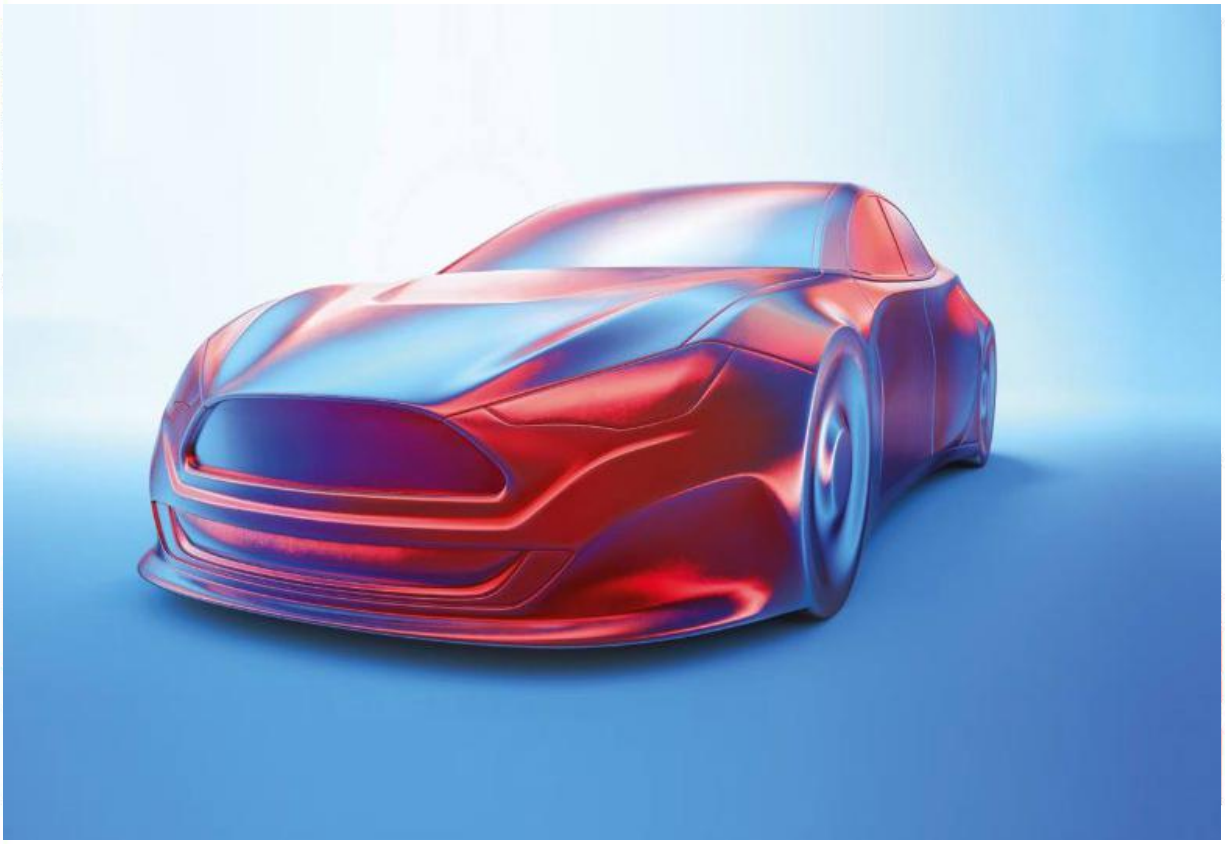
DrivingVisionNews.com
Automotive lighting and driver assistance technologies

# GENEVA INTERNATIONAL MOTOR SHOW

## 2019 HIGHLIGHTS

The 89th Geneva Motor Show



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# About the authors

Hector Fratty's entire career has been in automotive lighting.
From 1995 to 2006, he was Valeo Lighting's chief of R&D.
His level of expertise in lighting gained him recognition as one of Valeo's five Master Experts. In 2008, he initiated the launch of his own company, Driving Vision News, which has become the automotive lighting and driver assistance industry's journal of record dedicated to keeping the community informed and communicating about the latest progress and developments.

Patrice Minol studied automotive design at the International School of Design. He discovered the world of lighting during an internship at Valeo Vision and he's now working at Jaguar design. His passion for photography combined with his design approach allowed him to work with DVN as a reporter at auto shows since 2012.


Jean-Paul Ravier was born in La Mure France in 1948.
He studied aerospace engineering science at ISAE-Supaero, and management at IAE Paris. He joined Valeo in 1972, then Valeo Lighting in1984. Since that time and until his retirement in 2013, he had different responsibilities in the technical organisation, including projects, R&D, and Advanced technology.
Since 2014, he is in charge of the ELS (Embedded Lighting Systems) chair, for advanced training and research in lighting.
Since 2017, he is a consultant working mainly with DVN.

**Geneva Motorshow**

At the 89th Geneva International Motor Show, held from 7 to 17 March 2019, major makers such as Ford, DS Automobiles, Jaguar Land Rover, and Opel did not participate. Nevertheless, more than 100 world and European premieres were presented.

## **GIMS**2019

Here are the five main takeaway points we retain from our DVN walk of the show:

**1.**
Increasing electrification

**2.**
Hypercars are heating up


**3.**
Thinner front and rear lamps


**4.**
Lighting to create a strong brand identity

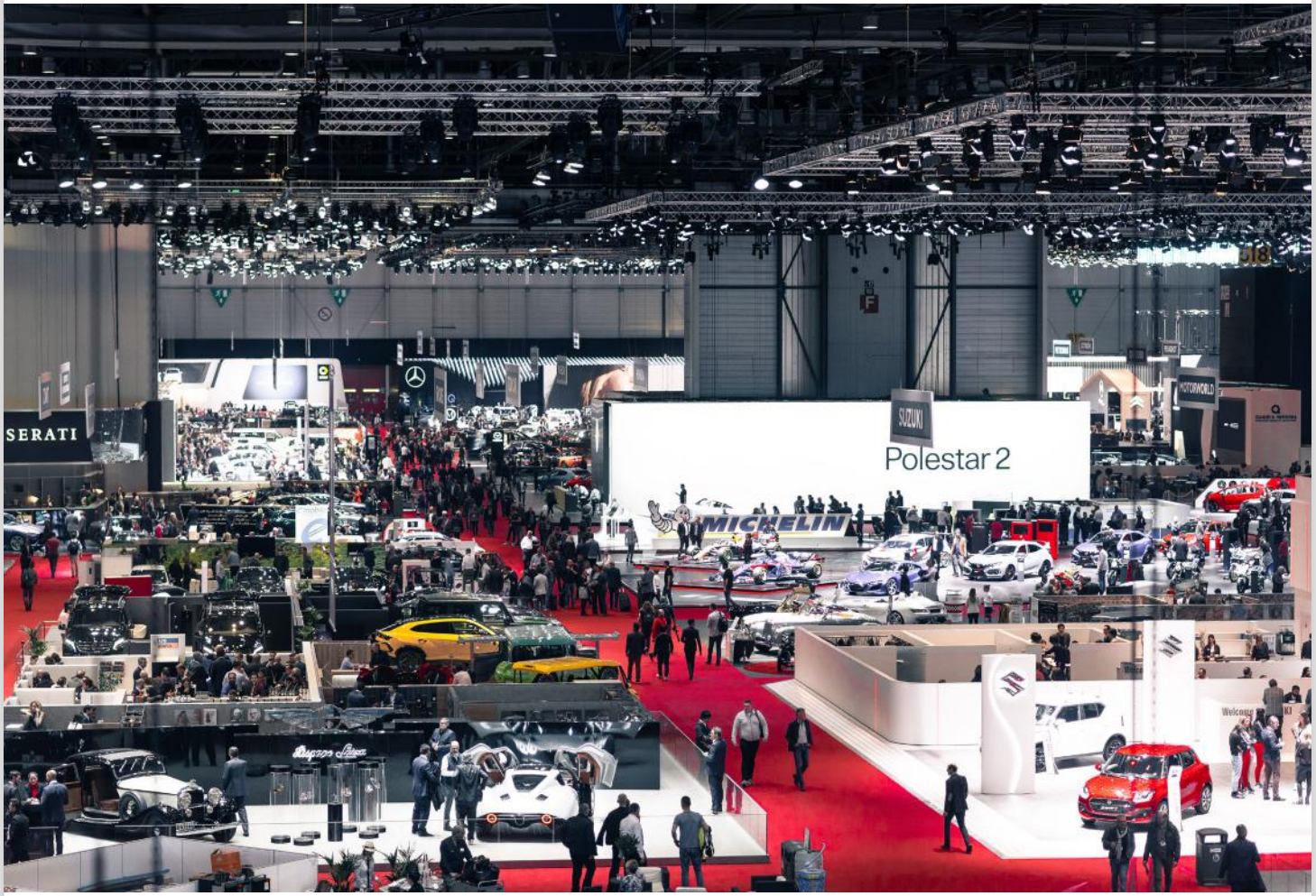

**5.**
Endless innovation in front and rear lights

**Five main takeaways from Geneva**

Geneva's motor show, unlike the last big auto shows in Detroit and Los Angeles, presents many concept cars. On top of that, the pre-production prototypes and newly-unveiled production cars are themselves dream cars, bristling with levels of technology and capability.
This year's show was set in motion by the Car of the Year award, won by the Jaguar I-Pace.

Overall, we retain five salient points from the show:

- Electrification is really gaining traction. Many electric cars and production-plausible EV studies.
- The world of hypercars now includes newcomers from China and Russia.
- Use of lighting for brand and model-range identity is going from strong to stronger.
- Front and rear lamps are growing thinner and thinner and thinner.
- There is no end in sight to the innovation in lights all over the car.



## Increasing electrification

In Geneva, more than 30 new electric vehicles were presented that we can order in different categories,

**Alternative pure electric versions of recent mass production models :**
-Audi Q4 e-tron, fifth electric model from Audi with production in 2020
-Peugeot e-208, electric version of the new Peugeot 208
-Mercedes EQC400 4 matic, already seen at CES with a production scheduled this summer and based on the GSC
-Mercedes EQV based on the V-class/Metris van that will be in production this year. Long light guides for DRL and lens modules for the main lighting functions

**Electric concept cars are anticipating furure models :**
-Kia Imagine
-Mitsubishi Englebert Tourer concept, preview of next Mitsubishi Outlander
-Seat El-Born, close to production vehicle and based on the new MEB platform from Volkswagen group that will underpin a huge range of electric cars from VW, Seat, Audi, and Škoda.
-Škoda Vision IV concept also based on the MEB platform.

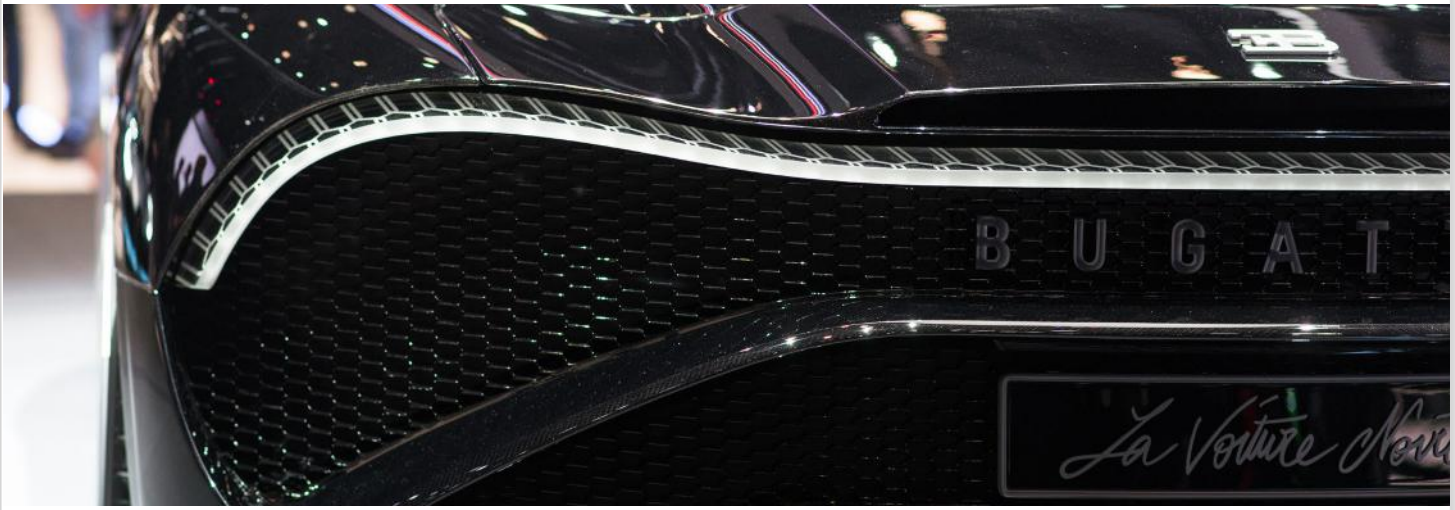
**Hybrid cars :**
-Alfa Romeo's first plug-in-hybrid, the Tonale concept
-Audi's TFSI & BMW 745e (hybrid version of the new 7-Series)
-Kia e-Niro & Nissan IMQ, preview of the next hybrid Qashqai (2021)
-New Renault Clio Hybrid "E-tech" version (2020)
-Toyota Corolla Trek & GR sport

**Various creative pure electric vehicles from very small cars to hypercars :**
-Seat Minimo, a small quadricycle similar to the Renault Twizy but electric with two passengers in two rows
-Citroën AmiOne concept, another small quadricycle but with the two passengers side-by-side
-E-go, a small city vehicle with a length of 3.35 m from the new German company e.go founded in 2015
-Volkswagen I.D Buggy
-Polestar 2, first model from Volvo's new EV brand targeting the same market as the Tesla 3
-And several impressive hypercars that we shall comment on in the next chapter

This list, which is far from exhaustive, illustrates the fact that more and more, each model will have an electric version or even will be only electric. It appears also clearly that the lighting equipment of these electric vehicles is like that for petrol cars, the car makers preferring to keep the signature and the techniques of their preferred solutions. That's the case, for instance, with Mercedes keeping the multibeam unit, and Peugeot using the same lens modules as on the new 208 for the new e-208, and so on.
This can be explained by the relatively modest part of energy taken by the lighting, as an already very powerful LED system having a global consumption of 150W for two headlamps is taking during a trip of four hours corresponding to the range of the car 600Wh, so less than 1% of the 80kWh energy now often integrated in new electric cars.




**Hypercars are luxury cars and the Geneva show is their home.**
Some of these hyper-fast, hyper-expensive cars are hyper-extreme, too, like the Bugatti La Voiture Noire («The Black Car»), a 1500-horsepower boomer with only one example produced, and sold at the new record price for a new car: at €16m. This car is far more than a modern interpretation of Jean Bugatti's Type 57 SC Atlantic. It is a feast of aesthetics with a full rear pattern light stripe.




**Many of these new hypercars are now electric.**
The new Pininfarina Battista has the most powerful motor ever put in a production car: 1874 hp! Targeted to be produced in 2020.


**Luxury electric brand.**
Aston Martin are getting in on the action, as well, with their Lagonda All Terrain SUV concept. Rather than a model as in the past, Lagonda now becomes Aston Martin's marque for pure electric vehicles.

## Thinner front and rear lamps

### Styling trends

Naturally for many of these concept cars, the lighting equipment is not functional, but their design is very useful to unders-tand the dreams of designers and so the future of vehicle lighting equipment. For many concept cars seen in Geneva, the front and rear lighting is realised with a long, thin transversal light guide—white for DRL and red for stop/tail functions—the other functions being hidden. We can see this trend for instance on the Bugatti and Pininfarina Battista, and on the Alfa Romeo Tonale concept with waves in the line reinforcing the attractiveness.

This trend is also visible on serial products as on the Kia Soul, and at the rear on the Polestar 2, the Audi Q4 e-tron, the BMW 7 Series, and the VW T-Cross.

### Renault Clio progress

Even if this height reduction is less impressive on the two new French premieres (Renault Clio and Peugeot 208), the comparison with the previous version is clearly showing the progress.

It is interesting to note that this reduction of height of the body design for the Clio is only possible thanks to the generalisation of LEDs for main lighting on every version, a first for Renault at this range level and preparing the final coup de grace of LEDs headlamps to triumph over halogen. The previous version of the Clio that we can see above was also using LEDs with the same cost-effective reflector solution on high range version, but the basic version with halogen was driving the greater height.

Renault Clio IV

Renault Clio V

## Lighting to create a strong brand identity

4/5
Takeaways

**The importance of lighting equipment to produce the signature of the car.**
Lights are increasingly used to produce the signature of the car, generally with solutions that are duplicated on many models. These families of similar lighting equipment can be seen for instance on BMW models for the new 7 and 8 Series and others with their two lens modules above reflectors.

They can be seen also on Seat models; their small modules have two reflections keeping the triangle aspect of the Seat signature for instance on the Ateca, Arona, and Ibiza, or on Lexus cars with their small lens modules, and so on.

This signature of the car maker can evolve, as we can see on the new Peugeot 208: for the first time there are three claws with three vertical segments as the DRL, similar to the rear signature seen for many decades. This signature is extended by a long tooth already present on previous models.


## Endless innovation in front and rear lights

5/5
Takeaways

The 5th important takeaway is the continuous improvement in lighting techniques for safety and style. For instance: the Passat with a new version of IQ.Light, the nice system first introduced last year on the Touareg and now democratising, as on the Passat with 44 LEDs. Another interesting example is the new Polestar (Volvo's EV brand) equipped with an 84-pixel powerful matrix beam, one of the first for a pure electric car and keeping the traditional Volvo «Thor's Hammer» signature.

**Car of the year 2019**

Car of the Year is organised by seven major magazines in Europe: Auto in Italy, Autocar in the United Kingdom, Autopista in Spain, Autovisie in the Netherlands, L'Automobile in France, Stern in Germany and Vi Bilägare in Sweden. The top 60 reporters from 23 countries in the automotive world in Europe elect the winner.

The Jaguar I-Pace won out over six competitors, though it was a bit of a close call as for the first time, two cars got the same number of points: the Alpine A110 and the Jaguar I-Pace. The Jaguar finally won the prize by decision of the jury, as it was placed in first position more often (18 times versus the Alpine's 16). Runners-up included the Kia Ceed, Ford Focus, Citroën Aircross, Peugeot 508, and Mercedes A Class.

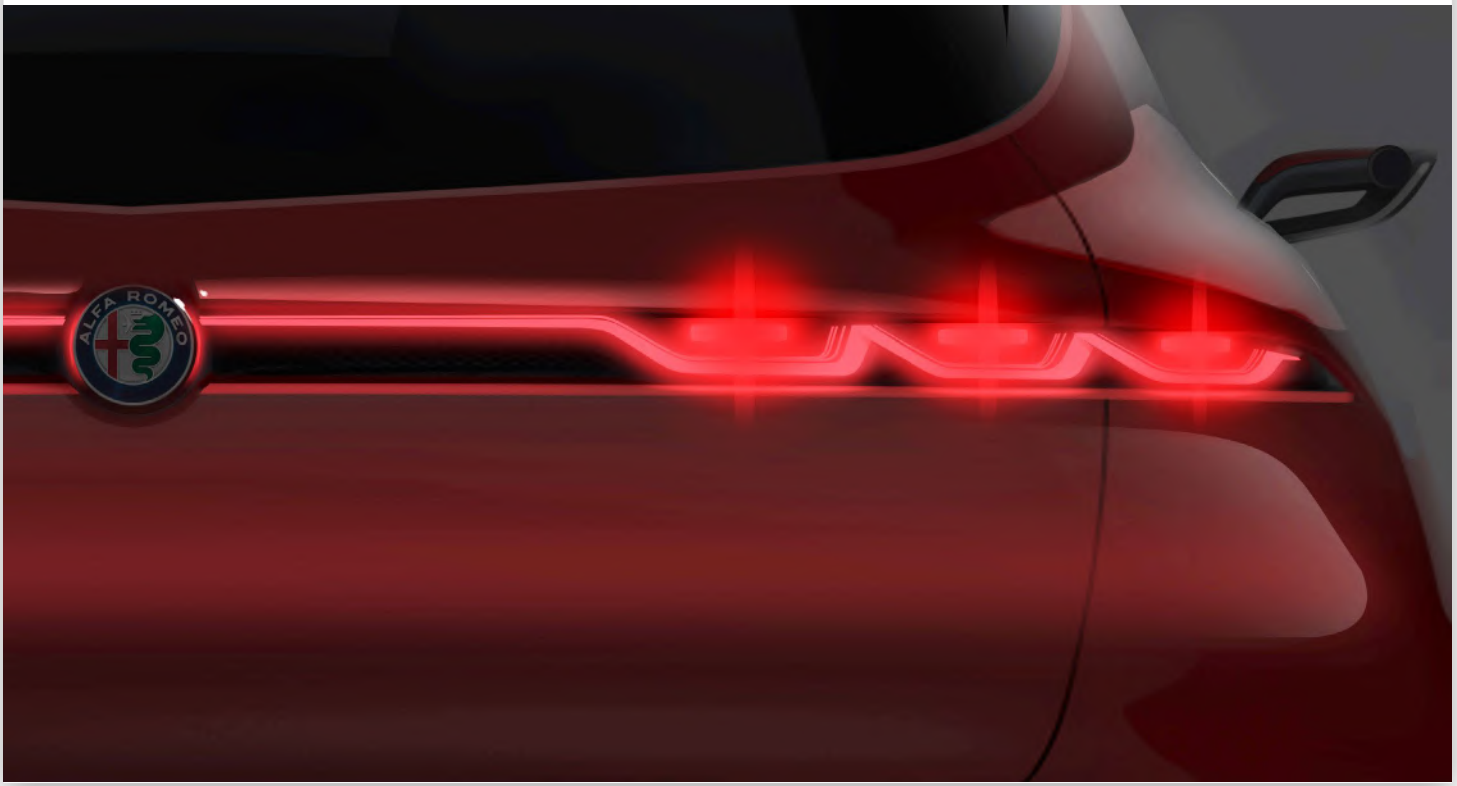
The decisive vote was taken live at the motor show, in presence of international press representatives. Jaguar's Design Director Ian Callum received the award. The trophy was handed over by jury President and Stern magazine journalist Frank Janssen. Callum was extremely proud of the title, saying «An electric SUV - that's the future!». This is the first CotY award for the Jaguar brand.

## Alfa Romeo Tonale Concept

Alfa Romeo joined the electric car world with their new Tonale compact SUV concept—the first plugin hybrid and the first compact utility vehicle under the Alfa Romeo brand. Alfa say the goal of the Tonale is to deliver the best driving dynamics in the segment and to introduce electrification for the brand. The car hints at a future compact crossover positioned below the Stelvio.

The Tonale is said to be inspired by the beauty and nuances associated with human forms, and the organic movement of light by pure lines and volumes. Its design reminds of the iconic Scudetto, and completing the front monographic is a 3+3 forward lighting arrangement that evokes the proud gaze of the SZ and Brera. Note sideview cameras instead of mirrors.

The rear of the Tonale is elegantly defined by an intriguing window shape, complemented on top by the suspended wing that enhances the continuity between the transparent roof and the rear window itself. The rear lighting is reminiscent of an artistic signature, rather than an optical lighting element—a sort of luminous signature born directly from the artist's hand, here also with long light guides from one side to the other reproducing the waves of the DRL in front.

**Aston Martin Valkyrie**

Since the first reveal of the 1160-horsepower Aston Martin Valkyrie (AM-RB 001) hypercar in July 2016, Aston Martin, Red Bull Advanced Technologies and project partner AF Racing have been working intensively to further develop the Valkyrie's aerodynamics, body styling and cockpit packaging.

The Valkyrie will share the front lights with the RB003, the goal being integral lights like a Le Mans prototype, as lightweight and minimal as possible.

## Audi E-TRON GT Concept

Audi's four-door coupé made its first appearance. The volume-production counterpart is set to follow in about two years.

The arrow-shaped front section also emphasises the matrix LED headlamps with laser high beam. As already seen in production Audi models, the light is also animated here and welcomes the driver with a short function sequence, a wave of light that extends horizontally. It's a new visual signature that is set to find its way into volume production in future.


## Audi E-TRON GT Concept

At the rear, a light strip runs across the entire width of the car. This strip separates at the outer edges, in the actual lighting units, into individual wedge-shaped LED segments. This architecture links the e-tron GT with the volume-production SUV e-tron, making both instantly recognisable even in the dark as Audi electric automobiles.


## Audi Q4 E-Tron Concept

The Q4 e-Tron concept gives an advance look at what will already be the fifth series-production electric Audi to be launched by the end of 2020. This car will use the VW Group's new MEB (Modular Electric Platform). Sales have already started, and the first vehicles will be delivered to the customers before the end of March 2019.

The Q4 e-tron concept is identifiable as an Audi at first glance by the framed brand logo, the four rings. And it will take no more than two glances to see that this is an electric Audi e-Tron: Like the first production Audi with electric drive, the new concept vehicle also features a structured closed surface within a broad, almost upright octagonal frame in place of a traditional radiator grille. Air is supplied via large inlets that extend from below the two matrix LED headlamps all the way down to the front apron.


The striking broad light band that connects the two lamp units on the rear was designed to reinforce the relation within the e-Tron family. This also applies to the inside of the lights, where the significant sweep of the LED segments ties in visually with other e-Tron models. Note the checkered-flag effect, front and rear.

**Audi E-Tron Sportback**

The Sportback version of the e-Tron has LED headlamps styled with four horizontal struts, evincing charging status indicators. These create the E-tron's unique signature in the daytime running lights. For the first time this is integrated directly into the headlamps and the light is used as a signature design feature and as often with Audi, the modules for the main beam, here with lenses, are hidden in a recessed area.


At the sculptural rear, one distinct element is the light strip connecting the LED rear lights which is following a large trend seen in Geneva with a thin light guide connecting the two rear lamps with LED sources, consistent with the brand's D-segment offerings including the A7, A8, and Q8. With their horizontal emphasis, the tail lights echo the graphics of the daytime running lights with a graphical representation of full battery charge.


## BMW 3-Series

A technically sophisticated and visually smaller interpretation of the customary BMW twin headlamps gives the 3 a road-focused stare. Their familiar two-way split is further emphasised by an eye-catching notch in the front apron that rises up into the headlamp contour. Full-LED headlamps come as standard equipment, while the LED headlamps with extended features and U-shaped daytime running lights are available as an option.
Also optional: adaptive LED headlamps with laser boost extending the highbeam range to 530 m, hexagonal DRL rings and blue, L-shaped elements in the inner and outer light chambers.


Surface contours carried stylistically into the rear apron from the side skirts extend in an upward movement via the rear lights up to the spoiler lip on the deck lid. Horizontal lines and the slim, stylishly darkened light units housing L-shaped taillights give the rear a wide and robust stance.

All of the light functions use LEDs. The T-shaped trim elements in the outer edges of the rear apron—which also include a light function in the form of reflectors—mimic the design of the front air intakes on cars with standard specification and on Sport Line and Luxury Line models.


## BMW 7-Series

The new design of the super-slender headlight units provides an attractive visual contrast with the significantly enlarged BMW kidney grille. The modern take on BMW's signature four-eyed face combines with the efficiency and lighting power of LED technology, whose sophisticated functionality is brought visually to the fore by the design of the light sources. The car has adaptive lighting and Selective Beam with matrix technology; laser high beam boost is optional. The lighting modules are keeping the BMW signature: two projector modules and two reflectors below.


The three-dimensional full-LED rear lights are around 3.5 cm slimmer than before, and are positioned behind red and black surfaces arranged to emphasise the L-shaped contour of the rear lights. Other new features include a sharply defined and very slim light strip just 6 mm wide below the chrome bar, which extends across the full width of the deck lid and connects the rear lights with each other.


## BMW X5

The new X5 comes with LED headlamps as standard equipment. Optional adaptive LED headlamps with laser boosters have BMW's Selective Beam to optimise the high beam function, and as a result the range of the non-dazzling high beam has been increased to around 500 metres.
Blue x-shaped elements, which split up the hexagonal light chambers inside the familiar BMW twin headlamps, make a distinctive visual statement.


## BMW X5

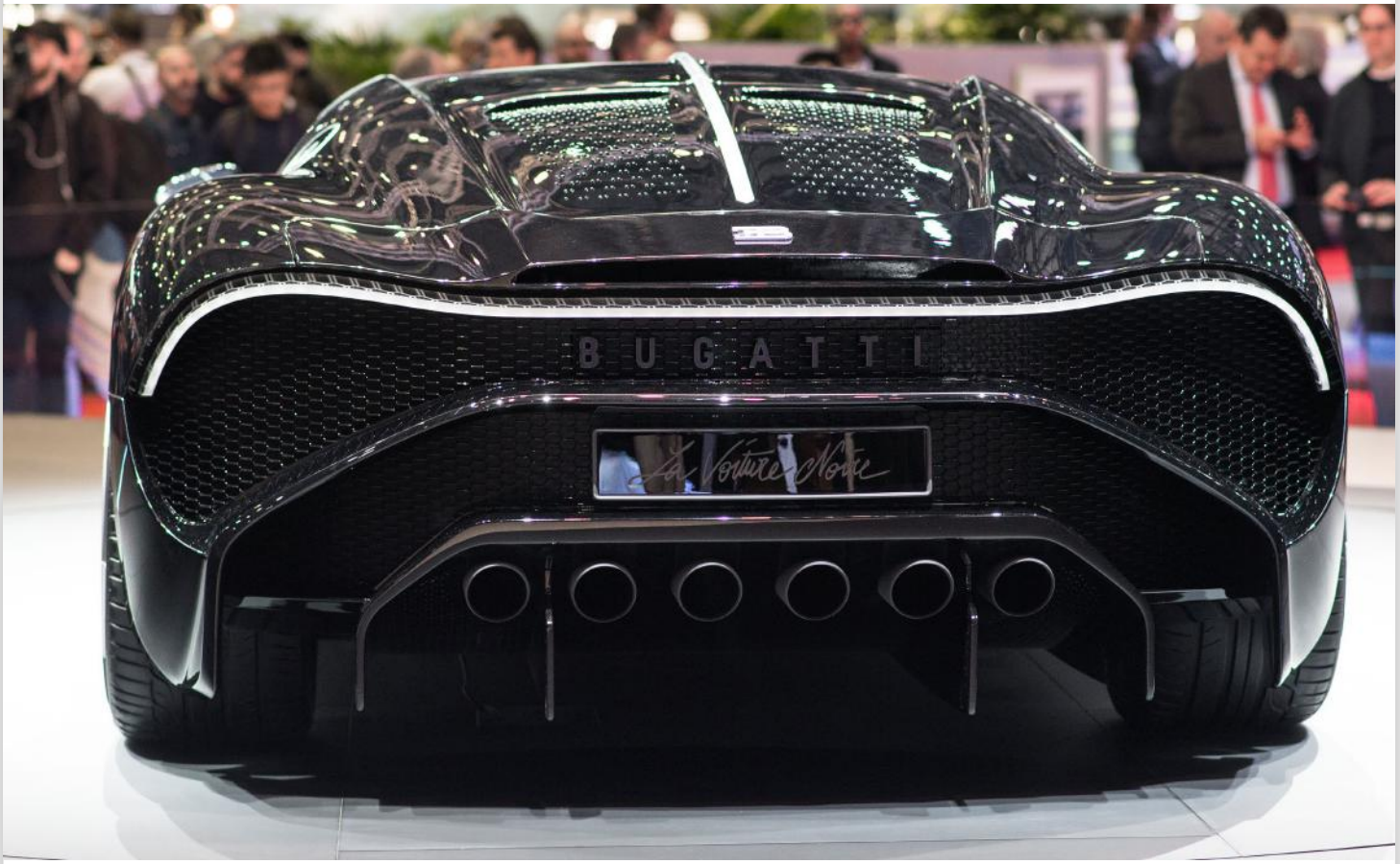
At the rear, too, all the lights feature LED technology. The three-dimensional design of their covers lends them a sculpted, technical edge. Diagonal accent lines give the rear a compact and brawny appearance.


## Bugatti La Voiture Noire

The successful continuation of their heritage poses a challenge for traditional companies. Once again, the French luxury brand Bugatti have shown they can transform these challenges into unique models.

Every single piece of the car has been handcrafted. The front light is composed of a 3D pattern for the DRL and other functions are included in the slim slot underneath.

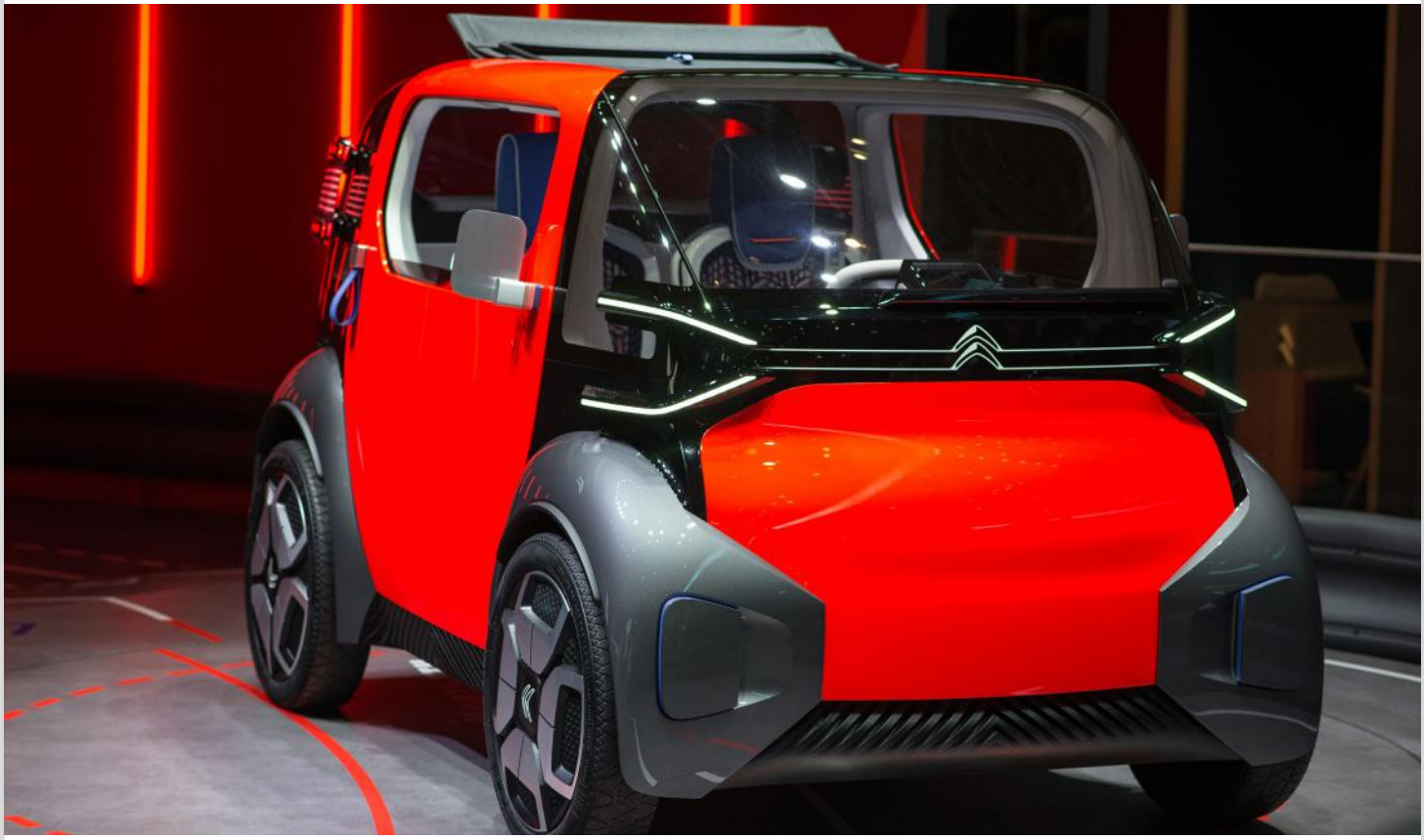

The rear light is a stripe running all around the rear of the car, following the bodylines and looking like a fine piece of jewellery.

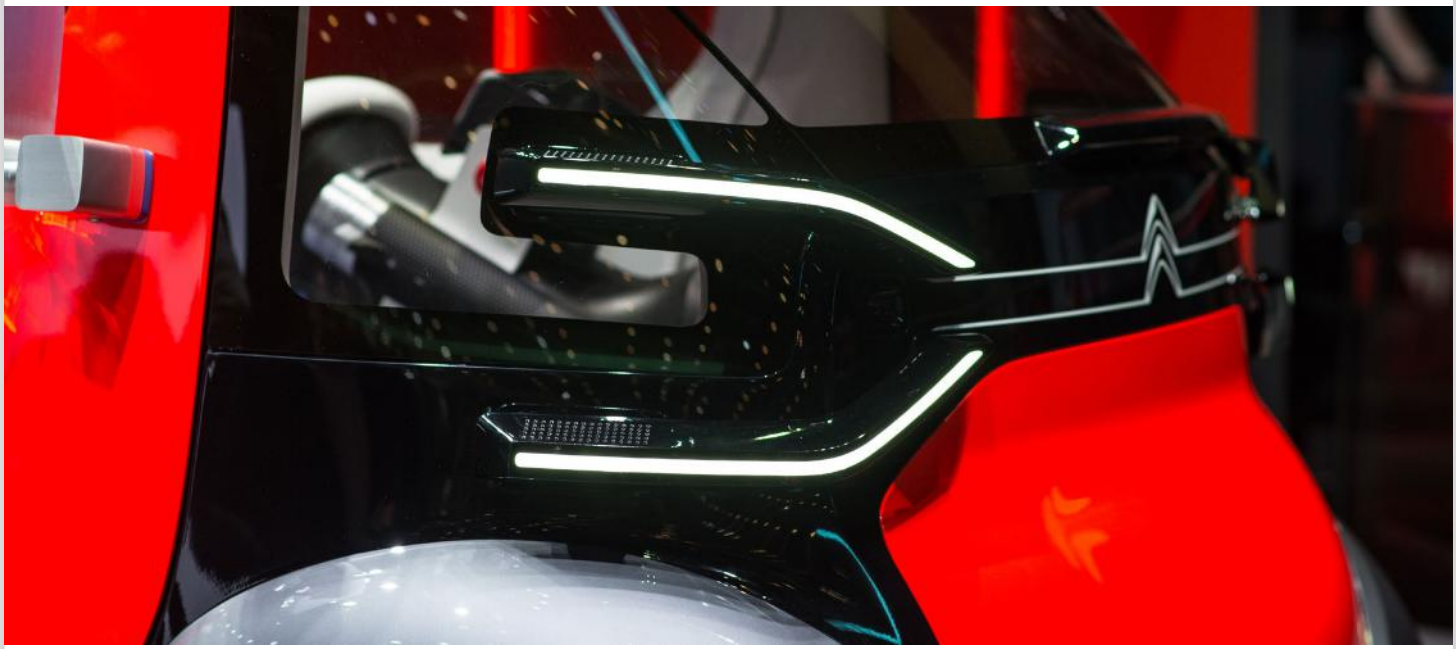



## Citroen Ami-One concept

The Ami One concept modernises Citroën's identity with a new light signature that is more refined, graphic and high-tech, directly inspired by the previous CXperience concept car. The new front end keeps the two tiers, subtly brought together by a V-shaped light strip, giving an expressive front end, enhanced by this elegant styling approach.

The DRLs and indicators lend a touch of finesse with their floating structure that makes the car immediately recognisable. This design theme also features on the rear lights, boosting brand awareness. The car has dent-and-scuff-repelling Airbump® panels made from thermoplastic polyurethane, a flexible plastic filled with small air pockets, much like bubble wrap.





At the rear, the tailgate is topped by a broad, tinted window. Detached from the body, the lights echo the DRLs at the front, floating on a backlit grooved polycarbonate panel. This design approach reiterates the customisable quarterlight on C3 Aircross Compact SUV.

## Ferrari F8 Tributo

The F8 Tributo is the new mid-rear-engined sports car that represents the highest expression of Ferrari's classic two-seater berlinetta. It is a car with unique characteristics and, as its name implies, is an homage to the most powerful V8 in Ferrari history.

New, more compact, horizontal LED headlamps allowed Ferrari's aerodynamicists to incorporate new brake cooling intakes in combination with those on the outside of the bumper, the aim being to improve airflow throughout the entire wheel arch and thereby avoid having to increase the size of the braking system to cope with the higher speeds reached by the car.

The rear of the car has also been strongly influenced by the car's new styling. Aside from the rear screen, the spoiler has been entirely redesigned. It is now larger and wraps around the tail lights, visually lowering the car's centre of gravity and allowing a return to the classic twin light cluster and body-coloured tail, another signature of the early 8-cylinder berlinettas like the very first in the legendary series, the 308 GTB.


## Fiat Centoventi Concept

The Centoventi celebrates the 120th anniversary of the company. It's conceived as a "blank canvas" ready to be painted to suit the customer's tastes and needs at any time of his life or day, without customisation restrictions linked to the specific time of purchase.

The front lighting is split in two parts, the upper slim part is for the main function and the DRL is a double-J shape. Most of the lights are not functional; they are still a design study.

At the rear, piano-black surfaces in the tailgate serve as a message screen with the rear lights at the outboard extents.


## Honda e Concept

Honda's new urban electric model leads on from the brand's highly acclaimed 2017 Urban EV Concept, and is a key part of Honda's "Electric Vision" strategy for the European region. It should be in production before the end of 2019. Classic round headlamps are a link to Honda's successful early Civics. Note side-view cameras.


Black panels with concave profiles at the front and rear are defining design motifs. The exacting attention to detail of the round light clusters enhances the overall simple, clean design and defines the Honda e Prototype's 'human face'. As this e Concept is close to the production model, the lighting systems is likely the final one.


## Kia Imagine concept

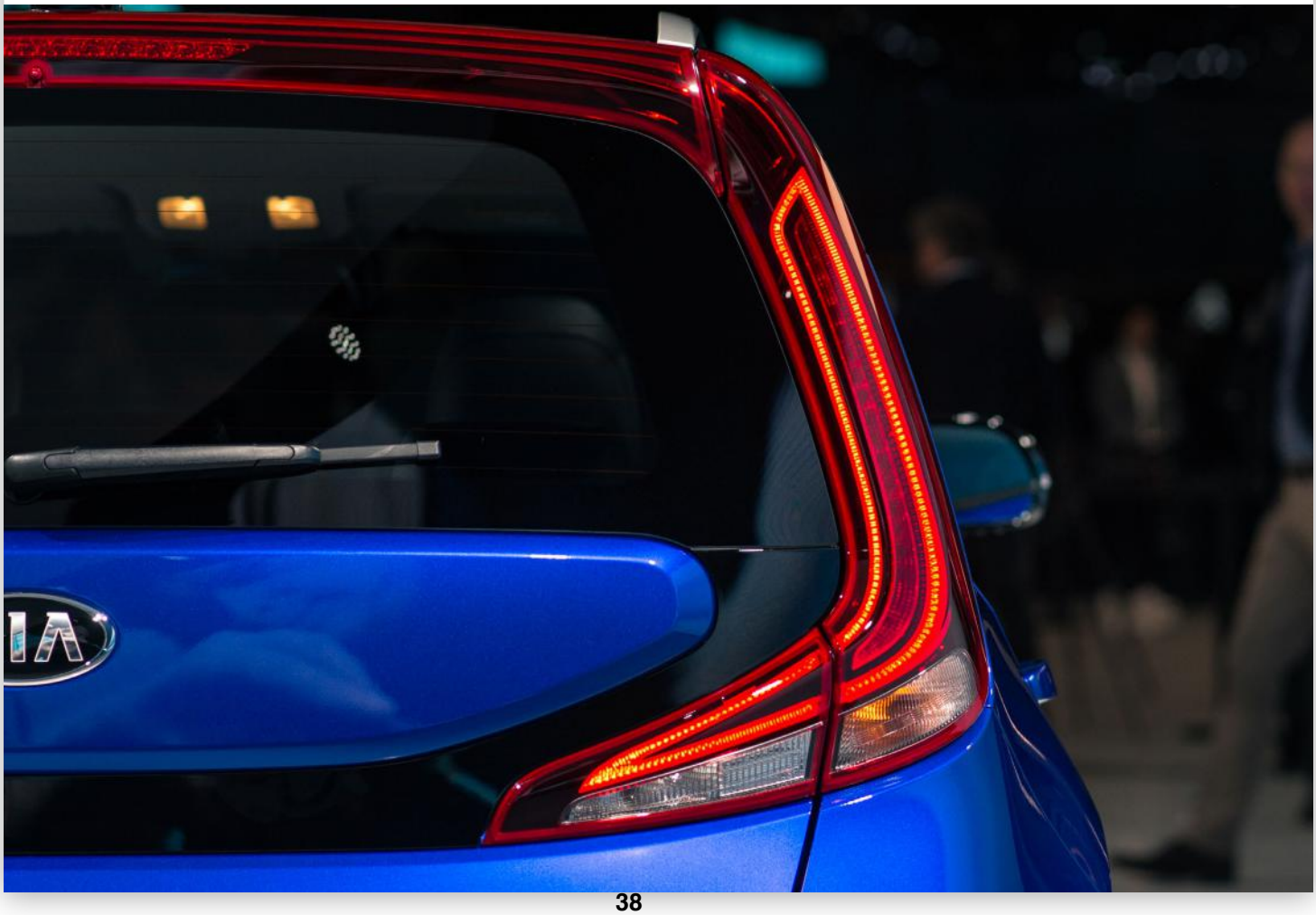
Reinterpreting Kia's "tiger nose" grille, the Imagine has a new illuminated "tiger mask" that encircles the LED headlamps housed within a single block of clear acrylic, creating the effect of piercing eyes floating free of visible support. The turn signals, located high up on the sharp-edged bonnet, feature illuminated glowing elements that appear to float in fins of clear acrylic. The rear lights are equally compelling, with the turn signals housed within deep-set tunnels to create a three-dimensional effect, the looped lights extending outwards as they grow in size. Horizontal wraparound brake light strips create a familial link with the Kia Stinger.

Look at the thin light guide inlaid in the roof arch joining the front windshield to the back, and the side-view cameras.

## Kia e-soul

The 2020 Soul, already seen at Los Angeles, now brings a 100% electric model of Kia's beloved, award-winning and unconventional compact utility vehicle.
LED headlamps are integrated in the front grille and create a full width thin stripe. The thin main lighting systems is realized with LEDs lens modules having a reduced height. Fog lamp and turn signals are in the bumper.


The back of the Kia e-soul is composed of a vertical tail-lamps running all around the tailgate.

## Kia Nira

The Niro has a new front face. Redesigned air intakes and new arrowhead-shaped LED daytime running lights combine with blue trim highlights to help it stand out further. The headlamps are composed of two modules and a J-blade light guide, probably for the front turn signal.


Out back, the designers worked on tail light based on the arrow shape as they did for the front DRL. The signature got a nice presence with the black lens.

## Mazda CX30

Mazda CX-30's styling is derived from a new design language "Charge and Release", which stems from the brushwork used in Japanese calligraphy. The headlamps and rear combination lamps are both elegant and functional, featuring an LED array that emphasizes the lamps' elaborate cylindrical shape.

The LED turn signals have a new, distinctive light signature that starts at full power and then fades in sequential pulses.


At the rear, the circular tail lights make an optical illusion of greater width.


## Mercedes CLA

The CLA coupé was presented at the last CES. In Geneva it was the premiere of the CLA shooting brake.

Mercedes' well-known Multibeam LED headlamps bring great visibility in all conditions, exemplifying the transfer of technology from the luxury segment to the compact class. They allow extremely quick and precise adjustment of the light to suit changing traffic situation. Each headlamp has 18 individually-controllable LEDs. LED High Performance headlamps are a further option. As standard, the new CLA is equipped with halogen headlamps with integrated LED daytime running lamps. The tail lamps are also available with all-LED technology.


Narrow tail lamps and the number plate housed in the bumper make the rear of the CLA look especially wide. The tail lamps are graphically similar to the front lamps, and the signature is slim and precise.

## Mercedes GLC

A. facelift of the GLC brings standard-fitment LED High-Performance headlamps that are smaller and more raked, and have significantly modified contours. The torch shape of the daytime running lights hones the design and guarantees better recognisability of the Mercedes light signature. A full-LED headlamp with Multibeam technology is optionally available.


The character continues at the rear; the redesigned full-LED tail lamps also ensure an unmistakable light signature with the hallmark blocks in backlit edge-light specification.


## Mercedes EQV Concept

World premiere for the first purely battery-electric people mover in the premium segment. The Concept EQV is close to serial production.

The dynamic exterior design with its new look emphasises the focus on the powerful electric drive system. At its heart is a «radiator grille» with chrome inserts and an LED band—typical characteristics of the EQ design idiom. The whole exterior is painted in high-tech silver while the bumper delivers an unmistakeable appearance thanks to large air inlets and two broad chrome inserts positioned towards the outer edges. LED headlamps underline the presence and sporty direction of the concept vehicle.

The rear of the EQV concept features vertical tail lamps (lifted from the V-Class/ Metris?) with a double signature. The fog and reverse functions are underneath the rear light inside the same volume.

## Mitsubishi Engelberg Tourer Concept

Named after the famous ski resort in central region of Switzerland, the Engelberg Tourer is a twin-motor, 4WD, plug-in hybrid EV which could preview the next generation of Outlander.

It has LED driving lamps on an auto-open/close roof box and skid plates for front and rear bumpers. The front lights are thin and graphical with three stripes below and five ice cubes above.


The tail lights are in a strong horizontal T shape.

## Nissan IMQ Concept

The IMQ concept could well be a design study for the next Qashqai.
Lensless headlamps are integral to the body shape, while prominent DRLs present with a boomerang shape.


At the rear, a vertical character line drops from the light cluster to separate air as it passes down the side, aiding aerodynamic performance. At its upper end, it's integrated into a new slimline interpretation of Nissan's boomerang lamp cluster repeating the front DRL shape. The single-piece tailgate tucks under the rear fenders, echoing the design of the hood.



## Peugeot 208

Immediately recognisable as a Peugeot, the front of the new 208 and electric e-208 adds a full LED 3-claw headlight signature, similar to the traditional Peugeot rear lamp signature


The rear stands out with its black band running the width of the hatch, linking the traditional 3-claw lights (which are also day-running).

## Pininfarina Battista

Pininfarina are calling their Battista the world's first luxury electric hyper performance GT. Delivering on a long-held Pininfarina family dream and a new target of zero emissions with extreme power, the Battista is the first solely Pininfarina-badged car and delivers unprecedented performance with 1874 horsepower.

Aesthetically the car is dramatic with the bonnet visually connecting to the windscreen via carbon fibre blades. The front wing above the front LED light strip is visually divided into two reflecting the car's rear and creating a new EV signature.

The wing graphic is also a strong feature at the rear and unifying the overall design. The thin tail lamps are integrated in the rear spoiler and part of the aerodynamics of the car.


## Polestar 2

The 2 is the second car from Volvo's new EV brand.
It's an all-electric fastback that targets the Tesla 3 segment. Features include 84-Pixel LED headlights and proximity lighting which enable a unique welcome sequence, Polestar's frameless side mirrors, and the unique illuminated Polestar logo, which is reflected onto the car's panoramic glass roof.
The DRLs bear Volvo's Thor's-Hammer signature.

The rear of the Polestar 2 is nicely made: a tail light doing a full width stripe signature, with the 3D effect and rectilinear design giving a refined and premium look.

## Porsche 992

Porsche have developed a whole host of new safety and assistance systems for the new 911 including optional LED matrix headlights called PDLS Plus.
This represents the apex of Porsche lighting technology with an LED array of 84 individual LEDs working together, with lenses positioned in front of them, and with high-power LED for auxiliary high beam performance comparable in range and intensity to laser high beam boosters.


An elegant light bar spans the entire width of the vehicle. The thin tail lamps float above the Porsche callout.

## Renault Clio V

Renault presented their newest 5th-generation Clio. To date some 15 million units of the Renault Clio have been sold since it was launched in 1990, and it has become Group Renault's best-selling model worldwide.

The headlamps are now 100% LED as standard fitment. They bear the characteristic Renault C-Shape light signature, with a diamond motif topping the light and adding extra elegance. It's a reflector headlamp system with three chambers: one for the low beam range, one for the low beam width, and the last one for the high beam.


As with the headlights, the rear lights feature a new C-Shape light signature with a particularly strong effect of depth. A third, longer and thinner brake light is fitted on the top of the rear window.

## Seat el-born

The Seat el-Born is a concept car targeting to answer the varied questions posed by the electric revolution. It is based on the Volkswagen group MEB platform and could be in production by the end of 2020.

The headlamps are inspired by triangle and sharp surfaces the traditional Seat signature, with a layering of pattern inside the light matching the exterior of the car.

The rear lights are a full-width strip with triangle shapes and fading mesh pattern, the same pattern used for the front reflectors, both being not yet functional in this concept car.


## Seat Minimo

The single headlamp on this small electric concept car is reminiscent of a motorbike, while the rear light borrows design cues from aeronautics, emphasising the vehicle's agility.

## Škoda Vision iV Concept

The all-electric Škoda Vision iV concept study offers a look ahead at Škoda's electric future.

Also based on the MEB Volkswagen group electric platform, the concept car features a horizontal light strip spanning the entire width of the vehicle and connecting the thin Matrix LED headlamps.

Aerodynamic trailing edges and crystalline LED tail lights bring up the rear. These redefine the Škodatypical 'C' shape and, along with a strip of lights above the rear diffuser, accentuate the car's width. Another eye-catching detail on the slightly curved lip of the electric tailgate is the Škoda lettering; the individual letters illuminate in red.

## Škoda Scala

Innovative LED front and rear lights shape the Scala's appearance. The headlamps are narrow and tapered, and the razor-sharp designed tail lights with rear fog light shine in the brand-typical 'C' shape.

The Scala is the first Škoda to offer dynamic sweeping rear indicators as an optional extra. The indicators are divided into individual LEDs.


The full-LED version of the tail lights also comprises the reversing light as well as—for the first time in a Škoda—dynamic indicators. The indicators are made up of individual LEDs; they illuminate one after another, sweeping from the inside and towards the outside of the car.

## Škoda Kamiq

Škoda's third European-market SUV is the Kamiq. As with the successful Škoda Kodiaq and Karoq, the name Kamiq also originates from the language of the Inuit people who live in northern Canada and Greenland: it means something that fits perfectly.

It's the first Škoda model to feature split LED headlights with daytime running lights that, in the full-LED version, appear like four gemstones above the main headlamps. 3D and crystalline effects as well as LED units that look like glistening jewels add to the sophisticated appearance. The full-LED version also features fog lamps with static cornering lights as well as sweeping front and rear indicators.


The rear features a new interpretation of the Škoda-typical 'C' shape of the lights. A diffuser accentuates the car's generous ground clearance and powerful appearance.

## SMART

Smart's Forease+ is a refinement of the Forease seen at the Paris 2018 motor show. The design team decided to try a new lighting idea with 3 stripes for the front and a 3D rear light.


smart

## Volkswagen Passat

The 30 millionth Passat will leave the assembly line this Spring, making it the most successful model name in its size class worldwide.

New headlamps, DRLs, fog lamps, and tail light clusters are all done in LED technology. The headlamps have I.Q Light, the intelligent and powerful lighting system first seen on the Touareg in 2018, but here with a reduced number of 44 LEDs per headlamp.


The design and the LED contours of the tail lights give the rear of the car a distinctive night time light signature. In the top version of the full LED tail light clusters, the inner LED elements create three pairs of wings. They are bordered by LED strips for the tail light (above, below, outboard) and an LED strip for the turn signal at the top.

The three wings for the tail light function are aligned with the longitudinal side facing downwards, while the three wings for the stop light face upwards. When the brake is actuated the downward dim red wings switch off and the upward bright red wings switch on, giving an effect VW call "click-clack": a noticeable change of light shape for stop vs. tail functions. The top-spec Passats have a sweeping turn signal.

## Volkswagen T-Cross

This new model will soon be debuting in the markets of three continents with its combination of style, practicality, flexibility, connectivity and economy, and setting new standards for its class as it goes.

The headlamps of the T-cross are integrated in the offroad-style grille, the DRL is a sideways J-shape, and the headlamps have one module each for low and high beam.


The T-Cross tail lamp package comprises a full width stripe of light, with a modern graphic signature. The rear fog lights are within the black stripes. Turn signal appears to be bulb-type.

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