

Foreword

> page 2

The new MTB tyre ranges in numbers

> page 3

Four tyre ranges for two types of use

> page 4

The ranges at a glance

> page 6

Innovation isn't restricted to tyres

> page 7

Michelin landmarks and numbers

> page 9

The event's partners

> page 10

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KARL DE QUICK

(General Manager, Bicycle Tyre Division, Michelin)

Michelin is back in the Mountain Bike tyre market!

INVENTING WHAT DOESN'T ALREADY EXIST AND QUESTIONING AND REDEFINING WHAT DOES EXIST HAVE LONG BEEN DRIVING FORCES AT MICHELIN.

When it comes to mountain bike tyres, customers don't have just one need. They have several, and Michelin has addressed this multifaceted demand with **not one but four distinct tyre ranges for two types of use:**

- > MICHELIN JET XCR
- > MICHELIN FORCE XC
- > MICHELIN FORCE AM
- > MICHELIN WILD AM

Each one covers a different usage and type of terrain through the use of appropriate technological solutions. Michelin's investment in All Mountain and Cross-Country tyres marks the latest step in its return to the MTB market following the introduction of its range of Enduro tyres in 2013.

Mountain biking is increasingly about commitment, while both the bikes and the activity itself have evolved considerably. More than 98 percent of today's All Mountain bikes are equipped with suspension systems, for example, so it was vital to bring new tyres to the market as quickly as possible. The two overriding objectives that were set for these four new ranges led to the following results:

- Innovative, high-performance ranges which deliver significant gains in terms of both grip and strength, two factors that contribute to increased fun and enjoyment.
- With a choice of just 16 sizes, the new ranges are easy to understand, in contrast to the market's previous lack of clarity.

To achieve all this in such a short time, we had to review our methodology and these new ranges were co-developed in association with our partners in the world of competition. Meanwhile, experts working out of our Technology Centre worked more than ever on a co-design basis. This is a first for Michelin's Bicycle Tyre Division and saw the Group collaborate with the most exacting teams and riders in the different disciplines concerned. This new approach notably harvested performance gains in a shorter timeframe. The time required to develop a single range is normally three years. Yet, in the same period we succeeded in finalising four distinct ranges which cover 80 percent of the Mountain Bike tyre market's needs

Innovation is never an end in itself. To have value, it needs to make a contribution to progress and this has been a leitmotiv at Michelin ever since the very first bicycle tyre appeared in 1891. Our aim is to be a pioneer in the world of mobility. In 2015, our Group invested close to 700 million euros into Research and Development. That's 13 percent more than the budgets of our chief competitors, and between two and three times more than other brands.

Michelin notably excels in the world of high performance tyre and this constant is no more apparent than in our new MTB ranges which benefit from advanced technologies like Gum X and Shield Technologies. Providing riders with the ability to combine front and rear tyres of different types is another Michelin specificity in its quest to deliver performance.

The launch of these four new ranges will begin this spring with the Competition lines, followed by the Performance lines in 2018. Our objective is to double our sales over the next five years and become one of the sector's incontestable leaders.

THE NEW MTB TYRE RANGES IN NUMBERS

1	> The first tyre ranges entyrely co-developed in association with the world of competition > A new casing technology (Shield Technologies) available in three different versions > New-generation compounds (GUM X) available in two different versions
2	Two complete seasons of use in competition
3	 Three types of use Three development cycles Three years of development Three riders competed in the Olympic Games with the Force XC and JET XCR ranges A test programme on three continents
4	Four distinct ranges
8	Eight World Cup podium finishes, plus men's and women's victories at national championship level
12	Twelve test sessions
16	Sixteen different sizes
80	An offer that covers 80 percent of the MTB tyre market
150	One-hundred-and-fifty test competitions
250	More than two-hundred-and-fifty tyres tested by professional riders and customers

FOUR TYRE RANGES FOR TWO TYPES OF USE

When it comes to mountain bike tyre, each type of use has its own specific requirements.

In Cross Country, riders spend 70 to 80 percent of their total riding time going uphill, so grip is essential. This discipline also demands a user-friendly trade-off between rideability and energy efficiency, while a good level of comfort should be provided by the tyres' casings.

For Cross Country racing, where riders typically perform short, rapid loops, grip remains the number one priority. However, the rolling efficiency also plays an important part, as it is essential to maintain a consistently high speed from start to finish.

For All Mountain riding, in which high downhill speeds are reached, the tyres' shock absorbing ability is a crucial factor. The tyre must not only offer excellent grip, but outstanding strength as well. A perfect blend of compound, casing and tread is therefore vital.

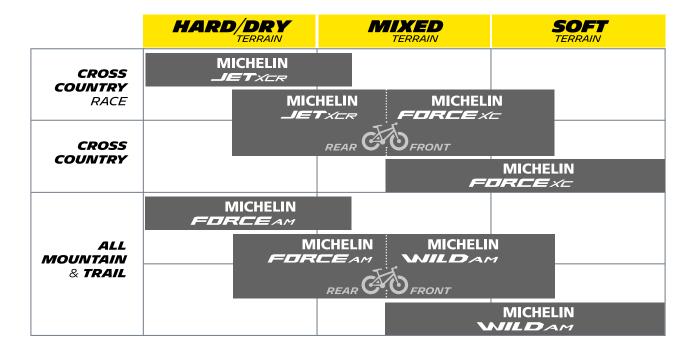
To rise to all these challenges, Michelin has developed four highly innovative tyre ranges, each of which offers the most appropriate solution for each type of use. Riders can choose to mount the same type of tyre on the front and rear or mix and match to obtain the best possible combination when faced with varying conditions.



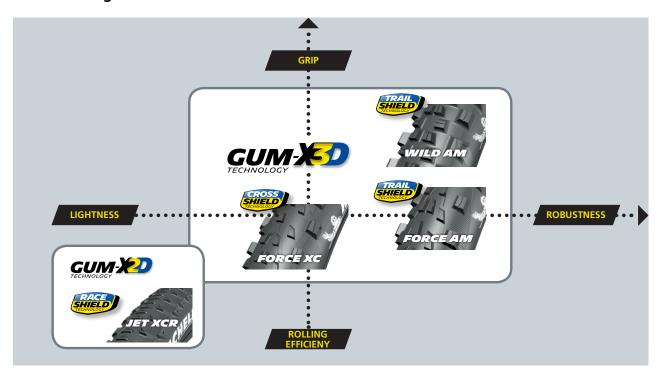








The tyres in each of the four ranges deliver specific performance characteristics and technologies:



The X2D and X3D compounds belong to a new-generation of highperformance GUM-X compounds which combine three distinct performancerelated qualities in a single tyre, namely grip, energy efficiency and long life.

- > **GUM X2D** (for performance and traction): a combination of two compounds. Delivery of peak performance is ensured by the Race Compound under-tread rubber which directly benefits pedal power. Meanwhile, the outer compound optimises traction performance, along with outstanding braking ability with no detriment to grip.
- > **GUM X3D** (for performance, traction and grip): a combination of three different compounds. GUM X3D takes the X2D concept a step further by providing high levels of grip to the shoulder areas for appreciable additional cornering performance.

MICHELIN SHIELD technologies have permitted the emergence of a new generation of tyres that combine a reinforced high- or very high-density cross-ply casing with specific architectures (3x150, 3x110 or 3x60 TPI).

- > **RACE SHIELD:** this ultra-lightweight 3x150 TPI version stands out through its exceptional performance and flexibility, combined with remarkable strength due to the use of a very high-density reinforcing ply.
- > **CROSS SHIELD:** a 3 x 110 TPI version for Cross-Country use. It is lightweight and durable, as well as strong due to the use of a very high-density reinforcing ply.
- > **TRAIL SHIELD:** A 3 x 60 TPI version for All Mountain and Trail use with a high density reinforcement ply. It offers extreme durability.

The unique combination of these new-generation compounds, new tread patterns and casings means buyers are able to take full advantage of their tyres' performance potential without losing out on durability, the aim being to address the needs of our customers as closely as possible.

These three variants were co-developed and put through their paces by the world's top Enduro riders and during the 2016 UCI World Championship in association with BH-SRSuntour-KMC.



The advent of electric bicycles has seen a shift in the needs of cyclists when it comes to tyre performance. Strength has become an essential parameter in order to withstand the additional torque produced by the rear wheel and to cater for the heavier weight. All the tyres in Michelin's new All Mountain ranges are compatible with electric bicycles and carry the e-Bike Ready label.



THE RANGES AT A GLANCE

	ARCHITECTURE	TECHNOLOGY	E-BIKE	SIZES	WEIGHT (c)*	AVAILABILITY	
MICHELIN	PACE	V		27.5x2.25	560		
JETXER	RACE	GUM-X		29x2.25	610	October 2017	
JL I XLX		TECHNOLOGY		29x2.10	560		
				26x2.10	580		
				27.5x2.10	600		
MICHELIN	CROSS SHIELD			27.5x2.10 27.5x2.25	640		
FDRCE XE	TECHNOLOGY			29x2.10	630		
				29x2.25	680		
					23, 2.23	080	
				20-2 25	500	May 2017	
				26x2.25 27.5x2.25	690 715		
MICHELIN		Cung V		27.5x2.25 27.5x2.35	715 720		
FORCEAM		GUM-X-1		27.5x2.35 27.5x2.60	830		
				27.5x2.60 29x2.25	760		
			E-BIKE	29x2.25	770		
	TRAIL		READY				
	TECHNOLOGY						
				27 52 25	760		
MICHELIN WILDAM				27.5x2.35 29x2.35	760 800	June 2017	
WILLIAM				23X2.55	800		
	Registration of the second		" Dase	ed on prototype tyre me	asurements. Individua	al tyre weights can vary.	
				ed on prototype tyre me	Angels How	al tyre weights can vary.	







The conviction that enhancing mobility extends well beyond simply using advanced technology to improve the quality and performance of its tyres has inspired Michelin for almost 130 years. Innovation effectively only makes real sense when it renders the lives of its customers either simpler, safer or both, as testified by Michelin's commitment to the production of maps, guides and accessories for vehicles and bicycles.

From tyres to travel guides

First published in 1926, the Michelin Green Guides are a source of inspiration for travellers which contribute to the development of mobility and tourism around the world. As a tool, they allow Michelin's customers to choose and then plan all the stages of their journey, from practical to cultural aspects, in the most convenient and enjoyable manner possible.



The Provence-French Riviera Green Guide

Whether you're looking for beaches or villages perched on hilltops, lush gardens or mountain scenery, idyllic islands or centuries-old abbeys, the French Riviera offers plenty of sights to see!

The region boasts three significant museums, namely the Museum of Modern and Contemporary Art in Nice, the Picasso Museum in Antibes and the Oceanographic Museum in Monaco. Seaside resorts abound, including Hyères and its famous palm trees; Le Lavandou, ideal for families; Saint-Raphaël, known for its lively beachfront; and Saint-Tropez with its celebrated port and festive nightlife. Off the coast, you can explore Porquerolles and Port-Cros, two islands that lay claim to outstanding underwater riches.

Inland, the Roman beauty of Abbey of La Celle and the Cistercian sobriety of Le Thoronet Abbey await you. You can also escape the heat in the Rayol botanical gardens, or enjoy a hike along the trails of the Esterel or Sainte-Baume mountains, or through the splendid Mercantour national park.

In each city and village, visitors can wander amongst outdoor market stalls and savour socca, pan bagnat and lemons from Menton, served with a glass of local Bandol wine.

From tyres to soles

When it comes to contact with the ground, shoe soles share numerous points in common with tyres, and the development processes associated with the two activities are often very similar. As a result, Michelin – through its subsidiary Michelin Lifestyle – has naturally sought to invest in this new field.

Michelin selected JV International (JVI) as its strategic partner for the design, development and manufacture of high performance Michelin-branded soles.

This partnership has led to the transfer of technology 'from tyres to soles' as well as the development of Michelin high-performance soles through a joint approach with manufacturers.

There is constant demand for new technical solutions because of the highly demanding use the soles are subjected to in extremely diverse environments.

Each sole is unique and crafted in line with the partner shoe manufacturer's needs and technical standards. This ensures increasingly enhanced performance in terms of resistance, rideability, self-cleaning and advanced technology.

This unique, innovative engineering process and its resulting applications are beneficial to mountain bike riders, for example. Applied to previously unexplored sectors, it opens up fresh opportunities for Michelin as it strives to propose 'a better way forward', a brand slogan that covers much more ground than just tyres.



NORTHWAVE OUTCROSS

The Outcross line shoes create for a new generation of MTB riders desiring to test their skills on all kinds of terrain. The upper is made from a 3D mesh covered with a protective film with an extra reinforcement in high-stress areas. The Michelin Explorer outsole, result of the partnership between Northwave and Michelin, delivers both maximum adherence and is exceptionally stable on all surfaces. The Explorer outsole is also made from 100 per cent rubber for exceptional durability.

NORTHWAVE ENDURO MID

Starting from the needs expressed by Enduro riders Northwave has developed the Enduro Mid, that find in Michelin the perfect match. It boasts a fully thermowelded construction, with foam inserts in the tongue for increased protection and comfort while maintaining the same thickness and special toe reinforcement for better shock protection. Michelin and Northwave have developed the X-Fire outsole which provides excellent traction on the toe area and outstanding adherence on the pedals.





Extreme XC features the Michelin Hyperlight XC sole, co-developed between Northwave and Michelin, has been realized using the innovative dual-layer compound technology: a double layer to increase durability, stability and adherence. The sections of the Michelin sole are inserted in a rigid plate in unidirectional carbon fiber. The upper adapts to the shape of the foot thanks to the Biomap technology which provides laser micro perforations of the surface and which offers a perfect breathability of the foot. The end result is a cross country shoe which is among the lightest in the mountain bike market.



MICHELIN LANDMARKS AND NUMBERS

FOUNDED	1889			
FACTORIES	68 production plants in 17 countries			
STAFF	111,700 employees worldwide			
SEARCH AND DEVELOPMENT	More than 6,000 R&D staff working out on three continents (North America, Europe and Asia)			
R&D BUDGET (2015)	€ 689 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.			
TOTAL REVENUE (2016)	€ 20.9 billion			

Michelin, the leading tyre company, is dedicated to enhancing its clients' mobility, sustainably; designing and distributing the most suitable tyres, services and solutions for its clients' needs; providing digital services, maps and guides to help enrich trips and travels and make them unique experiences; and developing high-technology materials that serve the mobility industry. Headquartered in Clermont-Ferrand, France, Michelin is present in 170 countries, has 111,700 employees and operates 68 production facilities in 17 countries which together produced 184 million tyres in 2015. (www.michelin.com)



THE EVENT'S PARTNERS





HOVINA.2



PCONMENCAL



