

Buffing or shaving grooved tyres used for motor sport.

Buffing (often referred to as "shaving") tyres used for motor sport has been a common practice with motor sport competitors for decades. The process of buffing removes some of the tread rubber of a tyre, reducing its tread depth.

The thought of buying a new set of tyres and then buffing 50% or more of the tread seems wasteful, until the advantages of this practice are realised. Buffing tyres is common in classes of racing where grooved tyres must be used in all conditions on tarmac. This article explains the advantages & disadvantages of buffing tyres for motor sport use on tarmac.

The Basic Concept: All things being the same, a smooth or slick tyre provides optimum performance on dry tarmac. Where grooved tyres must be used on dry tarmac, minimising the groove area will improve grip and therefore reduce lap times. Buffing tyres reduces the groove or "void" area of the tread.

Toyo Proxes RA1 with original tread depth.



Toyo Proxes RA1 buffed to a tread depth of 3.0mm at tread centre & 2.5mm on the shoulder grooves.



Advantages of buffing tyres for motor sport use:

1. Reduced tread flex. Tread grooves effectively split the tread into "blocks". Cornering and braking forces cause the tread blocks to flex, which reduces the maximum amount of grip available. The smaller the tread blocks are, the more they will flex. Therefore, tread patterns with smaller tread blocks and / or greater tread depth will have more tread flex compare to tread patterns with less groove area. Tread flex also produces heat.

2. Reduced heat build-up for improved endurance. Tread-flex produces heat. In some applications this extra heat generation results in tread temperatures which are excessive, causing a reduction in grip levels. Racers often refer to this as "going-off". Reduced tread depths also improve the tyres' ability to dissipate heat and therefore maintain optimum temperatures (and therefore grip levels) for a longer period of time.

3. Reduced amount of inflation pressure build-up. A result of reduced heat build-up is reduced inflation pressure build-up. The more heat generated, the greater the amount of pressure build-up. Less variation in pressures produces more consistent tyre performance.

4. Slower wear rate. The reduction of tread flex and heat build-up means a much slower wear rate compared to a tyre with new tread depth (or similar to new tread depth) in the same using conditions.

5. Reduced amount of irregular wear. The reduction of tread flex, especially on the tread shoulders, reduces the severity of feathering of the tread blocks.

6. Faster dry lap times. This is the ultimate reason for buffing tyres.

Disadvantages of buffing tyres for motor sport use:

1. Cost. Buffing of tyres attracts extra charges.

2. Diminished wet track performance. While improving dry lap times, buffing tyres makes them unsuitable for use on wet tracks where there is standing water. Buffed tread depths makes tyres susceptible to aquaplaning. Tyres with new tread depth or close to new tread depth will provide optimum performance on tarmac where there is standing water.

Buffing of non-motor sport tyre tyres:

Buffing non-motor sport type tyres will improve their performance on dry tarmac for users who want improve tyre performance for "track days", with the same advantages & disadvantages as buffing motor sport tyres.

Degree of improved dry track performance from buffing:

This depends on the amount of groove area or void the tread pattern has with original tread depth. The more groove area a tyre has, the greater the improvement in dry track performance provided by buffing. There is minimal gains to be made by buffing some motor sport tyres that have minimal tread grooves.

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