4	DELVAC MX ESP 15W-40	RIMULA R4L	TITAN ULTRA MC 15W-40	VANELLUS MULTIFLEET ECO 15W-40	DIESEL EXTRA LE	DELO 400 LE 15W-40
TURBO DIESEL 15W-40 2000CF	--	SUPER DIESEL 15W-40	RIMULA D EXTRA 15W-40	TITAN UNIVERSAL HD 15W-40	--	DIESEL FORMULA 15W-40	DELO SILVER 15W-40
TOPLINE EXPRESS 15W-40 2002	RX SUPER CI-4/SL	DELVAC MX 15W-40 CI-4/SJ	RIMULA R4 x	TITAN ULTRALUBE 15W-40	VANELLUS MULTIFLEET PLUS 15W-40	DIESEL EXTRA 15W-40	DELO 400 MULTIGRADE
ULTRA MONO 10W 30W 40W 50W 2210 - 2250	RX MONO 30, 40, 50	DELVAC 1210, 1230, 1240, 1250	RIMULA R3 30, 40, 50	TITAN UNIVERSAL HD30, HD40, HD50	VANELLUS C3 MONO	PREMIUM MONO 10, 30, 40, 50	DELO SILVER 10, 30, 40, 50
HPDD 40W 2200	RX MONO DD 40, 50	--	ROTELLA DD40, DD50	--	VANELLUS DD 40, DD 50	--	DELO HDD 40, 50
MULTIFARM 15W-40 2600	AGRI MP PLUS 20W-40	AGRI SUPER	SPIRAX S3 T	AGRIFARM	SUPER TOU	FARMPLUS UNIVERSAL TRACTOR OIL	SUPER TRACTOR





EQUIVALENTS

PETROL ENGINE

RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	VALVOLINE	CALTEX
SYNTEC ULTRA 0W-40 9185	EDGE 0W-40	MOBIL 1 ESP 0W-40	--	--	-SYNPOWER 0W-40	HAVOLINE FULL SYNTHETIC E 0W-40
SYNTEC C1 5W-30 9186	EDGE PROFESSIONAL C1 5W-30	--	HELIX PRO AF-L 5W-30	TITAN SUPERSYN PRO C-1 5W-30	SYNPOWER ENV C1	HAVOLINE ENERGY EF 5W30
SYNTEC ULTRA V 5W-30 9280	EDGE 5W-30	MOBIL 1 ESP 5W-30	HELIX ULTRA ECT 5W-30	TITAN GT-1 PRO 5W-30	SYNPOWER XL-111 5W-30	HAVOLINE ULTRA V 5W-30
SYNTEC ULTRA 0W-30 9180	--	--	--	-	--	HAVOLINE C3 5W-30
SYNTEC GF5 5W-30 9182	MAGNATEC FUEL SAVER 5W-30	MOBIL FORMULA S 5W-30	ULTRA SN 5W-30	TITAN SUPERSYN D1 5W-30	SUNPOWER DX-1 5W-30	HAVOLINE ECO-5 5W-30
SYNTEC C4 5W-30 9183	EDGE PROFESSIONAL C4 5W-30	SUPER 3000 FORMULA R 5W-30	HELIX ULTRA AR-L 5W-30	TITAN GTI PRO C4 5W-30	SYN POWER MST C4 5W-30	HAVOLINE ULTRA R 5W-30
SYNTEC ELITE 5W-40 9160	EDGE 5W-40 SN	SUPER 3000 X2 5W-40	HELIX ULTRA 5W-40	TITAN SUPERSYN 5W-40	SYNPOWER 5W-40	HAVOLINE FULL SYNTHETIC 5W-40
SYNTEC SEMI 10W-40 9125	MAGNATEC 10W-40	SUPER 2000 10W-40	HELIX HX7 10W-40	TITAN SYN SN 10W-40	DURABLEND 10W-40	HAVOLINE SYN BLEND 10W-40
SENSO CLASSIC 20W-50 1002	GTX 20W-50	SUPER 1000 20W-50 SM	HELIX HX3 20W-50	TITAN FORMULA SL 20W-50	MAXLIFE & XLD PREMIUM 20W-50	HAVOLINE PREMIUM 20W-50
SENSO SUPREME 15W-40 1502	GTX MODERN ENGINE 15W-40	SUPER 1000 15W-40 SM	HELIX HX5 15W-40	TITAN CFX 15W-40	ENGINE ARMOUR & XLD PREMIUM 15W-40	HAVOLINE EXTRA 15W-40
SENSO LOVIS 10W-30 1202	GTX MODERN ENGINE 10W-30	MOBIL SUPER 10W-30	HELIX HX7 10W-30	TITAN CFX 10W-30	DURA BLEND 10W-30	HAVOLINE PREMIUM PLUS 10W-30
SENSO GOLD 15W-50 1102	--	--	HELIX PLUS 15W-50	--	--	--
SENSO HEAVY 25W-60 1601	GTX HIGH MILEAGE 15W-40	SUPER DROP OLDER ENGINE 25W-60 SG/CC	HELIX HX5 25W-60	TITAN HV-70 40W-70	XLD HI-VIS 20W-60	--




EQUIVALENTS

TRANSMISSION							
RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
 SYNTEC DX6 9311	TRANSMAX DEXRON - VI	MOBIL ATF DEXRON VI	SPIRAX S5 ATF X	TITAN ATF 6000 SL	--	ATF DEXRON VI	HAVOLINE MV DEXTRON VI
 SYNTRANS DCT FLUID 9105	TRANSMAX DUAL		TF DCT-F3		TITAN DCTF		--
 SYNTRANS MV 9340	TRANSMAX FE MULTIVEHICLE	MOBIL 1 SYNTHETIC ATF	SPIRAX S5 ATF X	--	--	MAXLIFE SYNTHETIC ATF	--
 SYNTRANS CVT 9360	TRANSMAX CVT	--	--	TITAN ATF CVT	--	SYNPOWER CVT FLUID	--
AUTO TRANS 95LE 3200	TRANSMAX TQ 95	MOBIL ATF 95LE	ATF XTR	TITAN ATF 95LE	AUTRAN LE	ATF TYPE 95LE	AUTOTRANS FLUID BW
AUTO TRANS DX3 3100	ATF DEX111	MOBIL ATF 111	SPIRAX S3 ATF MD3	TITAN ATF 4000/ ATF DX3	AUTRAN DX111	ATF DEXRON 111	TEXAMATIC 1888
TORQUE 10W, 30W, 50W 3710, 3730, 3750	TFC 410, 430, 450	MOBILTRANS HD 10, 30, 50	SPIRAX S4 CX 10W, 30W, 50W	TITAN TO-430, 450	AUTRAN TO 410, 430, 440	VALTORQUE C4 10W,30W,50W	TORQUE FLUID 414, 434, 454
AGRITRANS 10W-30 4200	AGRI TRANS PLUS	MOBIL AGRI FLUID 424	SPIRAX S4 CX	TITAN HYDRAMOT 1540	TRACTRAN TF-10	FARM PLUS HYTRANS	TEXTRAN TDH PREMIUM

 PURE SYNTHETIC

EQUIVALENTS

MANUAL GEAR							
RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
SYNGEAR LS 75W-85 9390	SYNTRANS 75W-85			TITAN SINTOPOID FE 75W-85		DURAGEAR 75W-85	GEAR OIL SAE 75W-85
SYNGEAR LS 75W-90 9410	SYNTRAX 75W-90 GL-5	DELVAC SYN GEAR 75W-90	SPIRAX S6 AXME 75W-90	TITAN SINTOPOID LS 75W-90	-	SYNGEAR 75W-90	DELO SYNTHETIC GEAR 75W-90
SYNGEAR LS 80W-140 9420	SYNTRAX 75W-140 GL-6	DELVAC SYN GEAR 80W-140	SPIRAX S6 AXME 80W-140	TITAN SINTOPOID LS 75W-140	TRANSGEAR S 80W-140	SYNGEAR 75W-140	DELO SYNTHETIC GEAR 80W-140
GEARPRO LS 80W-90 4002	--	MOBILUBE LS 85W-90	SPIRAX S3 ALS 80W-90	TITAN SUPERGEAR LS 80W-90			
GEARPRO LS 85W-140 4001	AXLE LIMITED SLIP 85W-140		SPIRAX S3 ALS 85-140	TITAN SUPERGEAR LS 85W-140			
GEAR LUBE 80W-90 4004	EPX 80W-90 GL-5	MOBILUBE HD 80W-90	SPIRAX S3 AX 80W-90	TITAN SUPERGEAR 80W-90	HYPOGEAR 80W-90 GL-5	HP GEAR OIL 80W-90 GL-5	THUBAN EP 80W-90 GL-5
GEAR LUBE 85W-140 4007	EPX 85W-140 GL-5	MOBILUBE HD 85W-140	SPIRAX S3 AX 85W-140	TITAN SUPERGEAR 85W-140	HYPOGEAR 85W-140 GL-5	HP GEAR OIL 85W-140 GL-5	THUBAN EP 85W-140 GL-5
GEAR LUBE 75W-90 4013	MULTITRAX 75W-90 GL-5	MOBILUBE XHP 75W-90	SPIRAX S4 AT 75W-90	TITAN SUPERGEAR 75W-90	ENEGEAR EASYSHIFT 75W-90	DURAGEAR 75W-90 GL-5	EASYSHIFT 75W-90
DIFF OIL LS 90 4006	AXLE LIMITED SLIP 90	MOBILUBE LS 90	SPIRAX S2 ALS 90	TITAN GEAR LS 90	ENEGEAR LIMSLIP 90 GL-5	HP GEAR OIL LS90 GL-5	GEAR OIL LSD 90
DIFF OIL LS 140 4009	AXLE LIMITED SLIP 140	MOBILUBE LS 140	SPIRAX S2 ALS 140	TITAN GEAR LS 140		HP GEAR OIL LS140 GL-5	GEAR OIL LSD 140






 PURE SYNTHETIC

EQUIVALENTS

HYDRAULIC							
RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
HYDROL ISO: 15 5000	HYSPIN AWS 15	--	--	RENOLIN B Plus 15	--	ULTRAMAX 15	RANDO HD 15
HYDROL ISO: 22 5001	HYSPIN AWS 22	--	TELLUS S2 M 22	RENOLIN B Plus 22	BARTRAN 22	ULTRAMAX 22	RANDO HD 22
HYDROL ISO: 32 5002	HYSPIN AWS 32	MOBIL DTE 24	TELLUS S2 M 27, 32	RENOLIN B Plus 32	BARTRAN 32	ULTRAMAX 32	RANDO HD 32
HYDROL ISO: 46 5003	HYSPIN AWS 46	MOBIL DTE 25	TELLUS S2 M 46	RENOLIN B Plus 46	BARTRAN 46	ULTRAMAX 46	RANDO HD 46
HYDROL ISO: 68 5004	HYSPIN AWS 68	MOBIL DTE 26	TELLUS S2 M 68	RENOLIN B Plus 68	BARTRAN 68	ULTRAMAX 68	RANDO HD 68
HYDROL ISO: 100 5005	HYSPIN AWS 100	MOBIL DTE 27	TELLUS S2M 100	RENOLIN B Plus 100	BARTRAN 100	ULTRAMAX 100	RANDO HD 100
HYDROL HVI ISO: 32 5102	HYSPIN AWH 32	MOBIL DTE 13M	TELLUS S2 V 32	RENOLIN B HVI Plus 32	BARTRAN HV 32	ULTRAMAX HVI 32	RANDO HDZ 32
HYDROL HVI ISO: 46 5103	HYSPIN AWH 46	MOBIL DTE 15M	TELLUS S2 V 46	RENOLIN B HVI Plus 46	BARTRAN HV 46	ULTRAMAX HVI 46	RANDO HDZ 46
HYDROL HVI ISO: 68 5104	HYSPIN AWH 68	MOBIL DTE 16M	TELLUS S2 V 68	RENOLIN B HVI Plus 68	BARTRAN HV 68	ULTRAMAX HVI 68	RANDO HDZ 68
C4 HYDRAULIC 10W 3700	--	MOBIL HYDRAULIC 10	--	--	--	ALL FLEET 10W	DELO SILVER 10

EQUIVALENTS

INDUSTRIAL

RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
 SYNGEAR 150 7629	ALPHA SYN 150	MOBILGEAR SHC 629	OMALA S4 GX 150	RENOLIN UNISYN CLP 150	--	--	--
 SYNGEAR 220 7630	ALPHA SYN 220	MOBILGEAR SHC 630	OMALA S4 GX 220	RENOLIN UNISYN CLP 220	ENERSYN EP 220	--	MEROPA SYN 220
 SYNGEAR 320 7631	ALPHA SYN 320	MOBILGEAR SHC 632	OMALA S4 GX 320	RENOLIN UNISYN CLP 320	--	--	MEROPA SYN 320
 SYNGEAR 460 7632	ALPHA SYN 460	MOBILGEAR SHC 634	OMALA S4 GX 460	RENOLIN UNISYN CLP 460	--	--	--
 SYNGEAR 680 7633	ALPHA SYN 680	MOBILGEAR SHC 636	OMALA S4 GX 680	RENOLIN UNISYN CLP 680	ENERSYN EP 680	--	MEROPA SYN 680
INGEAR 100 7020	ALPHA 100	MOBILGEAR 627	OMALA S2 G 100	RENOLIN CLP 100	ENERGOL GR-XP 100	EPG 100	MEROPA 100
INGEAR 150 7022	ALPHA 150	MOBILGEAR 629	OMALA S2 G 150	RENOLIN CLP 150	ENERGOL GR-XP 150	EPG 150	MEROPA 150
INGEAR 220 7023	ALPHA 220	MOBILGEAR 630	OMALA S2 G 220	RENOLIN CLP 220	ENERGOL GR-XP 220	EPG 220	MEROPA 220
INGEAR 320 7024	ALPHA 320	MOBILGEAR 632	OMALA S2 G 320	RENOLIN CLP 320	ENERGOL GR-XP 320	EPG 320	MEROPA 320
INGEAR 460 7025	ALPHA 460	MOBILGEAR 634	OMALA S2 G 460	RENOLIN CLP 460	ENERGOL GR-XP 460	EPG 460	MEROPA 460
INGEAR 680 7026	ALPHA 680	MOBILGEAR 636	OMALA S2 G 680	RENOLIN CLP 680	ENERGOL GR-XP 680	EPG 680	MEROPA 680

 PURE SYNTHETIC

EQUIVALENTS

INDUSTRIAL Contd.

RPL Name & Code	CASTROL	MOBIL (1)	SHELL	FUCHS	BP	VALVOLINE	CALTEX
COMAIR RS 32 7010	AIRCOL PD 32	RARUS 424	CORENA S3 R 32	RENAIR 32	ENERGOL RC-R 32	VALCOMP 32	REGAL R&O 32
COMAIR RS 46 7011	AIRCOL PD 46	RARUS 425	CORENA S3 R 46	RENAIR 46	ENERGOL RC-R 46	VALCOMP 46	REGAL R&O 46
COMAIR RS 68 7012	AIRCOL PD 68	RARUS 426	CORENA S3 R 68	RENAIR 68	ENERGOL RC-R 68	VALCOMP 68	REGAL R&O 68
COMAIR RSS 46 7111	AIRCOL SN 46	RARUS SHC 1025	CORENA S4 R 46	SYNAIR 46	ENERSYN RC-S 46	--	REGAL R&O ISOSYN 46
COMAIR RSS 68 7112	AIRCOL SN 68	RARUS SHC 1026	CORENA S4 R 68	SYNAIR 68	ENERSYN RC-S 68	--	--
ROCK DRILL OIL 150 7035	RD OIL DP 150	ALMO 529	TORCULA 150	ROCKDRILL 150	ENERGOL RD-E 150	VALVOLINE ROCKDRILL 150	--
ROCK DRILL OIL 320 7036	RD OIL DP 320	ALMO 532	TORCULA 320	ROCKDRILL 320	ENERGOL RD-E 320	--	ROCK DRILL LUBE 320
ROCK DRILL OIL 460 7037	RD OIL DP 460	--	TORCULA 460	ROCKDRILL 460	--	--	ROCK DRILL LUBE 460
SOLCUT EP 7125	HYSOL X	--	LUBRICOOL YELLOW	--	DIATSOL H	ADSOL No. 3	TRUSOL EP
TABLEWAY 68 7080	MAGNAGLIDE D 68	VACTRA No. 2	TONNA S 68	RENEP K 68	MACCURAT 68	VALTAC 68	WAY LUBE 68
TABLEWAY 220 7081	MAGNAGLIDE D 220	VACTRA No. 4	TONNA S 220	RENEP K 220	MACCURAT 220	VALTAC 220	WAY LUBE 220

GREASE RECOMMENDATION GUIDE

Application	RED TAC EP2	9008	9010	9009	9003	9006	9011	9012
	SYNTEC XP	VERSITILE BEARING EP	LITHPLEX EP2	MOLY HI LOAD	CONSTANT VELOCITY	MARINE XP		
Wheel Bearing (Disk Break)	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X	★★★★★
Wheel Bearing (Drum Break)	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X	★★★★★
Wheel Bearing (Truck / Car)	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X	★★★★★
Farm R/Mount								
Constant Velocity Joints	X	X	X	X	★★★★★	★★★★★	★★★★★	X
Boat Trailers	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X	★★★★★
Turntables (Truck)	X	X	★★★★★	★★★★★	★★★★★	X	X	X
Chassis / Pins / Bushes	★★★★★	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X
Mining Equipment	★★★★★	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X
Spline Shafts	X	X	X	X	★★★★★	★★★★★	★★★★★	X
Electronic Motors	X	★★★★★	★★★★★	★★★★★	★★★★★	X	X	X
Irrigation Equipment	★★★★	X	★★★★	★★★★	★★★★	X	X	X
King Pins Bushes	★★★★	X	★★★★	★★★★	★★★★	★★★★	★★★★	X

RATING GUIDE	★★★★★ Best Recommendation	★★★★ Good Recommendation	★★★ Suitable	X Not Recommended
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