



The First in Synthetics®



# Series 3000 Synthetic 5W-30 Heavy-Duty Diesel Oil (HDD)

## PRODUCT DESCRIPTION

AMSOIL Series 3000 100% Synthetic 5W-30 Diesel Oil (HDD) delivers extraordinary lubrication in both diesel and gasoline engines found in commercial, fleet and personal vehicles. By combining the industry's premier synthetic technology with AMSOIL premium additives, AMSOIL HDD exceeds the higher performance demands of modern engines. It withstands the stress of higher heat, higher acid levels and excessive soot loading found in EGR equipped engines. AMSOIL Series 3000 Synthetic 5W-30 Diesel Oil consistently outperforms conventional and synthetic diesel oils for long-lasting performance and protection.

AMSOIL, the leader in automotive synthetic lubrication, produced the world's first API qualified synthetic motor oil in 1972. Trust the extensive experience of AMSOIL *The First in Synthetics*® to do the best job protecting your engine.

### Extends Drain Intervals

AMSOIL HDD can extend drain intervals far beyond those recommended for conventional oils. Its unique synthetic formulation and long drain additive system deliver the best possible engine protection, cleanliness and performance over extended drain intervals, reducing vehicle maintenance and waste oil disposal costs.

### Maximizes Fuel Economy

AMSOIL Synthetic 5W-30 Heavy Duty Diesel Oil is energy efficient for reduced fuel costs. Its low viscosity minimizes "drag" associated with high viscosity oils, allowing the engine to operate more freely, maximizing power and fuel economy.

### Unsurpassed Protection Against Engine Wear

In the Four-Ball Wear Test (ASTM D-4172B) AMSOIL HDD demonstrated better anti-wear performance than competitive petroleum and synthetic oils. Even under high

temperatures and pressures, its superior film strength and anti-wear additives help prevent metal-to-metal contact. AMSOIL HDD reduces ring wear, cylinder bore polishing, oil consumption and valve train wear for improved engine life and lower maintenance costs.

### Controls Soot Thickening and Wear

AMSOIL Synthetic 5W-30 Heavy Duty Diesel Oil is heavily fortified with detergent/dispersant additives and is naturally resistant to soot. It keeps soot particles suspended independently, preventing them from attaching together to form larger, wear-causing particles. Viscosity increase is minimized and soot related wear is controlled.

### Reduces Oil Consumption and Emissions

AMSOIL HDD loses only 6.7% of its mass to high temperature volatility (evaporation) in the NOACK test, outperforming all conventional oils. Because less oil vapor passes into the combustion chamber, oil consumption and emissions are reduced. Additionally, lower volatility helps AMSOIL HDD retain its viscosity after high temperature service for continued dependable protection and excellent fuel economy.

### Excels in Extreme Temperatures

AMSOIL Synthetic 5W-30 Heavy Duty Diesel Oil resists thermal (heat) breakdown, oxidation and sludge formation better than conventional oils. And unlike conventional petroleum oils, AMSOIL HDD contains no wax. It stays fluid down to -60°F for improved cold temperature oil flow, reduced bearing wear and easier starting.



## Four Ball Wear Test

(ASTM D-4172B)

40 kg pressure @ 150° C, 1800 rpm for 1 hour duration

AMSOIL HDD 5W-30	0.378
Petro Canada Duron Synthetic 5W-40	0.636
Valvoline Premium Blue 15W-40	0.636
Mobil Delvac 1 5W-40	0.648
Chevron Delo 400 15W-40	0.690
Shell Rotella T Multigrade 15W-40	0.692

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8  
Average Wear Scar Diameter (mm)

As tested by an independent lab in November 2004

## TYPICAL TECHNICAL PROPERTIES

### AMSOIL Series 3000 Synthetic 5W-30 Heavy-Duty Diesel Oil (HDD)

Kinematic Viscosity @ 100°C, cSt (ASTM D-445)	11.5
Kinematic Viscosity @ 40°C, cSt (ASTM D-445)	64.6
Viscosity Index (ASTM D-2270)	174
Cold Crank Simulator Apparent Viscosity @ -30°C, cP (ASTM D-5293)	5086
Pour Point °C (°F) (ASTM D-97)	-50 (-58)
Flash Point °C (°F) (ASTM D-92)	228 (442)
Noack Volatility (ASTM D-5800) 250°C for 1 hour, % weight loss	6.9
High Temperature/High Shear Viscosity, cP, 150°C, 1.0 x 10 <sup>6</sup> s <sup>-1</sup> (ASTM D-4683)	3.5
Four-Ball Wear Test (ASTM D-4172: 40kgf, 150°C, 1800 rpm, 1 hr.) Scar, mm	0.38
Total Base Number	12.2

## APPLICATIONS

AMSOIL Synthetic 5W-30 Heavy Duty Diesel Oil is recommended for diesel engines and other applications requiring any of the listed worldwide specifications and gasoline engines requiring API SL, SJ, SH ... or ACEA A3.

- API CI-4+, CF, CF-2, SL • ACEA A3/B3, E2, E3, E5 • Global DHD-1
- JASO DH-1 • Mack EO-N Premium Plus '03 • DDC Power Guard 93K214 • Caterpillar ECF-1 • Cummins CES 20071, 20072, 20076, 20077, 20078 • Volvo VDS-2, VDS-3 • MB 228.1, 228.3, 229.1
- MAN 3275 • MTU Type 1 • MIL-PRF-2104G

AMSOIL HDD is compatible with conventional and synthetic motor oils. Mixing AMSOIL motor oils with other oils, however, will shorten the oil life expectancy and reduce the performance benefits. AMSOIL does not support extended drain intervals where oils have been mixed.

Aftermarket oil additives are not recommended for use with AMSOIL motor oils.

## SERVICE LIFE

AMSOIL Synthetic 5W-30 Heavy Duty Diesel Oil is recommended for extended drain intervals in unmodified(1), mechanically sound(2) vehicles or equipment as follows:

### Personal Light Truck Diesel or Gasoline Engine Service

- **Normal Service<sup>(3)</sup>** – Up to 25,000 miles or one year, whichever comes first, or longer based on oil analysis.
- **Severe Service<sup>(4)</sup>** – Up to 15,000 miles or one year, whichever comes first, or longer based on oil analysis.
- Replace AMSOIL Ea™ full flow oil filter or Donaldson Endurance™ ELF 7349 at the time of oil change up to 25,000 miles (other brands at standard OEM\* intervals).

### Commercial or Fleet Vehicles, Long-Haul Trucks, Marine Craft, RV, Off-Road Equipment

- **Non-EGR equipped diesels** – extend drain intervals up to two times (2X) the OEM\* recommended drain interval or one year, whichever comes first, or longer based on oil analysis.

• **EGR equipped or low emission diesels** – extend drain intervals based on oil analysis or use the OEM\* recommended interval.

• Replace Donaldson Endurance™ or AMSOIL Ea™ full flow oil filters at the time of oil change up to two times (2X) longer than the OEM\* standard interval, not to exceed 60,000 miles in long-haul trucks.

\*OEM = Original Equipment Manufacturer

- (1) Engines operating under modified conditions are excluded from extended drain recommendations. Examples include the use of performance computer chips; non-OEM approved exhaust, fuel or air induction systems and the use of fuels other than those recommended for normal operation by the manufacturer.
- (2) Mechanically sound engines are in good working condition and do not, for example, leak oil or consume excessive amounts, are not worn out, do not overheat, do not leak anti-freeze and have properly working emission control systems. AMSOIL recommends repairing malfunctioning engines prior to the installation of AMSOIL synthetic oils.
- (3) Personal vehicles frequently traveling greater than 10 miles (16km) at a time and not operating under severe service.
- (4) Diesel and gasoline engines – commercial or fleet vehicles, extensive engine idling, daily short trip driving less than 10 miles (16 km), frequent towing, plowing, hauling or dusty condition driving. Gasoline engines only – turbo/supercharged engines and first and subsequent use of AMSOIL engine oil in vehicles with greater than 100,000 miles.

AMSOIL Ea™ and Donaldson Endurance™ full flow oil filters are designed for extended drain intervals. They stop smaller particles, have less restriction and last longer than regular filters. For best performance, use AMSOIL Ea™ or Donaldson Endurance™ oil filters.

Oil Analyzers Inc., 715-395-0222, is a division of AMSOIL that provides cost effective, quality oil analysis services.

## Health & Safety

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Material Safety Data Sheet (MSDS). An MSDS is available upon request at 715-392-7101 or via the Internet at [www.AMSOIL.com](http://www.AMSOIL.com). **Keep Out of Reach of Children.** Don't pollute. Return used oil to collection centers.

AMSOIL products and Dealership information are available from your local AMSOIL Dealer.

