

MICHELIN PILOT SPORT 3

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Media Relations: + 33 1 45 66 15 53



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On-Road, Environmental and Technological Performance: a Winning Trio with the New MICHELIN Pilot Sport 3

In a world premiere, Michelin is unveiling the brand new MICHELIN Pilot Sport 3, the only tire to combine outstanding on-road performance with environmental features that are unrivalled in its category.

The MICHELIN Pilot Sport 3 delivers superior grip. On wet surfaces, it holds the road better when cornering and stops three meters shorter* than its predecessor, the reigning benchmark sports tire**. In addition, the new tire provides highly precise steering for an enjoyable driving experience. That's why MICHELIN can say that its new high-performance tire delivers "enhanced driving sensations." What's more, unlike any other sports tire, it also boasts outstanding fuel efficiency and extended mileage among its dynamic qualities.

Intended for a wide variety of vehicle categories, the MICHELIN Pilot Sport 3 is suitable for sporty city cars, compacts and large, powerful sedans as well as small sports cars, such as roadsters and coupes, with the extra-large 18 to 19-inch range serving as optional equipment on non-sporting models. In automotive industry terms, the tire will cover every vehicle segment from class A to E1.

In addition to this broad range of applications, the MICHELIN Pilot Sport 3 is designed to be a truly global tire. The tire is being introduced in early 2010 in replacement markets around the world – South America, Europe, Africa, the Pacific and Asia – and will be launched in North America one year later. Importantly, the new MICHELIN Pilot Sport 3 has already been certified by several car manufacturers even though dealer sales are only just starting. Some carmakers have approved the tire for use on their signature sports car models, such as the new Audi A5 and the new Mercedes E 63 AMG. This promising start attests to the all-round excellence of the MICHELIN Pilot Sport 3.

Michelin's latest car tire is a good illustration of the Group's strategy, which is never to sacrifice one performance feature for another. This means improving performance in several different areas simultaneously, a prerequisite to making any real progress. To achieve this balance, the MICHELIN Pilot Sport 3 has been built with unique, highly advanced technologies, such as the Green Power Compound, the Anti Surf System and Programmed Distortion tire architecture, all developed at Michelin's own Technology Center.

*Test performed in 2009 by independent technical services firm TÜV SÜD Automotive on size 245/40 ZR 18 Y tires.

**The MICHELIN Pilot Sport range is certified for use on more than 200 models.

Safety, Driving Enjoyment and Energy Efficiency with the MICHELIN Pilot Sport 3, the First Responsible Sports Tire

Enjoyable driving without any of the drawbacks may seem like a dream, but with the MICHELIN Pilot Sport 3 it's a dream come true.

The tire was designed to provide superior driving sensations. While some may consider driving to be a subjective experience, for Michelin it's a hard-and-fast reality. The fact is that the MICHELIN Pilot Sport 3 delivers highly precise steering, which enables the driver to maintain perfect control at all times and know exactly how the car will respond to the slightest turn of the steering wheel.

This pleasurable driving experience is coupled with safety. Statistics gathered in Europe show that accidents tend to occur during changing weather conditions. When tire grip weakens, cornering and braking become critical safety issues. Leveraging unique technologies (see page 6), the MICHELIN Pilot Sport 3 provides superior grip and traction on wet roads. According to a comparative study by the independent German technical services firm TÜV SÜV Automotive, the new **MICHELIN Pilot Sport 3 delivers better grip when cornering and brakes three meters shorter* than its predecessor**, which has long been recognized by carmakers for its road-holding capabilities**. This is clear proof of the superior performance of the new generation of Michelin tires.

These qualities are part of the package that makes the MICHELIN Pilot Sport 3 a responsible sports tire, since it enhances enjoyment without introducing any risk. However, the package would not be complete without the added advantage of energy efficiency. That's because the true technological challenge in tire design is to improve performance across the board.

The new MICHELIN Pilot Sport 3 meets this challenge by providing enhanced safety while also reducing fuel consumption. This benefits not only the car's owner, who saves money, but also the environment, since CO₂ emissions are reduced accordingly. **In addition to its energy efficiency, the MICHELIN Pilot Sport 3 increases mileage by a remarkable 10%** compared with the MICHELIN Pilot Sport PS2, which was until now the benchmark for mileage in its category***. This performance has the positive effect of reducing raw materials consumption. In other words, fewer tires will need to be manufactured to cover a given distance and fewer end-of-life tires will need to be disposed of.

*Test comparing the MICHELIN Pilot Sport 3 and the MICHELIN Pilot Sport PS2 carried out in 2009 on size 245/40 ZR 18 Y tires.

**The MICHELIN Pilot Sport range is certified by carmakers for use on more than 200 models.

***In-house tests performed on the size 225/45 ZR 17 91 Y tire.

To attest to this energy efficiency Michelin displays its GREEN X marking on the tire's sidewalls.



All in all, the new MICHELIN Pilot Sport 3 delivers a winning trio, simultaneously enhancing safety, driving enjoyment and environmental performance.

In combining these features, Michelin has effectively addressed the needs of sports vehicle users. In 2008, Institut TNS Sofres conducted a qualitative survey of more than 100 individual sport car owners in Germany, the United Kingdom and Italy. The survey clearly showed that consumers expect three things from their tires. They want to enjoy driving without sacrificing safety or having to replace tires too often.

Defining these needs seems easy enough, but incorporating the right solutions into a single tire like the new MICHELIN Pilot Sport 3 represents a formidable high-tech challenge. Michelin has met that challenge thanks to a number of innovations.

Innovative Materials, Design and Architecture for the MICHELIN Pilot Sport 3

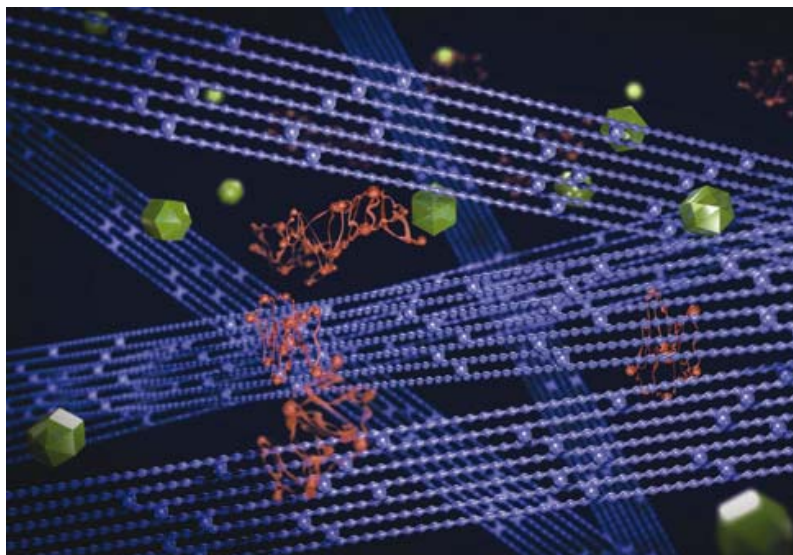
To ensure that the new MICHELIN Pilot Sport 3 delivers enhanced safety on wet roads, steering precision on dry roads and long tread life, Michelin's Research and Development teams have created an integrated product based on technological achievements in the areas of materials, shape and tire architecture.

First, Michelin has developed the **Green Power Compound**, a unique rubber formula that for the first time combines the three above-mentioned technological innovations. The new compound is designed to ensure the best possible grip on wet roads.

Second, Michelin has created the **Anti Surf System**, a specially shaped shoulder that evacuates large volumes of water (*see p.8 for details*).

Lastly, Michelin has invented the **Programmed Distortion Tire** architecture system (*see p. 8 and 9 for details*). This innovation improves steering precision while at the same time increasing tread life.

➤ The Green Power Compound delivers superior wet grip, fuel efficiency and mileage



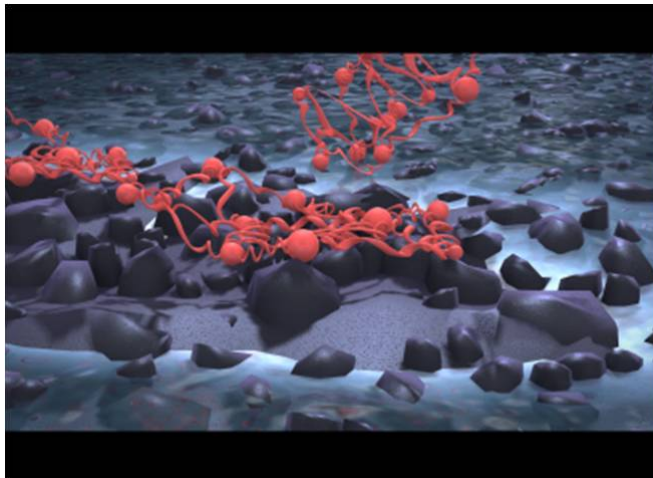
To get to the heart of the matter, this magnified view of the MICHELIN Pilot Sport 3 rubber compound reveals three innovative features integrated for the first time in a tire in this category, each of which plays a specific role:

- The molecular chain illustrated in red in the image corresponds to a newly developed elastomer that improves wet grip.
- The blue chains also correspond to a unique

elastomer, which in this case lengthens tread life.

- Silica particles are shown in green. Integrated into the rubber compound, they help to reduce fuel consumption.

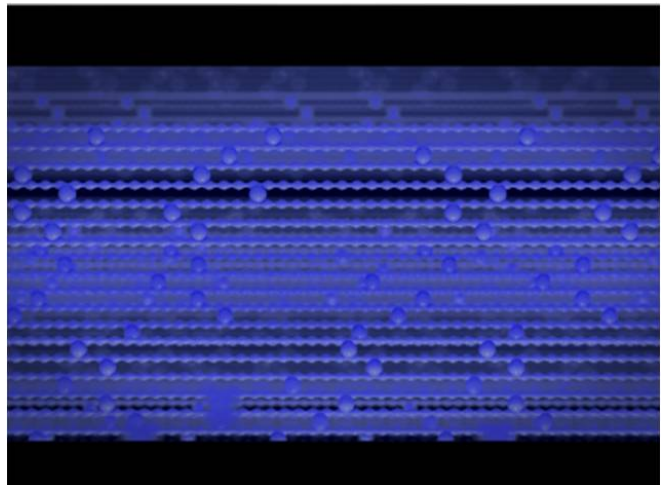
- **The Wet Grip Elastomer, a polymer that adheres to asphalt, even when wet**



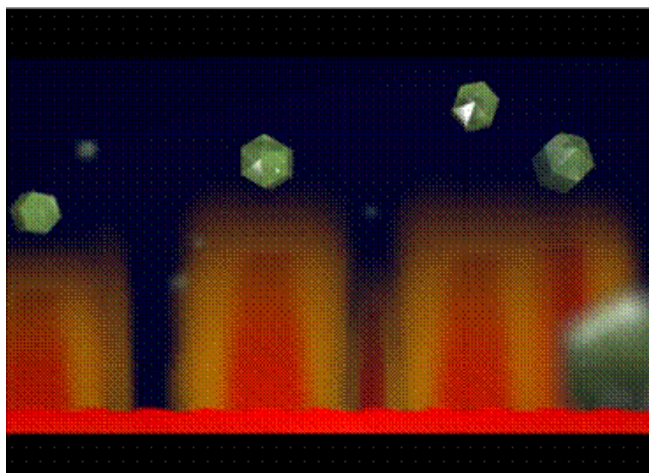
Michelin's Wet Grip Elastomer is a polymer that is both very dense and extremely flexible. These properties enable the tread to break through the water's surface and adhere to even the smallest dry surface. Thus, the Wet Grip Elastomer plays a key role in wet-road braking.

- **The Long Lasting Elastomer, a defining factor in mileage performance**

Also embedded in the rubber compound is another polymer characterized by its exceptional durability. With every turn of the wheel, the Long Lasting Elastomer is stretched to the limit yet never breaks. By maintaining the rubber compound's integrity, it improves tire longevity.



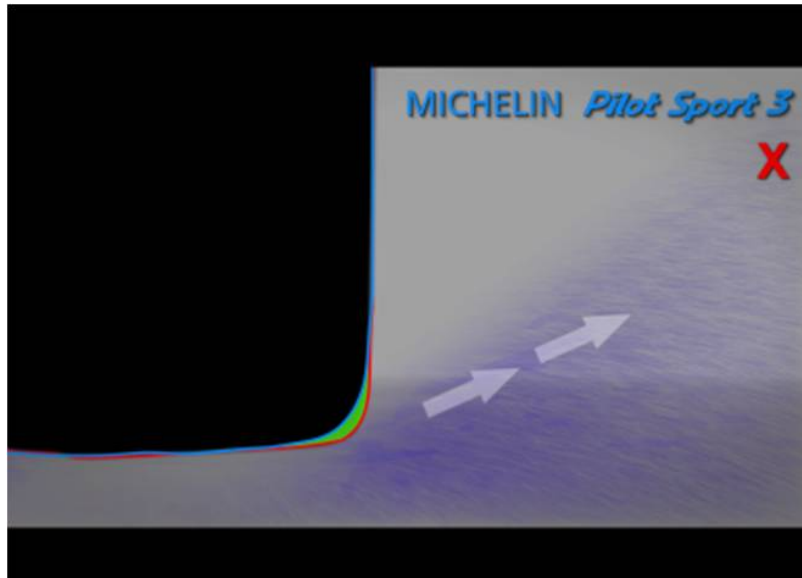
- **Silica, a key component for reducing fuel consumption**



With each rotation of the wheel, the tire is deformed under the weight of the load when it makes contact with the road. As its structure is deformed, the components heat up and some of the energy transmitted by the engine is lost. The silica incorporated into the rubber helps to limit this heat build-up, making it possible to reduce fuel consumption and, consequently, CO₂ emissions.

➤ Enhanced water evacuation with the Anti Surf System

In order to brake three meters shorter than its predecessor, the MICHELIN Pilot Sport 3 relies on the unique Wet Grip Elastomer (*detailed on p. 7*), but research and development teams went even further, improving the tire's design. More specifically, they focused on the shape of the shoulder, rounding it to evacuate larger volumes of water.



Conventional tires have a square profile when seen from the front. The image to the left illustrates the outline of such tires in red.

Michelin's Anti Surf System, shown by the rounded profile to the left of the green area, reduces the risk of hydroplaning. Compared with a traditional tire with the same size contact patch, the MICHELIN Pilot Sport 3 is better at keeping its

shoulders out of the water.

➤ Programmed Distortion Tire architecture for more precise steering on dry roads and better overall mileage

Steering precision and responsiveness are closely related to the rubber's temperature and its resulting deformations.

The MICHELIN Pilot Sport 3 features original technology that addresses this issue by keeping the rubber tread at an optimal temperature in all circumstances. At low speeds, the tread heats up quickly to attain the level of flexibility required for good traction. At high speeds, it stiffens to prevent excessive temperature build-up.

This performance is the result of 50,000 hours of simulation testing. The tread was designed and manufactured using Dassault Systems Catia® software, a 3D-design application that has established itself as the benchmark in the automotive, aviation and aerospace industries. Road trials totaling 100,000 km were then carried out to validate the technology's effectiveness.

See illustrations below.

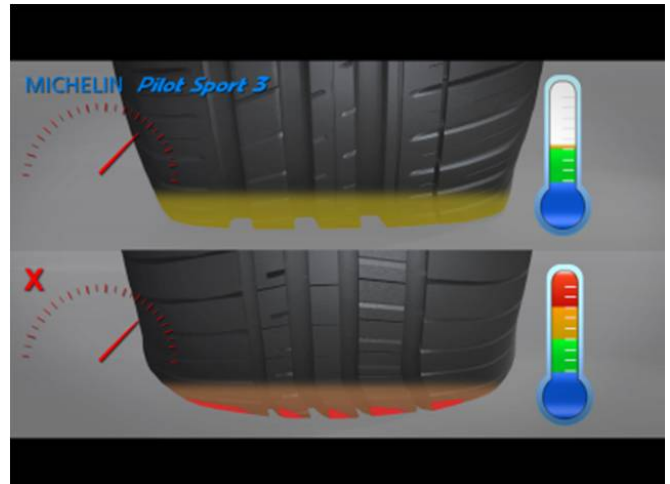
Programmed Distortion Tire technology on the MICHELIN Pilot Sport 3

Tire at low speed



The MICHELIN Pilot Sport 3 (top) rapidly attains its optimal functional temperature, improving its flexibility and therefore grip. The standard tire (bottom) remains at a low temperature.

Tire at high speed

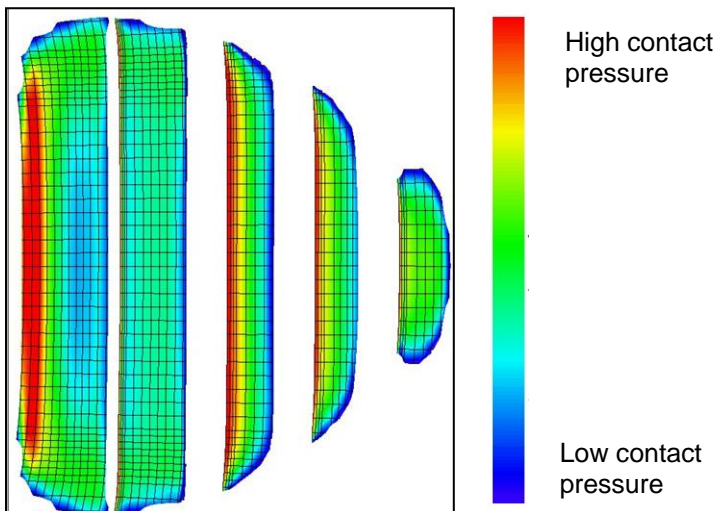


Thanks to Programmed Distortion, the tread on the MICHELIN Pilot Sport 3 (top) stiffens at high speeds. This prevents the overheating that affects standard tires (bottom).

MICHELIN Pilot Sport 3

Tire cornering

Contact pressure (daN/mm²)

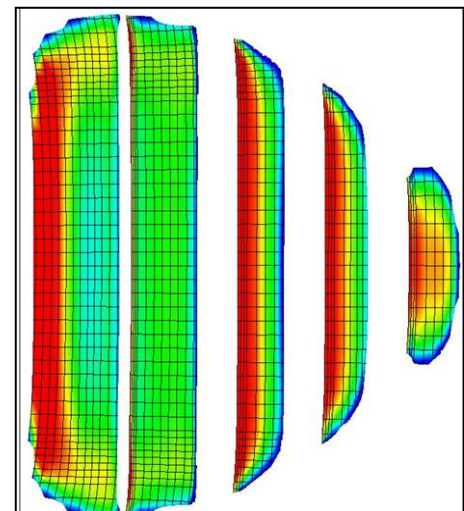


When cornering, the contact pressure of the MICHELIN Pilot Sport 3 is constant and evenly distributed, as is shown by the predominance of green in the illustration above. There is no excessive heat build-up, which enhances steering precision and extends tread life.

Standard tire

Tire cornering

Contact pressure (daN/mm²)



On a standard tire, pressure and subsequent heat build-up are very pronounced, as illustrated by the red above, resulting in a loss of steering precision. The rubber can tear in overheated zones and mileage is considerably reduced.

From the Racetrack to the Road, the Prestigious Pedigree of the MICHELIN Pilot Sport 3

Michelin Group allocates more than €500 million a year to R&D. Whether for cars, motorcycles, trucks or other vehicles, all Michelin tires benefit from innovations developed through basic research programs at the Technology Center. However, Michelin also relies on an entirely different research laboratory to constantly innovate with its series-produced tires.

That other laboratory is the racetrack, which is used to improve the performance of store-bought tires. Michelin's approach aims to transfer knowledge from racing to the road. Track racing in particular is highly competitive, requiring tiremakers to search for new solutions that can ultimately benefit all drivers.

- **18 victories at the 24 Hours of Le Mans, including 12 in a row**, are among Michelin's outstanding achievements in automobile racing. The Group's commitment to this sport, which requires both high performance and endurance, has enabled it to collect a wealth of valuable technological data.

- With more than **200 original equipment certifications** in its six years on the market, the MICHELIN Pilot Sport PS2 has been widely successful with carmakers, becoming the **benchmark tire for Porsche** and the **world speed record holder** with the Bugatti Veyron*.

This wealth of experience and knowledge has been fully leveraged to create the MICHELIN Pilot Sport 3. The new tire's innovative qualities are attributable to its dual heritage as successor to a tire that has been both a performance benchmark and a racetrack champion.

* On a closed circuit, the MICHELIN Pilot Sport PS2 beat the world speed record in 2006 on the Bugatti Veyron, at over 400 km/h.

MICHELIN Pilot Sport 3, Enhanced Driving Sensations in a Fast-Developing Market

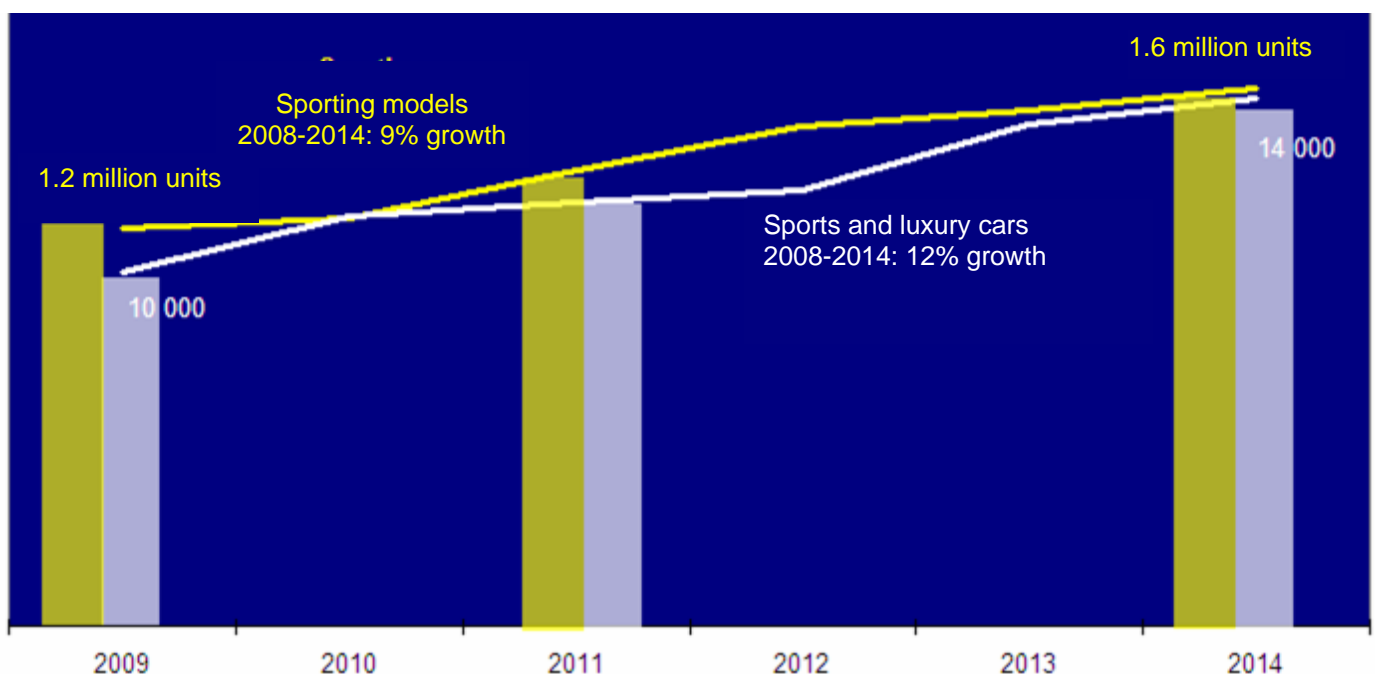
Michelin nurtures close relationships with all automobile manufacturers worldwide. Present on all fronts and around the world, the Group has developed a broad vision of the automobile industry.

According to in-house studies, unit sales of sporting models, sports cars and luxury vehicles, which declined in 2008 and 2009, are now expected to rise steadily, especially in Europe.

This will fuel continued demand for ever-safer tires that deliver the level of driving enjoyment expected from these types of automobiles. The new MICHELIN Pilot Sport 3 already addresses this need. In addition, the tire has embraced a responsible approach, helping to reduce fuel consumption while guaranteeing long tread life.

In this way, the MICHELIN Pilot Sport 3 is perfectly aligned with society's growing awareness of the need for environmental stewardship.

The high-performance vehicle market in Europe Market Intelligence Michelin Estimations from *Global Insight*



MICHELIN Pilot Sport 3 sizes

The MICHELIN Pilot Sport 3 will be introduced in various sizes throughout 2010. By the end of the year, the following 25 sizes will be available in the replacement tire markets:

195/45 R16 84V XL
205/55 ZR16 91W
205/55 R16 91V
205/50 R16 87V
205/45 ZR16 87W XL
205/45 R16 83V
205/50 ZR17 93W XL
205/45 ZR17 88W XL
205/40 ZR17 84W XL
225/45 ZR17 91Y
225/45 ZR17 94W XL
225/45 ZR17 94Y XL
235/45 ZR17 97Y XL
245/45 ZR17 99Y XL
245/40 ZR17 91Y
225/40 ZR18 92W XL
225/40 ZR18 (92Y) XL
235/40 ZR18 (95Y) XL
245/40 ZR18 (97Y) XL
255/35 ZR18 94Y XL
265/35 ZR18 (97Y) XL
275/35 ZR18 (99Y) XL
245/40 ZR19 (98Y) XL
255/40 ZR19 100Y XL
275/40 ZR19 101Y

As original equipment, the new MICHELIN Pilot Sport 3 has already been certified for use on the Audi A4 and A5 and on the new Mercedes E63 AMG.

The new MICHELIN Pilot Sport 3 is also in the process of being certified for the Audi A3, Citroën C4, Ford CMax, Mercedes S65 AMG, Mercedes E-Class and Mercedes SL.

Michelin Facts and Figures

For more than a century, Michelin has dedicated its expertise and innovation to enhancing the mobility of people and goods around the world.

1889: Founding of **Michelin et Cie**

1891: Michelin files its first patents for removable and repairable tires

1895: Michelin introduces Éclair, the first car to be fitted with pneumatic tires

1898: “Birth” of **Bibendum**, the Michelin Man

1900: First **Michelin Guide** published

1905: Introduction of the **Michelin Sole** tread with hobnails to improve tire grip and durability

1910: First 1/200,000 scale Michelin **road map** published

1913: Michelin invents the **removable steel wheel**

1923: First **low pressure car tire** (2.5 bar)

1926: Michelin creates its first **Green Guide for tourists**

1930: Michelin files a patent for the **integrated tube tire**

1938: Michelin launches **Metalic**, the **first truck tire with a steel casing**

1946: Michelin invents the **radial tire**

1959: Michelin introduces the first radial tire for earthmovers

1979: The Michelin radial tire wins the Formula 1 championship

1981: The **MICHELIN X Air** is the first radial aircraft tire

1989: Michelin launches the first online travel itinerary service, on France’s Minitel teletext network

1993: Michelin invents the new C3M tire manufacturing process

1992: Launch of the fuel-efficient **MICHELIN Energy™ tire**

1995: The US space shuttle lands on Michelin tires

1996: Michelin invents the vertically anchored PAX System tire

1998: The first **Challenge Bibendum**, the world’s leading clean vehicle event

1998: Bibendum’s **centennial**

2000: Bibendum voted best logo of all time by an international jury

2001: Michelin brings to market the world’s largest earthmover tire

2003: Launch of Michelin brand automotive accessories

2004: New corporate signature introduced: “**Michelin, a better way forward**”

2004: Launch of the MICHELIN XeoBib, the first agricultural tire that operates at a constant low pressure

2005: Michelin provides tires for the new Airbus A-380 aircraft - Launch of the **MICHELIN Power Race**, the first dual-compound racing tire approved for road use

2006: Michelin revolutionizes truck tires with **MICHELIN Durable Technologies**

2007: Launch of the new **MICHELIN Energy™ Saver** tire, which reduces fuel consumption by nearly 0.2 liters per 100 kilometers, thereby lowering CO₂ emissions by 4 grams per kilometer

2008: Introduction of the new **MICHELIN X Energy™ Savergreen** truck tire

2009: 100th edition of the **MICHELIN Guide France**

2010: **MICHELIN Pilot Sport 3** launched in the replacement market

Michelin key figures

Date created:	1889
Production facilities:	68 plants in 19 countries
Number of employees:	118,000 worldwide
Technology Center:	More than 6,000 researchers on three continents: North America, Europe and Asia
Annual R&D budget:	More than €500 million
Annual output:	Around 190 million tires produced and over 15 million maps and guides sold in more than 170 countries
2008 net sales:	€16.4 billion

An extensive portfolio of brands covering all market segments: Michelin, BFGoodrich, Kleber, Uniroyal, Riken, Taurus, Kormoran, Warrior, Pneu Laurent, Recamic, Michelin Remix, Euromaster, TCI Tire Centers, TyrePlus.

Discover the history of the Michelin Group with a visit to L'Aventure Michelin.
Recent events and useful information is available at www.laventuremichelin.com

