

4.0 Viscosity grades

Viscosity measures the oil's ability to flow. It is highly dependent on the temperature of the oil, i.e. the higher the temperature, the lower the viscosity. Likewise, the oil temperature is dependent on various factors, for example on the ambient temperature in which the vehicle is operated.

When the outside temperature is low, the oil must not be too viscous, so as to ensure that all the lubrication points are supplied quickly with oil when the engine is cold. When oil or engine temperatures are high, the oil must possess a certain minimum viscosity, so that an adequately thick lubricating film is built up.

Modern multigrade oils combine good low-temperature characteristics with adequate lubrication at high oil temperatures, preventing the need for a suitable viscosity grade to be selected and oil to be changed purely on a seasonal basis.

If engine oils listed in Enclosure 3 are used, the following rules apply when selecting a suitable viscosity grade:

BMW longlife oils:

BMW longlife oils, as specified for all BMW vehicles since 1998, are tested by BMW to ensure that they can be used anywhere in the world, at any time of year, regardless of ambient temperature. If BMW longlife oils are used, it is therefore not necessary to keep a check on the viscosity grade. BMW longlife oils are only available with viscosity grades SAE 0W-30, SAE 0W-40, SAE 5W-30 and SAE 5W-40.

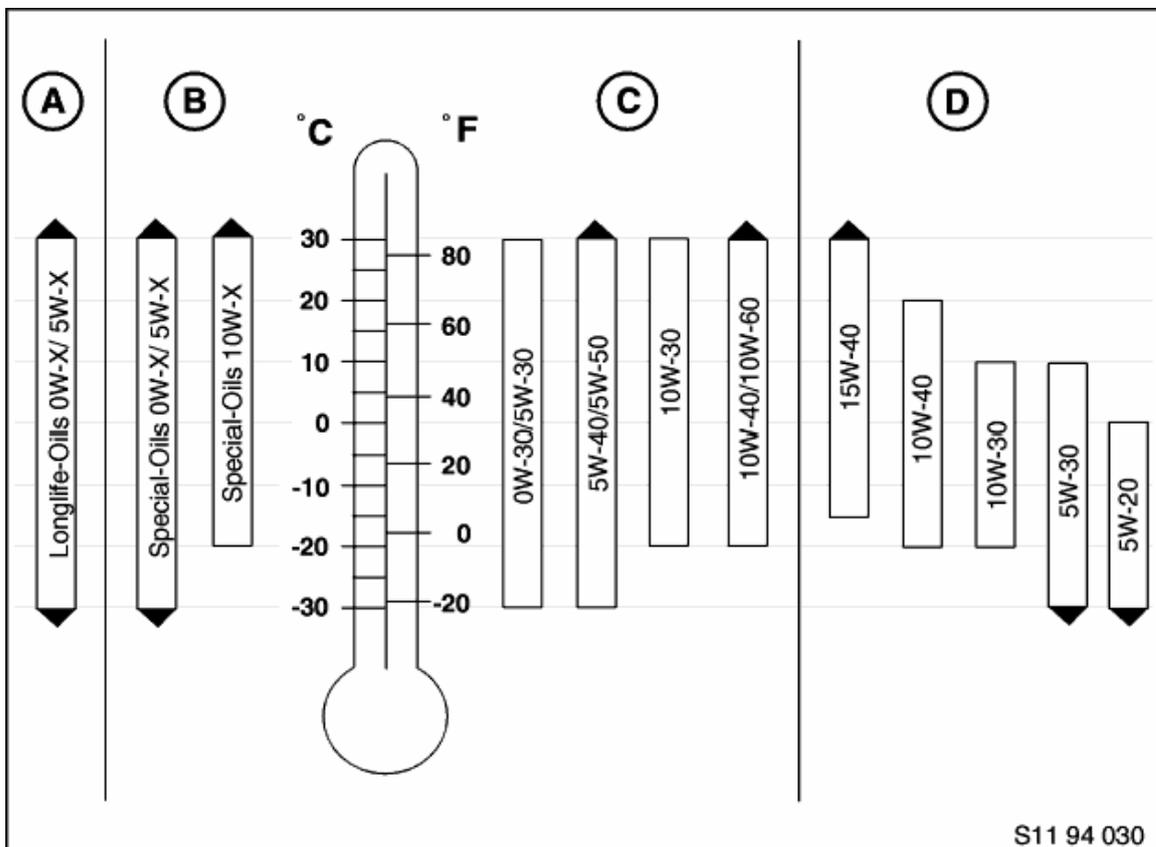
BMW special oils:

This oil standard has been approved by BMW for viscosity grades SAE 0W-X, SAE 5W-X and SAE 10W-X (where X stands for 30, 40, 50, or 60). SAE 0W-X and SAE 5W-X oils can be used anywhere in the world, at any time of year, regardless of ambient temperature. For SAE 10W-X oils there is a lower temperature limit of -20°C. Cold-starting difficulties may occur at lower temperatures.

ACEA specification:

The most suitable viscosity grade should be selected using the viscosity/temperature diagram. Here again, making the right choice will avoid the need for purely seasonal oil changes (e.g. SAE 15W-40 for central Europe). The temperature limits shown in the diagram may be exceeded for a short time. If the upper temperature limit is exceeded, high engine speeds and loads over a prolonged period should be avoided. If the lower temperature limit is exceeded, difficulties may be experienced in starting a cold engine.

Viscosity grades



A = Longlife oils (as per Enclosures 5, 6, 7)

B = Special oils (as per Enclosure 8)

C = ACEA specification for diesel engines (as per Enclosure 11)

D = ACEA specification for spark-ignition engines (as per Enclosure 11)