

Synthetic European Motor Oil



“My engine sounds better than it ever has. My BMW* has 70,000+ miles and has never sounded this good or smooth. You can tell a lot about engines just from the sound and this baby is purring like I’ve never heard it purr. I am very pleased and glad I made the switch to AMSOIL.”

– **Tom**
Atlanta, Ga.



European Motor Oil Refresh

We've revamped European Car Formula with a new look and feel, including renaming it 100% Synthetic European Motor Oil to indicate coverage of both cars and trucks. The product line features updated packaging and labels that better differentiate full-SAPS, mid-SAPS and low-SAPS formulas. These new packages will be introduced as existing inventory is depleted. To round out the line, we also added two new 0W-20 viscosity products (AFE, EZT) that fill the unique specifications of certain European engines.

AMSOIL 100% Synthetic European Motor Oil (EFO, EFM, AEL, AFL) continues to provide the same great performance.

- Engineered to meet European manufacturers' specifications
- Excellent protection for the unique needs of gasoline, diesel and hybrid European vehicles
- Fights sludge for superior engine cleanliness

Updated labels and packaging? Yes
Formulation change? No
New stock numbers? No
Price change? No

New SAE 0W-20 LS and SAE 0W-20 LS-VW European Motor Oils (AFE, EZT) have been added to the family and are recommended for European engines that require 0W-20 motor oil.

Two 0W-20 Products?

You may be wondering why we're introducing two separate 0W-20 products. While both products are the same viscosity, the specifications they carry are quite different and require unique engineering to meet the needs of these highly specialized engines. Both products offer the same benefits as all the other viscosities.

SAPS Identification

Many European vehicles available in North America feature gasoline and diesel engines with emissions systems that are highly sensitive to the SAPS (sulfated ash, phosphorus and sulfur) content of motor oil. SAPS are common oil additives that provide desirable performance properties, including detergency and protection against wear and oxidation. Different emissions systems require different SAPS levels – it's not one-size-fits-all. Our updated European motor oil line has labels that feature FS, MS and LS identification to help differentiate between full-SAPS, mid-SAPS and low-SAPS.

Complete Coverage

AMSOIL European Motor Oil meets and often exceeds strict European manufacturer specifications. Its shear-stable synthetic base oils and high-quality anti-wear additives provide outstanding protection in high-temperature conditions and deliver dependable performance throughout the

long drain intervals recommended by European manufacturers.

Superior Engine Cleanliness

The excellent oxidation stability, heat resistance and detergency properties of AMSOIL European Motor Oil help keep engines clean. It is designed to prevent sludge and varnish deposits, reduce oil consumption, extend engine life and provide maximum performance.

Excellent For Turbochargers

AMSOIL European Motor Oil has a robust composition that shields engines from the high temperatures produced by turbochargers. Its thermally stable oil formulation resists deposit formation and cools turbochargers. Its low pour point protects turbochargers against oil starvation in subzero temperatures and ensures a rapid return to appropriate oil pressure at startup.

See p. 19 for pricing.





Matt Erickson | DIRECTOR, TECHNICAL PRODUCT MANAGEMENT

Motor oil isn't "one-size-fits-all"

There are notable differences between oil for European and domestic vehicles.

For all their benefits, like finely tuned performance, styling and prestige, European cars can be a hassle to maintain. Some makes and models are notorious for their interesting and sometimes expensive quirks. Another notable difference is the motor oil they use, which I'd like to explain today.

OEMs Create Their Own Oil Specifications

One of the biggest differences between oils for European cars and domestic cars is the performance requirements each must meet. In the U.S. and Canada, it's typically an industry-wide motor oil specification, such as API SP.

European original equipment manufacturers (OEMs), however, typically maintain their own motor oil performance specifications. A Volkswagen* owner, for example, must use an oil that meets the requirements of VW's own performance specs. The same holds for Mercedes-Benz,* BMW,* Porsche* and other European cars.

Complicating matters, each OEM motor oil specification is slightly different. One OEM may require an oil that offers better performance against oxidation, while another requires better resistance to viscosity loss. And different engine models can require different oil chemistries of the same viscosity. For example, VW requires some of its engines to use a 0W-20 oil that meets its 508.00/509.00 spec, but others must use a 0W-20 oil that meets a different spec. Some BMW engines require a 5W-40 oil that meets the BMW LL-01 spec, while others require a 5W-40 that meets the BMW LL-04 spec. The specificity can easily confuse motorists.

OEM specifications tend to be more strict and require increased motor oil performance than the industry specs to

which we're accustomed. This, of course, requires more advanced (and typically expensive) motor-oil technology delivered almost exclusively by synthetics.

General Motors,* for its part, has taken a page out of the playbook of its European counterparts by maintaining its own GM dexos* performance specifications. I suspect we'll see more of this from domestic OEMs in the coming years.

More-Strict Emissions Standards

The European Union maintains more strict standards for carbon dioxide (CO₂) and carbon monoxide (CO) emissions than we do. (Our standards for nitrogen oxides [NO_x] and particulate matter [PM] are more strict, however.) Because modern diesels emit lower CO₂ than gasoline engines, the European market pivoted toward diesel-powered vehicles in the 1990s. Diesels also provide better fuel economy.

One drawback, however, is the higher levels of NO_x and PM that diesels produce. To counteract this, diesel-powered vehicles use diesel particulate filters (DPF) and catalysts designed to reduce pollutants from the exhaust before they exit the tailpipe.

An oil's formulation can negatively affect sensitive emissions-control devices. Certain components in the motor oil can reduce the effectiveness and life of DPFs and other emissions devices. For that reason, European specifications often limit certain ingredients to protect emissions-control systems.

Longer Oil-Change Intervals

Europeans have long practiced what's only recently caught on in North America – longer oil-change intervals.

Europeans are accustomed to changing oil far less often, with drain intervals

of 10,000 miles (16,000 km) or so quite common. One reason is the higher cost of oil in Europe. Another is the differences between manufacturer recommendations. For example, most modern BMWs require oil changes only every 15,000 miles (24,140 km). In the U.S., most people change oil around every 5,000 miles (8,000 km). The figure increases if the vehicle is equipped with an electronic oil-life monitoring system.

Longer drain intervals common with European cars require an oil capable of protecting against wear, deposits and sludge for the duration, which requires a more robust oil.

Different Viscosities

In addition, many European OEMs have historically suggested different viscosities for different operating temperature ranges. In cold weather, the OEM may recommend 5W-30. In warm weather, 5W-40. Traditionally, drivers settle on a 0W-40 or 5W-40 to offer the best of both worlds – good cold-flow at startup to protect against wear and good resistance to heat once operating temperatures are reached. However, like their domestic counterparts, European manufacturers are increasingly recommending reduced oil viscosities to help improve fuel economy.

Our updated line of 100% Synthetic European Motor Oil reflects this trend. We recently introduced two new 0W-20 products. Our full line provides an option for just about any European car owner, no matter the performance spec or viscosity. The best way to find the right oil is to use our Product Guide at AMSOIL.com or AMSOIL.ca.

European cars offer an excellent driving experience; be sure to protect them with AMSOIL Synthetic European Motor Oil.

ANOTHER PREMIUM AMSOIL OPTION FOR EUROPEAN VEHICLES

Additional full-SAPS option fills niche demand for 0W-40 in European applications.

AMSOIL has expanded its European Car Formula line to include a full-SAPS 0W-40 viscosity. Featuring the same premium synthetic formulation and recommended for the same specifications as European Car Formula 5W-40 Full-SAPS Synthetic Motor Oil (EFM), new European Car Formula 0W-40 Full-SAPS Synthetic Motor Oil (EFO) provides European vehicle customers with a different viscosity option.

European vehicle owner's manuals typically require the motor oil meets a certain specification, but many list several viscosity options. Some manufacturers include temperature graphs to help customers choose a viscosity based on climate, but many customers prefer using lower viscosity oils in all environments. New AMSOIL European Car Formula 0W-40 Synthetic Motor Oil provides customers that lower viscosity option, and it is ideal for customers looking for a premium AMSOIL alternative to competing 0W-40 motor oils that carry European specifications.

- Delivers long-term protection and performance for the extended drain intervals recommended by European vehicle manufacturers.
- Provides the additional cold-weather advantages of a 0W synthetic motor oil.
- Helps keep engines clean and operating at top performance.
- Engineered for maximum fuel economy.

Applications

AMSOIL European Car Formula 0W-40 Full-SAPS Synthetic Motor Oil (EFO) is recommended for use in European gasoline or diesel vehicles requiring any of the following performance specifications*:

- ACEA A3/B3, A3/B4
- API SN/SM...
- BMW LL-01
- Mercedes-Benz 229.1/229.3/229.5
- Porsche A40
- Renault 0710, 0700
- VW 502.00, 505.00

SAPS Levels

SAPS stands for sulfated ash, phosphorus and sulfur, which comprise a significant part of a motor oil's additive content. Because the vehicle emissions system and aftertreatment devices of some European vehicles are sensitive to the SAPS content of oil, it is important to use an oil that meets the proper specification to ensure optimum engine protection and performance.

The vast majority of European vehicles in North America call for a full-SAPS European oil. AMSOIL now offers premium European Car Formula Full-SAPS Synthetic Motor Oil in two viscosity options, as well as premium European Car Formula 5W-30 Low-SAPS and 5W-40 Mid-SAPS Oils.



AMSOIL European Car Formula 0W-40 Full-SAPS Synthetic Motor Oil							
Stock #	Units	Pkg./Size	Wt. Lbs.	U.S. Wholesale	U.S. Sugg. Retail	Can. Wholesale	Can. Sugg. Retail
EFOQT	EA	1 Quart	2.1	7.25	9.40	9.70	12.50
EFOQT	CA	12 Quarts	25.2	82.50	111.40	110.40	148.80





100% Synthetic European Motor Oil

Specially Formulated for European Gasoline and Diesel Engines

European performance and styling define a culture of exceptional engineering. AMSOIL matches that devotion to precision with lubricants specially designed for the unique demands of gasoline, diesel and hybrid European vehicles.

Our exclusive European formula features a precise blend of advanced synthetic base oils and premium additives that delivers exceptional engine protection without harming emissions systems.

Complete Coverage

AMSOIL European Motor Oil meets and often exceeds strict European manufacturer specifications. Its shear-stable synthetic base oils and high-quality anti-wear additives provide outstanding protection in high-temperature conditions and deliver dependable performance throughout the long drain intervals recommended by European manufacturers.

Emissions System Protection

AMSOIL European Motor Oil features precisely balanced formulations that consider the needs of modern exhaust treatment devices. Protecting sensitive emissions systems depends on using the optimal blend of SAPS (sulfated ash, phosphorus and sulfur). AMSOIL European Motor Oil is carefully crafted in six varieties to ensure proper emissions system function.

Superior Engine Cleanliness

The excellent oxidation stability, heat resistance and detergency properties of AMSOIL European Motor Oil help keep engines clean. It is specifically designed to prevent sludge and varnish deposits, reduce oil consumption, extend engine life and provide maximum performance.

Excellent For Turbochargers

AMSOIL European Motor Oil has a robust composition that shields engines from the high temperatures produced by turbochargers. Its thermally stable oil formulation resists deposit formation and cools turbochargers. Its low pour point protects turbochargers against oil starvation in subzero temperatures and ensures a rapid return to appropriate oil pressure at startup.



- **Engineered** to meet European manufacturers' specifications
- **Excellent** protection for gasoline, diesel and hybrid engines
- **Fights** sludge for superior engine cleanliness

TYPICAL TECHNICAL PROPERTIES

AMSOIL 100% Synthetic European Motor Oil

	EFO	EFM	AEL	AFL	AFE	EZT
Kinematic Viscosity @ 100°C, cSt (ASTM D445)	13.3	13.6	11.6	14.3	8.1	8.2
Kinematic Viscosity @ 40°C, cSt (ASTM D445)	74.7	83.3	68.4	88.5	43	42.2
Viscosity Index (ASTM D2270)	182	168	165	168	163	174
CCS Viscosity cP (ASTM D5293)	5888 (-35)	5433 (-30)	5946 (-30)	5855 (-30)	6081 (-35)	5501 (-35)
Pour Point °C (°F) (ASTM D97)	-51 (-59.8)	-39 (-38.2)	-51 (-59.8)	-40 (-40)	-46 (-50.8)	-44 (-47.2)
Flash Point °C (°F) (ASTM D92)	232 (449.6)	220 (428)	228 (442.4)	224 (435.2)	226 (438.8)	236 (456.8)
Fire Point °C (°F) (ASTM D92)	240 (464)	238 (460.4)	250 (482)	240 (464)	240 (464)	246 (474.8)
Noack Volatility, % weight loss (ASTM D5800)	9.9%	8.7%	7.1%	10%	11%	8.9%
High-Temperature/High-Shear Viscosity cP (ASTM D5481)	3.7	3.7	3.6	3.8	2.7	2.7
Total Base Number	10.1	10.1	8.8	8	7.9	8.8

APPLICATIONS

Use in gasoline or diesel vehicles that require any of the following specifications:

0W-40 (EFO): API SN, SM...; ACEA A3/B3, A3/B4; BMW LL-01; MB 229.1, 229.3, 229.5; Porsche A40; Renault 0700, 0710; VW 502.00, 505.00

5W-40 (EFM): API SN, SM...; ACEA A3/B3, A3/B4; BMW LL-01; GM LL-B-025; Renault 0700, 0710

Manufacturer Approvals:* MB-Approval 229.5; Porsche A40; VW 502.00, 505.00

5W-30 (AEL): API SN; SM...; ACEA C3; BMW LL-04; Porsche C30; GM dexos 2⁺; Chrysler MS-11106; MB 229.51

Manufacturer Approvals:* VW 504.00; 507.00

5W-40 (AFL): API SN, SM, CF...; ACEA C3; Chrysler MS-10850; GM dexos 2⁺; VW 502.00, 505.01; Ford WSS-M2C917-A; Renault 0700, 0710; BMW Longlife-04

Manufacturer Approvals:* MB 229.51; Porsche A40

0W-20 (AFE): API SN-PLUS (Resource Conserving); SN, SM...; ILSAC GF-5; ACEA C5; A1/B1; BMW LL-17FE+; MB 229.71; Ford WSS-M2C947-B1; Opel/Vauxhall OV0401547; Fiat 9.55535-GSX; Chrysler MS-12145; Volvo VCC RBS0-2AE

0W-20 (EZT): API SN-PLUS, SN...; ACEA C5; VW 508.00/509.00

SERVICE LIFE

Recommended for the extended drain intervals established by the vehicle manufacturer. Change oil filter at time of oil change.

COMPATIBILITY

AMSOIL 100% Synthetic European Motor Oil is compatible with other synthetic and conventional motor oils. Mixing AMSOIL motor oil with other 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.

AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit www.amsoil.com/warranty.aspx.

HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended applications and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available via the Internet at www.amsoil.com or upon request at (715) 392-7101. **Keep Out of Reach of Children.** Recycle used oil and bottle.

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AMSOIL KEEPS BMW* ON THE ROAD FOR NEARLY 20 YEARS

For more than 18 years, Preferred Customer Ilya Moshenskiy of Redmond, Wash. has trusted AMSOIL synthetic lubricants to keep his 1998 BMW on the road.

"I'm a long-term customer. (I've) personally put over 400k miles in the driver seat," Moshenskiy said. "I have owned my 1998 BMW 528i* for over 18 years. It's still in the condition I remember it being when I first drove it off the dealer lot. Since day one, I have been doing my own oil changes exclusively using AMSOIL."

Moshenskiy said he depends on the car in all conditions.

"My car has been a workhorse getting me through thick and thin," he said. "Over the years, the 528i has been a reliable family member. It has given us countless memories over the past two decades, from the sunny beaches of San Diego to pummeling through two feet of snow

in British Columbia, Canada. I know whether I'm commuting or taking it on the next road trip, my 528i will get me there. My only worry are those pesky tail light bulbs that burn out with age."

Moshenskiy spreads the word about the AMSOIL European Car Formula that has kept his BMW running for so many miles.

"Every time I start a conversation about 400k miles on the original motor, people ask what's the secret," he said. "AMSOIL is the secret; that's what you need to know. I don't think I could have logged over 400k miles if it wasn't for AMSOIL. Believe it or not, this is still my daily driver."



Not only is the car still his daily driver, it looks like it's new.

"There's something about thick German paint that lasts long and looks new," Moshenskiy said. "I'm in Seattle and have taken the car on many trips in the Pacific Northwest and Canada."

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