VW’s record-breaking electric car takes on world’s scariest racetrack, Nürburgring

Enlarge / Romain Dumas at the wheel of the VW ID R electric car on the Nürburgring Nordschleife.
Volkswagen Motorsport

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Although we make every effort to cover our own travel costs, in this case Volkswagen flew me to Germany and provided two nights in a hotel.

NÜRBURG, Germany—What do the race cars of Formula 1, the World Endurance Championship, NASCAR, and IndyCar all have in common? The answer is that each is built to comply with a specific set of rules. That’s understandable: rules in each series exist (ideally) to create a level playing field and to prevent cars from getting too fast and too powerful for the tracks upon which they race. But what if there were no rules? What if you could throw as much power and downforce onto a car as you could to make it go around a track faster than anything else?

This ethos has been tried at least once in the past. It was called the CanAm series, and until the 1973 oil crisis killed it, it gave rise to cars the likes of which had never been seen. The effort culminated in the 1,100hp (820kW) turbocharged Porsche 917/30, which is arguably also the car that helped kill the series because it was *so* much faster than

anything else. Today CanAm is long gone, and no competitive series has seen fit to take up its mantle. But that doesn't mean there's no room left in the world for motorsport engineers to toss out the popular rulesets and start with a clean sheet of paper.

Last year, in fact, we went to Pikes Peak in Colorado for the annual hill climb, a 12.8-mile (20km) dash up a very tall mountain, to see what a no-holds-barred race car could do. The car in question was the Volkswagen ID R, and the answer was: it could demolish the existing record. Driver Romain Dumas got to the top in just 7 minutes and 57.148 seconds, beating Sebastian Loeb and Peugeot's time from 2013 by 16 seconds. This wild success may have even taken the VW program by surprise. Once the team claimed Pikes Peak with such a dominant performance, a plan to return in 2019 obviously became hard to justify. At the same time, the 2018 record could not be the only outing for this remarkable electric car. The search was quickly on: *what next?*

A month after Pikes Peak, the ID R went to the Goodwood Festival of Speed in the UK. This event is part high-society garden party, part hill climb. Cars there compete for the fastest time on a 1.16 mile (1.87km) course. It's a much shorter challenge than Pikes Peak and much less scary—bar a nasty flint wall partway up—but Dumas set a new electric car record there, too. Even then, however, the ID R team already had its sights on a greater challenge at a racetrack in Germany that many simply call "the Green Hell." That, of course, means the Nürburgring Nordschleife.

"After Goodwood, everyone wanted the mission to continue," said VW motorsport director Sven Smeets. "And that's the most demanding race track in the world."

- Our first look at the Nürburgring-specification ID R electric race car.

Jonathan Gitlin

- L-R: Francois-Xavier Demaison, technical director of VW Motorsport; Sven Smeets, director of VW Motorsport; Romain Dumas (the driver); Willy Rampf, lead aerodynamicist.
  Jonathan Gitlin
- Maren Braun MCs the ID R reveal and is joined by legendary race car driver Hans Joachim Stück.
  Jonathan Gitlin
- The ID R undergoes wind tunnel testing in preparation for the Nordschleife.
  Volkswagen Motorsport
- Timo Bernhard's time in the Porsche 919 Evo is probably safe. Peter Dumbreck's electric record in the Nio EP9 is almost certainly toast. But what about Stefan Bellof's legendary 6:11.13 from 1983? Time will tell…
  Jonathan Gitlin

What's the ID R?

There is a truism that a good-looking race car is a fast race car. And the ID R is a *very* good-looking race car. These things are always subjective, but it stands out as a total looker compared to any other racing prototype from this century. However, it's also a car that was built very much to a budget when compared to the hybrid LMP1 prototypes that race(d) at Le Mans. As it happens, the chassis was actually brought in from outside VW, arriving from a small French company named Norma Auto Concept that builds specialized hill climb cars. You see, hill climbing is Romain Dumas' hobby, something he does on weekends when he's not being paid by Porsche to race. And Dumas has had quite a bit of success with a Norma he personally engineered.

But don't think of the ID R as a Norma anymore, for VW Motorsport did a lot more than just slap some corporate logos

on. The internal combustion powertrain was ditched and replaced with an all-electric one. The battery cells are supplied by A123 Systems, which also supplied Porsche's all-conquering 919 Hybrid Le Mans winner. In total, the ID R sports 43kWh from two packs, one located where you might expect to see a passenger seat and one behind the cockpit. The car is recharged in the pit lane by a pair of 90kW glycerol-powered generators that can top it up in about 20 minutes.

You'll find a 250kW (335hp) motor-generator unit at each axle, providing the ID R with a combined 500kW (670hp). Originally I had assumed that these were borrowed from sister company Audi's Formula E program; those current Formula E cars each use a single similarly rated MGU driving the rear wheels. But this assumption was completely incorrect. Instead, the MGUs are supplied by a British company called Integral Powertrain. The one at the front is actually capable of 270kW (263hp) and 270Nm (200lb-ft), and together with its inverter the whole package weighs 55.1lbs (25kg). The rear MGU, capable of 280kW (375hp) and 460Nm (339lb-ft), weighs only slightly more at 66.1lbs (30kg). According to Arnaud Martin, chief motorsport engineer at Integral Powertrain, the MGU and inverters peak at over 98 percent efficiency.

When we saw the car in Colorado, it was clear the shape was all about maximizing aerodynamic downforce, the effect you get when a shape channels the air as it moves through it to push it down onto the ground. Getting the most possible downforce was critical at Pikes Peak, because that course starts at 9,390 feet (2,862m) above sea level and finishes just above 14,000 feet (4,300m). Making that thin air work as hard as possible to create grip is vital to a good time on the mountain. But the challenge of the Nordschleife is completely different.

- Unlike at Pikes Peak, there is no requirement for the ID R to have a stupid siren blaring to warn corner workers.

The car remains stupidly quick and sounds great when you can see it, a mix of gear whine, motor noise, and the tires and wings working.
Jonathan Gitlin

- The challenge at the ‘Ring is different to Pikes Peak. Here it’s all about top speed.
  Volkswagen Motorsport
- Dumas returns to the pit after another lap.
  Jonathan Gitlin
- The ID R looks better than any other prototype of the last few decades, in my opinion. And it’s entirely electric.
  Jonathan Gitlin
- A look inside the ID R’s cockpit. Dumas told me that at the end of the lap, the temperature in here is about 158F (70C) thanks to the battery pack sitting next to him.
  Jonathan Gitlin
- A second battery pack is located behind the cockpit, where you might normally expect to find an internal combustion engine in a race car like this.
  Jonathan Gitlin
- This might be your best look at the huge rear diffuser on the ID R.
  Jonathan Gitlin

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