

MICHELIN **POWER** **RS**



**"THERE
WILL BE
A BEFORE
AND AN
AFTER THE
INTRODUCTION
OF THE
MICHELIN
POWER RS "**

Press Kit

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MICHELIN

A better way forward

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All the photos and illustrations in this press kit can be downloaded from <http://michel.in/2deJvjm>. Available at the same address is the full collection of information releases about the MICHELIN Power RS.



I am particularly proud to be able to present the **MICHELIN Power RS**. We believe that the launch of our new sport road tyre range and the **MICHELIN ACT+** technology it packs will be remembered as a watershed moment in the history of motorcycle tyres, with a before and an after!

MICHELIN's motorcycle tyres have always been and continue to be acclaimed for their wet-weather performance. Safety is another field in which our company refuses to compromise and this is naturally the case with our sport road motorcycle tyres. **Today, new technologies have enabled us to take the notion of performance further still.** The challenge we faced was to deliver a high standard of dry-weather grip, agility and straight-line and cornering stability for motorcyclists to be able to express their full potential. I believe we have achieved this. Irrespective of their level, all those who have tried our new range – be they professionals or occasional riders – agree that the experience permitted by the **MICHELIN Power RS** tyre is unique. The smiles we saw on their faces as they removed their helmets was eloquent testimony of this and the finest reward for our work you could wish for.

Grip performance on dry roads isn't the only criterion that defines a strong sport road tyre. During the **MICHELIN Power RS**'s development, we also focused on maximising stability and agility, and this necessitated considerable investment in terms of Research and Development. However, this extensive work saw the emergence of highly sophisticated innovations like MICHELIN ACT+ which led to **the registration of two patents. MICHELIN ACT+ is probably one of the most significant motorcycle tyre innovations since the invention of the radial in 1987.**

Indeed, innovation is fundamental to Michelin's philosophy and, in 2015, the Group committed a budget of practically €700 million to R&D, and it is this investment that helped us to explore new opportunities in the world of sport road tyres.

There was innovation at every step of the **MICHELIN Power RS**'s design process, from the development groundwork per se to our manufacturing and testing procedures, as well as the development of MICHELIN ACT+ technology and the adaptation of our production processes to cater for the latest breakthroughs.

Innovation isn't an end in itself, of course, but it is indispensable if you want to progress, and this is a belief that underpins the Group's strategy. Anticipating our customers' future needs and providing them with real answers calls for innovations that are founded on real-world terrains, usages, mobility practices and weather conditions.

In spite of climate differences, the way buyers of sport road tyres use their bikes tends to be very similar across the world. Indeed, more than anything else, their aim is to have fun, chiefly in dry weather. Independent testing of the range positioned the **MICHELIN Power RS** ahead of all its rivals in all the performance-related criteria that customers expect.

Thanks to the **MICHELIN Power RS**, our objective is to become the number one brand in what is a fast-evolving market, with new, increasingly higher-performance motorcycles being introduced all the time.

The new **MICHELIN Power RS** range has been available for sale since January and is available in a choice of 13 sizes (four front, nine rear). It consequently covers a particularly broad spectrum of motorcycles, from more powerful bikes, like the 1,000cc machines that are particularly widespread in Europe and North America, to smaller 250cc bikes which are highly popular in South America and southeast Asia. Although needs differ from continent to continent, customers face similar constraints and the **MICHELIN Power RS** stands out as a pertinent solution for exacting bikers, whatever type of motorcycle they ride.

02.

THE MICHELIN POWER RS *IN 10 NUMBERS*

1

The MICHELIN Power RS stands out as the new benchmark for all the performance-related criteria that were compared during MTC testing (*)

2

The number of patents registered during the development of MICHELIN ACT+ technology

3

The number of continents where the MICHELIN Power RS was tested (Europe, North America and Asia)

3,5

The time gain (in seconds) per lap compared with the MICHELIN Power 3 (**)

5

The number of circuits used during the MICHELIN Power RS's development

15

The number of prototypes that were produced before the MICHELIN Power RS's final specification was decided

30

The number of years since the launch of the first radial motorcycle tyre in 1987 (the MICHELIN A59X / MICHELIN M59X)

45

The MICHELIN Power RS's temperature window (air temperature, in degrees Centigrade)

54

The number of different types of motorcycle used during testing

300

The number of tyres tested during road and track testing



* The result of comparison tests carried out by Motorrad Test Center at Boxberg and Neuhausen circuits in Germany in October 2016 based on a BMW S1000RR equipped with 120/70ZR17 (front) and 190/55ZR17 (rear) tyres, comparing the new MICHELIN Power RS with five rival products (Pirelli Diablo Rosso 3, Dunlop SportSmart 2, Continental Sport Attack 3, Bridgestone S21, Metzeler M7RR).

** According to evaluation work carried out by Michelin in 2016 at Fontanges, Cartagena and Ladoux using a 2015-specification BMW S1000RR equipped with 120/70ZR17 (front) and 190/55ZR17 (rear) tyres, comparing the new MICHELIN Power RS with its predecessor, the MICHELIN Pilot Power 3. Results may differ depending on motorcycle used and test conditions.

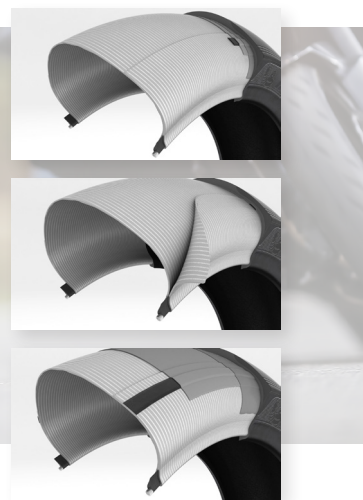
03.

ADVANCED TECHNOLOGIES FOR THE **MICHELIN POWER RS RANGE**

The buyers of sport road tyres are not like MotoGP™ riders (see Part 4) inasmuch they do not devote their energy to shaving tenths of a second off their journey times. Instead, they expect a tyre that combines impeccable dry-weather grip with agility and stability, three essential parameters when it comes to ensuring safe, unbridled enjoyment.

To achieve this level of performance, the Michelin Group's Research and Development experts joined forces with their colleagues from manufacturing to design the **MICHELIN Power RS range** over a period of more than two years. This co-development process resulted in spectacular progress in terms of dry-weather grip performance, agility and stability.

Last but by no means least, although the tread pattern of this exceptional tyre recalls that of a slick, it is a bona fide sport road tyre and its numerous innovations are concealed within its casing...



PATENTED NEW MICHELIN ACT+ ARCHITECTURE

Thanks to MICHELIN ACT+ technology, the rigidity of the **MICHELIN Power RS** adapts to the circumstances of the moment. It features a single, variable-angle casing ply the angle of which, in the crown zone, is close to 90 degrees in order to maximise flexibility and deliver the straight-line stability that is necessary at high speeds.

The upper part of the ply is turned over up to shoulder level inside the side walls and overlaps itself to ensure the necessary rigidity for impeccable cornering stability.

This revolutionary technology, which combines performance with riding enjoyment, took two years to fine tune and necessitated the conversion of the manufacturing processes to make the new tyres. Two patents were registered during the development of the **MICHELIN Power RS's** casing which is the most significant innovation in this domain since Michelin's invention of radial motorcycle tyres.

LATEST-GENERATION COMPOUNDS DERIVED FROM EXPERTISE ACQUIRED IN RACING

The dry and wet grip performance of the **MICHELIN Power RS** has been maximised thanks to the use of high-technology elastomers. The compounds developed specifically for this new range employ latest-generation functional SBR polymers.

Elastomer chemistry is a domain of Research and Development where considerable progress is possible due to the fact that the science is relatively recent. At the same time, it calls for significant resources, so very few tyre manufacturers are in a position where they can develop their own raw materials in-house. Michelin, however, devoted a budget of almost €700 million to R&D in 2015 and this investment means it is able to

design its own materials, while benefiting from extensive production capacity shared by its different activities.

Meanwhile, all the compounds used for the **MICHELIN Power RS** range benefit from Michelin's long-time involvement in motorcycle racing and are produced by the same facilities.

The compound used for the shoulders of the rear **MICHELIN Power RS** was put through its paces in a variety of championships over the past two seasons. The elastomers it employs deliver unparalleled grip and reach their ideal working temperature particularly quickly.

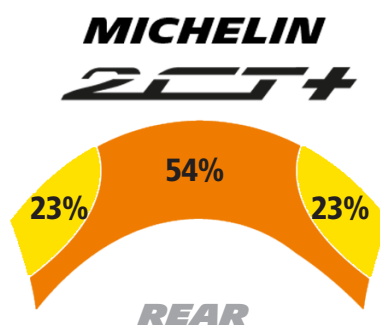
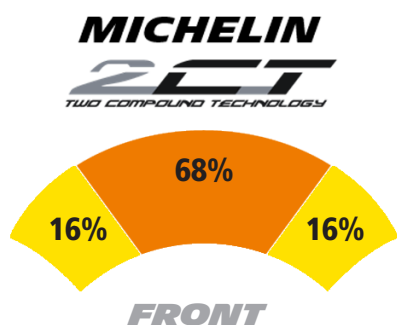
MICHELIN 2CT+ DUAL-COMPOUND TECHNOLOGY 2CT+

The MICHELIN Power RS range's dry-weather grip performance benefits from two breakthroughs, namely MICHELIN 2CT and 2CT+ dual-compound technologies which distinguish between the tyre's different zones:

- The tyre's all-silica crown maximises grip in wet weather and resistance to wear,
- The all-carbon black zones to either side are designed to provide grip on dry roads.

Michelin first used dual-compound tyres in 500cc grand prix racing as long ago as 1994. Their hard-compound central zone resists the constraints associated with hard acceleration and braking, while also ensuring longer tyre life. The softer compound either side ensures grip when leaning.

The **MICHELIN Power RS** front and rear tyres incorporate **MICHELIN 2CT** and **MICHELIN 2CT+ technology** respectively. In the case of the rear tyre, the hard compound passes beneath the soft compound of the shoulder to obtain greater rigidity when leaning, along with additional stability when leaning into corners, especially under hard acceleration.

**PROFILE OF FRONT MICHELIN POWER RS TYRES OPTIMISED FOR OUTSTANDING PRECISION AND AGILITY**

The development of the profiles of the **MICHELIN Power RS** range's front and rear tyres took advantage of Michelin's experience of racing to optimise not only the contact patch's pressure map but also how the new compounds function.

Specific work went into the front tyre to obtain unprecedented agility and directional precision, during changes of lean angle, when braking while leaning and when exiting corners.

If one compares the exterior profile of **MICHELIN Power RS** tyres with that of other Michelin tyres, very few differences are in fact visible. This is

because the chief differences concern the tyres' interior profile. Precise harmonisation of the tyres' exterior and interior profiles made it possible to optimise the thickness of the tread compounds and produce the market's best front tyre*. Combined with the rigidity of the materials used for the crown, the result is more accurate feedback for the rider via the handlebars.

The result is exceptional performance and riding enjoyment whatever the castor angle, with the front tyre providing exceptional agility for a sport road tyre, plus remarkable ride and directional precision.

* The result of comparison tests carried out by Motorrad Test Center at Boxberg and Neuhausen circuits in Germany in October 2016 based on a BMW S1000RR equipped with 120/70ZR17 (front) and 190/55ZR17 (rear) tyres, comparing the new MICHELIN Power RS with five rival products (Pirelli Diablo Rosso 3, Dunlop SportSmart 2, Continental Sport Attack 3, Bridgestone S21, Metzeler M7RR).

SIX MOTOGP™ STARS EXPLAIN THE IMPORTANCE OF DRY-WEATHER GRIP, STABILITY AND AGILITY

Research confirms that the buyers of sport road tyres for everyday use above all seek dry-weather grip, stability and agility. Although for different reasons, the same three parameters are cited by motorcycle racing elite, as explained by MotoGP™ stars Marc Marquez, Maverick Viñales, Bradley Smith, Andrea Dovizioso, Andrea Iannone and Aleix Espargaro:



MARC MARQUEZ
(REPSOL HONDA)

"One of the most important things in a tyre is the grip, because you must have this to make it work. But you also cannot forget that it must have the correct profile, because if you have a lot of grip and the wrong profile then the handling and manoeuvrability will be hard. It is a difficult challenge to find this level between the two, and have an easy tyre to ride on. Michelin does a great job to supply us with a tyre that does that and is easy to ride. It has good grip and the performance is incredible!"



BRADLEY SMITH
(RED BULL KTM FACTORY RACING)

"Grip is going to give the rider confidence and the ability to brake and accelerate in the best way possible, whereas manoeuvrability can put you on the right lines at the right time. They both work hand-in-hand and are essential for not only a fast lap-time, but a safe and consistent one as well, and the same applies to riding on the road."



MAVERICK VIÑALES
(MOVISTAR YAMAHA)

"For me it is vital to have good grip so that you can have good braking points. The tyres need good grip to stop the bike and you also need it on the lean angle, because if you don't have it, it is easy to make a high-side. For me, manoeuvrability gives me the confidence to push the bike and change direction. This in turn gives me the chance to win!"



ANDREA DOVIZIOSO
(DUCATI TEAM)

"Grip is something that every rider searches for and, as it is easy for a rider to take the tyre to the limit, you find that grip is never enough. For a rider, more grip can help you to go quicker even by one second, so it is something that every rider is desperately fighting to have. Manoeuvrability is the agility of a tyre in changes of direction and being able to have a tyre that is suitable for all situations that have a wide working range."



ALEX ESPARGARO
(APRILIA RACING TEAM GRESINI)

"Modern MotoGP™ bikes are very powerful and, as a rider, I always want to put as much power as possible on the ground. Having a tyre with a good level of grip is the key to being fast out of a corner, and carrying more speed through the straights. The agility of the bike helps you to handle the changes of direction, and gives you more confidence especially during the race distance where it's important to have a safe and comfortable feeling lap-by-lap. If you can match these two qualities on the same tyre, then it will be easier to achieve the results we're all aiming for!"



ANDREA IANNONE
(TEAM SUZUKI ECSTAR)

"It means more stability, more feeling and thanks to this you can ride more aggressively as the bike is more attached to the ground."

05.

THE MICHELIN POWER RS: PART OF MICHELIN'S RADIAL TYRE RANGE



MICHELIN'S CATALOGUE OF SPORT TOURING RADIAL TYRES TODAY FEATURES FOUR PRODUCT LINES.

The **MICHELIN Power RS** range succeeds from the **MICHELIN Power SuperSport Evo** and the **MICHELIN Pilot Power 3**.

A BROAD SELECTION OF SIZES FOR THE MICHELIN POWER RS RANGE

Thanks to a choice of 13 different sizes (four fronts, nine rears), the **MICHELIN Power RS** range covers a long list of motorcycles, from smaller 250cc bikes to Supersport machines and mid-sized roadsters.

FRONT	110	70	ZR	17	54	(W)
	110	70	R	17	54	H
	120	60	ZR	17	55	(W)
	120	70	ZR	17	58	(W)
REAR	140	70	R	17	66	H
	150	60	ZR	17	66	(W)
	160	60	ZR	17	69	(W)
	180	55	ZR	17	73	(W)
	180	60	ZR	17	75	(W)
	190	50	ZR	17	73	(W)
	190	55	ZR	17	75	(W)
	200	55	ZR	17	78	(W)
	240	45	ZR	17	82	(W)

MICHELIN'S LANDMARK **MOTORCYCLE TYRE TECHNOLOGICAL INNOVATIONS**

The world of motorcycle tyres has been revolutionised by numerous Michelin innovations which have gone on to become industry benchmarks.

Flashback to five such landmark breakthroughs...

1977 THE SEMI-SLICK TREAD

To meet the needs of increasingly powerful motorcycles, Michelin focused its research on tread design and eliminated the tread grooves altogether, which was a revolutionary approach at the time!

Introduced in Grand Prix racing in 1977, slick tyres enabled Barry Sheene, on a Suzuki, to win the 500cc World Championship that same year.

In 2004, the MICHELIN Pilot Power was launched as the hypersport motorcycle tyre with the lowest sea-to-land ratio on the market.

1984 RADIAL TECHNOLOGY

Michelin tested its first radial motorcycle tyre in grand prix racing and they very quickly set new performance standards.

In 1987, Michelin leveraged its experience of racing to introduce the first radial tyre for street motorcycles: the MICHELIN A59X / M59X.

Radial technology provides a critical advantage in terms of strength and stability at high speeds, as well as consistently superior, long-term performance, riding comfort and resistance to wear.

1992 SILICA

In early 1990, Michelin introduced racing tires with a 100% silica-reinforced rubber mix, developed through the Group's basic research programmes. This innovation marked the beginning of a new era of supremacy for Michelin, especially in races held on wet tracks. By adding silica to the rubber compound of its motorcycle tyres, Michelin established a new benchmark for grip performance in wet conditions.

In 1999, the MICHELIN Pilot Sport became the first motorcycle road tyre to incorporate this innovative feature.

1994 THE FIRST DUAL-COMPOUND TYRE TESTED IN THE GP500 CLASS

Dual-compound MICHELIN 2CT technology enabled Michelin to extend its technological lead over the competition, as the tyre maker continued to dominate the sport's premier series.

In 2005, the first hypersport tire with different rubber compounds on the crown and shoulders was introduced. Called the MICHELIN Power Race, it was the first racing tyre approved for road use to feature dual-compound technology.

In 2006, Michelin took its dual-compound technology a step forward by incorporating technologies developed through track racing. The Michelin Pilot Power 2CT was intended for sports motorcycles used mainly on the road.

2009 MICHELIN AST (ASYMMETRIC TECHNOLOGY)

This technology was introduced in 1994 in Moto GP500 racing. The combination of asymmetric technology (AST) with three-compound technology (3CT) made it possible to use different rubber compounds on the right and left sides of the tire, as well as a third, more resistant compound for the centre of the tread. In this way, the shoulder that is more often in contact with the ground during a race uses a harder rubber so that its lifespan is aligned with the total distance to be covered.

In 2009, thanks to AST technology, the 16.5-inch Michelin Power One Competition was the first tire in this category to adjust to the special features of each track, taking into account the different demands put on each side of the tyre, depending on whether the circuit has more left or right turns.

2011 MICHELIN XST (X-SIPE TECHNOLOGY)

MICHELIN X-Sipe Technology (XST) marked a major step forward in terms of safety in very heavy rain, on damp roads and, more generally, whenever grip is at a premium (standing water, cobbled streets, under tree cover, painted road signs, etc.). The principal behind MICHELIN XST is its ability to cut through the film of surface water thanks to the sipe edges. The water is then channelled away to the sides thanks to broad grooves. The process is further optimised by the so-called 'wells' which increase the tyre's water drainage capacity and increase the efficiency of the sipes and their 'blade' effect.

MICHELIN XST technology produced a major breakthrough in the touring bike tyre market when the MICHELIN Pilot Road 3 was introduced in 2011.

MICHELIN XST+ technology takes the principle a step further with the addition of chamfered sipe edges to combat abnormal wear in difficult conditions. MICHELIN XST+ is a feature of the MICHELIN Pilot Road 4.

MICHELIN ***IN NUMBERS*** ***AND LANDMARK DATES***

FOUNDED:

1889

PRODUCTION FACILITIES:

68 factories in **17 countries**

STAFF:

111, 700 employees worldwide

RESEARCH AND DEVELOPMENT:

More than **6, 000** research staff working in three continents (North America, Europe and Asia)RESEARCH AND DEVELOPMENT
BUDGET (2016):More than **€700 million**

ANNUAL PRODUCTION:

184 million tyres, plus more than **16.5 millions** maps and guides sold in **170** countries and **1.2 billion itineraries** computed by ViaMichelin in 2015.

NET REVENUE (2016):

€ 20.9 billion

The mission of tyre industry leader Michelin is to actively contribute to sustainable mobility by designing, manufacturing and distributing tyres that meet the needs of its customers and by developing services and solutions that make mobility increasingly efficient. In addition to marketing products that uniquely enhance the travelling experience of its customers, Michelin also develops high-technology materials for use in mobility-related industries. Based in Clermont-Ferrand, France, Michelin operates in 171 countries with a total staff of 111,700 worldwide. It has 68 manufacturing facilities in 17 countries which made 184 million tyres in 2015 (www.michelin.com).