

## THE RIGHT WAY TO CHOOSE MOTOR OIL

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*The article provides guidelines for choosing of the motor oil for an automotive engine. Specifications on recommended motor oil are explained in accessible language, understandable to the vast majority of drivers.*

This question is usually asked by car owner when the car warranty period is over. Generally during the warranty period the oil change takes place at an authorized service station with the usage of oil grades which are approved by the car manufacturer and the car owner doesn't usually pay attention to what the exact oil grade is. So what are his options?

The basis for the selection of a particular brand is the recommendations of the manufacturer of your car which are given in the operation manual. If the car is not new and information given in the operation manual is not sufficient, then you need to choose the oil brand by yourself. You'll need to choose:

- the viscosity grade SAE (Society of Automotive Engineers);
- the service rating by ACEA (European Automobile Manufacturers' Association) or by API (American Petroleum Institute);
- mineral, semi synthetic or fully synthetic oil.

**Motor oil classification on viscosity grade by SAE.** Currently accepted international classification system for engine oil viscosity is SAE J300 (Fig. 1), developed by the Society of Automotive Engineers USA. The oil viscosity for this system is expressed in standard units – degrees of viscosity. The larger the number included in the designation of the SAE is, the higher is the viscosity of the oil. Specification describes three series of oil viscosity: winter, summer and all-season.

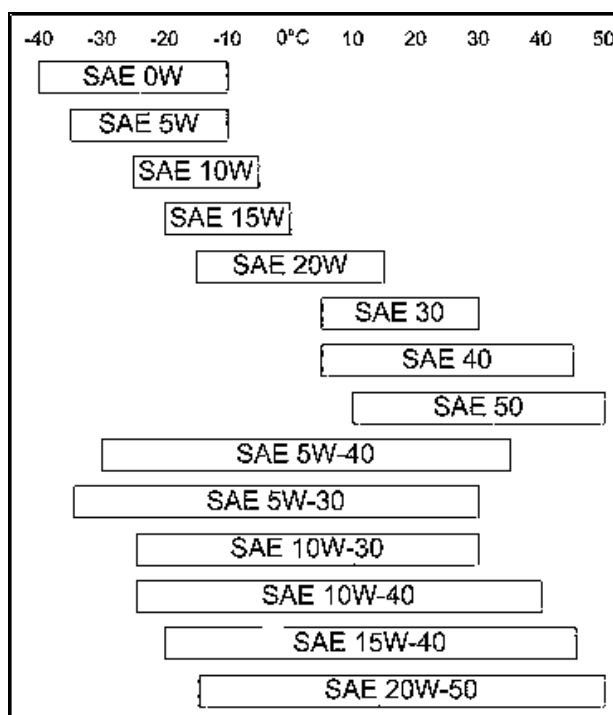


Fig. 1. Oil classification according to SAE J300

A range of winter oils: SAE 0W, 5W, 10W, 15W, 20W, 25W – marked by number and letter “W” (winter).

A range of summer oils: SAE 20, 30, 40, 50, 60 – denoted by the number without the letter designations.

A range of multigrade oils: SAE 0W-20, 0W-30, 0W-40, 0W-50, 0W-60, 5W-20, 5W-30, 5W-40, 5W-50, 5W-60, 10W-20, 10W-30, 10W-40, 10W-50, 10W-60, 15W-30, 15W-40, 15W-50, 15W-60, 20W-30, 20W-40,

20W-50, 20W-60. The designation consists of a combination of winter and summer range separated by a dash. Multigrade oils must simultaneously meet criteria for both winter and summer oil. The smaller the number before "W" is, the less is the oil viscosity at low temperatures, the easier is cold start of engine and the better is pumpability of the oil in the lubricating system. The higher the number standing after the letter "W" is, the greater is the viscosity of the oil at high temperature and the more reliable is lubrication of the engine in hot weather.

#### **How to choose the right grade of motor oil quality**

There are two most common engine oil quality classes:

- API – American Petroleum Institute;
- ACEA – Association of European manufacturers.

Nowadays, the API specification has the following active classes:

– for petrol engines SJ, SL and SM the requirements for the usage can be found in the operation manual for vehicles starting from 2001 year of manufacture. But even if the car is older and in the manual recommends one of the older classes – for example, the SG or the SH – there is no need to search oil with the same quality class by API which has not the most perfect performance. No wonder the recommendations of the car manufacturer sound something like the following: "Recommended engine oil grade not lower than SH API". Thus, the engine oil of the latest classes SJ, SL and SM is absolutely universal (from the point of view of the API);

– for diesel engines of passenger cars, vans, jeeps, etc., CF is a working class which is universal (from the point of view of the API) for all diesel engines.

Unlike the API, ACEA specification takes into account the structural features of the European engines and their operational modes in the European conditions more completely. Its requirements for individual tests greatly exceed the requirements of API. For European cars, of course, we should prefer the oil brands tested according to the ACEA and received the appropriate class of quality according to this specification.

Specification ACEA currently has the following classes:

- for gasoline engines A1-96(98), A2-96, A3-96(98) and A5-02;
- for diesel engines of passenger cars, vans, jeeps, etc. – B1-96(98), B2-96(98), B3-96(98), B4-and B5 98-02.

Oil, which simultaneously meets the requirements of classes A3 and B3, has the most perfect features and is suitable for use in all petrol and diesel engines of passenger cars, vans, jeeps, etc., regardless of the year of manufacture (e.g., Q8 Formula Special, Q8 Formula Excel, Q8 T 670 and Q8 Formula Advanced).

When choosing motor oil look for the information on the existing approvals for use issued by various car manufacturers. The presence of such approval speaks to the fact that the oil was tested at the car manufacturing plant and fully meets the special design requirements of the applicable engines. So, finally, the preference should be given to the oil on the label which is the approval of the car manufacturer.

One should distinguish the phrase on the packaging of oil "meets manufacturer specifications" and "approved by manufacturer". The first case means that the manufacturer of oil unilaterally believes your product is suitable for the usage in engines of certain cars.

The second case refers to the situation when a particular car manufacturer has independently tested a specific product and on the basis of test results issued its own statement endorsing the usage of this product in the engines of their cars. Such tests are very costly, so they can afford only the most eminent manufacturers of lubricants. The rest are limited to the mention of "compliance".

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