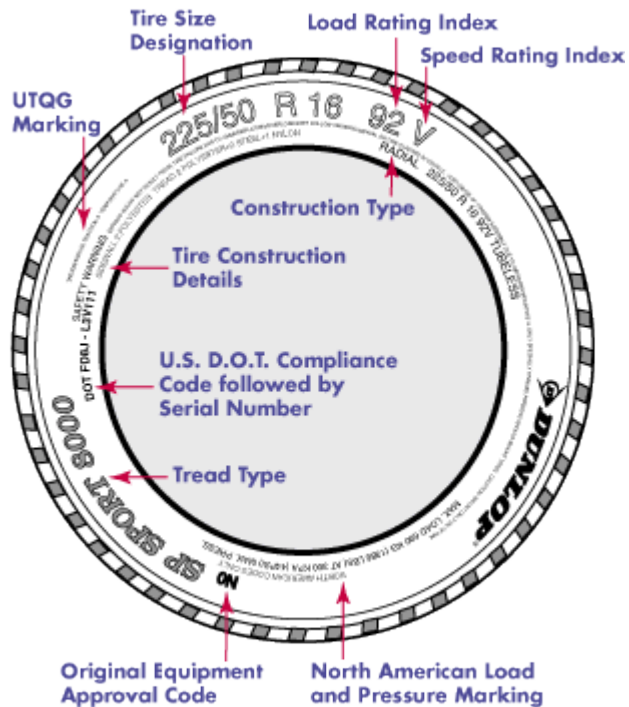


Sidewall Markings

There is a lot of information on the sidewall of a tire. Typically, you'll find UTQG ratings for treadwear, traction and temperature, the size of the tire, the load rating index number with a speed rating index, the construction type (bias or radial), the D.O.T. (Dept. of Transportation) compliance code, construction details, and of course, the make and model of the tire. On some tires used as original equipment, you may also find a marking that indicates its OE status. Porsche uses an N-0 or N-1 designation, BMW uses a star on some O.E. tires and General Motors uses a "TPC" code. Light Truck tires are sometimes marked with an LT for "Light Truck" before the size, passenger tires are often marked with the letter P for "Passenger" before the size. Passenger tires of the same size with or without the P are virtually interchangeable.



UTQG Ratings

The Department of Transportation requires each manufacturer to grade its tires under the Uniform Tire Quality Grade (UTQG) labeling system and establish ratings for treadwear, traction, and temperature resistance. These tests are conducted independently by each manufacturer following government guidelines to assign values that represent a comparison between the tested tire and a control tire. While traction and temperature resistance ratings are specific performance levels, the treadwear ratings are assigned by the manufacturers following field testing and are most accurate when comparing tires of the same brand.

Treadwear

Treadwear receives a comparative rating based on wear rate of the the tire in field testing following a government specified course. For example, a tire grade of 150 wears 1.5 times as long as a tire graded 100. Actual performance of the tire can vary significantly depending on conditions, driving habits, care, road characteristics, and climate.

Traction

Straight-a-head wet braking traction has been represented by a grade of A, B, or C with A being the highest. In 1997 a new top rating of "AA" has been introduced to indicate even greater wet braking traction. However, due to its newness, this grade will probably be applied initially to new tire lines as they are introduced and later to existing lines which excel in wet braking, but had been limited to the previous top grade of "A". Traction grades do not indicate wet cornering ability.

Temperature

Temperature resistance is graded A, B or C. It represents the tire's resistance to the heat generated by running at high speed. Grade C is the minimum level of performance for all passenger car tires as set under Federal Motor Vehicle Safety Standards. This grade is established for a tire that is properly inflated and not overloaded.

Note: UTQG ratings are not required on winter and light truck sized tires.

Calculating Tire Dimensions

Modern metric tire dimensions Example...185/60R14 85H or 185/60HR14

The first number is the width of the tire in millimeters, measured from sidewall to sidewall. To convert to inches, divide by 25.4 In the example above, the width is 185mm or 7.28".

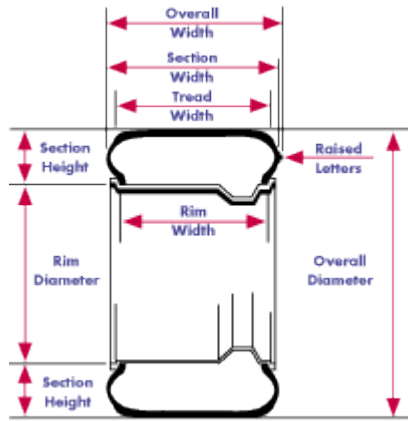
The second number is the aspect ratio. This is a ratio of sidewall height to width. In the example above, the tire is 7.28" wide, multiply that by the aspect ratio to find the height of one sidewall. In this case, $185 \times 0.60 = 111\text{mm}$ or $7.28" \times 0.60 = 4.36"$.

The last number is the diameter of the wheel in inches.

To figure the outside diameter of a tire, take the sidewall height and multiply by 2,(remember that the diameter is made up of 2 sidewalls, the one above the wheel, and the one below the wheel) and add the diameter of the wheel to get your answer.

Example...185/60R14 85H or 185/60HR14

$185\text{mm} \times .60 = 111\text{mm} \times 2 = 222\text{mm} + 355.6\text{mm}(14") = 577.6\text{mm}$ or 22.74"



Tire Size Conversion Chart

While today's P-metric passenger tire sizes have existed since the early 1980's, restoring classic muscle cars and ponycars has kept yesterday's Numeric and Alpha Numeric tires from disappearing. The chart below is intended to help you determine their equivalent P-metric tire sizes.

Two versions of numeric tire sizes were used as original equipment on vehicles between 1949 and 1970. The early numeric tires had the equivalent of a 90-series aspect ratio, while later tires offered a "lower" profile equivalent to a 80-series. These tires typically featured tread widths ranging from 3.5" for the smallest 13" rim diameter tires to about 5.5" for the largest 15" rim diameter tires.

To convert Numeric sizes to today's P-metric sizes, it is important to remember that early cars were not only equipped with narrow tires, they were equipped with narrow wheels as well. In most cases, numeric tires should be replaced with today's 80- or 75-series sized tires. This is especially important if the original wheels are to be used. Today's lower profile sizes will usually result in too wide a tire with too much gap between the wheel well opening and the top of the tire.

For example: The 1965 Ford Mustang's 6.95-14 would be replaced with a P185/75R14.

Tire Size	Overall Diameter	Section Width	Load Capacity
6.95-14	25.3"	7.0"	1230 lbs @ 32 psi
P185/75R14	25.0"	7.2"	1290 lbs @ 35 psi

Alpha numeric tire sizes were introduced as original equipment in the late 60's and became widely used in the early 70's. These tires were identified with a letter which indicated the tire's load capacity, followed by a "R" if radial ply construction, the tire's aspect ratio and wheel diameter. So while G78-15 (28.01"), G70-15 (27.5") and G60-15 (26.4") sized tires are all rated to carry the same load, their different aspect

ratios resulted in tires with the overall diameters indicated above.

To convert Alpha Numeric tires to P-metric sized tires, it is important to identify the original tire's aspect ratio. The 78-series Alpha Numeric tires should be replaced with today's 80-, or 75 series tires. If the vehicle was equipped with the low profile 70-, 60- or 50-series sizes, the P-metric substitution should be selected from the P-metric size column that offers the equivalent aspect ratio as the existing tire.

For example: The 1970 Chevrolet Camaro Z-28 F60-15 would be replaced with a P235/60R15 (selected from the P-metric 60-series column).

Tire Size		Overall Diameter	Section Width	Load Capacity			
F60-15		25.9"	9.2"	1500 lbs @ 32 psi			
P235/60R15		26.1	9.5"	1642 lbs @ 35 psi			
1949 to 1964	1965 to 1970	1970 to 1980	1980 - On				
NUMERIC		ALPHA NUMERIC	EUROMETRIC	P-METRIC	EUROMETRIC or P-METRIC		
"90" to "80"-Series	78 to 50-Series	"82"-Series	80-, 75-series	70-series	65-series	60-series	50-series
		145R10		165/70R10			
		145R12	P145/80R12	165/70R12			
	6.00-12	155R12	P155/80R12				
					165/65R13		
		145R13					
		155R13	P155/80R13	175/70R13		195/60R13	215/50R13
5.60-13	6.00-13	A	165R13	P165/80R13	185/70R13	205/60R13	
	6.50-13	B	175R13	P175/80R13			
		C		P185/80R13			
	7.00-13	D	185R13				
		195R13					
					175/65R14		
6.00-14	6.45-14		155R14		175/70R14	185/65R14	

		B	165R14	P175/75R14	185/70R14	195/65R14	205/60R14	
6.50-14	6.95-14	C	175R14	P185/75R14	195/70R14		215/60R14	
		D						
7.00-14	7.35-14	E	185R14	P195/75R14	205/70R14		225/60R14	245/50R14
7.50-14	7.75-14	F	195R14	P205/75R14	215/70R14		235/60R14	
8.00-14	8.25-14	G	205R14	P215/75R14	225/70R14		245/60R14	265/50R14
8.50-14	8.55-14	H	215R14	P225/75R14				
9.00-14		J	225R14					
9.50-14		L						
	5.60-15	A	155R15	P155/80R15		185/65R15	195/60R15	
6.00-15		B	165R15	P165/80R15	185/70R15	195/65R15	205/60R15	225/50R15
6.50-15	6.85-15	C	175R15		195/70R15	205/65R15	215/60R15	
		D						
	7.35-15	E	185R15	P195/75R15	205/70R15	215/65R15	225/60R15	
6.70-15	7.75-15	F	195R15	P205/75R15	215/70R15		235/60R15	
	8.15-15							
7.10-15		G	205R15	P215/75R15	225/70R15	235/65R15	245/60R15	265/50R15
	8.25-15							
	8.45-15							
7.60-15		H	215R15	P225/75R15	235/70R15		255/60R15	275/50R15
	8.55-15							
8.00-15	8.85-15	J	225R15	P225/75R15	235/70R15		265/60R15	
8.20-15	9.00-15	K						
	9.15-15	L	235R15	P235/75R15	255/70R15		275/60R15	295/50R15
		N						305/50R15

• Listing in chart does not imply complete interchangeability.

• When changing tire sizes, dimensional clearances must be checked.

Each row of the above chart is roughly the same diameter tires, but the width varies by column, and the diameters are not exact matches.

Diameter Comparison

While this chart certainly doesn't guarantee a specific tire will fit your vehicle, it can give you an idea of the tire sizes with the same diameter.

Approx. Tire Diameter (in Inches)	P-metric and European Metric			LT-metric		Light Truck	Light Truck
	75-series and Higher	70- and 65-series	60-series and Lower	85-series	75-series and Lower	Flotation	Numeric
34 1/2						35X12.50R15LT	
33 1/2				LT255/85R16			
33					LT285/75R16		
32 1/2						33X12.50R16.5LT	
						33X12.50R15LT	
31 1/2		P275/70R16		LT235/85R16	LT265/75R16	32X11.50R15LT	7.50R16
30 1/2	P265/75R15	265/70R16	285/60R17	LT215/85R16	LT285/60R17	31X10.50R16.5LT	9.50R16.5LT
					LT245/75R16	31X11.50R15LT	
					LT325/60R15	31X10.50R15LT	
30		P255/70R16	P275/60R17				
29 1/2		P245/70R16	265/60R17		LT225/75R16	30X9.50R15LT	8.75R16.5LT
							7.00R15
29	205R16	255/65R16	255/55R18		LT235/75R15		
	205/80R16	P235/70R16	255/60R17				
	P235/75R15	P255/70R15					

28 1/2	P225/75R15	P225/70R16			LT225/75R15	29X9.50R15LT	8.00R16.5LT
		P245/70R15					
28		215/70R16	P255/55R17 P275/60R15				
27 1/2	P215/75R15	P225/70R15			LT215/75R15		
27	P205/75R15	P215/65R16	255/50R17		LT205/75R15		
			P305/50R15				
			P255/60R15				
26 1/2	P195/75R15	P225/70R14	P295/50R15		LT195/75R15	27X8.50R14LT	
			P245/60R15				
26	P205/75R14	P215/65R15	P235/60R15				
	185R14	P215/70R14					
25 1/2	P195/75R14	P205/70R14	P225/60R15				

P-Metric and Euro Metric Sizing

What's the difference between the tire sizes of P225/60R16 and 225/60R16? The obvious answer is the "P" in front of the first size, but just what does the "P" stand for and what does it tell us about the tires?

P-metric sized tires are the ones with the "P" at the beginning of the tire size, (such as P225/60R16 listed above). They were introduced in the United States in the late 70s and are installed on vehicles primarily used to carry passengers including cars, station wagons, sport utility vehicles and even light duty pickup trucks. Their load capacity is based on an engineering formula which takes into account their physical size (the volume of space for air inside the tire) and the amount of air pressure (how tightly the air molecules are compressed). Since all P-metric sizes are all based on the formula for load, vehicle manufacturers can design their new vehicles (weights and wheel well dimensions) around either existing or new tire sizes.

Metric or Euro metric sized tires are the ones without the "P" at the beginning, (such as 185R14 or the 225/60R16 listed above). Using metric dimensions to reflect a tire's width actually began in Europe in the late 60s. However, since Euro metric sizes have been added over time based on the load and dimensional requirements of new vehicles, the tire manufacturers designed many new tire sizes and load capacities around the needs of new vehicles. Not quite as uniform as creating sizes using a formula, but they got the job done.

Euro metric and P-metric tires in the same size (i.e. P225/60R16 & 225/60R16) are equivalent in their dimensions with just slight differences in their load capacity calculations and inflation pressure tables. So if Euro metric and P-metric tires have the same numeric size, the same

tire performance category and the same speed rating, the two are considered equivalent and interchangeable if used in axle pairs or sets of four. Simply continue to follow your vehicle manufacturer's recommended inflation pressures provided in the vehicle's owner's manual or on the vehicle tire placard (usually found on the door jamb or on the glove box or counsel door) for either size tire.