

# Toolbox: Tyre Comparison



## Tyres

As the contact point between the vehicle and the road, tyres play an important role in vehicle efficiency and, therefore, emissions.

Tyres with a low rolling resistance offer significant fuel savings for a given vehicle, when compared to typical tyres.

### Rolling Resistance

Rolling resistance is the force that opposes vehicle motion, caused by the deformation of the tyre. It is proportional to the weight of the vehicle – one of the cases for avoiding unnecessary loads – and the coefficient of rolling resistance (Crr) inherent to the tyres and their level of inflation.

Some tyres are designed to have a low rolling resistance. Selecting these tyres will deliver fuel savings compared to other tyres, all else being equal.

Underinflated tyres have a higher rolling resistance than tyres at the correct pressure. If you've ever ridden a bicycle with underinflated tyres, you know how much extra effort is required to get moving and stay moving. Similarly, a motor vehicle will work harder, consuming more fuel, when the tyres are underinflated.

Fuel consumption may increase by several percent when tyres are improperly inflated.

Remember to adjust your tyre pressure when you vary the load your vehicle carries or tows.

### Potential Fuel Savings

Selecting tyres with a low Crr and keeping them properly inflated could reduce fuel use by up to:

- 10% for heavy vehicles; and
- 7.5% for light vehicles.

### Reducing Rolling Resistance

There are three key things you can do to reduce rolling resistance and, therefore, reduce fuel consumption:

- Ensure the tyres are properly inflated and check them regularly (consider using a tyre pressure indicator to make it easy);
- When replacing tyres, choose tyres with a low rolling resistance; and
- Don't overload the vehicle – minimise the vehicle's net weight.

#### Further information:

Email: [DPTI.LowEmissionVehicles@sa.gov.au](mailto:DPTI.LowEmissionVehicles@sa.gov.au)

Web: [www.lowemissionvehicles.sa.gov.au](http://www.lowemissionvehicles.sa.gov.au)



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## Estimating Rolling Resistance Savings

When selecting new tyres, find out the coefficient of rolling resistance of the tyres you are considering, expressed in kilograms per tonne (kg/t).

If you cannot get this information, you may be able to get an estimate from the European Union's tyre rating scheme (many tyres are available in Australia and the EU):

EU Rating	Maximum Crr (kg/t) for Different Tyre Classes		
	Passenger Car	Light Truck	Truck / Bus
A	6.5	5.5	4.0
B	7.7	6.7	5.0
C	9.0	8.0	6.0
D	n/a	n/a	7.0
E	10.5	9.2	8.0
F	12.0	10.5	> 8.0
G	> 12.0	> 10.5	n/a

Whether you have the exact Crr or a range, annual fuel savings (as a percentage) can be roughly estimated by dividing the difference between the Crr of two sets of tyres by 100 for passenger tyres, by 75 for light trucks tyres and by 55 for heavy vehicle tyres.

For example, choosing passenger car tyres with an EU-rating of 'C' ( $7.7 < \text{Crr} \leq 9.0$ ) will reduce fuel use by about 3% compared to choosing tyres rated 'F' ( $10.5 < \text{Crr} \leq 12.0$ ):

$$(12.0 - 9.0) \div 100 = 3\%$$

You can project your fuel cost savings and greenhouse gas emissions reductions from this percentage reduction in fuel use.

If the low rolling resistance tyres cost more, and/or have a shorter rated life, you can use the fuel cost savings to determine the payback period. As the fuel savings are significant in many cases, an acceptable payback period is likely.

## Calculators

To make it easier, we've developed calculators to do the maths for you.

**Tyre Comparison**

Vehicle Type:

Fuel Type:

Vehicle Annual Travel:  km per year

Rated Fuel Consumption:  L per 100km

Fuel Cost:  cents per Litre

**Tyre 1**

Cost:  \$ per set

Rating:

**Tyre 2**

Cost:  \$ per set

Rating:

### Reading Tyre Codes

It helps to understand what the tyre codes mean if you plan to compare compatible tyres:

eg: **195 / 65R15 91H**

- 195 the width of the tyre (mm)
- 65 the ratio of the tyre sidewall to the width (as a percentage)
- R indicates a radial tyre
- 15 diameter of the wheel rim (inches)
- 91 code for maximum load per tyre
- H code for the tyre's rated speed

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### See Also:

- [Online Tyre Comparison](#)

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