HIGHER MATH

Calculating Diameters and Aspect Ratios Simple as 1-2-3

Aspect Ratio, also referred to as the profile or series, is determined by dividing a tire's section height by its section width. To obtain the correct measurements, it is important that the tire is inflated to its maximum air pressure, is mounted on the approved measuring rim, and is under no load.

In metric and P-metric sizing, the most common for passenger and P-metric light truck/SUV tires the Aspect ratio is noted as a two-digit number. This number reflects the tire's height as a percentage of its width. In size P255/50R16, the number 50 means the tire's height is 50% of it's width.

Tires with a lower Aspect Ratio, shorter sidewalls, respond better to lateral forces than a tire with a higher ratio. This is why lower Aspect Ratio tires provide better handling, cornering and steering response than tires with higher Aspect Ratios.

A lower profile tire also produces a wider and stiffer tread contact patch, which reduces tread element distortion and provides improved cornering traction. And Aspect Ratio impacts ride - lower profile tires usually deliver a stiffer ride than higher Aspect Ratio tires.

To calculate Aspect Ratio, divide the tire's section height by its section width as shown below. Measure the section height and section width in inches.

Section Height divided by Section Width = Aspect Ratio

Example: To determine the Aspect Ratio of the same P255/50R 16 tire:

5" Section Height in inches

10.2" Section Width in inches

5 divided by 10.2 = 0.4902 Aspect Ratio (round to 50 series)

The Overall Diameter of metric or P-metric sized tires can be easily calculated by using the tires stated size.

To calculate Overall Tire Diameter, you must first determine section height and section width. The section width already appears in the size. As an example: for size P225/50R16, the section width is 225 millimeters.

Convert the metric measure to inches by dividing by 25.4

225 divided by 25.4 = 8.86 inches.

Multiply the section height in inches by the Aspect Ratio (in this case, 50) to determine the section height.

8.86x50% =4.43 inches

Finally to calculate Overall Tire Diameter, multiply the section height by 2, then add the wheel diameter as noted in the tire size. In this example, the wheel diameter is 16 inches.

(4.43 x 2) + 16 = 24.86 inches - Overall Tire Diameter

These formulas will work for any metric or P-metric sized tire.

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