Signature Series 100% Synthetic Motor Oil
A New Level of Motor Oil Technology

AMSOIL was founded on innovation, beginning with our introduction of the world’s first API-qualified synthetic motor oil. By ignoring conventionally accepted limitations and refusing to stop short of success, we set a new benchmark for lubricant performance. These same principles guide our product development today, resulting in Signature Series Synthetic Motor Oil. Signature Series is not only the best oil we have ever made, it’s also better than any competitive oil we have tested. Some may claim that Signature Series is over-engineered. Perfect. It is not for everyone. It is for those who want the absolute best engine protection, and it delivers.

Protects Against Engine Wear
Signature Series Synthetic Motor Oil develops a strong fluid film that keeps metal surfaces separated while its robust anti-wear additives further reduce wear in metal-to-metal contact regions for maximum engine life. The Sequence IVA Engine Test, which must be passed to meet the API SN PLUS specification, simulates extended periods of stop-and-go driving. For 100 hours, the test engine cycles between 50 minutes of idling and 10 minutes of elevated rpm – conditions that encourage engine wear. The camshaft is then measured for wear in 84 locations and an average score is determined. We used Signature Series 0W-20, the lightest viscosity in the line, to further increase the severity of the test. AMSOIL Signature Series Synthetic Motor Oil provided 75 percent more engine protection against horsepower loss and wear than required by the industry standard, extending the life of vital components like pistons and cams.

SEQUENCE IVA ENGINE TEST
Lower number = less wear

After rigorous third-party testing, the cam lobes show little-to-no wear.

*Based on independent testing of AMSOIL Signature Series 0W-20, in ASTM D6891 as required by the API SN PLUS specification.
Protects Pistons from Low-Speed Pre-Ignition

We armed Signature Series with an advanced detergent system that protects against harmful deposits and low-speed pre-ignition (LSPI). Most new engines feature gasoline direct injection (GDI), often combined with a turbocharger to boost power and improve fuel economy. These new technologies, when combined with a poorly formulated motor oil, promote LSPI and threaten engine operation. LSPI is the spontaneous ignition of the fuel/air mixture prior to spark-triggered ignition. It occurs in today's advanced engines and is much more destructive than typical pre-ignition. A properly formulated motor oil is critical for protecting your engine.

Original equipment manufacturers (OEMs) like GM* have addressed the issue by designing tests to determine a motor oil's ability to prevent LSPI. Signature Series Synthetic Motor Oil achieved 100 percent protection against LSPI† in the engine test required by the GM dexos1* Gen 2 specification – zero occurrences were recorded throughout five consecutive tests.

Example of piston damage due to an LSPI event observed during the testing of a competitor's motor oil. The red arrows indicate sections of the ring land that broke away from the piston.

Protects Turbochargers

Our unique synthetic formulation is inherently stable to resist oxidation and neutralize acids. Signature Series Motor Oil provides outstanding protection against deposits common to high-temperature engine environments. The tremendous heat and stress turbos create can cause some oils to break down and form harmful bearing deposits through a process known as turbo coking. Over time, turbos can suffer reduced performance or fail altogether.

We challenged Signature Series to the GM Turbo Coking Test, which consists of 2,000 cycles of extreme heat soak. An oil must limit the temperature change within the turbocharger to 13 percent or less to pass the test. Signature Series limited the temperature increase to only 3 percent, protecting the turbocharger 72 percent better than required‡ by the GM dexos1 Gen 2 specification.

Example of turbocharger damage due to an LSPI event observed during the testing of a competitor's motor oil. The red arrows indicate sections of the ring land that broke away from the piston.

Maximum Cleaning Power to Battle Sludge

AMSOIL Signature Series Synthetic Motor Oil has 50 percent more detergents§ to help keep oil passages clean and promote oil circulation. Engine failures due to sludge are often caused by a plugged oil pick-up tube screen – the motor is effectively starved of oil. The Sequence VG Engine Test measures an oil's ability to prevent sludge. During the test, a Ford* 4.6L engine is subjected to sludge-inducing conditions for 216 hours. The industry standard allows for 10 percent blockage before the motor oil fails the test. Signature Series produced a screen virtually free from sludge (see image). Its detergent and dispersant additives are so effective, Signature Series provides 90 percent better protection against sludge.¶

Example of piston and bearing damage due to sludge observed during the testing of a competitor's motor oil. The red arrows indicate sections of the ring land that broke away from the piston.

Trusted by Professional Engine Builders

Dedicated engine builders and mechanics put in long hours honing their craft. These architects of powerful, high-performance engines turn to Signature Series to protect their passion.

“When we use AMSOIL, I don’t worry about a film breakdown or an oil breakdown – and the oil pressure is always consistent. We’ve tested oils back-to-back on the dyno in our shop and we’re always able to make more power with AMSOIL.”

Brett Bowers, Professional Engine Builder

Example of piston and bearing damage due to sludge observed during the testing of a competitor's motor oil. The red arrows indicate sections of the ring land that broke away from the piston.

Extends Drains: Protection Guaranteed

AMSOIL Signature Series Synthetic Motor Oil provides reserve protection, allowing you to go longer between oil changes if you choose – up to 25,000 miles (40,200 km), 700 hours of operation or one year, whichever comes first (see back page for details).

Our unique synthetic formulation and long-drain additive system are inherently stable to resist oxidation and neutralize acids over longer periods. Signature Series is designed to deliver outstanding engine protection, cleanliness and performance over extended drain intervals – guaranteed. It provides peace of mind so you can fit oil changes into your schedule.

Example of piston and bearing damage due to sludge observed during the testing of a competitor's motor oil. The red arrows indicate sections of the ring land that broke away from the piston.

† Based on independent testing of AMSOIL Signature Series 5W-30 motor oil in the LSPI engine test as required for the GM dexos2 specification.
‡ Based on independent testing of AMSOIL Signature Series 5W-30 in the GM turbo coking test.
§ Based on independent testing of AMSOIL Signature Series 5W-30 in the ASTM D6593 engine test for oil screen plugging as required by the API SN PLUS specification.
¶ All trademarked names and images are the property of their respective owners and may be registered marks in some countries. No affiliation or endorsement claim, express or implied, is made by their use. All products advertised here are developed by AMSOIL for use in the applications shown.
Preserves Horsepower
The extreme durability of Signature Series Motor Oil helps your engine run stronger, for longer. We installed Signature Series 5W-30 Synthetic Motor Oil in a Ford® F-150® with a new 3.5L Ecoboost® engine to test its ability to protect turbocharged direct-injection (TDGi) engines from torque and horsepower loss during extended drain intervals up to 25,000 miles (40,200 km). Power sweeps were done at the beginning and end of the test to evaluate horsepower and torque retention. As the graph shows, Signature Series helped maintain engine performance throughout the 100,000-mile (160,934 km) test.

Easier Cold-Starts
Signature Series Synthetic Motor Oil does not contain paraffins (wax) and stays fluid in temperatures of -58°F (-50°C) and lower. Extreme cold causes other motor oils to thicken, starving vital moving parts of lubrication, accelerating wear and even preventing vehicles from starting. Signature Series provides 66 percent better cold-temperature performance for easier starting, better fuel economy, improved oil flow (as seen below) and reduced wear.

Limits Oil Consumption
Signature Series has a uniform molecular structure that limits evaporation and keeps it where it’s needed most—protecting your engine. Volatility (burn-off) occurs when oil gets hot, causing lighter molecules to burn off or evaporate. This leads to oil thickening, additive imbalance, higher emissions and oil consumption. The NOACK Volatility test is the industry standard for evaluating motor oil high-temperature evaporation. It measures the percentage of burn-off after a motor oil is placed under constant airflow at 482°F (250°C) for 1 hour. A lower number indicates a better resistance to evaporation. Signature Series falls far below the API limit for volatility, reducing the need for frequent oil top-offs and limiting vehicle emissions.

Keeps Pistons Cleaner
We formulated Signature Series with superior thermal durability that resists breakdown and keeps pistons clean. The Sequence IIIH Test uses the Chrysler® 3.6L Pentastar® engine to evaluate a motor oil’s ability to resist heat and keep pistons clean. The test is conducted with oil temperatures of 304°F (151°C), much hotter than normal operation, to accelerate oil thickening and deposits. A single-length 90-hour test didn’t even challenge Signature Series. Its viscosity was like that of new oil, and the pistons were still nearly spotless. To really test the oil, we told the lab to reassemble the engine and run the test again using the same oil. Even after doubling the length of the industry-standard test, the oil limited oil thickening to well under the allowable threshold while delivering 40 percent cleaner pistons than required by the standard.¹

Based on independent testing of AMSOIL Signature Series 5W-30 in the Sequence IIIH Engine Test (ASTM D8111), required by the ILSAC GF-6 and API SP specifications.

¹All trademarked names and images are the property of their respective owners and may be registered marks in some countries. No affiliation or endorsement claim, express or implied, is made by their use. All products advertised here are developed by AMSOIL for use in the applications shown.
### TYPICAL TECHNICAL PROPERTIES

**AMSOIL Signature Series Synthetic Motor Oil**

<table>
<thead>
<tr>
<th>Property</th>
<th>0W-20 (ASM)</th>
<th>5W-20 (ALM)</th>
<th>0W-30 (AZO)</th>
<th>5W-30 (ASL)</th>
<th>10W-30 (ATM)</th>
<th>0W-40 (AZF)</th>
<th>5W-50 (AMR)</th>
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</thead>
<tbody>
<tr>
<td>Kinematic Viscosity @ 100°C, cSt (ASTM D445)</td>
<td>8.8</td>
<td>8.8</td>
<td>10.4</td>
<td>10.3</td>
<td>10.0</td>
<td>14.8</td>
<td>19.4</td>
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<td>Kinematic Viscosity @ 40°C, cSt (ASTM D445)</td>
<td>47.1</td>
<td>50.6</td>
<td>57.1</td>
<td>59.7</td>
<td>62.3</td>
<td>84.6</td>
<td>119.5</td>
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<tr>
<td>Viscosity Index (ASTM D2270)</td>
<td>169</td>
<td>153</td>
<td>173</td>
<td>162</td>
<td>147</td>
<td>184</td>
<td>185</td>
</tr>
<tr>
<td>CCS Viscosity, cP @ (°C) (ASTM D5293)</td>
<td>5122 (-35)</td>
<td>4385 (-30)</td>
<td>5372 (-35)</td>
<td>3968 (-30)</td>
<td>4278 (-25)</td>
<td>6062 (-35)</td>
<td>5108 (-30)</td>
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<tr>
<td>Flash Point °C (°F) (ASTM D92)</td>
<td>220 (428)</td>
<td>220 (428)</td>
<td>220 (428)</td>
<td>220 (428)</td>
<td>230 (446)</td>
<td>222 (431)</td>
<td>224 (435)</td>
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<tr>
<td>Fire Point °C (°F) (ASTM D92)</td>
<td>244 (471)</td>
<td>244 (471)</td>
<td>238 (460)</td>
<td>244 (471)</td>
<td>256 (492)</td>
<td>238 (460)</td>
<td>244 (471)</td>
</tr>
<tr>
<td>Pour Point °C (°F) (ASTM D97)</td>
<td>-53 (-63)</td>
<td>-50 (-58)</td>
<td>-50 (-58)</td>
<td>-50 (-58)</td>
<td>-47 (-52)</td>
<td>-50 (-58)</td>
<td>-48 (-54)</td>
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<tr>
<td>NOACK Volatility, % weight loss (g/100g) (ASTM D5800)</td>
<td>8.5</td>
<td>5.8</td>
<td>8.8</td>
<td>6.7</td>
<td>4.1</td>
<td>7.7</td>
<td>6.1</td>
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<td>High-Temperature/High-Shear Viscosity @ 150°C, 1.0 x 10^6 s⁻¹, cP (ASTM D5481)</td>
<td>2.67</td>
<td>2.67</td>
<td>3.07</td>
<td>3.11</td>
<td>3.11</td>
<td>3.76</td>
<td>4.45</td>
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<tr>
<td>Total Base Number (ASTM D2696)</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

### APPLICATIONS

Use AMSOIL Signature Series Synthetic Motor Oil in applications that require any of the following specifications:

- **0W-20 (ASM):** API SP (Resource Conserving), SN PLUS, SN; GM dexos1 Gen 2 (super-sedes 6094M); ACEA A1/B1; Ford WSS-M2C347-B1, WSS-M2C347-A; Chrysler MS-6395; ILSAC GF-6A, GF-5, GF-4
- **5W-20 (ALM):** API SP (Resource Conserving), SN PLUS, SN; GM dexos1 Gen 2 (super-sedes 6094M); ACEA A1/B1; Ford WSS-M2C345-B1, WSS-M2C345-A, WSS-M2C303-A; Chrysler MS-6395; ILSAC GF-6A, GF-5, GF-4
- **0W-30 (AZO):** API SP (Resource Conserving), SN PLUS, SN; GM dexos1 Gen 2 (super-sedes LL-A-025, 6094M and 4718M); ACEA A5/B5, A1/B1; Chrysler MS-6395; ILSAC GF-6A, GF-5, GF-4
- **5W-30 (ASL):** API SP (Resource Conserving), SN PLUS, SN; GM dexos1 Gen 2 (super-sedes LL-A-025, 6094M and 4718M); ACEA A5/B5, A1/B1; Honda HTO-06; Ford WSS-M2C346-B1, WSS-M2C346-A, WSS-M2C392-A; Chrysler MS-6395; ILSAC GF-6A, GF-5, GF-4
- **10W-30 (ATM):** API SP (Resource Conserving), SN PLUS, SN; ACEA A5/B5, A1/B1; Ford WSS-M2C305-C; Chrysler MS-6395; GM LL-A-025, 6094M, 4718M, ILSAC GF-6A, GF-5, GF-4...
- **0W-40 (AZF):** API SP, SN PLUS, SN; Chrysler MS-12633, MS-10725, MS-10850; Nissan GF-R
- **5W-50 (AMR):** API SP; SN PLUS, SN; Ford WSS-M2C391-C (Mustang)

### COMPATIBILITY

AMSOIL Signature Series Synthetic Motor Oil is compatible with other conventional and synthetic motor oils. Mixing other oils with AMSOIL motor oils, however, will shorten the oil’s life expectancy and reduce its performance benefits. AMSOIL does not support extended drain intervals where oils have been mixed.

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

### TECHNICAL SERVICES

For immediate answers to your technical questions call (715) 399-TECH (8324) between 8 a.m. and 5 p.m. Central time or email tech@amsoil.com.

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