

## Safe riding with our motorcycle tires

Improving road safety for all riders is our commitment. We are here to help you ride safely!

### Your safety is our priority

The tire plays a major role since it is the only link between the ground and the vehicle. So it is important to choose the right tire for the right usage.

Michelin helps you choose your tires and maintenance, and to identify handling difficulties.



#### Why do tires matter?

Tires play an essential role because they are the only link between the vehicle and the road.

#### Maintain your tires

To get the most out of your tires you'll need to maintain them properly. It's not as complicated as it sounds, and we're here to help.



#### Recognize handling difficulties

It isn't always easy to get to the bottom of the reasons for different performance issues. Tires aren't always the only factor to consider.

#### When should I change my tires?

Worn tires can ruin your vehicle's performance and even endanger you or your loved ones.



#### Safe riding tips

Check out our tips on riding safe in a group and with a passenger.

#### Riding safely in winter

Raise your body temperature by getting active. Move around on your motorcycle, one leg after the other, one arm and then the next.



#### Improving road safety

Governments, international organizations and businesses must step up their efforts to make roads safer for everyone, and run awareness-raising and training schemes for all road users.



## Improving road safety for everyone

Michelin is keen to step up to the plate in a bid to save more and more lives.



### The challenge of making our roads safe

Every year, 1.2 million people are killed and another 50 million injured in traffic accidents, which are the leading cause of death among young people. Governments, international organizations and businesses must step up their efforts to make roads safer for everyone, and run awareness-raising and training programs for all road users.

### Awareness-building campaigns

Michelin committed to the European Road Safety Charter in 2004 and is helping to improve road safety by conducting road safety awareness-building and training campaigns for road users. To date, Michelin has focused its efforts on 15 European countries, as well as working in Africa, America and Asia. After India, the Group ran campaigns for young people and newly-licensed drivers in the United States and Brazil in 2014, before shifting its focus to China in 2015.

The Group is involved either directly or in collaboration with international bodies.



## Recognize tire handling difficulties

It isn't always easy to get to the bottom of the reasons for different performance issues. Performance issues may be caused by the tires (e.g. type of tire, incorrect pressure) and/or a change to the vehicle (e.g. accessories, load). Tires aren't always the only factor to consider.



### Kickback

A sharp sideways movement at the front (fork moving back and forth), it is intermittent and very fast, usually occurs during acceleration, and is set off by an external impact (a bump, join in the tarmac).



### Shimmy

A sustained sideways wobbling of the front fork at low speeds (<60 mph/100 km/h) whilst slowing down.



### Weaving

A wave-like movement of varying severity that may occur when riding in a straight line or on a curve, and usually appears at an average speed of around 90 mph (140 km/h).



### Vibrations

These occur throughout the whole front fork/wheel, usually at speeds of around 55 to 80 mph (90 to 130 km/h).

### Tires are not always the only issue

Weight distribution has a significant impact on whether or not a vehicle will develop a problem. The addition of accessories or modifications (non original top boxes, bags, fairings, windscreen, handles, seat, wheels, etc.) may also play a part in performance.



## How do I read a tire size?



- 1 Tubeless:** No tube is used, when mounted on a tubeless rim; abbreviated "TL"
- 2 Rear:** Direction of rotation for rear tire, indicated by an arrow on the tire sidewall
- 3 Michelin:** Tire manufacturer
- 4 73 Load index:** For example, 73 corresponds to a load of 805 pounds (365kg) per tire
- 5 Radial**
- 6 Pilot Power 3:** The tire's model name
- 7 190:** Nominal section width of the tire, expressed in millimeters
- 8 55:** Aspect ratio, the sidewall height as a proportion of the tire width
- 9 R:** Radial construction
- 10 17:** Bead-seat diameter of the wheel, expressed in inches (1 inch = 2.54 cm)



## Tire speed index and load index

### Speed rating

The speed rating code indicates the maximum speed at which a tire can carry the load indicated by its load index under the conditions of use specified by the manufacturer.

Index	km/h												
R	50	K	70	F	100	M	130	Q	160	T	190	S	240
C	60	F	80	K	110	N	140	R	170	U	200	V	>240
D	65	G	90	L	120	P	150	S	180	N	210	W	270

Index	kg	Index	kg	Index	kg	Index	kg	Index	kg	Index	kg	Index	kg
20	80	30	106	40	140	50	190	60	230	70	283	80	400
21	82.5	31	109	41	145	51	195	61	237	71	285	81	402
22	85	32	112	42	150	52	200	62	245	72	295	82	405
23	87.5	33	115	43	155	53	205	63	250	73	295	83	407
24	90	34	118	44	160	54	212	64	260	74	305	84	410
25	92.5	35	121	45	165	55	218	65	270	75	310	85	415
26	95	36	125	46	170	56	224	66	280	76	320	86	420
27	97.5	37	128	47	175	57	230	67	290	77	330	87	425
28	100	38	132	48	180	58	236	68	300	78	340	88	430
29	103	39	136	49	185	59	243	69	310	79	350	89	435

### Load index

This is a numerical code that indicates the maximum load that a tire can carry at the speed indicated by its speed index in the conditions of use specified by the manufacturer.



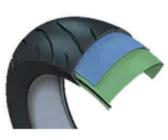
## Radial or bias tires?

There's a lot of diversity in the world of motorcycles and scooters. Michelin uses two tire builds to make sure it has something for everyone: bias (or diagonal) tires and radial tires.



### Bias (or diagonal) tires

The carcass of a bias tire is made from layers of ply cord running diagonally to the center line of the tread. The layers are placed so that the cords create a criss-cross pattern. The whole structure is uniform throughout; the crown and sidewalls of the tire have similar mechanical properties.



### Radial tires

With a radial construction, the ply cords radiate out at 90-degree angles to the center line of the tread. In addition, the crown is made from layers that form a belt. As a result, the crown and sidewalls have their own particular characteristics.

### Two kinds of tires for specialized performance

Due to their soft sidewalls, the crowns of radial tires stick to the road on contact. Their footprint, shorter but wider than that of a bias tire, provides added grip when leaning in heavily on corners. The pressure of the air in contact with the tire surface is distributed more effectively with radial tires, which results in more even tread wear over time.

Radial tires also provide greater comfort at higher speeds, once again as a result of their soft sidewalls, which absorb the impact of imperfections on the road surface. On the other hand, bias tires are able to carry a greater weight because their sidewalls are more rigid. At high speeds, bias tires can become so deformed that their performance is affected. Ultimately, bias tires are suitable for vehicles traveling at moderate speeds, with small to medium-sized engines and flexible chassis. They are also suited to heavy or heavily loaded motorcycles. Radial tires are needed for more powerful vehicles with very rigid chassis and for more sporty purposes. They allow you to reach 2R speed ratings, above 150 mph.



## Tire wear and tear

Why do some tires wear out faster than others?



A tire's final mileage may depend on various factors:

Some of these are within the motorcyclist's control: tire pressure, load, vehicle speed, riding style (braking and accelerating).

Others are not and would mean changing the kind of riding you're doing:

- Road use: road curviness, surface type
- Off-road use: Kind of terrain (sand, gravel, mud, etc.), ambient temperature

A single factor on its own may have only a small impact on a tire's mileage; however, if many factors come together there will be much more wear and tear.

Most of a tire's grip on the road comes from the treads. As they wear down, they lose their ability to drain away water. It is therefore important to ride more slowly on wet surfaces.

Remember to check your tires regularly for wear.

### How to check tire wear?

You should always check for wear at several points on the tire.

Checks can be carried out with a depth gauge or using the tread wear indicators molded into the tread (with a symbol visible from the side where present). If the legal or technical limit has been reached, the tire should be disposed of and replaced.

### When and how to check your tires?

Tires should be checked regularly to pick up any unusual deformation or damage. Follow the steps below in order:

- Tread: Look for any foreign objects, cuts, localized damage or unusual wear
- Sides: Look for impact damage (pavement, potholes, etc.), cuts, cracks or unusual deformities
- Area around the rim/bead chafe: Look for marks made by scrapes or damage to the rim.

All fissures, cuts and visible deformations in the tire tread, the sides, or the area where the tire meets the wheel should be examined in detail (internally/externally) by a tire professional. The same applies to any deterioration of the rim.

Under no circumstances should you re-mount tires that show damage such as a deformed or visible bead, rubber or layers becoming unstuck, damage by oily or corrosive substances, marbling or abrasions to the inner rubber as a result of riding with insufficient tire pressure.

During each vehicle inspection, check that the valve dustcaps are in a satisfactory state. If in doubt, replace them.

## The right tires for the right usage



### Commuting Tires

You use your motorcycle/scooter for your job or for traveling to and from your place of work. Your vehicle feels the effects of life in the city: frequent stops at traffic lights, dodging other vehicles, damaged road surfaces... and you ride whatever the weather, all year round. Your tires need to be hard-wearing and help you travel safely for as long as possible.



### Off-Road Tires

Cross, Enduro, Trial and Rally are all-terrain activities that require tires with optimal grip and traction. MICHELIN offers a full range of competition tested tires, suited to your needs and to every kind of terrain (sand, mixed, soft, hard, etc.) you might encounter.



### Track Tires

Tested and proven on the racetrack, our range of track tires features advanced technology that has shown on some of the world's most demanding circuits. High performance tires for added grip and total enjoyment.



### Adventure - All Terrain Tires

A beautiful road, beautiful hills, beautiful sunshine: it's time to hit the road! With MICHELIN tires, there's no need to choose between the ride of your life and a safe day out.



### Retro - Vintage Tires

For fans of scooters and motorcycles, MICHELIN has designed a range of retro tires with a decorative touch. Be sure to stand out from the crowd when you ride, with no compromise on stability and grip.



### Touring Tires

Looking for adventure? Our tires will follow you on your journey along smooth roads or off the beaten track in search of new experiences. Our aim is to provide you with tires that last and can go anywhere while providing the highest level of comfort and confidence.