



PRESS KIT



THE HISTORY OF **VOXAN MOTORS**

Voxan is a French motorcycle manufacturer founded in 1995. Over the years, it has forged a distinctive reputation with iconic models like the Roadster, Cafe Racer, Scrambler, Charade Racing, and Black Magic. Known for building motorcycles with stylish looks and unusual mechanics - particularly the 996 cc 72° V-twin engine - the Voxan Motors brand created more than ten combustion-powered models between 1995 and 2009, at its factory in Issoire, in central France.

2010

In June 2010, Voxan Motors was bought by Gildo Pastor, President of Venturi. At that time, the Monegasque group had already been specialising in high-performance electric vehicles for a decade. Voxan embarked on a new technological direction, aligning with Venturi's philosophy. The brand is now focused on zero-emissions mobility, acting as an ideas incubator and attempting to set new world speed records without using a single drop of petrol.

Gildo PASTOR, President of Venturi Group

2013

In 2013, the concept version of the Voxan Wattman was unveiled. Like all of the Venturi Group's creations, it was designed by Sacha Lakic. From that point on, the teams worked ceaselessly to develop the first ever record-breaking zero emissions motorcycle.





Their efforts proved triumphant, as in November 2020 the Voxan Wattman set not one but eleven new world speed records at Châteauroux airfield in France, including the highest speed ever reached by an electric motorcycle, of **366.94** km/h. These officially confirmed world records were set by the Italian multiple world champion Max Biaggi.



2021

Then, on the 22nd November 2021, this time at the Kennedy Space Center runway (Florida, United States), a new era began for the Monegasque constructor and the new Wattman.

There, Max Biaggiachieved the dizzying speed of **455.737** km/h, a new world record for an electric motorcycle.





NEW VOXAN WATTMAN, 2021 KENNEDY SPACE CENTER, FLORIDA





STYLE AND AERODYNAMICS: Extensive upgrades

As early as 2019, Voxan's engineers began conducting wind tunnel tests with the first Wattman. It enabled them to perfect the machine's overall aerodynamics, and study its behaviour at different simulated speeds.

Tests were conducted up to 240 km/h, and the results used to update important information while waiting to see how the motorcycle performed on the track.

But at that early stage, there were still two big unknowns: how the bike would behave at very high speeds, and the potential influence of more or less acute sidewinds.



Computer simulations provide a wealth of data, but are simply no substitute for on-track testing, nor are they capable of reproducing instantaneous changes in the weather conditions. That's why, after setting its first records in late 2020, the Wattman's styling was reworked.

It is an established fact that in order to minimise aerodynamic drag and maximise speed, the machine needs to be wrapped as securely as possible with the right fairing. It was for this reason that the riding position on the first Wattman was kept as low as possible. On the new motorcycle, to enable Max Biaggi to adopt a more horizontal posture and ensure he is even better protected in his carbon-fibre bubble, the Voxan engineers raised the saddle by 75 mm (from 610 mm to 685 mm). But a full fairing means the machine is exposed to a higher wind load. To address this, Voxan opted to design not one but three new Wattmans: one fully streamlined version, a second with part of the fairing removed at the rear, and a third naked version, with no aerodynamic elements and its chassis frame visible.

As a result, the team will be able to take on these record attempts in practically any conditions, and if necessary limit the wind load on the motorcycle.





RESTRUCTURED REAR

To improve stability at very high speeds, the Voxan Motors engineers decided to increase the Wattman's wheelbase, moving the front and rear wheels further apart. That meant completely modifying the rear part of the chassis.

The swingarm and rear suspension were redesigned, allowing the wheelbase to be increased from 1,850 to 1,957 mm. Given the speeds now reached, but also the motorcycle's potential, this change was a must in terms of safety.

From both a technical and physical perspective, a longer wheelbase also allows better mass distribution and improves balance. However, Wattman's unchanged fairing inclu Only the r been reduc the first gen the chassi aerospace-The runr wheel rims aluminium.



Only the rear overhang has been reduced in size. As with the first generation Wattman, the chassis is made from aerospace-grade steel.

The running gear and wheel rims are made from aluminium.





A TRIED AND TRUSTED FRONT-END DESIGN

From the outset, Voxan opted for a double-wishbone suspension rather than a telescopic fork. This keeps both sides of the wheel clear, a practical solution that helps lower drag while allowing for quicker and easier replacement.

The new Wattman retains this suspension arrangement, along with the link and swingarm steering system. As a result, the rider sits further back and the machine's centre of gravity is lowered. Like its predecessor, the new Wattman also dispenses with a front brake. "Firstly, it's better aerodynamically at high speed," explains Franck Baldet, the project's technical director. "But also on the tracks or runways we use, we usually have enough room to do without it, and front wheel braking at very high speed on a surface with sometimes variable adherence can be dangerous. That's also why we don't use a parachute, which could cause a loss of balance."

The rider does have a rear-wheel brake, which he controls with the left handlebar grip, and also enginebraking controlled by a small lever on the right handlebar grip, always highly effective on an electric vehicle.





ENGINE: More power, more torque

With a power output of 270 kW (or 367 HP) and a phenomenal 530 Nm of torque, the first generation Voxan Wattman already boasted some impressive vital statistics. But to take things to the next level, Voxan looked to alter the mechanical layout, for greater ease and to unlock the machine's full potential.

"After setting eleven records in Châteauroux, we knew we'd have to change a few things in order to take things up a notch with a sufficiently high level of safety", says Louis-Marie Blondel.

"As regards the engine, the next generation Wattman still uses a Mercedes EQ from Formula E, but this one delivers 320 kW (435 HP) with up to 1,360 Nm of torque. These upgrades were made possible by new choices in terms of power electronics and magnets inside the engine, as well as a new overall mapping."

A legacy inherited from Venturi

The Venturi Group has been specialising in high-performance electric engines for over two decades. Over the years, it has created some extraordinary vehicles, including the Venturi VBB-3 which currently holds the FIA world speed record for an electric vehicle (officially confirmed average speed of 549.43 km/h, and single maximum speed of 576 km/h).

In 2014, four years after buying Voxan, Venturi became the first constructor to commit to Formula E, the only FIA world championship to feature exclusively electric cars.

Between 2014 and 2019, Venturi not only developed its own engines, but also supplied a powertrain to the HWA RaceLab team owned by Mercedes-Benz, which was thus able to make its debut in the discipline before taking part as a constructor. The electric engine currently used by Mercedes in Formula E competition provided the platform from which the Voxan Motors engineers developed the Wattman's powertrain.



A more lightweight, more powerful battery

Given the new Wattman's more powerful drivetrain and higher engine torque, Voxan had to opt for a battery that was not just lighter and more powerful, but also better suited to the motorcycle's unique shape.

As with the previous generation, however, there was simply no battery available on the market to match the new Wattman's expected performance.

So the Voxan Motors engineers decided to design the motorcycle's power unit in-house, working closely with the teams at Saft, a subsidiary of TotalEnergies that has specialised in highperformance batteries for over a century.

"We explained our requirements to the engineers at Saft, who were very quickly able to offer us various types of cells," recounts Louis-Marie Blondel.



ROKIT

sterilgard

"The ones we chose are eight times more powerful than those used before, and are more compact. Once we had confirmed our choice, we ourselves then designed the circuit boards in the fourteen 16-cell modules that comprise the battery pack, developed the battery management software, and assembled everything. So it was a real joint effort between Voxan and Saft, and we are delighted with the results."

> In the space of just five months, on both sides of the Atlantic, the teams at Saft designed, tested, and custom-manufactured a module composed of specific lithium-ion cells as part of a "co-design" initiative in tandem with Voxan.

> The module was developed by Saft's teams in Poitiers, France, while the American teams at Cockeysville provided support and expertise for the lithium-ion cells. For a record attempt, the main challenge was to improve the battery's power-weight ratio without sacrificing reliability or stability. Compared with the first generation of batteries used on the Wattman, the technological limits have been pushed even further: the weight has been reduced by 48 kg, the power increased to over 360 kW, and regenerative braking improved. The new battery can also withstand 200 full power cycles. Saft's well-known expertise in cutting-edge applications in fields like aerospace and motor racing (Formula 1) was invaluable in developing this unique battery.



The new battery weighs just 96 kg, compared with 144 kg on the first generation Wattman.

"We adopted a new philosophy when it came to power, as our previous records showed we needed batteries that obviously run down fast to deliver their full power, but can also be recharged very quickly," continues Louis-Marie Blondel.

"That's why the current battery pack, limited to 5 kWh, is more suitable than the 15 kWh one we were using before."

Voxan has also upgraded the battery cooling system, with a liquid-based device that is connected to the motorcycle between each run, separately from the dry ice which is still used to cool the engine. The first generation Wattman was entirely air-cooled.





NEW MICHELIN TYRES for a deluge of records



Michelin, a long-standing partner of the Venturi Group, has demonstrated its ability to work in diverse environments by developing custom tyres for the Voxan Wattman. For the previous record of 366.94 km/h, which actually saw Max Biaggi reach a top speed of 408 km/h, Voxan used ultra high-performance Michelin production tyres. This time, the laws of physics mean the French manufacturer has had to come up with custom-designed tyres.

To enable the new Voxan Wattman to set bigger and better world records, the front tyre (dimensions: 120/70–17) was developed from the MICHELIN Power GP. Some special modifications were made, particularly to its structure, to allow it to withstand very high speeds. To design the rear tyre (dimensions: 190/55–17), Michelin took inspiration from its own existing technology tried and tested in MotoGP[™].

Since the Voxan Wattman is equipped with a traction control system that works up to 300 km/h, a tyre was required with sufficient grip to transmit every newtonmetre of its extraordinary torque to the rear wheel, with no slippage. Michelin rose to the challenge brilliantly, giving Voxan another opportunity to promote high performance zero-emissions engines.







TECHNICAL SPECIFICATIONS New Voxan Wattman

Engine:

- Technology: permanent magnet motor
- Power: 320 kW (435 HP)
- Wheel torque : 1,360 Nm

Dimensions:

- Length: 2,700 mm
- Width: 710 mm
- Height: 1,030 mm
- Seat height: 685 mm
- Wheelbase: 1,957 mm
- Ground clearance: 70 mm

Battery:

- Technology: Lithium-Ion
- Nominal voltage: 829V
- Capacity: 5 kWh

Weight:

- Battery: 96 kg
- Semi-streamlined motorcycle: 296 kg
- Non-streamlined motorcycle: 276 kg

Transmission:

• Direct drive with timing belt

Cooling:

- Liquid, via water/ice exchanger for the engine
- · Liquid, via external system while stopped

Cycle:

- Chassis: 25CD4S steel tube + 7075 T6 aluminium
- Front suspension: dual swingarm with central shock absorber + offset handlebar with link rod
- Rear suspension: dual swingarm with central shock absorber
- Wheel rims: custom 6082 T6 forged aluminium (Front: 3.5" x 17" / Rear: 6" x 17")
- Tyres: Michelin (Front: 120/70 ZR17 / Rear: 190/55 ZR17)
- Front brake: n/a
- Rear brake: 305 mm disc 4-piston calliper



ABOUT VOXAN MOTORS

In 2010, the iconic motorcycle manufacturer Voxan Motors was bought by Venturi. Its President, Gildo Pastor, immediately refocused the constructor on a new core business: electric engines. In 2013, Venturi unveiled the Voxan Wattman, a symbol of the brand's rebirth and its radically new technical direction and styling.

In 2019, the teams began work on a new, high-performance version of the Wattman, specially designed to set new world speed records.

In 2020, with Max Biaggi in the saddle, the new Wattman set 11 speed records (in the "partially streamlined electric motorcycle over 300 kg" category), becoming the world's fastest electric motorcycle.

ABOUT THE ROKIT GROUP

The ROKiT Group is a global media company founded by Jonathan Kendrick and John Paul DeJoria.

Headquartered in the United Kingdom and Southern California, the company offers a diverse portfolio of products and services including mobile phones, Wi-Fi services and ROKiT Drinks.

The company is also engaged in multiple aspects of content production and distribution in music and movies.

ROKIT GROUP See for yourself at <u>ROKIT.com</u>

VENTURI GROUP 7, rue du Gabian I Monaco 98000 I MONACO <u>VENTURI.COM</u>



FABRICE BROUWERS

Head of Communication +33 (0)6 40 61 00 80 l <u>fbrouwers@venturi.com</u>

LORIANE TITEUX

Communication Officer +33 (0)6 40 62 75 27 l <u>ltiteux@venturi.com</u>

To Dowload high resolution images, click <u>HERE</u>.

