Oil Consumption, Measure (Z 22 SE, Z 20 LET)

General

The oil consumption of a combustion engine represents the amount of oil burned by the engine during operation. A clear distinction should be made between oil consumption and oil loss caused by leaks at the oil pan, cylinder head etc.

The purpose of the engine oil is to:

1. separate surfaces that slide on one another with an oil film, i.e. prevent dry friction.
2. dissipate the heat caused by friction;
3. Carry away combustion residues.

These tasks require a certain amount of oil consumption, and accordingly the expectation that progress made in the development of combustion engines will one day lead to an engine which does not consume any oil at all is unfounded. The oil consumption depends on the operating conditions, the driving style and the production tolerances. Under normal conditions the oil consumption is so low that no or barely any oil needs to be added between the specified oil changes. However, it is essential that oil is added if the oil level drops below the "MIN" mark on the dipstick. It is also extremely important to ensure that the oil level does not exceed the "MAX" mark, as this would cause excessive oil consumption.

As the oil consumption is due to technical factors, the correct interpretation of apparent non–consumption of oil by an engine is that the oil is being diluted as a result of specific operating conditions. Frequent cold starts, driving with a cold engine etc. cause the oil flowing back to the oil pan to carry non–volatile fuel components and condensation products. These dilute the oil and lead to the incorrect assumption that the engine is not consuming any oil at all.

Oil which has become diluted in this way loses its lubricating properties and can eventually lead to engine damage if the specified oil change intervals are not adhered to. The main causes for oil dilution are: driving the vehicle mostly in urban traffic and frequent driving at low engine speeds with a cold engine.

As the oil consumption does not stabilise until after a few thousand kilometres, oil consumption measurements do not yield realistic results until the vehicle has covered approx. 7500 km. Before measuring the oil consumption it is important to check that the engine is not losing oil as a result of leaks.

Note: The oil dipstick only performs a checking function and cannot be used for the measurement. The engine must always be switched off for at least 2 minutes before checking the oil level. If after an oil change the maximum engine oil filling does not correspond to the maximum level on the oil dipstick, this can be explained with the production tolerances.

All information regarding the permissible engine oil consumption and filling quantities is included in the Owner's Guide.

Measuring method

1 The test is performed with the vehicle level and the engine at operating temperature (minimum engine oil temperature **80 °C/176 °F**).

2 Switch off the engine and immediately drain the oil – drain time approx. 30 minutes (empirical value).

3 The amount of drained oil is measured in a measuring cylinder.[1)] and, using new oil, the engine is topped up to maximum fill capacity less the amount for the oil filter which has not been changed.

4 The customer must then drive the vehicle for at least 1000 km without adding engine oil (the driver should stick to his/her normal routes and driving style).

5 Afterwards the process described above (points 1 and 2) is repeated with exactly the same engine oil drain time.

6 The quantity of oil now missing from the measuring cylinder corresponds to the engine oil consumption for the mileage covered in the mean time.

7 The oil consumption is calculated as follows: Added oil quantity (l) – drained oil quantity (l) x 1000 ÷

distance driven = oil consumption (l/1000 km)

---

1) Measuring cylinder (transparent) with a volume of 1 to 2 litres.