

A short lesson on Multigrades:

If you see an expression such as 10W-40, the oil is a multigrade.

This simply means that the oil falls into 2 viscosity grades, in this case 10W & 40.

This is made possible by the inclusion of a polymer, a component which slows down the rate of thinning as the oil warms up and slows down the rate of thickening as the oil cools down.

It was first developed some 50 years ago to avoid the routine of using a thinner oil in winter and a thicker oil in summer.

For a 10w-40 to attain the specification target a 10W ( W = winter) the oil must have a certain maximum viscosity at low temperature. The actual viscosity and the temperature vary with the viscosity grade but in all cases the lower the number, the thinner the oil, e.g. a 5W oil is thinner than a 10W oil at temperatures encountered in UK winter conditions.

This is important because a thinner oil will circulate faster on cold start, affording better engine protection.

For a 10w-40 to attain the other specification target a 40 oil must fall within certain limits at 100 degC. In this case the temperature target does not vary with the viscosity grade, if there is no "W", the measuring temperature is always 100degC. Again the lower the number the thinner the oil, a 30 oil is thinner than a 40 oil at 100 degC., which is typical of maximum bulk oil temperatures in an operating engine.

The engine makers are, of course, very well aware of this and specify oils according to engine design features, oil pump capacities, manufacturing tolerances, ambient temperature conditions etc. It is important to follow these guidelines, they are important and are stipulated for good reasons.

If the engine has been modified, the operating conditions may well be outside the original design envelope. The stress on the oil caused by increased maximum revs, power output and temperature may indicate that oil of a different type and viscosity grade would be beneficial.

Cheers  
Simon