

Viscosity Classification of Automotive Gear Oil by Society of Automotive Engineers (SAE)

In accordance with engine oil classification, viscosity classification of automotive gear oil also falls into two groups, one group is grade “W” indicating low temperature properties, and the other group indicates the viscosity at 100 °C .

SAE J306-1998

SAE viscosity grade	Temperature/°C at which viscosity reaches 150000 (mPa·s), not higher than	Kinematic viscosity at 100°C	
		Not lower than	Not higher than
70W	-55	4.1	---
75W	-40	4.1	---
80W	-26	7.0	---
85W	-12	11.0	---
80	---	7.0	11.0
85	---	11.0	13.5
90	---	13.5	24.0
140	---	24.0	41.0
250	---	41.0	---

Note not to treat viscosity grade of engine oil as that of gear oil. Viscosity of SAE 80W gear oil is similar to that of SAE 20W-20, while SAE 90 gear oil to SAE 50 engine oil. Restriction of 150000mPa.s is adopted just because of the lubrication requirement of transmission bearing which may fail when viscosity is too high. Some transmissions demand engine oil with lower viscosity to ensure its smooth operation.