

**PRESS KIT**

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# JIHUA & MICHELIN

A partnership to design  
a new generation of shoe soles

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**JV** INTERNATIONAL





# CONTENTS

## 1. JIHUA & MICHELIN :

a partnership to design  
a new generation of shoe soles

## 2. FROM TYRES TO SOLES

## 3. FOCUS

on three areas of use  
and five types of shoes

› **FOR MOTORCYCLING:**

TCX ADVENTURE - INFINITY

TCX X-CUBE/X-SQUARE PLUS - URBAN

› **FOR MOUNTAIN BIKING:**

NORTHWAVE DOLOMITES EVO - ROCK'R

NORTHWAVE SPIDER PLUS 2/SPIDER 2 - X CROSSBOW

› **FOR SAFETY:**

DIADORA - ARTIC

## 4. POOLING SKILLS

## 5. JIHUA

facts and milestones

## 6. JV INTERNATIONAL

## 7. MICHELIN

facts and milestones

## 8. MICHELIN LIFESTYLE :

extending the brand's reach

► Photos can be downloaded from:

<http://michel.in/11JJkIU>



# 1. JIHUA & MICHELIN :

a partnership to design  
a new generation of shoe soles

By formalizing their partnership, **Jihua and Michelin** have forged an alliance to take a giant step in high-performance soles and technical footwear. Their aim is to ultimately become a global leader with 5%-10% of this market, which represents 500 million pairs of soles.

Announced on November 26, 2014 in Clermont-Ferrand, the agreement will shake up the industry as it involves JIHUA, the Chinese textile and technical apparel titan, and MICHELIN, a world leader in the manufacture of tyres that brings to the partnership a powerful brand. The goal is to provide relevant solutions in a field where expectations for technological innovations are high.

Through their respective units – **JV International and MICHELIN Lifestyle** – the two companies are combining their technical expertise and knowledge. The synergy thus created represents a powerful asset.

Upstream, the Michelin Lifestyle subsidiary has supported the MICHELIN brand since 2001 with licensed products that showcase innovation, performance, safety and environmental protection. It brings to the partnership Michelin's knowledge of rubber compounds, new materials, tread design and innovative technologies, from design to prototype production.

A benchmark in the area of design, JV International will coordinate each project worldwide, managing the entire manufacturing process, from needs identification to manufacturing to finished product delivery. The approach is intended to create close-knit relations with customer partners.

The first projects involve soles for work footwear and mountain bike shoes as well as for motorcycle boots. The first MICHELIN soles, distributed by TCX, Northwave and Diadora, benefit directly from special tyre-related technology and expertise that provide advantages in terms of grip, durability and comfort. For Michelin, this approach is the logical extension of its previous collaborative ventures, beginning with Babolat in 2003 for tennis and then badminton footwear, with Kempa for handball shoes and more recently with Le Chameau for boots.





## 2. FROM TYRES TO SOLES

In French, the verb “chausser” has two definitions according to the Petit Robert dictionary: **“to put shoes on one’s feet” and “to fit tyres on a vehicle”.**

This fact gives credence to the observation that shoes are to people what tyres are to a vehicle. In both cases, they are the only thing connecting the user to the ground and the process of developing them is the same, from identifying user needs to providing the most appropriate solution.

Thus the relevance of pooling the skills and achievements of a specialist like Jihua – through its JV International subsidiary, with its experience in designing soles and technical footwear – and of Michelin, whose tyres are known around the world for their superior performance, on all road surfaces and in all driving conditions. The two units have pooled not only their expertise but also their teams.

Corresponding to the bottom of the shoe, the outside layer of the sole is the part that is in direct contact with the ground. This is where Michelin can bring to bear the full extent of its expertise. The sole can be made from a wide variety of materials to provide the right amount of grip for each type of usage.

The outside layer, called the “outsole”, usually contains rubber. The middle layer, or “midsole”, is usually made of ethylene-vinyl acetate (EVA) foam. The inside layer, otherwise known as the “insole”, varies in composition depending on the shoe’s purpose.



Soles are therefore logically built to perform according to the type of use for which they are intended.

A tyre tread band and a shoe sole have so much in common that their development processes are virtually interchangeable. They both involve use and user needs analysis, functional analysis, simulations, tread design, rubber compound preparation, laboratory testing, prototype development and, lastly, prototype testing on machines and then on target users.



**The overlap extends beyond the development stage. A number of other factors are also common to tyres and shoe soles:**

- A similar degree of ground pressure, representing about 2.5 bar for a car tyre and roughly 2 bar for a shoe.
- The need to combine sometimes-contradictory performances such as grip on dry and wet ground, durability, weight savings, etc.
- Use on a wide variety of surfaces, including wet and dry hard ground, sandy, soft and muddy terrain, snow and ice.

The three essential parameters that guarantee tyre performance are grip, durability and comfort. These same parameters enter into the process of creating a shoe sole, which needs to provide grip, durability and flexibility. All of these qualities can be delivered by using the right materials. Chief among them is rubber, which Michelin knows inside out.

In light of this, it should come as no surprise that the first three soles to come to market incorporate designs that are respectively based on bicycle tyres (the MICHELIN Pro4 Grip, MICHELIN Country Mud, MICHELIN Country Trial and MICHELIN Wild Rock’R2), motorcycle tyres (the MICHELIN Anakee II, MICHELIN Anakee 3, MICHELIN Pilot Road 3 and MICHELIN Pilot Road 4) and car tyres (the MICHELIN Alpin 4).





### 3. FOCUS

on three areas of use  
and five types of shoes

Michelin and JV International are capable of developing technologies that no one else can match. In terms of ground contact, a shoe's sole corresponds to a tyre's tread band. In both cases, the idea is to provide the best grip possible on smooth and rough surfaces, dry and wet ground, hard and soft ground, with a focus on performance, comfort and durability.

The first soles produced through the partnership between JIHUA and MICHELIN confirm this approach.

#### FOR MOTORCYCLING:

##### TCX ADVENTURE - INFINITY

The new ADVENTURE EVO GORE is the emblematic boot of the motorcycling enthusiast who enjoys a long-distance ride, both on- and off-road. It features a Michelin sole built with innovative technology that guarantees optimum riding performance.

Inspired by the MICHELIN ANAKEE 3 Enduro tyre, which was co-designed and developed with users, the sole has technical characteristics that perfectly meet motorcyclists' needs. The sipes for example are expertly crafted to evacuate mud, gravel and water. They also deliver just the right amount of stability and adherence. The tyre's notched sipe design has been reproduced on the sole to improve traction, control and adherence on the road and on loose, muddy soil.

To provide even greater stability to riders when upright on the footpegs, the sole includes a diamond-shaped area with reinforced grip. Made from a rubber compound guaranteeing superior adherence and heat/abrasion resistance, it also boasts a heat-resistant tread.



##### TCX X-CUBE/X-SQUARE PLUS - URBAN

The Michelin URBAN shoe sole was specially designed for the TCX Urban Performance footwear range, especially the X-Cube EVO and X-Square Plus models. Intended for leisure motorcycle riding, this range is ideal for city use.

The sole takes its inspiration from two Michelin tyre models, the MICHELIN PILOT ROAD 3 and the MICHELIN PRO GRIP 4. The exterior part incorporates XST technology from the MICHELIN Pilot Road 3 and 4 tyres to effectively disperse water and enhance adherence on any kind of surface, from tarmac to paving stones, which is particularly important for motorcyclists when they have to dismount and walk their bike. The interior part features technology borrowed from the MICHELIN PRO GRIP 4 tyre, with rounded sipes providing exceptional adherence and pedal control in all weather conditions.

The product is also made from a rubber compound that guarantees good grip and high resistance to abrasion and heat.





### 3. FOCUS

on three areas of use  
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#### FOR MOUNTAIN BIKING:

##### NORTHWAVE DOLOMITES EVO – ROCK’R

The first sole designed exclusively for Northwave, the Rock’R sole is fitted to the DOLOMITES EVO shoe, a new high-end model in the All Terrain 2015 mountain biking footwear line. Based on the MICHELIN WILD ROCK’R 2 Enduro tyre, this sole reproduces the tyre’s talon-like structure on the front and rear to optimize traction and borrows its specific shoulder design to provide lateral stability on all types of surfaces.

It stands out mainly for the two different compounds used on the sidewalls and the central part of the tread. Black areas in the sole offer a high level of resistance and adherence, while colored areas located in critical points in the tread are designed to be highly durable and exceptionally resistant to abrasion.



##### NORTHWAVE SPIDER PLUS 2/SPIDER 2 – X CROSSBOW

To kick off its cooperative venture with Northwave, Michelin designed the outsole of the Spider Plus and Spider 2 using technology from the MICHELIN COUNTRY MUD and MICHELIN COUNTRY TRAIL tyres. The tread patterns of the MICHELIN COUNTRY MUD have been adopted on the sides to guarantee excellent adherence on wet roads and muddy ground. The front borrows features from the MICHELIN COUNTRY TRAIL to enhance adherence and traction on all surfaces.

The angle and depth of the tread design and its sipes make for an optimally adaptable, high-grip sole. The sipes are spaced in such a way that the profile is effectively self-cleaning, thereby providing exceptional traction.

The X-CROSSBOW sole is made from a rubber compound that offers superior abrasion resistance.







### 3. FOCUS

on three areas of use  
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#### FOR SAFETY:

##### DIADORA - ARTIC

The very latest technical sole created by Michelin, the MICHELIN ARTIC is perfectly suited to four innovative and high-performance safety boot models made by Diadora Utility. Designed for professional use in line with very specific safety criteria, the ARTIC SOLE is the right solution for some of the most challenging situations faced by oil and gas industry workers, in all types of extreme weather.

For this model, Michelin borrowed ideas from the Alpin 4 tyre, which performs exceptionally well in winter, whether in rain, snow or mud, also taking inspiration from the tread pattern on the MICHELIN ANAKEE2, which offers good resistance on various types of terrain. In addition, Michelin's Full Active Tread design was used to improve stability and resistance to slippage in the most demanding situations, while multi-directional sipes were used to enhance adaptability and adherence in snow.

Designed to offer users the largest possible contact patch in all situations, the non-slip ARTIC SOLE complies with Safety Regulation Commission (Slip resistant test)\* standards applicable in Europe. The groove on both sides of the sole ensures excellent resistance to friction. Lastly, the sole is covered with the same type of grooves that are used on Michelin tyres to effectively evacuate liquids.

Specially created for this sole, the WOC-D rubber blend meets Diadora's every requirement. The product complies with electro-static discharge (Electrostatic discharge)\*\* safety standards, delivers excellent adherence, is tear-resistance and hydrocarbon proof.

\*Slip resistant test

\*\*Electrostatic discharge





## 4. POOLING SKILLS

**Tyres and soles share the same vocabulary: footprint, sole, tread band, rolling movement, foundation, stability, rubber and textile. A step is all it takes to go from high-performance tyres to walking shoes to competitive sports footwear.**

On several occasions already, Michelin has had the opportunity to engage in partnerships that enable it to deploy synergies. This has been the case with Le Chameau (boots) and Babolat (tennis and badminton footwear). Conversely, the multidirectional STAR TREAD pattern developed by Michelin for high-performance handball footwear has been used on the MICHELIN STAR GRIP all-season bicycle tyre.

An area in which the limits of innovation are constantly pushed back, competitive sports are a vital component of the history of Michelin and of its development through all of the Group's units, including MICHELIN Lifestyle. Thus the relevance of the competency partnership signed in February 2013 between Michelin and Yohann Diniz, the current world record holder for the 50-kilometer walking race. The goal of this alliance is to increase our understanding of how sports shoes perform in order to design new ones.



Yohann Diniz - Michelin.





## 5. JIHUA GROUP

### facts and milestones



Jihua Group, listed on the Shanghai Stock Exchange since 2010, is the world leader in professional clothing and technical equipment for public security services, providing uniforms for the army, police, and fire service and suits and boots for astronauts.

Jihua has the largest occupational footwear production base in China and also manufactures and markets sportswear under different brands, including the two outdoor brands Jihua Outdoor and Jihua 1912, as well as hats, fabric dyes, printed fabrics, leather accessories and rubber goods.

Jihua Group is 66.3%-owned by Xinxing Cathay International Group, a Chinese state-controlled company that generated revenue of approximately \$32.5 billion in 2013, employs 78,000 people and is present in 26 of China's 30 provinces, with four direct subsidiaries and more than 125 indirectly controlled companies. In 2014, Xinxing Cathay International Group ranked 365th in the Fortune 500 listing.

- **More than \$4.3 billion in revenue in 2013**, for net income of over \$200 million. In 2010, the IPO year, revenue totaled \$2.8 billion and net income amounted to \$110 million.
- **40,000 employees.**

- **2,210 people in its science and technology teams, including 1,019 R&D experts.**
- **2,280 patents** filed in 2013.
- **170 million occupational shoes** of various types produced annually, accounting for a third of the domestic market for occupational shoes.
- **70 subsidiaries** in 22 of China's provinces.
- **10 companies located abroad, 65 countries served.**
- **31 factories in China**, of which seven manufacture occupational footwear.
- **6 scientific research institutes at the provincial level.**
- Leading role in molding technology: puncture-proof acid and alkali resistant shoes, antistatic waterproof shoes, oil-repellent shoes, etc.
- **Participated in 5 consecutive aerospace shoe R&D programs.**
- **Contributed to the publication of 5 national** and three industry standards.
- Took part in two State Torch Programs, two national product plans and 16 provincial-level scientific research programs.



## 6. JV INTERNATIONAL

**JV International, a Jihua Group subsidiary created in 2013, is the global strategic partner for the manufacture of Michelin-brand technical soles.** The company handles the entire process, from strategic planning, R&D, design development and customer-partner relationship management to marketing and communication, offering a complete “footwear industry chain” approach.

JV international currently have a multinational structure with five locations in two countries. In Italy, its headquarters are located in Como and its design center in Verona. In China, JV has its headquarters in Hong Kong and operates two production sites – Guorong Changning Rubber Industry Co. Ltd. and Guorong Qingyuan Rubber Industry Co. Ltd. Despite its international scope, JV international

delivers outstanding flexibility and process speed, acting as a true partner to Michelin in the implementation of innovative projects.

Its approach consists in analyzing, studying and readapting Michelin’s knowledge of tyres to soles, while engineering the right compound for the right design in line with specific needs in order to craft the best-performing, most innovative shoe soles imaginable.

JV International’s ambitious business objective is to respond to any and all technical requirements that leading high-performance footwear brands and manufacturers have with regard to soles. **In short, its goal is to be an international leader in the manufacture of high-quality Michelin-brand soles.**



## 7. MICHELIN

### facts and milestones



#### **Company founded**

1889

#### **Production facilities**

67 plants in 17 countries

#### **Number of employees**

111,200 worldwide

#### **Technology Center**

More than 6,600 people work in Research and Development in Europe, North America, South America and Asia

#### **Annual R&D budget**

Over €640 million

#### **Annual output**

More than 171 million tyres produced, over 13 million maps and guides sold in more than 170 countries, and 1.2 billion itineraries calculated by ViaMichelin

#### **2013 net sales**

€20.2 billion

#### **An extensive portfolio of brands covering all market segments**

Michelin, BFGoodrich, Kleber, Uniroyal, Warrior, Kormoran, Riken, Taurus, Tigar, Pneu Laurent, Recamic and Michelin Remix.

#### **More than 3,500 proprietary and franchised sales outlets in 29 countries**

Euromaster in Europe and TCI in the United States; TyrePlus in Asia, the Middle East, Russia, Australia and Mexico; Michelin Commercial Service Network in the United States; and Michelin Truck Service Center in Asia, the Middle East and Algeria.





## 8. MICHELIN LIFESTYLE : extending the brand's reach

Created in 2000, the MICHELIN LIFESTYLE subsidiary is dedicated to raising the profile of the Michelin brand and strengthening relations with consumers through non-tyre products. The objective is to create a stronger, more regular connection with users, thereby reinforcing Michelin's image and promoting greater mobility for people and goods.

For more than a century, Michelin has been committed to enhancing this mobility and to making it safer, faster, more comfortable and more pleasant while also minimizing its environmental impact. As a result, Michelin – in addition to its offer of tyres and travel-related services – also markets a wide range of accessories.

These accessories are defined to coincide with Michelin's mission and values. They integrate Michelin's knowledge and expertise with the goal of providing consumers with unique performance capabilities.

MICHELIN LIFESTYLE supports the Michelin brand with licensed products that showcase innovation, performance, safety and environmental protection. All are created to provide users with value added through their design, appearance or special features.

### **Licensed products are being developed in three main segments:**

- Car, motorcycle and bicycle accessories. Highly practical, these products are designed to improve

safety, enabling motorists to obtain the right tyre pressure or to improve visibility with windshield wipers and replacement safety lights. Others help to enhance mobility, such as snow chains for use in extreme winter conditions.

- Technical soles and footwear. These include high-performance technical shoes and shoe soles for work and leisure, developed under the MICHELIN brand. The partnership with JV International is a perfect example.
- Items that showcase Bibendum (the Michelin Man) or Michelin's cultural heritage. These include gift items, collectibles, clothing and accessories.

Systematically, the products developed under license are positioned in the premium segment of their respective markets and sold by specialized distributors and in selected stores. Integrating Michelin's knowledge and expertise, this range of accessories naturally play the role of brand ambassador.

### **In 2013, MICHELIN LIFESTYLE operations represented:**

- 65 licensing partnerships worldwide.
- More than 18 million products sold.
- 50,000 sale outlets in 85 countries.
- Total revenue of €260 million.