

PRODUCT LINE



| PRODUCT | | VISCOSITY | CONTAINER |
|---------|---------|-----------|-------------------------|
| PCMO | PAO | 0W40 | 1L |
| | GOLD | 5W30 | 4L, 20L, 200L |
| | | 5W40 | 1L, 4L, 20L, 200L, Bulk |
| | RED 1 | 0W20 | 4L |
| | | 5W30 | 1L, 4L, 20L, 200L |
| DEO | LPG | 10W30 | 4L, 200L |
| | BLUE 1 | 10W40 | 4L, 6L, 20L, 200L |
| | | 15W40 | 4L, 6L, 20L, 200L |
| | BLUE CI | 10W40 | 1L, 4L, 6L, 20L, 200L |
| | 15W40 | 4L, 20L | |
| Gear | RV | 5W30 | 6L |
| | ATF | ATF VI | 1L, 4L, 20L, 200L |



| PRODUCT | | VISCOSITY | CONTAINER | |
|------------|---------------|---------------|------------------------|-------------------|
| PCMO | SN | 0W20 | 4L, 20L, 200L | |
| | | 0W30 | 1L, 4L, 20L, 200L | |
| | | 5W20 | 4L, 20L, 200L | |
| | | 5W30 | 1L, 4L, 20L, 200L | |
| | | 5W40 | 4L, 200L | |
| | | 10W30 | 1L, 4L, 20L, 200L | |
| | SL | 10W40 | 1L, 4L, 20L, 200L | |
| | | 5W30 | 4L | |
| | | 10W40 | 4L, Bulk | |
| | SJ | 20W50 | 4L | |
| | | 5W30 | 4L | |
| | | 10W30 | 4L | |
| | DEO | CH-4/SJ | 10W40 | 4L, 200L, Bulk |
| | | | 20W50 | 4L, 200L |
| | | | 10W30 | 4L, 20L, 200L |
| COMBO BEST | | 15W40 | 1L, 4L, 6L, 20L, 200L | |
| | | 20W50 | 1L, 4L, 18L, 20L, 200L | |
| Turbo Best | | 10W40 | 4L, 20L, 200L | |
| | | 10W30 | 4L, 20L, 200L | |
| CF-4/SG | | 15W40 | 4L, 20L, 200L | |
| | | 20W50 | 4L, 18L, 20L, 200L | |
| | | CD/SF | 20W50 | 4L, 6L, 20L, 200L |
| | CD | 10W | 200L | |
| | 30 | 200L | | |
| CNG | CNG | 15W40 | 20L, 200L | |
| MCO | 2 Cycle Motor | 20 | 1L | |
| | 4 Cycle Motor | 10W40 | 1L | |
| Gear | ATF | DEXRON III | 1L, 4L, 20L, 200L | |
| | FX | 75W85 | 1L, 20L, 200L | |
| | Gear EP | 90 | 4L, 200L | |
| | | 75W90 | 1L, 20L, 200L | |
| | Gear HD | 80W90 | 4L, 20L, 200L | |
| 85W140 | | 4L, 20L, 200L | | |

[Hydraulic]

| PRODUCT | | VISCOSITY | CONTAINER |
|-----------|-------------|-----------|-----------|
| Hydraulic | Hi-PUMP | 46 | 20L, 200L |
| | | 32 | 20L, 200L |
| | Hydro Fluid | 46 | 20L, 200L |
| | | 68 | 200L |



About S-OIL Corporation

The most competitive oil refiner in the Asia-Pacific

S-OIL, established in 1976, has grown into one of the most competitive oil refiners in the Asia-Pacific region by establishing profitability-oriented management strategies and nurturing dynamic and progressive spirit in the management. The company operates the oil refinery facility with the capacity of 669,000 barrels per day(BPD), 35 Million Ton (Annual), and other facilities that can produce petrochemicals and lube base oil in the Onsan Refinery in Ulsan. S-OIL is strengthening its status as a leader in protecting customers and the environment by producing and supplying the best quality oil products based on the world-class Bunker-C Cracking Center(BCC) and the Xylene Center, a PX plant with the world's highest production capacity for a single facility.

Global Status : Global DJSI World, CTS, Fortune 500

Global DJSI World

In 2012, S-OIL was selected as a member of DJSI (Dow Jones Sustainability Indexes) World. It is the only and the most honorable case among Asia Pacific refiners that the Company has been included in the DJSI World for three consecutive years. The company was also evaluated as Korea's No.1 company in the oil refining sector.

CTS

S-OIL acquired the Carbon Trust Standard (CTS), the global certification on carbon management from Carbon Trust, the global certification agency, for the first time in Korea in 2012.

Fortune 500

S-OIL has been included Fortune 500 consecutively from 2007 based on sustainable growth.

The Most Competitive Oil Refiner in the Asia-Pacific

Global Major Refinery: 669,000 BPD of Crude Distillation

World No.1 PX Complex: 1.8 Million Ton of Para-Xylene Production

Base Oil Business : Top-tier Group III supplier in the World

S-OIL has been leading high-quality lube base oil markets by supplying all over the world. Ever since its foundation in 1976 as the first lube oriented oil refinery in South Korea, S-OIL Corporation has been a leading manufacturer of lube base oils in the South Korean market. As recently as Dec. 2002, S-OIL has begun commercial production of very high VI lube base oils with the completion of all-hydroprocessing plants(hydrocracking, wax hydroisomerization and hydrofinishing) through expansion and upgrade to existing hydrocracking complex. As a result, S-OIL now has full line-up of Group III and Group II base oil products with daily production capacity of 42,700 barrels and possesses strong international competitiveness in base oil business both in production capacity and product quality.

Lubricants Business : Major Player in Korea

In 1989, S-OIL entered into the finished lubricants market with "Dragon" brand, which is one of the longest-living lubricant brands in Korea and a well-known brand in Asia, S-OIL has been continuously enhancing its brand awareness and lubricating technology for 25 years. In 2008, the Company established S-OIL Total Lubricant Company in joint with Total, one of the six Supermajor oil companies in the world. S-OIL Total Lubricants produces comprehensive range of high performance automotive and industrial lubricants and has become a major player in the Korean market.

S-OIL presented full synthetic lubricants brand, "S-OIL SEVEN", in order to meet customers' growing demand for top-quality and eco-friendly lubricants.

Base Oil Capacity: 42,700 BPD / 2.1 Million Ton

Global Major Group III Supplier: 18,000 BPD / 0.9 Million Ton

Major High-Quality Lubricants Supplier in Korea

• Homepage www.s-oil.com

• For agency, contact E-Mail: dw.kwun@s-oil.com Tel: +82 2 3772 5817

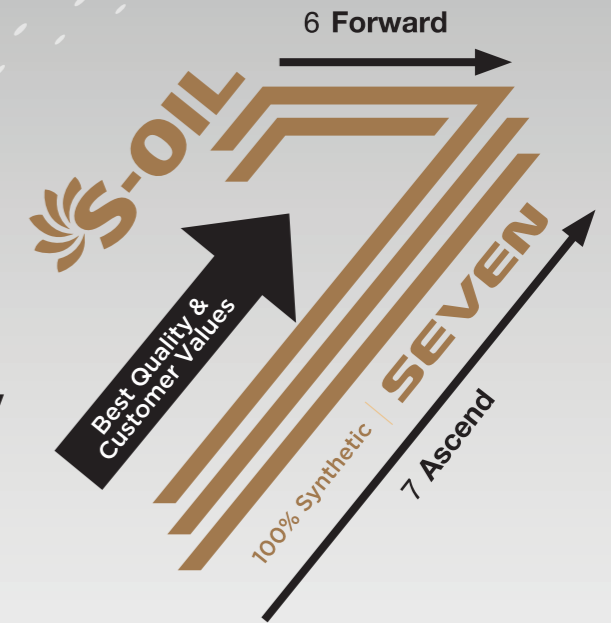




Reboot your engine with full synthetic lubricants Feel S-OIL SEVEN!

As S-OIL's the top-tier lubricant brand, this lubricant has maximized '5 basic functions (Fuel-economy, Eco-friendly, Drivability, Durability, Cleanliness)' required for the newest engines, based on PAO and group III base oil produced directly by S-OIL. This is a brand having embodied 7 factors of the best lubricant by combining 2 kinds of customer values such as 'Forward' meaning the improvement of cars' driving functions and 'Ascend' symbolizing the satisfaction of consumers' driving experiences, through S-OIL SEVEN.

- 1 Fuel-economy
- 2 Eco-friendly
- 3 Drivability
- 4 Durability
- 5 Cleanliness



S-OIL SEVEN PRODUCT LINE



S-OIL SEVEN
PAO



S-OIL SEVEN
GOLD



S-OIL SEVEN
RED1



S-OIL SEVEN
RV



S-OIL SEVEN
LPG



S-OIL SEVEN
BLUE1



S-OIL SEVEN
BLUE CI



S-OIL SEVEN
ATF

S-OIL SEVEN PAO



100% PAO engine oil for gasoline and passenger diesel engines

Product use

- Gasoline, passenger diesel, LPG engine vehicle
- Engine to which the state-of-the-art technology such as multi-valve(DOHC), turbo charger, direct injection system(CRDI), etc. is applied
- Passenger car, light truck, van, RV vehicle, four-wheel driven SUV vehicle, high-end imported vehicles such as BMW, Benz, Volkswagen, Audi, etc., and vehicles furnished with after-treatment device such as DPF, etc.

Product performance

- High-performance engine oil made by applying a cutting-edge additive technology to the PAO(Poly Alpha Olefin), a synthetic base oil of the best performance
- Very excellent low-temperature characteristics to have outstanding startability even in a very cold weather and prevent initial wear effectively as well
- Long-life type engine oil minimizing engine oil consumption
- Maximization of exhaust gas purifier efficiency by applying a Low-SAPS technology minimizing the content of ash, sulfur and phosphorus in engine oil to protect the post-treatment device such as DPF(Diesel Particulate Filter), etc. installed to cope with the new exhaust gas regulations

Standard

- International standard** • API SN/CF • ACEA A3/B4,C3
- Auto maker standard** • MB 229.51 / 229.31 • BMW LL-04
• VW 502.00 / 505.00

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| 0W-40 | 79.7 | 14.0 | 182 | < -40 | 246 |

* The above representative properties are subject to a little deviations.

S-OIL SEVEN GOLD



Euro type 100% synthetic engine oil for gasoline and passenger diesel engines

Product use

- Gasoline, passenger diesel, LPG engine vehicle
- Engine to which the state-of-the-art technology such as multi-valve(DOHC), turbo charger, direct injection system(CRDI), etc. is applied
- Passenger car, light truck, van, RV vehicle, four-wheel driven SUV vehicle, high-end imported vehicles such as BMW, Benz, Volkswagen, Audi, etc., and vehicles furnished with after-treatment device such as DPF, etc.

Product performance

- High-performance engine oil applying a state-of-the-art Europe type additive technology to an Ultra-S base oil (VHVI base oil) produced by S-OIL itself
- Excellent stability in viscosity to keep lubricating films strong even at a ultra high temperature condition to be excellent in engine protection performance
- Excellent trafficability to maintain outstanding ride comfort and silence even in high speed travel
- Maximization of exhaust gas purifier efficiency by applying a Low-SAPS technology to minimize the content of ash, sulfur and phosphorus in the engine oil to protect the post-treatment device such as DPF (Diesel Particulate Filter), etc. installed to cope with the new exhaust gas regulation installed to cope with the new exhaust gas regulations

Standard

- International standard** • 5W30 : API SN/CF, ACEA C2,C3 & A3/B4
• 5W40 : API SN/CF, ACEA C3 & A3/B4
- Auto maker standard** • MB 229.51 / 229.31 • BMW LL- 04
• VW 502.00 / 505.00

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| 5W-30 | 70.1 | 12.0 | 168 | -38 | 228 |
| 5W-40 | 83.3 | 13.7 | 169 | -38 | 228 |

* The above representative properties are subject to a little deviations.

S-OIL SEVEN RED1



S-OIL SEVEN BLUE1



100% synthetic engine oil for gasoline engines certified for the newest API standard

100% synthetic engine oil for diesel engines certified for the newest API standard

- Product use**
- Gasoline engine vehicle using API SN/GF-5, a cutting-edge U.S. gasoline engine oil standard
 - Engine using cutting-edge technologies such as multi-valve(DOHC), turbo charger, direct injection system (GDI), etc.
 - Vehicles equipped with gasoline engine is suggested to apply API SN, ILSAC GF

- Product performance**
- High-performance engine oil applying a cutting-edge additive technology to the Ultra-S base oil(VHVI base oil) produced by S-OIL itself
 - Maintenance of soft ride comfort and outstanding silence even in high-speed travel
 - Low-viscosity mileage-improving engine oil reducing frictional resistance between components in the engine
 - Eco -friendly engine oil with Improved fuel efficiency caused by minimization of friction in moving parts

Standard International standard • API SN/ILSAC GF-5

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| 0W-20 | 46.1 | 8.6 | 166 | -45 | 230 |
| 5W-30 | 61.8 | 10.4 | 157 | -35 | 242 |

* The above representative properties are subject to a little deviations.

- Product use**
- Diesel engine vehicle using API CJ-4, a newest U.S. diesel engine oil standard
 - Vehicle fitted with an exhaust gas reduction device such as CPF, DPF, EGR, SCR, etc
 - Vehicle fitted with a Europe type engine of high load and high torque
 - Various diesel engines for light trucks, vans, RV, SUV, large trucks, buses, etc.

- Product performance**
- High-performance engine oil applying a cutting-edge additive technology to the Ultra-S base oil(VHVI base oil) produced by S-OIL itself
 - Low-SAPS and smoke-reducing high-performance engine oil more suitable for a new-model high-performance vehicle fitted with an exhaust gas treatment devices such as CPF, DPF, EGR, SCR, etc
 - Protection of engines to be strong even in a high-temperature operation condition with excellent oxidation stability
 - Excellent startability regardless of four seasons with excellent low-temperature properties

Standard International standard • API CJ-4/SM • ACEA E9/E7
 Auto maker standard • MB 228.31 • Renault RLD-3 • MAN M3575
 • Cummins CES 20081 • Caterpillar ECF-3 • MACK EO-O PP

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) | Sulfated Ash (wt %) | Phosphorus (wt %) | Sulfur (wt %) |
|---------------|--|-------|-----------------|-----------------|------------------|---------------------|-------------------|---------------|
| | 40°C | 100°C | | | | | | |
| 10W-40 | 95.0 | 14.3 | 154 | -35 | 228 | 1 | 0.1 | 0.4 |
| 15W-40 | 101.7 | 15.0 | 154 | -33 | 240 | 1 | 0.1 | 0.4 |

* The above representative properties are subject to a little deviations.

S-OIL SEVEN BLUE CI



100% synthetic engine oil for diesel engines

S-OIL SEVEN LPG



100% synthetic engine oil for LPG and gasoline engines

Product use

- Diesel engine vehicle using API CI-4
- Vehicle furnished with an exhaust gas reduction device such as EGR, etc.
- Vehicle furnished with a Europe type engine of high load and high torque
- Various diesel engines for light trucks, vans, RV, SUV, large trucks, buses, etc.

Product performance

- High-performance engine oil applying a cutting-edge additive technology to the Ultra-S base oil (VHVI base oil) produced by S-OIL itself
- Protection of engines to be strong even in a high-temperature operation condition with excellent oxidation stability
- Excellent startability regardless of four seasons with excellent low-temperature properties
- Prevention of oil oxidation for a long time by promptly removing various foreign substances generated in the engine and dispersing them in the oil to be effective for maintaining engine output

Standard

- International standard** • API CI-4/CH-4/CG-4 • ACEA E7/E5, A3/B4
- Auto maker standard** • MB 228.3 • Renault RLD/RLD-2 • MAN M3275
 • Cummins CES 20071/20072/20076/20077/20078 • Caterpillar ECF-2/ECF-1a
 • Volvo VDS-3

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) | Sulfated Ash (wt %) | Phosphorus (wt %) | Sulfur (wt %) |
|---------------|--|-------|-----------------|-----------------|------------------|---------------------|-------------------|---------------|
| | 40°C | 100°C | | | | | | |
| 10W-40 | 101.3 | 15.2 | 158 | -38 | 226 | 1.2 | 0.1 | 0.4 |
| 15W-40 | 106.6 | 15.3 | 151 | -35 | 248 | 1.2 | 0.1 | 0.3 |

* The above representative properties are subject to a little deviations.

Product use

- All vehicles using LPG engines and gasoline engines
- Especially, suitable for vehicles driving in modern start-stop traffic conditions
- Vehicles with DOHC, Turbocharger, GDI
- Vehicles equipped with gasoline engine is suggested to apply API SN, ILSAG GF-5 engine oil

Product performance

- High-speed engine oil applying a LPG engine specialized additive technology to the Ultra-S base oil (VHVI base oil) produced by S-OIL itself
- Maintenance of engine protection performance through protection of lubricating films with excellent viscosity stability even in a ultra high temperature condition of LPG engines higher than gasoline engines in general
- Protection of engines to be strong even in a severe operation condition such as high speed and frequent speed change with superior stability in oxidation and travel

Standard

- International standard** • API SN/ ILSAC GF-5

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| 10W-30 | 64.7 | 10.2 | 144 | -27 | 246 |

* The above representative properties are subject to a little deviations.

S-OIL SEVEN RV



High-performance synthetic engine oil for both gasoline and passenger diesel

Product use

- Passenger cars, RV, light truck, SUV with gasoline and diesel engine
- Passenger car, light truck, van, RV vehicle, four-wheel driven SUV vehicle, vehicle fitted with post-treatment devices such as EGR, etc.
- Particularly vehicles driving in modern start-stop traffic conditions

Product performance

- High-performance engine oil that can be effectively used for RV vehicles by applying a Europe type additive technology to the Ultra-S base oil (VHVI base oil) produced by S-OIL itself
- Protection of engines to be strong even in a severe operation condition such as high speed and frequent speed change with excellent stability in oxidation and travel
- Exertion of outstanding performance when being applied to a vehicle fitted with an exhaust gas treatment device such as EGR, etc.
- Maintenance of cleanliness in engine oil for a long time by dispersing residues in the engine very effectively by applying a cutting-edge detergent and dispersant technology

Standard

- International standard**
- API SL / CF
 - ACEA A3/B4
- Auto maker standard**
- MB 229.3 / 229.5
 - BMW LL- 01
 - VW 501.01 / 502.00 / 505.00
 - OPEL GM - LL - B - 025

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| 5W-30 | 71.2 | 12.1 | 165 | -38 | 226 |

* The above representative properties are subject to a little deviations.

S-OIL SEVEN ATF VI



Synthetic automatic transmission fluid

Product use

- Innovative automatic transmission fluid based on an advanced synthetic technology allowing very high performance
- Has been developed to meet the needs of modern transmission where higher efficiency is required. It is low viscosity formulation that meets the more demanded OEM specifications
- Recommended for use in the latest generation of high efficiency 6-speed automatic transmissions with longer fluid life capabilities and heavier load capacities

Product performance

- Excellent viscosity stability in operation
- Exceptional friction and anti-shudder performances
- Enhanced fuel economies thanks to low viscosity and excellent low temperature performance
- Excellent thermal stability and resistance to oxidation

Standard

- International standard**
- GM Dexron VI
 - FORD Mercon LV
 - HYUNDAI / KIA SP-IV
 - NISSAN Matic S
 - TOYOTA T-WS
 - JASO 1A

Representative property

| SAE viscosity | Kinematic viscosity, mm ² /s(cSt) | | Viscosity index | Pour point (°C) | Flash point (°C) |
|---------------|--|-------|-----------------|-----------------|------------------|
| | 40°C | 100°C | | | |
| ATF VI | 30.2 | 6.0 | 153 | -50 | 215 |

* The above representative properties are subject to a little deviations.



Go ahead with 'Dragon' born by an optimal blending technology!

Dragon lubricants based on Group III (VHVI) and Group II base oil produced directly by S-Oil

More purely and more strongly-
We open a new future of car lubricants with eco-friendly growth power satisfying both you and the globe.

**More strong power and soft usability-
Meet the Dragon!**

S-OIL DRAGON PRODUCT LINE



SN



SL



SJ



COMBO BEST



CH-4/SJ



TURBO BEST



CF-4/SG



CD/SF



CD



CNG



ATF-III



FX



Gear EP



Gear HD



2 Cycle Motors



4 Cycle Motors



Hi-Pump



Hydro Fluid



SN

| | | | | | | | | |
|------|----|-----|------|-------|----|------|-----|------|
| 0W20 | 4L | 20L | 200L | 5W40 | 4L | 200L | | |
| 0W30 | 1L | 4L | 20L | 10W30 | 1L | 4L | 20L | 200L |
| 5W20 | 4L | 20L | 200L | 10W40 | 1L | 4L | 20L | 200L |
| 5W30 | 1L | 4L | 20L | 200L | | | | |



High-performance gasoline engine oil making it fun to drive

Product Use

- All car models equipped with a gasoline engine of Korean car makers
- Taxi or small van equipped with an LPG engine
- All gasoline vehicles including high-end imported cars
- Medium and large gasoline passenger cars equipped with a DOHC engine and turbo charger

Product Performance

- Is excellent in thermooxidative stability.
- Extends the lifespan of a three-way catalyst purifier by reducing emissions of pollutants.
- Improves mileage effectively.
- Softens engines due to its excellent friction property.
- Is superior in low-temperature starting to prevent wear of engine components at the early stage of starting.
- Makes you feel still softer comfort of riding directly.

Standard

International specifications • API SN / ILSAC GF-5 • RC (Resource Conserving)

Representative Property

| Test Items | Method | Unit | SAE 0W-20 | SAE 0W-30 | SAE 5W-20 | SAE 5W-30 | SAE 5W-40 | SAE 10W-30 | SAE 10W40 | |
|------------------|--------|-------------|--------------------------|-----------|-----------|-----------|-----------|------------|-----------|-------|
| Specific Gravity | 15/4°C | ASTM D 1298 | - | 0.847 | 0.848 | 0.862 | 0.861 | 0.853 | 0.871 | 0.870 |
| Viscosity | 40°C | ASTM D 445 | mm ² /s (cSt) | 44.9 | 54.1 | 48.8 | 64.2 | 87.4 | 68.2 | 96.9 |
| | 100°C | | mm ² /s (cSt) | 8.5 | 10.0 | 8.6 | 10.9 | 14.1 | 10.5 | 14.4 |
| Viscosity Index | | ASTM D 2270 | - | 169 | 174 | 154 | 162 | 147 | 142 | 153 |
| Flash Point | | ASTM D 92 | °C | 222 | 218 | 212 | 220 | 226 | 218 | 212 |
| Pour Point | | ASTM D 97 | °C | -43 | -43 | -33 | -33 | -43 | -30 | -33 |



SL



| | | |
|-------|----|------|
| 5W30 | 4L | |
| 10W40 | 4L | Bulk |
| 20W50 | 4L | |

Gasoline engine oil

Product Use

- Recommended for all Gasoline engines, specially for most recent technology engines (multi valve, turbocharged, with or without catalytic converter), supercharged or not, in cars.

Product Performance

- DRAGON SL meets the API SL and ILSAC GF-3 (5W-30) requirements, guarantee of a high and constant quality for the lubricant.
- DRAGON SL ensures easy cold start due to its extreme fluidity at low temperature and maintains a very resistant oil film even at extremely high temperature.
- DRAGON SL protects mechanical parts and fully preserves the engine power, thus contributing to its youth and strength.

Standard

- API SL
- 5W-30 : ILSAC GF-3

Representative Property

| Test Items | Method | Unit | 5W-30 | 10W-40 | 20W-50 | |
|------------------|--------|------------|--------------------------|--------|--------|-------|
| Specific Gravity | 15/4°C | ASTM D1298 | - | 0.860 | 0.871 | 0.884 |
| Viscosity | 40°C | ASTM D445 | mm ² /s (cSt) | 62.9 | 98.2 | 154.0 |
| | 100°C | | mm ² /s (cSt) | 10.7 | 14.5 | 17.3 |
| Viscosity Index | | ASTM D2270 | - | 161 | 151 | 121 |
| Flash Point | | ASTM D92 | °C | 228 | 235 | 252 |
| Pour Point | | ASTM D97 | °C | -40 | -38 | -25 |



SJ



| | | | |
|-------|----|------|------|
| 5W30 | 4L | | |
| 10W30 | 4L | | |
| 10W40 | 4L | 200L | Bulk |
| 20W50 | 4L | 200L | |

Gasoline engine oil

Product Use

- Recommended for all Gasoline engines, specially for most recent technology engines (multi valve, turbocharged, with or without catalytic converter), supercharged or not, in cars.

Product Performance

- Meets API SJ and ILSAC GF-2(5W-30 and 10W-30) requirements, guarantee of a high and constant quality for lubricants.
- Ensures easy cold start due to its extreme fluidity at low temperature and maintains a very resistant oil film even at extremely high operating temperature.
- Gives the engine an excellent wear protection, develops performance and power.
- Keeps the engine's most sensitive parts clean thanks to its advanced detergent and dispersive addition.

Standard

- API SJ
- 5W-30 and 10W-30 : ILSAC GF-2

Representative Property

| Test Items | Method | Unit | 5W-30 | 10W-30 | 10W-40 | 20W-50 | |
|------------------|--------|------------|--------------------------|--------|--------|--------|-------|
| Specific Gravity | 15/4°C | ASTM D1298 | - | 0.863 | 0.869 | 0.870 | 0.883 |
| Viscosity | 40°C | ASTM D445 | mm ² /s (cSt) | 59.2 | 66.3 | 98.2 | 154.7 |
| | 100°C | | mm ² /s (cSt) | 10.2 | 10.4 | 14.4 | 17.3 |
| Viscosity Index | | ASTM D2270 | - | 161 | 145 | 151 | 121 |
| Flash Point | | ASTM D92 | °C | 222 | 232 | 234 | 252 |
| Pour Point | | ASTM D97 | °C | -40 | -40 | -38 | -25 |



CH-4/SJ

- 10W30 4L 20L 200L
- 15W40 1L 4L 6L 20L 200L
- 20W50 1L 4L 18L 20L 200L



API CH-4 high-end diesel engine oil

Product Use

- Suitable to all turbocharged or normally aspirated Diesel engines of civil works machines, trucks, fishing boats, locomotives.
- Suitable for Diesel stationary engines (energy production).

Product Performance

- Has passed the difficult low-pollution engine tests of the American Society for Testing Materials (ASTM) designated by American API to be verified in its pollution suppression effect.
- Is excellent in thermooxidative stability by using high-purity lube base oil to be remarkably low in oil spoil during use, not only increasing engine efficiency but also extending the lifespan of engine oil.
- Is outstanding in cleaning dispersibility to suppress wear and corrosion of engine components through the suppression and dispersion of generation of carbon deposits and sludge, contributing to the extension of engine lifespan.
- Is soft in engine starting even in winter to reduce wear and fuel consumption at the early stage of starting.

Standard

- API CH-4/SJ

Representative Property

| Test Items | Method | Unit | 10W-30 | 15W-40 | 20W-50 |
|-------------------------|------------|--------------------------|--------|--------|--------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.886 | 0.8652 | 0.886 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 67.5 | 105 | 163.5 |
| | | mm ² /s (cSt) | 10.5 | 14.9 | 18.3 |
| Viscosity Index | ASTM D2270 | - | 144 | 148 | 125 |
| Flash Point | ASTM D92 | °C | 228 | 230 | 238 |
| Pour Point | ASTM D97 | °C | -38 | -32.5 | -30 |



Combo BEST



- 10W40 4L 20L 200L

High-performance engine oil for both gasoline and diesel

Product Use

- Used in all diesel passenger cars, trucks, vans, RV vehicles and four-wheel-drive jeeps equipped with a gasoline engine or a small and medium diesel engine

Product Performance

- Exerts excellence in performance when used in a vehicle equipped with a newly developed gasoline engine whose performance was reinforced or a high-performance diesel engine severe in operation conditions.
- Is outstanding in low-temperature startability and excellent in lubrication performance during high-temperature driving to be superior in durability against aging of engine oil itself.
- Maintains an optimal driving condition with its excellent cleaning dispersibility.

Standard

- API CI-4/SL • ACEA A3/B3 • MB 229.1

Representative Property

| Test Items | Method | Unit | SAE grade 10W-40 |
|-------------------------|------------|--------------------------|------------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.870 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 100.7 |
| | | mm ² /s (cSt) | 15.0 |
| Viscosity Index | ASTM D2270 | - | 160 |
| Flash Point | ASTM D92 | °C | 230 |
| Pour Point | ASTM D97 | °C | -35 |



Turbo BEST



- 10W30 4L 20L 200L
- 15W40 4L 20L 200L

API CI-4 high-end diesel engine oil

Product Use

- All diesel engine vehicles

Product Performance

- Has passed the difficult low-pollution engine tests of the American Society for Testing Materials (ASTM) designated by American API to be verified in its pollution suppression effect.
- Is excellent in thermooxidative stability by using high-purity lube base oil to be remarkably low in oil spoil during use, not only increasing engine efficiency but also extending the lifespan of engine oil.
- Is outstanding in cleaning dispersibility to suppress wear and corrosion of engine components through the suppression and dispersion of generation of carbon deposits and sludge, contributing to the extension of engine lifespan.
- Is soft in engine starting even in winter to reduce wear and fuel consumption at the early stage of starting.

Standard

- MB 228.3/229.1 • APL CI-4/SL(10W-30), CI-4(15W-40)
- VOLVO VDS • ACEA E3 • MAN M 3275 • MTU OIL TYPE-2
- ALLISON C4

Representative Property

| Test Items | Method | Unit | 10W-30 | 15W-40 |
|-------------------------|------------|--------------------------|--------|--------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.858 | 0.861 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 70.1 | 104.4 |
| | | mm ² /s (cSt) | 10.8 | 14.7 |
| Viscosity Index | ASTM D2270 | - | 144 | 146 |
| Flash Point | ASTM D92 | °C | 232 | 228 |
| Pour Point | ASTM D97 | °C | -38 | -38 |



CF-4/SG

| | | | | | |
|-------|----|-----|-----|------|------|
| 5W30 | 1L | 4L | 6L | 20L | 200L |
| 10W30 | 1L | 4L | 6L | 20L | 200L |
| 15W40 | 4L | 6L | 20L | 200L | |
| 20W50 | 4L | 18L | 20L | 200L | |



CD/SF

| | | | | |
|-------|----|----|-----|------|
| 20W50 | 4L | 6L | 20L | 200L |
|-------|----|----|-----|------|



CD

| | |
|-----|------|
| 10W | 200L |
| 30 | 200L |



Multigrade oil for Diesel engines

Product Use

- Developed to answer to the very severe technical constraints of the new lowemission Diesel engines.
- For all turbocharged or normally aspirated diesel engines of vehicles operating in the most severe conditions whatever the seasons.
- Responds to the API CF-4 specifications for new low emission engines using low sulphur fuels.
- All diesel engine vehicles.

Product Performance

- Multigrade.
- Very high viscosity index.
- Very good viscosity stability in operation.
- Exceptional detergency level.
- Exceptional soot dispersancy properties.
- High performance level insures safer and longer drains intervals.
- Is excellent in thermooxidative stability to remarkably reduce lubricant spoil during use, keep the engine operating condition best, increase engine efficiency and extend the lifespan of engine oil.
- Is outstanding in cleaning dispersibility to suppress wear and corrosion of engine components through the suppression and dispersion of generation of carbon deposits and sludge, contributing to the extension of engine lifespan.
- Consumes less engine oil during use to maintain a proper amount of engine oil until the next exchange and keep the engine condition best.

Standard

- API CF-4/SG

Representative Property

| Test Items | Method | Unit | 5W-30 | 10W-30 | 15W-40 | 20W-50 |
|-------------------------|------------|--------------------------|-------|--------|--------|--------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.863 | 0.869 | 0.876 | 0.884 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 63.8 | 68.4 | 111.6 | 149.9 |
| | | mm ² /s (cSt) | 10.6 | 10.6 | 14.7 | 17.3 |
| Viscosity Index | ASTM D2270 | - | 157 | 143 | 136 | 129 |
| Flash Point | ASTM D92 | °C | 232 | 232 | 232 | 238 |
| Pour Point | ASTM D97 | °C | -40 | -35 | -35 | -25 |

Multi grade oil for Diesel Engine

Product Use

- All diesel engine vehicles

Product Performance

- Has passed the difficult low-pollution engine tests of the American Society for Testing Materials(ASTM) designated by American API to be verified in its pollution suppression effect.
- Is excellent in thermooxidative stability by using high-purity lube base oil to be remarkably low in oil spoil during use, not only increasing engine efficiency but also extending the lifespan of engine oil.
- Is outstanding in cleaning dispersibility to suppress wear and corrosion of engine components through the suppression and dispersion of generation of carbon deposits and sludge, contributing to the extension of engine lifespan.
- Is soft in engine starting even in winter to reduce wear and fuel consumption at the early stage of starting.

Standard

- API CD/SF

Representative Property

| Test Items | Method | Unit | SAE grade 20W50 |
|-------------------------|------------|--------------------------|-----------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.883 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 162.3 |
| | | mm ² /s (cSt) | 18.4 |
| Viscosity Index | ASTM D2270 | - | 127 |
| Flash Point | ASTM D92 | °C | 240 |
| Pour Point | ASTM D97 | °C | -33 |

Multi grade oil for Diesel Engine

Product Use

- DRAGON CD 10W is suitable to all turbocharged or normally aspirated Diesel engines of civil works machines, trucks, fishing boats, locomotives.
- Suitable for Diesel stationary engines (energy production).
- DRAGON CD 10W is also suitable for gear boxes, torque converters, hydraulic systems when the manufacturer requires an engine oil with an appropriate grade for these applications
- All normally aspirated diesel engines for all services when the manufacturer has no special requirement.

Product Performance

- High viscosity index
- Good level of detergency
- Exceptional detergency level
- High stability in operation
- Excellent antiwear and anticorrosion properties
- Excellent antioxidant, antirust and antifforming properties.

Standard

- API CD/SF

Representative Property

| Test Items | Method | Unit | SAE grade 10W | SAE grade 30 |
|-------------------------|------------|--------------------------|---------------|--------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.876 | 0.8823 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 40.5 | 92.56 |
| | | mm ² /s (cSt) | 6.5 | 11.23 |
| Viscosity Index | ASTM D2270 | - | 113 | 106 |
| Flash Point | ASTM D92 | °C | 216 | 240 |
| Pour Point | ASTM D97 | °C | -35 | -27.5 |



CNG



15W40 20L 200L



2 Cycle Motors



20 1L



4 Cycle Motors



10W40 1L



ATF-III



DEXRON III 1L 4L 20L 200L

High-performance engine oil exclusively for compressed natural gas(CNG)

Product Use

- Intra-city buses, trucks and all cars equipped with a compressed natural gas(CNG) engine.

Product Performance

- High viscosity index.
- Good level of detergency.
- Exceptional detergency level.
- High stability in operation.
- Excellent antiwear and anticorrosion properties.
- Excellent antioxidant, antirust and antifoaming properties.

Standard

- Cummins CES 20074 (B&C) Detroit Diesel Series 50&60 CNG Engine oil specifications meet.
- KS M 2121 Track three kinds of lubricating oil for internal combustion engines.

Representative Property

| Test Items | Method | Unit | SAE grade 10W-40 |
|-------------------------|------------|--------------------------|------------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.8762 |
| Viscosity | 40°C | mm ² /s (cSt) | 111.2 |
| | 100°C | mm ² /s (cSt) | 14.42 |
| CCS | | cP | 3,146 |
| Viscosity Index | ASTM D2270 | - | 132 |
| Flash Point | ASTM D92 | °C | 236 |
| Pour Point | ASTM D97 | °C | -35 |

Multi-purpose 2-stroke gasoline engine oil

Product Use

- 2-stroke motorcycle engine, mower and portable motored chain saw

Product Performance

- Has excellent lubricity to prevent wear of engine components, extending the lifespan of engines.
- Is outstanding in a cleaning property to suppress creation of carbon and keep engine components such as plugs, etc. clean, increasing the efficiency of combustion and improving the output.
- Is of a low smoke type to reduce smoke emissions.
- Is good in a mixing property with gasoline to be convenient for use.

Standard

- API TC • JASO FC

Representative Property

| Test Items | Method | Unit | Result |
|-------------------------|------------|--------------------------|-----------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.869 |
| Color | | | Dark blue |
| Viscosity | 40°C | mm ² /s (cSt) | 47.6 |
| | 100°C | mm ² /s (cSt) | 8.1 |
| Viscosity Index | ASTM D2270 | - | 142 |
| Flash Point | ASTM D92 | °C | 114 |
| Pour Point | ASTM D97 | °C | -35 |

Multi-purpose 4-stroke gasoline engine oil

Product Use

- All type of high performance 4 stroke motorcycle engines of all cubic capacities, for the most severe conditions of use : racing, speedway, motocross, enduro, trail.
- Adapted for gear boxes lubrication and oil immersed clutches.

Product Performance

- Very high viscosity index.
- Excellent viscosity stability in operation.
- Excellent resistance of the oil film at high temperatures
- Very high level of detergency and dispersancy.
- Excellent resistance to oxidation.
- Very good antiwear, anticorrosion, antirust and antifoaming properties.

Standard

- API SM • JASO MA

Representative Property

| Test Items | Method | Unit | SAE grade 10W-40 |
|-------------------------|------------|--------------------------|------------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.865 |
| Viscosity | 40°C | mm ² /s (cSt) | 95.1 |
| | 100°C | mm ² /s (cSt) | 14.3 |
| Viscosity Index | ASTM D2270 | - | 156 |
| Flash Point | ASTM D92 | °C | 220 |
| Pour Point | ASTM D97 | °C | -35 |

Automatic transmission oil of DEXRON

Product Use

- Automatic or semi-automatic transmissions and torque converters of all passenger cars, light commercial vehicles and industrial vehicles, when the manufacturer requires an ATF(Automatic Transmission Fluid) GM DEXRON III.
- Suitable for use all transmissions of trucks, buses and Public works machineries when a fluid type ALLISON C-4 is required.
- Hydraulic systems when a fluid type GM DEXRON III is required.

Product Performance

- Very high viscosity index linked with an excellent viscosity stability in operation
- Very low pour point
- Very good thermal stability
- Excellent resistance to oxidation

Standard

- GM DEXRON III H-specification (H-36191)
- ALLISON C-4

Representative Property

| Test Items | Method | Unit | Typical Value |
|-------------------------|------------|--------------------------|---------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.861 |
| Viscosity | 40°C | mm ² /s (cSt) | 33.0 |
| | 100°C | mm ² /s (cSt) | 7.6 |
| Viscosity Index | ASTM D2270 | - | 208 |
| Flash Point | ASTM D92 | °C | 183 |
| Pour Point | ASTM D97 | °C | -46 |



FX



75W85 1L 20L 200L



Gear EP



90 4L 200L



Gear HD



75W90 1L 20L 200L
80W90 4L 20L 200L
85W140 4L 20L 200L

Fuel-saving manual transmission oil

Multi-purpose Gear oil

Synthetic Based Gear oil

Product Use

- Specially designed for the lubrication of manual gear boxes of passenger cars.
- Very high performance oil which is developed for synchronized or non-synchronised manual gear boxes.

Product Performance

- High viscosity index.
- Increased Extreme-Pressure and antiwear properties for an optimized lubrication of manual gear boxes.
- Excellent antifoam, anticorrosion, antirust properties.
- Excellent stability in service.
- Very low loss in viscosity through shear.
- Compatible with most types of synchronisers for an optimized lubrication of manual gear boxes.

Standard

- API GL-4

Representative Property

| Test Items | Method | Unit | SAE grade 75W-85W |
|-------------------------|------------|--------------------------|-------------------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.874 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 61.7 |
| | | mm ² /s (cSt) | 11.9 |
| Viscosity Index | ASTM D2270 | - | 193 |
| Flash Point | ASTM D92 | °C | 212 |
| Pour Point | ASTM D97 | °C | -43 |

Product Use

- Transmission and differential gear of various cars

Product Performance

- Forms a load carrying film between gear contact surfaces under high loads and shock loads to not only prevent wear and damage of gear surfaces but also reduce friction, enabling soft gear operation.
- Is excellent in heat resistance to suppress generation of sludge even at a high-temperature condition such as in a transmission.
- Has excellent oxidation stability even in use for a long time at a severe driving condition to prevent the spoil of gear oil and extend the lifespan of oil.
- Has an excellent rust-preventive property to suppress corrosion due to rust and oxide because of moisture, contributing to the expansion of gear lifespan.

Standard

- API GL-4 • US MIL-L-2105

Representative Property

| Test Items | Method | Unit | SAE 80W | SAE 90 |
|-------------------------|------------|--------------------------|---------|--------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.8766 | 0.8893 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 63.89 | 190.90 |
| | | mm ² /s (cSt) | 8.861 | 17.45 |
| Viscosity Index | ASTM D2270 | - | 102 | 98 |
| Flash Point | ASTM D92 | °C | 230 | 242 |
| Pour Point | ASTM D97 | °C | -35 | -25 |

Product Use

- Differential gear of various cars

Product Performance

- Forms a load carrying film between gear contact surfaces under high loads and shock loads to not only prevent wear and damage of gear surfaces but also reduce friction, enabling soft gear operation.
- Has excellent oxidation stability even in use for a long time at a severe driving condition to suppress the spoil of gear oil and extend the lifespan of oil.
- Has an excellent rust-preventive property to suppress corrosion due to rust and oxide because of moisture, contributing to the expansion of gear lifespan.
- Is excellent in low-temperature liquidity and low in viscosity changes depending on temperatures to be used in a wide temperature range.

Standard

- API GL-5 • US MIL-L-2105D, Mack GO-G, UK CS-3000B

Representative Property

| Test Items | Method | Unit | 75W-90 | 80W-90 | 85W-140 |
|-------------------------|------------|--------------------------|--------|--------|---------|
| Specific Gravity 15/4°C | ASTM D1298 | - | 0.8689 | 0.8871 | 0.9002 |
| Viscosity 40°C | ASTM D445 | mm ² /s (cSt) | 85.26 | 131.6 | 338.4 |
| | | mm ² /s (cSt) | 14.44 | 14.19 | 25.45 |
| Viscosity Index | ASTM D2270 | - | 177 | 106 | 98 |
| Flash Point | ASTM D92 | °C | 220 | 226 | 238 |
| Pour Point | ASTM D97 | °C | -44 | -35 | -25 |



Hi-Pump



46 20L 200L



Hydro Fluid



32 20L 200L
46 20L 200L
68 200L

Antiwear, Ashless Hydraulic oil

Anti-wear hydraulic oils

Product Use

- Hydraulic systems operating under high pressure and/or temperature conditions (earthmoving, excavator, loader...)
- High-pressure vane, piston or gear pumps.
- Sensitive hydraulic circuits requiring absolute filterability of the fluid (very fine servo valve play) : plastic moulding machine.
- Any hydraulic systems where the risk of contamination of the environment and waters exist.
- Any application where an antiwear, high-performance oil is necessary.

Product Performance

- Excellent antiwear properties ensuring protection of machine parts.
- Exceptional oxidation and aging stability : greater service oil life and lengthening of oil change intervals.
- Environmentally friendly formulation
- Prevents formation of deposits in the circuit thanks to remarkable thermal stability : cleaner circuits, less clogging of the filters. Reduced maintenance costs.

Standard

- ISO 6743/4 HM

Representative Property

| Test Items | Method | Unit | ISO VG 46 |
|-------------------------|-------------|--------------------------|-----------|
| Specific Gravity 15/4°C | ASTM D 1298 | - | 0.8475 |
| Color | ASTM D 1500 | - | L0.5 |
| Viscosity 40°C | ASTM D 445 | mm ² /s (cSt) | 46.24 |
| | | mm ² /s (cSt) | 8.202 |
| Viscosity Index | ASTM D 2270 | - | 153 |
| Total acid number | ASTM D 664 | mgKOH/g | 0.14 |
| Flash Point | ASTM D 92 | °C | 250 |
| Pour Point | ASTM D 97 | °C | -40 |

Product Use

- Designed for use in all kind of hydraulic systems operating under high pressure and normal temperature conditions, such as in machine tools, mould injection machines, presses and other industrial or mobile equipment.
- Also used in many other applications, where an universal anti-wear lubricant is the first choice : low charged gears, sliding and roller bearings.

Product Performance

- High antiwear properties insuring longer equipment life.
- Good resistance to oxidation avoiding formation of sludge at normal operation temperature and ensuring a long service life of the fluid.
- Good anti-foamability for equipment trouble control.
- Good filterability even in the presence of water.
- Excellent protection against rust and corrosion.
- Good demulsibility ensuring rapid water separation.

Standard

Representative Property

| Test Items | Method | Unit | 32 | 46 | 68 |
|-----------------|------------|--------------------|--------|--------|--------|
| Density 15°C | ASTM D1298 | g/cm ³ | 0.8621 | 0.8695 | 0.8743 |
| Viscosity 40°C | ASTM D445 | mm ² /s | 32.07 | 45.75 | 67.22 |
| | | (cSt) | 5.420 | 6.807 | 8.728 |
| Viscosity Index | ASTM D2270 | - | 102 | 103 | 102 |
| Flash Point | ASTM D92 | °C | 220 | 230 | 234 |
| Pour Point | ASTM D97 | °C | -35.0 | -37.5 | -30.0 |

CERTIFICATE

