

C-X16

A JAGUAR DESIGN CONCEPT

JAGUAR

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C-X16

A JAGUAR DESIGN CONCEPT





THE BEST WAY FROM A TO B...



...ISN'T ALWAYS A STRAIGHT LINE







THE C-X16 IS OUR COMPELLING VISION FOR
A 21ST CENTURY JAGUAR SPORTS CAR.
IT EMBODIES THE ESTABLISHED JAGUAR
STRENGTHS OF SENSUAL DESIGN, ANIMAL-LIKE
AGILITY AND INSPIRATIONAL PERFORMANCE.

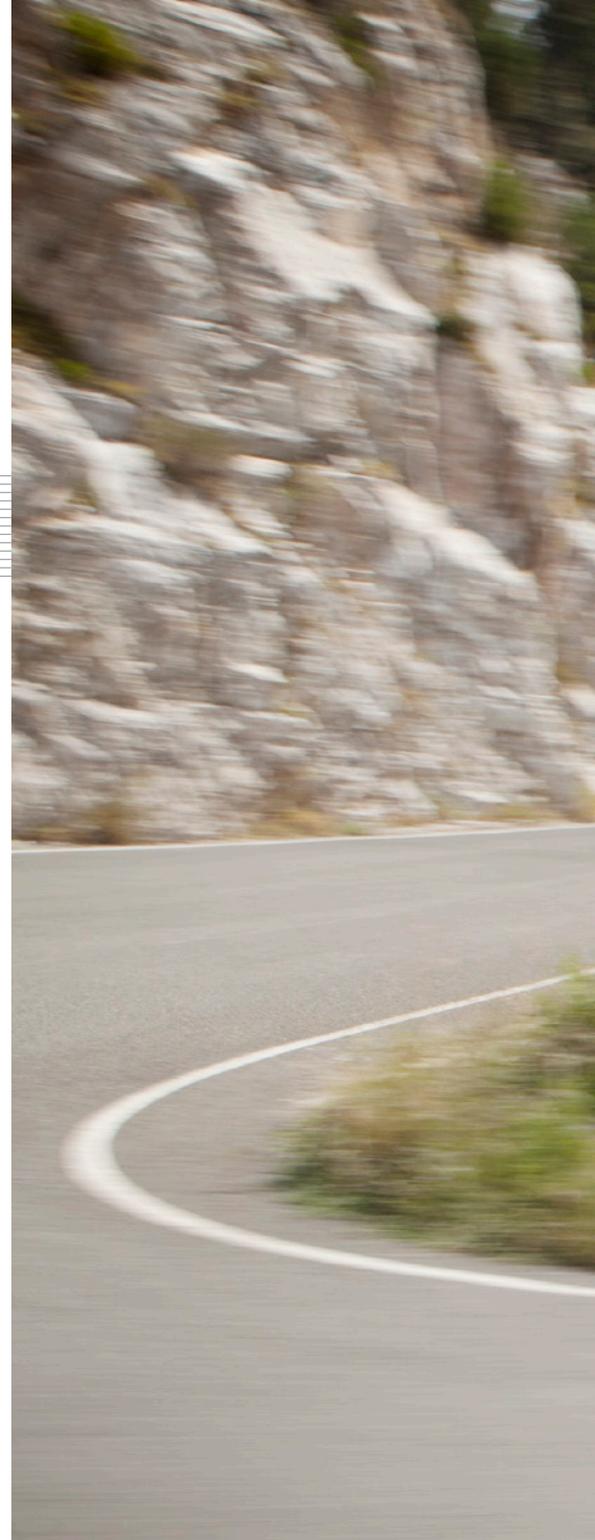
ADRIAN HALLMARK, GLOBAL BRAND DIRECTOR, JAGUAR CARS



C-X16 AT-A-GLANCE



- > A CONCEPT 'ONE PLUS ONE' SPORTS CAR THAT EXPLORES FUTURE PERFORMANCE HYBRID OPTIONS.
- > SEDUCTIVE LOOKS INDICATE THE NEXT EVOLUTION OF JAGUAR'S BOLD DESIGN DIRECTION.
- > SENSUAL SHAPE IS DEFINED BY THREE DISTINCTIVE 'HEARTLINES' ALONG THE FRONT WING CREASE, REAR HAUNCHES AND SWEEPING ROOFLINE.
- > POWERED BY AN INNOVATIVE SUPERCHARGED 3.0-LITRE PETROL V6 ENGINE PRODUCING 380PS (280KW) AND 332LB FT (450NM) OF TORQUE.
- > HIGH-PERFORMANCE HYBRID SYSTEM BOOSTS OUTPUT BY 70KW AND 235NM.
- > TOP SPEED OF 186MPH, 0-62MPH IN 4.4 SECONDS AND 50-75MPH ACCELERATION IN 2.1 SECONDS.
- > CO₂ EMISSIONS OF 165G/KM AND AN ELECTRIC-ONLY TOP SPEED OF 50MPH.
- > ALUMINIUM CONSTRUCTION MAXIMISES TORSIONAL RIGIDITY FOR SHARPER RESPONSES.
- > EIGHT-SPEED ZF GEARBOX WITH QUICKSHIFT CHANGES.
- > INTELLIGENT STOP/START FOR IMPROVED FUEL ECONOMY.
- > NEW-GENERATION JAGUAR TOUCH-SCREEN WITH SHORT-CUT KEYS.









INTRODUCTION



The Jaguar C-X16 concept is a bold statement of Jaguar's future design and technological intent. The C-X16 takes the traditional front-engined, rear-wheel drive formula that Jaguar defined over decades and reinvents it for the 21st century in a performance-oriented hybrid drivetrain with 50:50 weight distribution.

The latest iteration of Jaguar's 'Redefining Performance' ethos, the system is based around a prototype supercharged all-alloy V6 engine which produces 380PS (280kW) and 332lb ft (450Nm) of torque from 3.0-litres thanks to its innovative design. Supplementing this is an electric motor producing 70kW and 235Nm (equivalent to 95PS and 173lb ft), available to the driver at the push of a steering-wheel boost button.

Allied to an eight-speed gearbox and mounted in a lightweight aluminium chassis, this allows the C-X16 to sprint to 62mph in 4.4 seconds and reach 186mph while returning 41mpg (UK gallon) and emitting 165g/km of CO₂.

The aluminium bodywork is wrapped as closely to these mechanicals as possible to distil the essence of Jaguar sports cars into the next evolution of an already award-winning design language. By stretching the main feature lines back from the focal point formed by the grille and pushing the wheels as far into the corners as possible, the car has a taut, poised-for-action stance that is unmistakably Jaguar.

The interior showcases important future technologies such as multimodal rotary controls. These incorporate miniature OLED screens which reconfigure to reflect the different functions that can be performed via the controls, all of which are designed for maximum compatibility between sports car needs and everyday usability.

An example of this is the full smartphone integration via the 'Connect and View' system by which the central Touch-Screen reconfigures to mimic the screen of a connected device. The central screen also features a second-generation interface with fingertip touch supplemented by buttons that provide short cuts to top-level menu functions.

The cabin is trimmed in the finest leather and Suedecloth. As expected of a Jaguar, premium materials are used throughout, with the main touch surfaces composed of a combination of anodised aluminium, rich piano blacks, dark chrome and carbon-fibre that underline the car's performance potential. The manually-adjustable bucket seats are made of lightweight composite materials with a central carbon-fibre spine for rigidity and support.

Adrian Hallmark, Global Brand Director, Jaguar Cars summarises: "The C-X16 concept showcases a new breed of Jaguar sports car. On both the emotional and rational levels it represents an irresistible proposition."

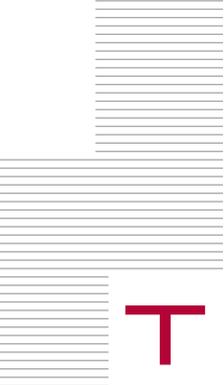


REDEFINING PERFORMANCE



C-X16 DRAWS INSPIRATION FROM BOTH JAGUAR'S ESSENTIAL SPORTING HEART AND OUR CUTTING-EDGE RESEARCH INTO SUSTAINABLE POWERTRAINS.

ADRIAN HALLMARK, GLOBAL BRAND DIRECTOR, JAGUAR CARS



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he 2010 Jaguar C-X75 supercar concept presaged a game-changing approach to performance cars with its range-extending hybrid powertrain. Now,

the C-X16 represents a further avenue of research in Jaguar's mission to develop sustainable powertrain technologies and bring them to production.

The Jaguar performance ethos has its roots in the company's Advanced Aluminium Architecture programme, which focuses on agility, power-to-weight and sustainability benefits. The Limo Green project, conducted in association with the Technology Strategy Board, combined this class-leading construction with a highly experimental hybrid powertrain that was further developed in the C-X75 supercar concept.

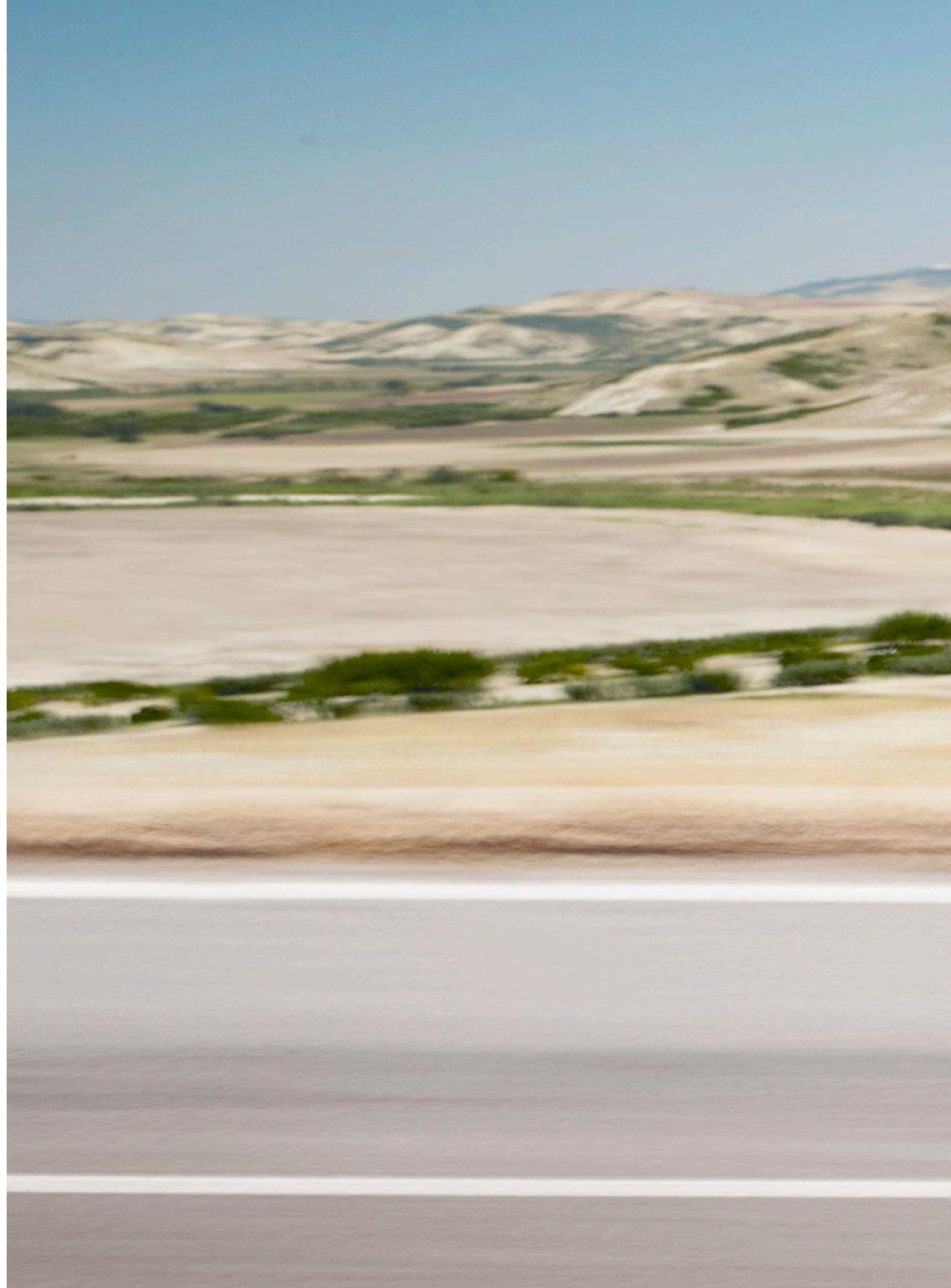
The next stage is represented here in the C-X16 by real-world hybrid technologies that enhance the driving experience as well as the concept's environmental credentials.



HYBRID TRANSMISSION

The C-X16 signposts how the next generation of Jaguar sports cars will produce their power in an environmentally conscious manner. The concept is propelled by a hybrid powertrain that combines an all-alloy V6 engine with a performance-boosting electric motor inspired by the Formula One Kinetic Energy Recovery System system (KERS).

The purpose of this hybrid-performance system is threefold: to supplement the V6 engine's already prodigious power through an on-demand 'Push to Pass' system; to reduce fuel consumption; and to allow the C-X16 to perform as a zero tailpipe-emissions electric vehicle at speeds of up to 50mph on low throttle openings.









INTELLIGENT STOP/START

The starting point is Jaguar's eight-speed transmission with Intelligent Stop/Start, recently launched to great acclaim in the XF sports saloon. The system can shut down the engine in just 300 milliseconds after the car has come to rest and utilises a Twin Solenoid Starter (TSS) that is capable of restarting it in the time it takes the driver's foot to travel from the brake to the accelerator. This provides for faster recovery and seamless performance beyond the capabilities of any existing competitor in production and is the first time such a system has been used in conjunction with a supercharged engine.

ENERGY RECOVERY

The C-X16 extends the Stop/Start system's functionality by linking it to a transmission-integrated motor generator mounted as one unit with the gearbox. This draws power from a 1.6kWh lithium-ion battery pack mounted behind the seats for perfect weight distribution.

As in the most demanding motorsport environment in the world – Formula One – Jaguar employs a KERS system. The battery pack is predominantly charged through a rear axle electro-hydraulic brake energy regeneration system.



PERFORMANCE ON DEMAND

A dashboard display graphic indicates when the additional boost provided by the electric motor can be deployed. When charged, a 'Push to Pass' boost button mounted on the steering wheel allows access to an additional 70kW and 235Nm of torque (equivalent to 95PS and 173lb ft) for up to 10 seconds. Because of the lag-free nature of an electric motor, this power is instantaneously available. The battery is constantly and automatically recharged, the entire system overseen by a bespoke Hybrid Vehicle Supervisory Controller.

Both the battery pack and electric motor mounted in the C-X16 are liquid cooled, preventing them losing performance as heat builds up during spirited use. Additionally, the advanced electronics draw chilled air from the climate-control system, the compressor for which is itself electrical rather than engine-driven to reduce losses. The hybrid system is placed within the wheelbase of the car to aid weight distribution and maximise agility by reducing the polar moment of inertia.





SUPERCHARGED V6

The front-mounted supercharged V6 engine develops 380PS (280kW) and 332lb ft (450Nm) of torque from a capacity of 3.0-litres. A modular development of the award-winning Jaguar AJ-V8, the all-new powerplant points the way to the next generation of highly efficient, powerful and refined petrol-fuelled internal combustion engines.

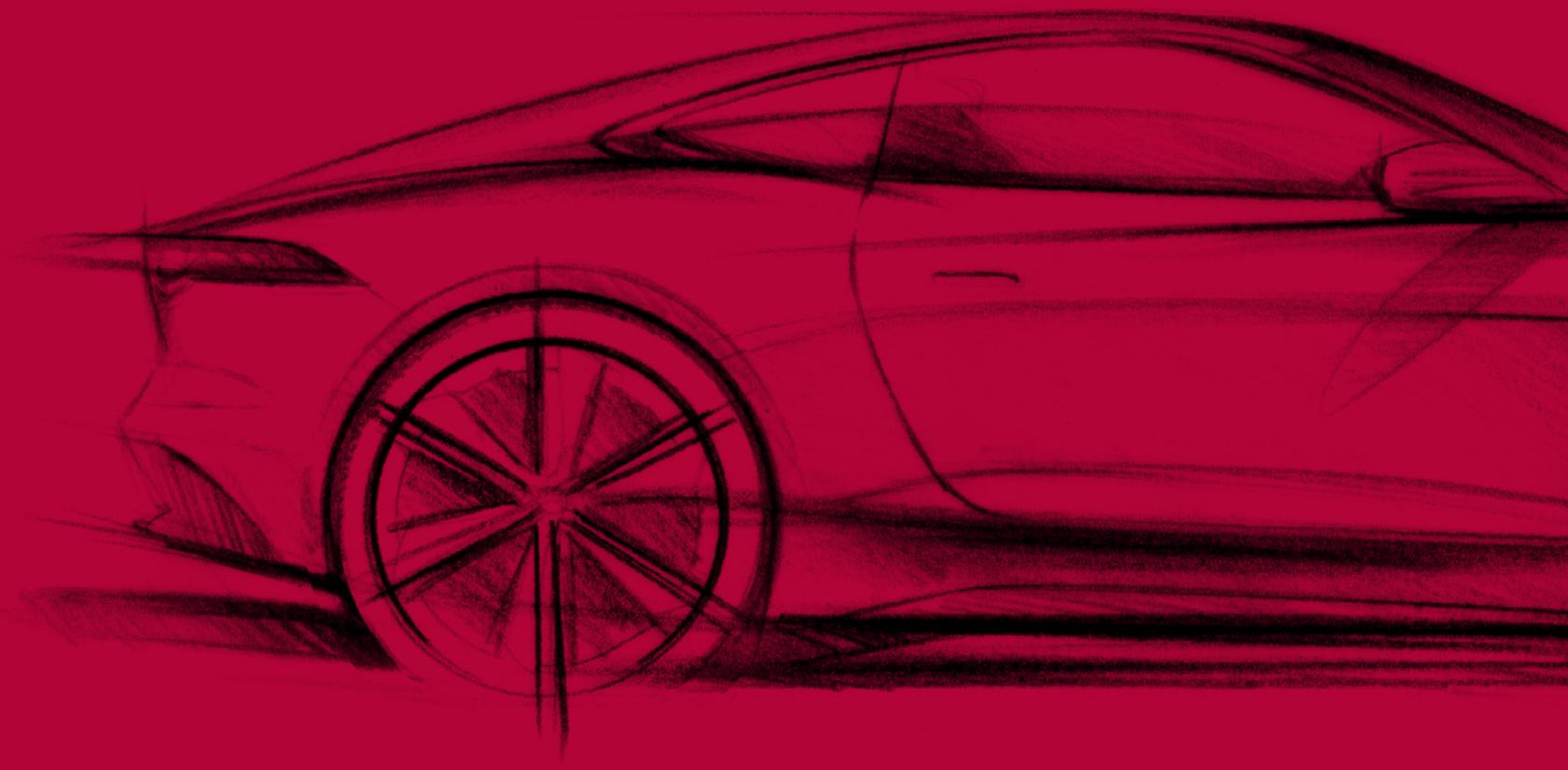
The new V6 is of the same lightweight aluminium architecture as the eight-cylinder engine with a high-pressure, die-cast block with cross-bolted main bearing caps for increased strength and refinement. The quad-cam, four-valve-per-cylinder heads are constructed from recycled aluminium to reduce the environmental impact of manufacturing.

Optimised for bore and stroke, the V6 also features a second-generation Direct Injection combustion system with a raised compression ratio of 10.5:1. A revised electronic bypass for the sixth-generation twin vortex Roots-type supercharger allows much more precise boost control to reduce fuel consumption.

PERFORMANCE AND REFINEMENT

These advances in efficiency allow the V6 to produce a specific power output of 126PS per litre. Allied to the performance-boosting electric motor the result is astonishing – 0-62mph in 4.4 seconds, a limited top speed of 186mph and in-gear acceleration of just 2.1 seconds between 50 and 75mph. The benefits of the hybrid system extend beyond being merely sporting, reducing CO₂ emissions to 165g/km and returning 41mpg on the combined cycle.

To ensure the powerplant delivers not only the power but also the refinement that Jaguars are famous for, the V6 features a patented system of independently rotating balancer weights at the front and rear of the engine. Anyone familiar with the smooth, powerful V8 will find that the V6 shares all its power delivery and refinement characteristics, with of course its own stirring soundtrack, while delivering significantly improved fuel consumption and emissions meeting SULEV 30 and EU VI standards.

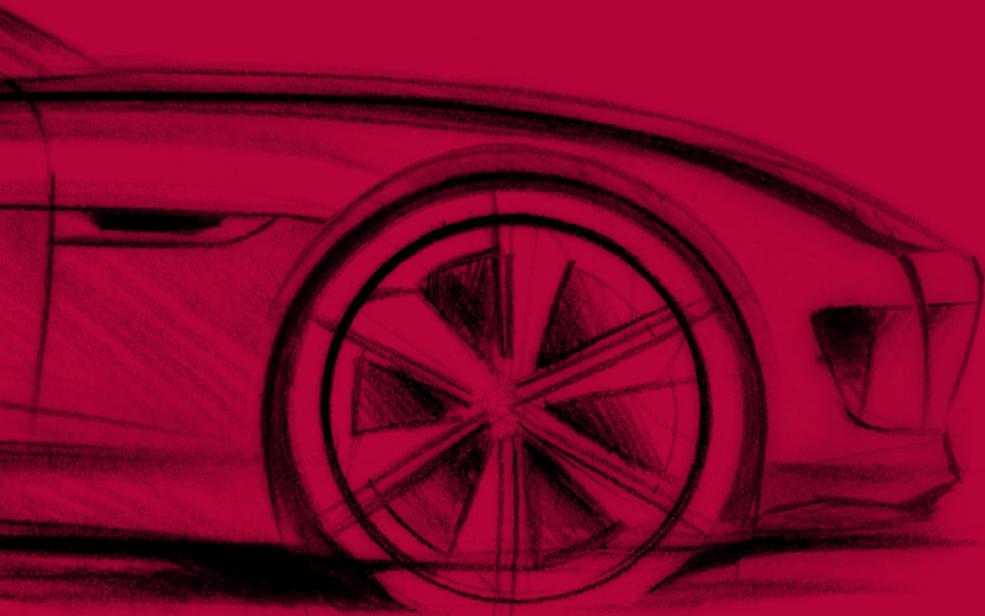


DESIGN



THIS CAR HAS BEEN DESIGNED FROM FIRST PRINCIPLES. IT IS AN EVOLUTION OF THE DESIGN ETHOS OF PAST JAGUARS AND DEFINES THE AGENDA FOR A FUTURE OF DRAMATIC, INNOVATIVE SPORTS CARS. PURITY OF LINE AND INTENT IS WHAT JAGUAR DOES BEST.

IAN CALLUM, DIRECTOR OF DESIGN, JAGUAR CARS





If anything can be said to define Jaguar designs it is one word: drama. The C-X16 is no exception, taking the traditional two-seater sports car template and redefining it in the Jaguar idiom.

In its simplest form, sports car design is defined by the relationship between the mechanicals and the bodywork. The aim at Jaguar has always been to wrap the form as tightly as possible around the function to create a taut, sculpted appearance that could only be that of a Jaguar. Finished in Gunmetal, there is no wasted space, movement or surface on the C-X16, every line serves its purpose in creating a whole that is more than the sum of its parts.

PURITY OF LINE

The C-X16 moves the award-winning Jaguar design language on to the next level and is startling in its simplicity, defined as it is by three 'heartlines': the front wing crease, the rear haunches that wrap into the tail and the sweeping roofline. Ian Callum, Director of Design, Jaguar Cars explains:

“The stance of this car is everything. It is fundamentally a driving machine and that has driven every aspect of the design. We have pulled the three signature heartlines back as far as we can to create a dynamic tension. The car possesses a sense of latent power; the potential to leap instantly into action.”

The C-X16 also makes use of newly established Jaguar styling signatures such as the subtly rounded trapezoidal grille. Inspired by the C-X75 concept car and recognisably related to the current XF and XJ, this is the focal point for the front end of the car, providing instant rear-view mirror recognition.









MUSCULAR DEFINITION

The muscular clamshell bonnet is defined at the outer edges by two sharp creases rising along the upper edges of the front wings. These begin in the gill-like strakes dividing the air intakes flanking the grille before blending away into the shoulder line running along the doors. The importance of this front wing line is emphasised by the angular form of the headlights, which deliberately follow the rising wing to lead the eye up and along the contours of the car rather than cut across them. The horizontal front wing vents, like those in the bonnet, are finished in carbon-fibre.

The defining role of the front wing line is taken up by a further finely chiselled crease that forms a double 'coke-bottle' curve, swelling outwards and upwards from the waist of the car to encompass the muscular haunches that are a Jaguar hallmark. This feature line then swoops, unbroken, round the rear of the car to create the tail, which mimics the appearance of the trailing edge of a swept aeroplane wing.

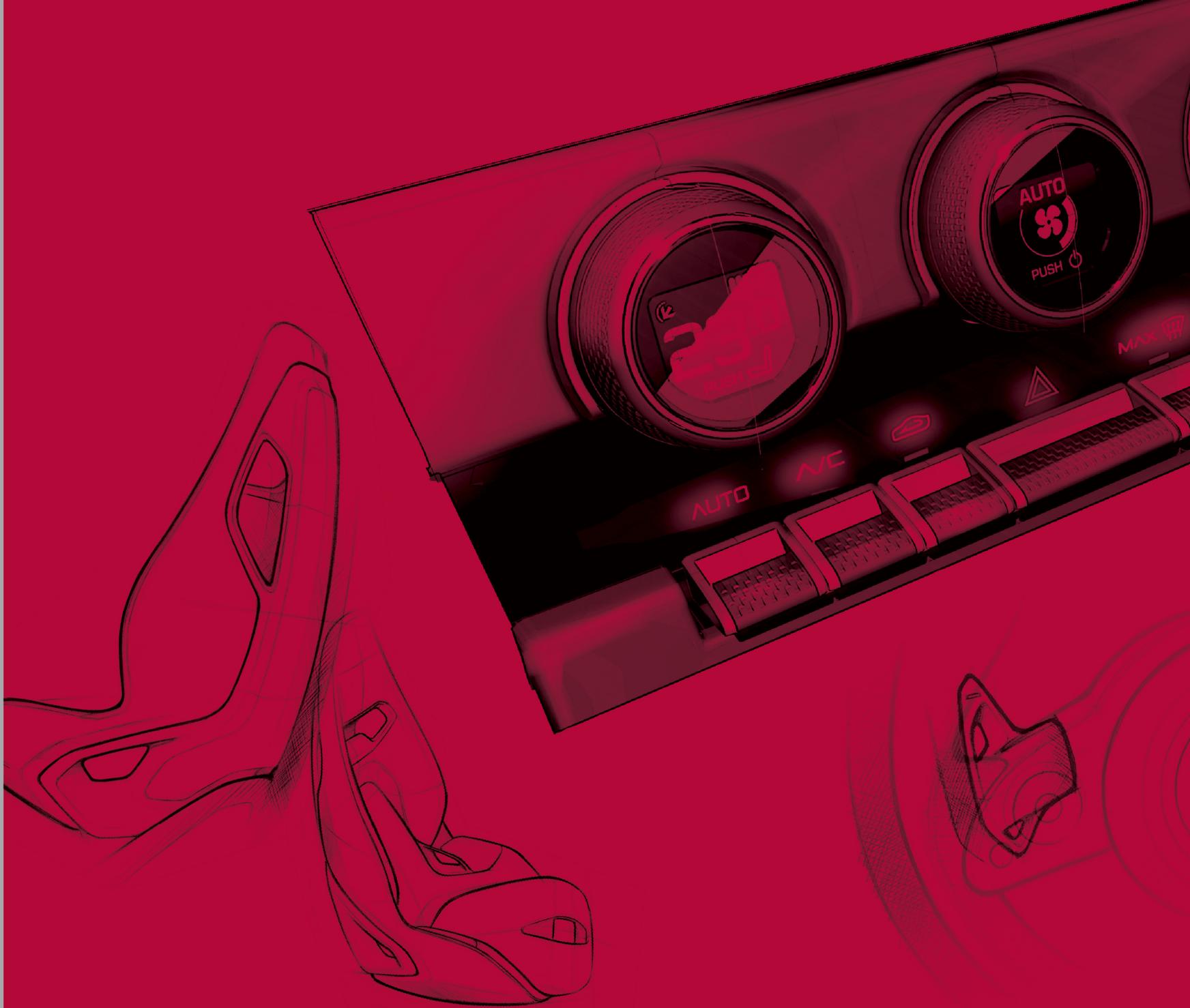
The rear lights continue the theme set with the C-X75 by extending around the flanks of the car immediately below the tail crease to literally highlight the purposefully wide rear track and, like the grille, provide instant recognition that this is a Jaguar sports car.

AERODYNAMIC SIMPLICITY

In order to retain the unblemished muscularity and uninterrupted airflow along the flanks of the car, the door handles are entirely flush with the bodywork. Touch sensors built into the handles trigger silent electric motors, which present the machined aluminium handles to driver and passenger.

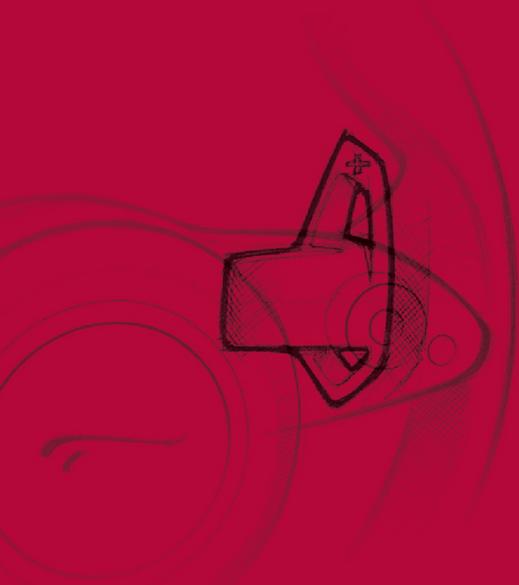
The same desire for stunning simplicity has driven the aerodynamic element of the C-X16's design, with no unnecessary wings or spoilers. Downforce is provided by a discreet front splitter, Venturi-effect tail design and side sills to channel air smoothly along the car's flanks, all of which are finished in carbon-fibre. The sharp crease created where the curve of the roof meets the tail also aids the aerodynamics by ensuring that the air separates cleanly from the bodywork at high speed.

Even standing still, the sense of purpose and power inherent in the C-X16 is unmistakable thanks to a stance that optimises the relationship between the bodywork and the 21-inch alloy wheels which have been pushed to the extremes edges of the car and finished with a carbon-fibre inlay.





INTERIOR ARCHITECTURE



IN THE PHILOSOPHY OF A TRUE JAGUAR SPORTS CAR, THE DRIVER IS THE FOCAL POINT OF THE ELEGANT, PURPOSEFUL COCKPIT. THE MATERIALS, THE INSTRUMENTS AND THE SWITCHES ARE A BOLD AND ENGAGING STATEMENT OF PERFORMANCE AND TECHNOLOGY.

IAN CALLUM, DIRECTOR OF DESIGN, JAGUAR CARS

The singularity of purpose exhibited by the exterior styling of the C-X16 is reinforced the moment the door is opened, whereupon driver and passenger are greeted by a dramatic red interior trimmed in the finest materials; leather, Suedecloth, anodised machined aluminium, carbon-fibre and dark chrome.

VERMILLION RED INTERIOR

The car is clearly centred around the driver and underlines its 'One plus One' layout by deliberately creating as cocooned and cosseting a space as possible. The heart-stirring potential of the C-X16 is underlined by the choice of visceral Vermillion Red as the primary colour and trim theme throughout.

AIRCRAFT-INSPIRED LAYOUT

The C-X16 takes inspiration for elements of its layout from aeronautical ergonomics, such as the joystick-style gearlever and banks of toggle switches that also reference classic racing Jaguars. As a result of this thinking the dashboard has been shrink-wrapped around the driver to provide the best view forward, allowing the car to be placed with absolute precision in corners, aided by the sharp creases on top of the front wings.

The desire to keep the top of the dashboard as unadorned as possible led to the creation of an Intelligent Venting System. Governed by complex algorithms built in to the advanced climate control, this double vent – inspired by the intakes on the Typhoon fighter jet – deploys out of the dash to provide an intense blast of hot or cold air as needed to rapidly alter the cabin temperature and then discreetly retracts when the desired level is reached.









In the same way that the exterior door handles are concealed until activated, a desire for ergonomic clarity means aspects of the interior remain 'secret until required'. Pushing the starter button initiates an aircraft-inspired starting sequence that powers up the hidden displays in a cascade down the centre console. What looks at first sight like a TFT screen in front of the driver is revealed to be an elegant twin-dial instrument panel, a hallmark of Jaguar sports cars, hidden behind smoked glass.

DUAL-FUNCTION SWITCHGEAR

With Jaguar already a leader in Touch-Screen technology, the C-X16 features the next generation of the system, augmenting the central screen with two rows of 'Home' keys on either side that provide shortcuts to top-level menu functions. Cutting-edge controls take their inspiration from reconfigurable devices such as smartphones and tablets and provide multimodal functionality.

The rotary heating controls are made from machined aluminium and anodised in dark gunmetal; traditional materials but in the centre of each is a miniature OLED display which reconfigures according to how the controls are used. Rotating the controls alters the temperature on respective sides of the car but pushing them changes their functionality; they now control the heating and cooling functions of the seats.

The switchgear is framed in carbon-fibre and features subtle 'watch-like' dark chrome highlights while the gearlever and dynamic mode selector switch are surrounded by red anodised aluminium to emphasise their purpose.

CONNECTIVITY

The centre console armrest houses Jaguar's 'Connect and View' system. Developed in conjunction with BlackBerry™, this allows smartphones from a range of manufacturers to be plugged into the machined aluminium tray between the front seats, whereupon the central Touch-Screen reconfigures to reflect that phone's display. The system will communicate with the majority of the smartphone's functions and has the potential to deliver a host of features dependent on the market and the device.

CARBON-FIBRE CONSTRUCTION

Made from lightweight composite materials the close-fitting and supportive racing seats feature manual adjustment to further reduce weight. A central carbon-fibre spine runs up the centre of each seatback to reinforce it.

The structural properties of carbon-fibre are also utilised in a bracing bar that flows back from the centre console dividing the seats and then splits in two, before being bolted to the rear suspension turrets to provide additional rigidity. Further carbon-fibre is found in the centre console, framed by the tailored passenger grab handle that flows organically from the dashboard to the transmission tunnel. The floor is finished in aluminium and black Poltrona Frau leather that has been subtly hand-quilted with a Hex pattern influenced by the historic Jaguar lozenge – this same motif is found stitched into the Suedecloth headlining.

Nestled discreetly behind the front seats are the lithium-ion battery pack and inverter that provide power to the hybrid drive system. Positioned here for optimum weight distribution, they are hidden under an aluminium cover machined from solid and designed with integral heat sinks.









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EVERYTHING JAGUAR REPRESENTS -
PERFORMANCE, DYNAMIC ABILITY,
REFINEMENT AND JAW-DROPPING DESIGN -
HAVE THEIR RIGHTFUL PLACE IN THE C-X16
CONCEPT, CREATING THE VERY ESSENCE
OF A 21ST CENTURY SPORTS CAR.

ADRIAN HALLMARK, GLOBAL BRAND DIRECTOR, JAGUAR CARS



3.0L V6 PETROL
SUPERCHARGED
HYBRID
SPORTS CAR

TECHNICAL SPECIFICATION

ENGINE

Capacity (litres)	3.0
Capacity (cc)	2995
Bore x Stroke (mm)	84.5 x 89
Cylinders	6
Valves per Cylinder	4
Compression Ratio	10.5:1
Supercharger	Twin scroll, intercooled
Max Power (PS)	380
Max Power (kW)	280
Max Torque (lb ft)	332
Max Torque (Nm)	450
Specific Output (PS-per-litre)	126
Transmission	8-speed with integrated electric motor

HYBRID "PUSH TO PASS" SYSTEM

System Voltage (V)	300
Power (kW)	70
Horsepower Equivalence (PS)	95
Torque (Nm)	235
Torque (lb ft)	173
Lithium-ion battery	300V / 1.6kWh

PERFORMANCE

0-62mph / 100km/h (secs)	4.4
Top Speed (mph)	186
Top Speed (km/h)	300
50-75mph / 80-120km/h (secs)	2.1

ECONOMY AND EMISSIONS

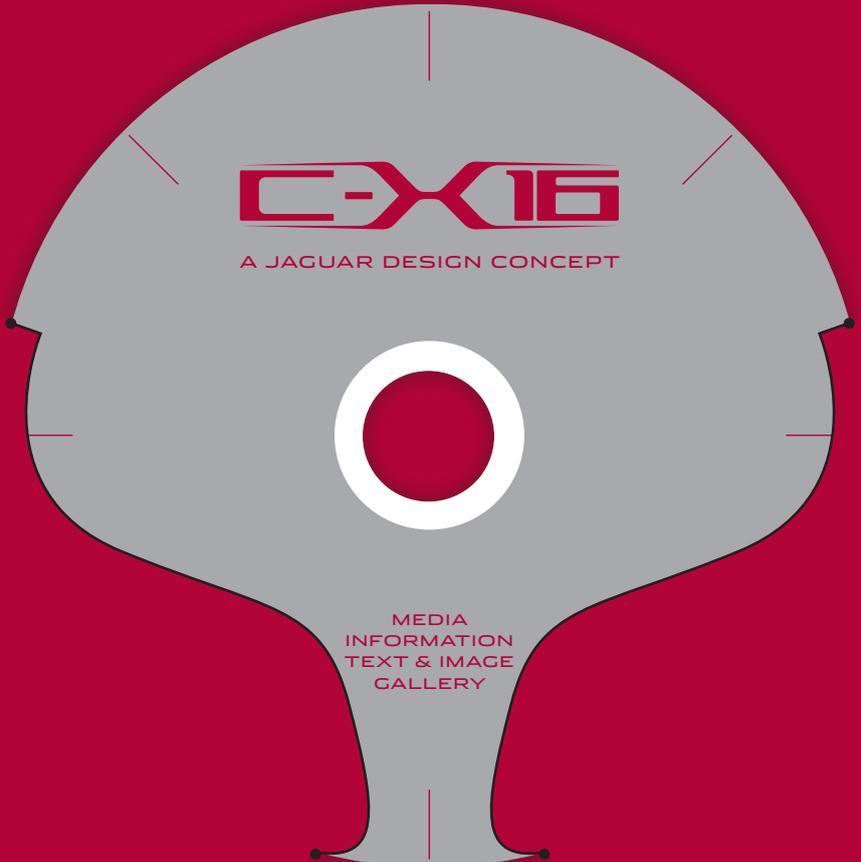
Combined mpg	41
Combined CO ₂ (g/km)	165

DIMENSIONS

Length (mm)	4445
Wheelbase (mm)	2622
Width (mm)	2048
Height (mm)	1297
Weight (kg)	1600

Manufacturer's Estimated Figures

C-16



C-X16

A JAGUAR DESIGN CONCEPT

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