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Highvoltage

Bugatti-beating Tesla Roadster covers the quarter mile in 8.8 seconds

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HardCorvette

Chevy pulls out 563kW/969Nm 6.2-litre supercharged V8 Corvette ZR1

By ROBBIE WALLIS

CHEVROLET has revealed the fastest and most potent version of its Corvette muscle car, with the 563kW ZR1 breaking cover at the Dubai motor show.

Powered by a 6.2-litre supercharged LT5 V8 engine, the ZR1 pumps out 563kW at 6300rpm and 969Nm at 4400rpm, making it the most powerful model to date from Chevy.

The massive power numbers were achieved with the help of a 52 per cent increase in supercharger size, and the inclusion of a dual fuel-injection system, a first for a GM vehicle.

Mated to either a seven-speed manual gearbox with auto rev-matching or an eight-speed automatic transmission with paddle shifters (a first for a ZR1), the Corvette can achieve a claimed top speed of 338km/h (210mph).

Chevrolet has updated the ZR1's front fascia, designed to better channel air for cooling of the propulsion system and drivetrain, with four new radiators added.

The carbon-fibre hood features a number of vents to help clear the supercharger and intercooler assembly, while a pair of aerodynamic packages are available to increase downforce and track performance.

Allowing for the highest top speed is the Low Wing package, which increases downforce by up to 70 per cent over the Corvette Z06 equipped with the base aero package.

Buyers can also opt for the more eye-catching High Wing package, which features a two-way adjustable wing spoiler that creates maximum downforce – around 60 per cent more than a Z06 with the Z07 Performance Package – and allows for the quickest lap times.

Also included in the High Wing package is a front splitter with carbon-fibre end caps, specific chassis and suspension tuning, and 19-inch front/20-inch rear Michelin Pilot Sport Cup 2 rubber.

Both versions feature a downforce-enhancing front underwing, as well as the wing spoilers being tied to the chassis for additional strength and stability.

Chevrolet also unveiled the ZR1 wearing an exclusive Sebring Orange design package, which features a distinctive Sebring Orange exterior paint hue and orange accents for the brake callipers, rocker and splitter accent stripes, seatbelts and stitching, as well as bronze aluminium interior trim. General Motors executive vice-president global product development, purchasing and supply chain Mark Reuss said the ZR1 offered a unique driving experience among Corvettes.

"I've never driven a Corvette like this before, and nobody else has either, because there's never been one like this before," he said.

"Its unprecedented performance puts all other global supercars on notice that the ZR1 is back." MM

Advantage Aston

Aston Martin rips covers off all-new AMG V8-powered Vantage coupe

By TIM NICHOLSON

ASTON Martin has ripped the covers off its striking all-new Vantage V8 coupe that will become the British sportscar marque's top-selling model in Australia once deliveries kick off in July next year.

The sleek two-door, two-seat twin-turbocharged V8 Vantage is the latest salvo in Aston Martin's plan to increase its share of the global sportscar market and refresh its model range under the 'Second Century' strategic plan led by company CEO Andy Palmer.

Ahead of this month's reveal, GoAuto was given the opportunity early last month to preview the new Vantage in the metal at an embargoed media event at the Aston Martin Melbourne dealership in Richmond.

A local Aston Martin representative said the new-generation Vantage would be priced from circa-$300,000 when it hits Australian showrooms next year.

The latest version of the Vantage is based on Aston's new-generation aluminium architecture that also underpins the larger DB11, however 70 per cent of the components are unique to the Vantage.

It is the second Aston model following the DB11 V8 to be offered with a Mercedes-AMG-built 4.0-litre twin-turbocharged V8, although it has been tweaked by the engineers at Gaydon.

Under the wide clamshell bonnet of the Vantage, the engine pumps out 375kW at 6000rpm and 685Nm from 2000-5000rpm, driving the rear wheels via a ZF-sourced eight-speed automatic transmission.

The 1530kg coupe – which has a perfect

50:50 weight distribution – covers the 0-100km/h sprint in 3.6 seconds on its way to a 314km/h top speed.

Combined fuel use for the Vantage on the European combined cycle is 10.5 litres per 100km and CO2 emissions are rated at 245g/km. The AMG GT R uses 9.4L/100km and emits 219g/km.

At 4465mm long, the new Vantage is 284mm shorter than the DB11 and 34mm shorter than a Porsche 911. It is 2153mm wide, 1273mm high and has a 2704mm wheelbase, 254mm longer than the 911.

Cargo space is 350 litres – enough for two golf bags, according to Aston – which is well above the Porsche 911 that can swallow just 115L.

Aston says the "predatory stance" of the Vantage was inspired by the extreme track-only Vulcan, and in the metal it looks much wider than its dimensions suggest.

Up front it has slimline LED headlights surrounding a lower-set, reimagined Aston grille, and there are few creases or lines in the body, although the subtle bulge on the bonnet and massive rear wheelarches hint at its performance capabilities.

Designers prioritised aerodynamic purpose and the Vantage has ditched the side strakes in favour of an integrated side gill that bleeds air from the front wheelarch to minimise lift and feed air along the flanks of the car, as well as giving it a more shark-like look.

At the rear the Vantage has a striking ultra-slimline LED tail-light signature running the width of the tailgate, sitting above the active diffuser and pronounced kick in the

upswept deck lid that show how the vehicle uses the airflow over its surfaces to generate stability-enhancing downforce.

Inside, the flowing lines and central waterfall console of old Astons is gone in favour of a more compact look to the cockpit that shrinks around the occupants and carries a far more modern look.

The automatic transmission does without a traditional shifter, instead using PRND switches that form a triangular shape at the top of the centre console, while Aston says it has paid careful attention to the paddle shifters to ensure the driver does not have to reposition his or her hands on the carbon-fibre steering wheel when shifting gears.

Sport and Sport Plus seats are available in the new Vantage, with the more heavily bolstered optional seats said to provide even better support during dynamic driving.

The deal with AMG is clear in the cabin thanks to the use of Mercedes' Comand controller in the centre console and its related screen and connectivity system.

Sport, Sport Plus and Track drive modes alter the sharpness of the throttle, gearshifts, the steering and suspension.

The suspension is a forged double-wishbone design at the front and a multi-link system at the rear. Adaptive damping is standard, with sensors detecting the driving conditions, as well as the demands the driver is making of the car.

The Vantage comes with dynamic torque vectoring and an electronic rear differential (E-Diff) that's connected to the electronic stability control system, so it can 'learn' the car's behaviour and react to direct power to the relevant wheel.

It has ventilated two-piece 400mm cast-iron discs at the front and with ventilated 360mm discs at the rear that are gripped by six-piston front and four-piston rear callipers.

Vantage is offered with a choice of two 20-inch wheel styles, including a cast wheel and a forged machined lightweight wheel, with Pirelli P Zero tyres – 255/40 at the front and 295/35 at the rear.

Standard kit includes a full-leather interior, treadplates with sill plaques, twin stainless-steel silver exhaust tailpipe finishers, automatic temperature control with dual-zone climate control, keyless start, memory seats, Aston Martin audio system, an 8.0-inch LCD screen, DAB digital radio, USB ports, Bluetooth and sat -nav.

Re-generation

MIT experiment previews Lamborghini's electric racing future

By RON HAMMERTON

LAMBORGHINI has teamed with scientists from the Massachusetts Institute of Technology (MIT) in Boston to create a revolutionary all-electric hypercar concept with a carbon-fibre body that doubles as a battery and which apparently can heal its own panel damage.

Called Terzo Millennio – Italian for third millennium – the two-seat, light-weight racer for the road is the Italian company's vision for its all-electric future, with Automobili Lamborghini chairman and CEO Stefano Domenicali describing it as "an important page in the future of the super sportscar for the third millenniu".

The three-year collaboration – started last year – aims to bring together the best of Lamborghini design and engineering with futuristic technologies and materials fresh from the labs of MIT, one of the world's cutting-edge universities.

The jaw-dropping design features a minimalist body with large gaps to funnel air through the car, rather than around it, for minimal drag and maximum downforce.

Details on the various technologies are scant, with most devices described with the barest detail. For example, the "self-healing body" was described as an "aim", rather than an existing technology included in the car.

The system apparently would be able to detect cracks or accidental damage and trigger a self-repair process to prevent further damage, particularly in sections of the body that suffer high stress. How it would do this, Lamborghini and MIT were not immediately saying.

No power or performance figures were proffered, but Lamborghini suggests the concept will offer high peak power via four in-wheel electric motors.

Instead of a conventional battery, power is delivered by advanced supercapacitors that draw current from tiny batteries in carbon-fibre nanotubes sandwiched in the carbon fibre body, developed by the MIT's mechanical engineering and chemistry departments.

Lamborghini says the micro batteries can be bent and shaped within the body panels, using the carbon-fibre layers as insulation from electric shock.

The system means the Terzo Millennio can dispense with a bulky and heavy battery within the floor structure, instead employing lighter supercapacitors topped up by energy stored around the vehicle.

Lamborghini is one of the few car-makers to already employ supercapacitors, in low-voltage form to power the starter motor in its Aventador. However, the Terzo Millennio application takes the technology to a whole new level, powering the whole car while recouping kinetic energy without compromising performance.

Lamborghini engineers worked with MIT teams headed by chemistry professor Mircea Dinca and mechanical engineering professor Anastasios John Hart to develop the systems.

Said Prof Dinca: "My lab likes to make materials, we like to think outside the box. What better company to think outside the box with than Lamborghini."

With two more years of the collaboration to go, the concept and technologies within it is expected to be developed and refined.

Lamborghini did not say if it planned to build a specific model based on the Terzo Millennio, but the future at the Italian company does appear to be electric. MM

Power trip

200kWh battery enables Tesla Roadster to go 1000kms on a single charge

By TUNG NGUYEN

TESLA has unveiled what could be the fastest-accelerating production car yet with its new-generation Roadster sportscar that can destroy the zero to 60mph (97km/h) sprint in just 1.9 seconds.

With 10,000Nm of torque driven through the wheels via three electric motors – one for each of the rear wheels and a single unit driving the front axle – the new Roadster can also knock down the 100mph (161km/h) landmark from a standstill in 4.2s and complete the standing quarter mile in just 8.8s.

Tesla claims the all-electric Roadster sports a top speed in excess of 250mph (402km/h), while its floor-mounted 200kWh battery – twice the size of the maximum available on the Model S and Model X P100D – is good for nearly 1000km of driving range.

For comparison, the 8.0-litre quad-turbo W16 Bugatti Chiron can accelerate to 60mph in 2.4s, the 6.2-litre supercharged V8 Dodge Challenger SRT Demon will stop the clock at 2.3s and the 6.5-litre V12-powered Ferrari 812 Superfast will complete the sprint in 2.8s.

The Roadster's Model S P100D stablemate, equipped with Ludicrous launch mode, is able to knock down 60 miles in 2.5s.

In a tweet, Tesla founder Elon Musk said the extraordinary acceleration capability will only be the tip of the iceberg in the brand's new 2+2 convertible.

"Should clarify that this is the base model performance," he said. "There will be a special option package that takes it to the next level."

With a few years before the first road-ready Roadsters hit the market in 2020 however, it remains to be seen if Tesla can transplant the phenomenal performance potential into a production guise.

The Roadster revealed at Tesla's event this month wore no side mirrors, a rectangular steering wheel and had some of its auxiliary electrical systems including G-meter readout disabled, alluding to its prototype status.

However, what is expected to make it into production is the Roadster's portrait-orientated infotainment screen similar in layout to the Model S and Model X, the narrow dashboard-integrated speed readout, removable glass roof and sports bucket seats.

Penned by former Mazda and Volkswagen designer Franz von

Holzhausen, the new Roadster is also expected to retain its sleek sportscar proportions when it enters production.

From the front, sleek headlights, a sculpted bonnet and subtle splitter characterise the Roadster, while the pumped-up wheelarches, prominent rear diffuser, slim tail-lights and short overhangs gift Tesla's new vehicle a classic sportscar silhouette.

Attendees at the reveal event were able to place a deposit of $US50,000 ($A66,165) for a vehicle reservation, which also gave them access to a demonstration of the Roadster's acceleration capabilities from the passenger seat.

Pricing for the Roadster kicks off at $US200,000 ($A264,660), with a limited-run of 1000 Founders Series edition vehicles available at $US250,000 ($A330,825).

Tesla's foray into vehicle manufacturing was with the first-generation Roadster in 2008, which was built on the body of a Lotus Elise and featured a 53kWh lithium-ion battery for a 0-60mph acceleration time of 3.9s. MM