

## WHAT ARE GEAR OIL GRADES?

The two most common grades of gear oils are SAE and ISO grades, with SAE for automotive and ISO for industrial applications.

### SAE-GRADE GEAR OILS

SAE grades are used to label all sorts of lubricants, but for gear oils, only SAE numbers of 60 or above are used.

Like monograde engine oil SAE grades, monograde SAE gear oil grades use a single number, with gear oils for cold seasons (Winter) using the identifier 'W' and oils for hotter, summer conditions using just a number. The higher the number, the more viscous the oil.

Multigrade SAE gearbox oil grades include two numbers separated by a 'W' (75W140, for instance), with the initial number before the 'W' indicating performance at 0°C and the number after showing the lube's performance at 100°C. As with monograde oils, the higher the number, the greater (stiffer) its viscosity.

### WHICH IS BETTER – HIGHER OR LOWER VISCOSITY?

Lower and higher viscosity oils are suited to different applications.

- Lower-viscosity (thinner) gear oils offer better protection and lubrication for high-speed gearboxes that are under relatively low loads thanks to their improved cooling abilities and thinner films which better coat fast-moving components.
- Higher-viscosity (thicker) gear oils offer thick films, better wear resistance and protection from corrosion, making them suited to slower gearboxes that operate under more intense pressures and loads. They also seal components better, affording longer change intervals.

### GRADE QUALITY

The base grade of a gear oil shows its underlying properties and is determined by a GL number:

- GL-1 to GL-3 – Basic and outdated oils for manual transmissions and axles that lack particular additives to cope with extreme pressures, friction and heat.
- GL-4 – The world's most common base oil grade, the oils of which contain good volumes of extreme pressure additives.
- GL-5 – Containing many more additives than GL-4 oils, GL-5s are used to create gear oils with extreme load resistance, protecting systems such as hypoid gears.