Factors affecting truck fuel economy

Tyre rolling resistance

In addition to the recommended use of specific "fuel efficient" tyres, here are a few general comments concerning factors affecting tyre rolling resistance:

• Rib type tyres are better with regard to rolling resistance than block type tyres, this is mainly due to less movement of the tread pattern.

• Low aspect ratio tyres are stiffer, allowing for less flexing under load, thus they typically have lower rolling resistance compared to high aspect ratio tyres.

• Worn tyres have less rolling resistance than new tyres - as a truck tyre wears down, the tread pattern stiffens, which leads to less flexing in the tread area.

The use of fuel efficient tyres on all axle positions can make a significant difference in fuel consumption. A reduction of 10% of rolling resistance on a complete vehicle results in approximately 2% reduced fuel consumption (approx 0.8 litres/100 km on a vehicle which consumes 30 litres/100 km).

The importance of rolling resistance to a vehicle’s fuel economy is shown by the EU Tyre Label. From November 1, 2012 labelling information must be supplied with most heavy truck tyres sold in the European Union. This information is to help buyers make a more informed decision when purchasing tyres. The label covers ratings for fuel efficiency (rolling resistance), wet grip and exterior noise.

A high grading in fuel efficiency represents less rolling resistance and directly impacts on fuel consumption and the environment. With lower rolling resistance a tyre requires less energy to rotate so less fuel is used and, in turn less CO2 is emitted. A win-win situation.

Effects may vary according to the vehicle and driving conditions. However, the difference between a complete set of new A-class and F-class tyres could reduce a truck’s fuel consumption by up to 15%, which is equivalent to an annual saving of more than €7000*.

* Calculations based on tests made by the Goodyear Innovation Centre Luxembourg 2012 and on the following assumption: Average fuel consumption of vehicle 32.3l/100km → 323l/1000km → 14.7% potential savings = 47.5l less fuel consumption per 1000 km → fuel price 1.50 EUR/litre = 71.25 EUR/1000km → 100,000 km mileage/year = 7,125 EUR savings/year.
Factors affecting truck fuel economy

General considerations

Tyres are a number of factors that contribute to the amount of fuel a vehicle uses.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance. Although many others play a role, they can affect up to 1/3 of the vehicle’s total fuel consumption.

Each tyre creates drag. This is caused to a great extent by energy loss due to the deformation in the tyre as it travels over the road.

This drag is called rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.

The main parameters are vehicle weight, aerodynamic drag, mechanical losses, driving style and rolling resistance.