

THE TOYOTA C-HR

INTRODUCTION

C-HR entered the market as Toyota's first compact crossover in 2016 and quickly established itself as a key model in the company's line-up, attracting strong sales with its striking design and handling prowess. Its self-charging hybrid powertrain also secured it the lowest emissions in the C-SUV segment.

In its first year alone, around 120,000 were sold in Europe, giving it an instant 10 per cent segment share. In the UK C-HR sales topped 14,600 in its first full year in showrooms. The success story has been sustained, and today almost half a million Europeans drive a C-HR; in the UK the sales total neared 70,000 by the end of 2020.

To build on C-HR's customer appeal and sales momentum, Toyota introduced a second, more powerful hybrid system to the powertrain range in 2019. Dynamic performance was further improved and refinements were made to the exterior and interior design. C-HR is unique in its class in giving customers the choice of two different hybrids. The original 120bhp 1.8-litre hybrid system remains in the range, but with its eco performance enhanced by an upgrade to a lithium-ion high-voltage battery.

The additional powertrain is a 2.0-litre system that produces 182bhp. As well as greater power and higher efficiency, the 2.0-litre hybrid versions of C-HR benefit from updated suspension and improved noise and vibration countermeasures.

C-HR's exterior design retains the car's distinctive, coupe-like lines that make it a stand-out model both in the Toyota range and the wider C-SUV segment. Subtle changes were made to the front and rear to add simplicity and refinement, and the headlamp and rear light clusters were reconfigured with LED technology.

On board, the updated multimedia system allows for full smartphone integration via Apple CarPlay and Android Auto. For the 2022 model year, the C-HR gained a new multimedia platform, Toyota Smart Connect+, with significantly greater processing speed, an eight-inch High Definition touchscreen and new functions, including cloud-based navigation.

Toyota's European R&D division led development of C-HR, a model created specifically for the European market. It is built at Toyota Motor Manufacturing Turkey.

POWERTRAINS

- **Segment-unique choice of two hybrid powertrains – 1.8 and 2.0-litre**
- **New hybrid powertrain features all-new 2.0-litre hybrid engine with world-leading 41 per cent thermal efficiency**
- **All-new, lighter and more compact hybrid system reflects significant advances in battery, electric motor and petrol engine technologies**

The new C-HR becomes the latest Toyota model range in the UK to become all-hybrid. Unique in its segment, it offers customers the choice of two self-charging hybrids, with the introduction of a new 2.0-litre powertrain at the top of the range.

This fourth generation hybrid system features a 2.0-litre petrol engine from a family of all-new Toyota power units. With internal losses minimised and breakthrough engineering for volumetric efficiency, it develops 150bhp/112kW while achieving 41 per cent thermal efficiency – a balance of power and efficiency that is unmatched among today's mass-production engines.

The full hybrid powertrain (petrol engine and electric motor combined) produces 182bhp/135kW yet is more efficient than and dynamically superior to the 1.8-litre system. Although power is greater by 50 per cent, fuel consumption is only 10 per cent higher. CO₂ emissions are unrivalled in its segment.

The 120bhp/90kW 1.8-litre hybrid powertrain option is newly equipped with a smaller, lighter, yet more powerful lithium-ion battery pack, in place of the previous nickel-metal hydride unit. This has the capacity to absorb and deliver more current, improving the delivery of electric drive power. The system has more natural driving characteristics, while emissions remain modest at 110g/km for the Icon model and 111-112g/km for other grades.

2.0-LITRE HYBRID SYSTEM

Every Toyota full hybrid powertrain provides silent, intuitive, responsive and self-sufficient EV technology with low cost of ownership, no need for plug-in recharging, outstanding fuel economy, low CO₂ emissions, and the potential to achieve up to 80 per cent zero emission running when driving in urban areas.

The 2.0-litre hybrid system goes further still. While taking full advantage of the ride comfort, stability, handling and driving enjoyment inherent in the C-HR's GA-C platform, Toyota has also focused on making its new generation of hybrid powerplants not only easy and intuitive, but also engaging to drive.

The completely new hybrid system has more compact packaging, is lighter in weight and is more efficient than previous generations, reaping the benefits of significant advances in battery, electric motor and petrol engine technologies.

The hybrid battery is larger and has a higher energy density. Individual cell power has been maintained, but the number of cells has been increased to match the more powerful electric motor and allow for higher energy absorption during regenerative braking.

To maintain equilibrium with the 2.0-litre engine, both the electric motor/generators have been made larger and more powerful. Their power-to-weight ratio is among the highest in the auto industry, with the principal electric motor delivering 80kW of power and 202Nm of torque.

This combination of completely new internal combustion engine and hybrid system elements has allowed for a re-distribution of responsibilities within the different driving components.

The system can now be tailored to deliver much more natural-feeling engine acceleration. The response to the throttle pedal is immediate and vehicle acceleration is closely linked to that of engine rpm. It offers drivers an 'energised' drive with more power for a more engaging driving experience.

ALL-NEW 2.0-LITRE PETROL ENGINE

The design of the 2.0-litre dual VVT-I Atkinson cycle petrol engine follows the Toyota New Global Architecture (TNGA) ethos: highly modular application, yet with as many components as possible shared between different lay-outs and displacements. Following this protocol

allows Toyota to use the highest quality components and high-tech solutions in a very effective way.

This brand new engine can operate at a peak thermal efficiency of 41 per cent, yet still deliver an output of 148bhp/112kW. The basic engine lay-out has been changed to a substantially higher stroke-to-bore ratio, which favours torque delivery and efficiency, while a focus on three development pillars has secured impressive specifications:

- High-speed combustion
- Reduction of internal losses
- Perfect temperature control

High-speed Combustion

By minimising combustion time, the engine turns more heat and pressure into mechanical energy. The Atkinson cycle further assists this goal as its operating principle makes the combustion stroke even longer, so that at the end of the cycle only a low residual pressure is lost to the atmosphere.

To achieve high-speed combustion, the air-fuel mixture needs to be perfectly homogenous and then compacted into a small spherical shape surrounding the spark plug. Piston and combustion chamber design is precisely defined to allow a compression ratio of 14:1, yet still maintain a stable burn.

The mixture is controlled in the first phase by the induction system. A completely redesigned intake manifold offers very little resistance, while creating high air velocity.

The included angle of the intake valves has been increased, positioning them to generate a powerful tumble effect as the air enters the cylinders. Valve seats are created using a 3-D printing process called laser cladding, an exceptional measure for an engine produced at this scale. This process combines precision with very light and thin seats that do not inhibit airflow and give superior cooling performance.

The high-speed tumbling air is charged with fuel at different stages. The new generation Toyota engines are equipped with D-4S, a system that uses both indirect and direct injection to deliver precisely measured amounts of fuel. Each method has advantages in different engine load ranges and, depending on the exact circumstances, the system uses either direct, indirect or both forms of injection to achieve perfect fuel delivery for fast and stable combustion.

This excellent aspiration is tuned by the Dual VVT-I system to match engine rpm and power request. Dual VVT-I will adjust opening and closing times of the intake and exhaust valves, balancing the required output with optimum efficiency. On intake side this is done by VVT-iE, meaning valve adjustment is by electric motor instead of a hydraulic system, allowing the system to operate a wider adjustment angle as well as providing immediate control during engine start-up.

Reduction of Internal Losses

Every component in the engine has been designed to be as small and/or light as possible, without compromising quality.

In particular, all moving components – camshafts, crankshaft, connecting rods, pistons, timing chains and gears – have been reduced in weight to minimise internal losses.

The use of special alloys in reciprocating parts has a cascading effect on all driving components, reducing bearing pressures and contact surfaces, and allowing for the adoption of a super thin grade (0W16) of lubricating oil, allied to a continuously variable oil pump, resulting in lower internal pumping losses and enhanced reliability.

Additionally, the base engine components have also been made lighter. The cylinder block outer wall measures just 2.3mm thick, reducing its overall weight and lowering the centre of gravity to improve vehicle balance. As a result, total engine weight is only 113kg – a reduction of almost 20 per cent over Toyota's previous 2.0-litre engine.

Temperature Control

Temperature control is essential to the unit's high-efficiency operation. The new generation of Toyota engines has been designed without a mechanical water pump housing in the base block. Coolant flow direction is controlled through several pathways, and the flow speed is continuously varied by means of an electric pump.

Depending on operation mode and unit temperature, flow control valves guide the coolant to create the correct warm-up and cool-down effects to keep the engine within the designated temperature range.

World-beating Thermal Efficiency

Thermal efficiency is a measurement that reflects how well an engine converts the energy available in its fuel into usable energy to power the vehicle.

As a result of mechanical improvements listed above, state-of-the-art management systems and use of the Atkinson cycle, the new 2.0-litre engine achieves a maximum thermal efficiency of 41 per cent – the world's highest level for a mass-produced petrol engine. This surpasses even the 40 per cent rating of the 1.8-litre engine in the current, fourth generation Toyota Prius.

Multi-shaft Hybrid Transaxle

The two hybrid powertrains use different transaxles. A power balance is essential to achieve smooth propulsion from the hybrid system, but oversizing would create unwanted losses.

The fourth generation 2.0-litre hybrid system has a redesigned transaxle with more efficient performance, improved packaging and reduced weight. A gear train with the two electric motor/generators placed on multiple axes has been adopted to shorten overall transaxle length by 44mm compared to the previous generation system.

The transaxle houses four components: two electric motor/generators (MG1 and MG2); a single planetary gear; and a reduction gear to the final drive.

MG1 serves primarily as a generator, converting any surplus power from the petrol engine into electricity, which can be stored in the HV battery. It also serves as the engine's starter motor. MG2 is the electric drive motor and also acts as a generator when the car is in regenerative braking mode.

MG2 drives the car from start-up, at low speed and in EV (electric vehicle) mode and is the sole propulsion method when the vehicle is in reverse. Its coil construction differs from previous generations, and its focus is more on power than torque delivery. MG2 has an improved power delivery at higher rpm, allowing C-HR to operate in EV mode at motorway speeds and, where permitted, up to 75mph (120km/h).

The engine compensates for the reduced torque delivery at low speeds when sharper acceleration is demanded. From a driver's perspective, this feels more natural and is perceived as a better balance between components.

Fully redesigned Power Control Unit

The fourth generation power control unit (PCU) is 33 per cent smaller than the previous component, and achieves a 20 per cent saving in electrical losses. It boasts super-high efficiency while also boosting the electric motors' voltage to 650V.

The PCU is the multi-purpose electrical heart of the vehicle, housing an inverter/voltage booster, a DC/DC converter for auxiliary power and the electronic control for the motor/generators.

High-voltage battery

The battery packs in both the 1.8 and 2.0-litre systems are located entirely beneath the rear seats, avoiding any intrusion into the load space. They have increased cooling efficiency and a wider regeneration range.

The 2.0-litre hybrid system is equipped with a very compact nickel-metal hydride (NiMH) battery with 180 cells and a nominal voltage of 216V.

The 1.8-litre system's battery has been upgraded to a lithium-ion unit that is lighter and smaller in size than the previous Ni-MH component. It has 56 cells and is rated at 207.2V. The higher capability of lithium-ion to receive and deliver current increases the system's dynamic capability, with a more natural acceleration feel.

DRIVING DYNAMICS

- **High bodysHELL rigidity and low centre of gravity inherent in C-HR's GA-C platform**
- **Suspension system revised to maximise performance and handling potential of the 2.0-litre hybrid powertrain**
- **Comprehensive noise and vibration reduction measures for a quieter, more comfortable cabin**

C-HR has an updated suspension system to maximise the improved performance and handling potential of its 2.0-litre hybrid powertrain, complementing the high bodysHELL rigidity and low centre of gravity enabled by its GA-C platform.

Additional noise and vibration-reducing measures have been introduced, adding to the characteristic quietness of Toyota's hybrid drive technology.

High Bodyshell Rigidity and Enhanced Suspension

C-HR is built on Toyota's GA-C platform, strategically adapted to suit the particular requirements of a C-segment crossover. The quality of the platform and the highly rigid bodyshell together provide responsiveness that is consistent with and linear to the driver's inputs.

Versions equipped with the new 2.0-litre hybrid system benefit from new suspension components, including shock absorbers, to provide an even more solid and comfortable feel when tackling rough road conditions, maintaining stability at all times. On GR Sport models, with both 1.8 and 2.0-litre powertrains, the springs are stiffened (10 per cent front, 15 per cent rear) for a sportier ride.

Cabin noise reduction

Engineers scrutinised every element in the vehicle capable of generating noise and vibration, leading to improvements in 11 different locations. Carefully placed seals, noise insulation and absorption pads further reduce the level of disturbing sounds entering the cabin.

The engine installation actively suppresses engine surging, while engine bay insulation contains other sounds. The same attention to detail has been applied to suppressing the rolling noise produced by the tyres.

Low centre of gravity

The GA-C platform gives the vehicle a low centre of gravity and allows for a low-set driving position. Hence, despite the driver's hip point being raised slightly compared to the other models that use this platform (Corolla, Prius), a very engaging drive and balanced handling with much reduced body roll has been achieved.

DESIGN AND TECHNOLOGY

- **Subtle front and rear styling refinement**
- **Enhanced visual and tactile quality of all surfaces and switchgear**

- **Toyota Smart Connect+ multimedia system introduced for 2022**
- **JBL Premium Audio system option for concert hall-quality sound**

The distinctive styling of the C-HR marks a refinement of the original car's design, ensuring it maintains its status as the most distinctively good-looking vehicle in the crossover market.

Inside, the cabin finishes have been upgraded to for a higher quality look and feel, while the multimedia system introduces new levels of connectivity and infotainment.

Exterior Design

The front of the C-HR displays a further development of Toyota's design language. To create a more refined appearance, character lines are executed with a softer touch, and the frontal design includes a lower lip spoiler in the body colour.

The daytime running lights are located above the main beam projectors and the turn indicator lights are fully integrated within the same unit. The front fog lights are positioned at the extreme edges of the lower bumper, allowing for a very wide lower air intake, emphasising the car's powerful stance.

The rear light clusters, equipped with LED lamp technology, stand proud of the bodywork, and are linked by a sleek, glossy spoiler. Executed in one piece, this seamlessly bridges the width of the vehicle in a powerful styling element. The rear turn indicators are sequential, on Excel and GR Sport grades.

The wheel designs include 17-inch silver alloys for Icon grade, 18-inch rims with different designs for Design and Excel models and 19-inch alloys for Dynamic grade, with a contrasting black and bright machined finish.

Interior Design

C-HR customers consider the airy, expansive design of the cockpit to be one of the car's most attractive qualities. Toyota has responded to this feedback by further improving the visual and tactile quality of all the interior surfaces and switchgear to create an even more premium environment.

Inlays have a refined finish and door panels are soft-touch in all contact areas. Reinforcing the link between interior and exterior design, many of the switches adopt a diamond shape, reflecting the diamond motif applied to the bodywork. The same diamond theme is evident in

the door trim pattern, the headliner, the optional JBL speaker grilles and tweeter shape, and even the needles of the analogue instrument dials.

The front seats have a slender, sporty upper section and a more strongly bolstered and supportive lower area. Functional differences have been emphasised through the use of different tones, textures and patterns in the upholstery. Power seat adjustment is standard on Excel models (optional with leather or Alcantara upholstery on Design and GR grades).

The driver's cockpit incorporates innovative details and intuitive, user-friendly technology. The switchgear and central eight-inch multimedia touchscreen are angled slightly towards the driver. Because the touchscreen stands proud of the instrument panel rather than being enclosed by it, the upper dashboard is considerably lower in depth, giving the driver better forward visibility.

The Multimedia touchscreen is supplemented by a set of buttons and dials for functions such as for volume control, giving easier adjustment and intuitive use when driving. The digital clock is integrated in the screen to give the panel an even cleaner appearance.

The interior finish choices have been carefully considered to ensure the cabin has a harmonious, consistent look. The interior design is linked to the grade choice, in the following schemes.

On Icon grade, there is a Metal Stream deco line running across the door panels and dashboard and black fabric seat upholstery with light grey stitching; on Design grade the contrast stitching is in blue., and a striking anodised blue deco line. The C-HR GR Sport has black fabric upholstery with a GR Sport pattern and badging as standard; black Alcantara is available as an option, together with power front seat adjustment. Black leather upholstery is featured on Excel grade, with a silver deco line.

On-board Technology and Connectivity

C-HR's multimedia system was upgraded to Toyota Smart Connect+ for the 2022 model year, using a new platform that provides much faster response and provides new functions.

Provided as standard or an option on all versions except Icon grade, the new platform has more powerful processing capacity (CPU) that operates 2.4 times faster than the previous system. Operated via an eight-inch High Definition central touchscreen, it gives instant access to a series of smart connected services,

including cloud-based navigation with continuous, “always on” traffic information, 3D city mapping, highway signage and fixed traffic camera locations.

All data and information are delivered via the communications module (DCM), so no phone pairing is required for smart connected services and no additional data costs are incurred.

The driver can also make use of a new “Hey Toyota” on-board voice agent that recognises natural, conversational requests to operate the multimedia and navigation.

Software updates and improvements are made seamlessly, over the air and easy smartphone integration is provided via Apple CarPlay, with wireless connection, and (with a wired connection) Android Auto.

A four-year Toyota Smart Connect package, including local parking and road event information, over-the-air updates and the voice agent, is included in the vehicle’s purchase price.

Concert Hall-quality JBL Audio

Recognising the importance its target customers attach to the quality of the in-car entertainment system, C-HR is available with a tailor-made, JBL Premium Audio system (an option for Excel and GR Sport models, the latter in conjunction with Alcantara upholstery).

The system comprises an eight-channel, 800W stereo amplifier and nine speakers. The new generation amplifier delivers more precise tuning and even clearer, more powerful sound. To improve the sound quality of compressed music files, it supports Clari-Fi technology, which restores digitised sound to almost CD quality.

Because the rigidity of the body structure surrounding each speaker – as well as various elements such as the windows and upholstery – can have a significant impact on sound quality, JBL and Toyota’s engineers collaborated closely from early in the C-HR’s design process.

In-depth customer analysis was taken into account when defining the orientation of the speakers and the use of horn tweeters precisely integrated in the front pillars – a signature JBL system feature – to deliver clear, crisp sound.

In addition to the two 25mm horn tweeters, the system features two 80mm wide-dispersion units, two 17cm sub-woofers in the front, two 15cm full-range speakers in the rear, and a 19cm sub-woofer in a dedicated, 10-litre ported enclosure in the loadspace.

ENHANCED ACTIVE SAFETY

- **Toyota Safety Sense fitted as standard on all versions**
- **Lane Trace Assist and Pre-Collision System with pedestrian (day/night) and cyclist (day) detection added for 2021**
- **Top-of-the-range models add Adaptive Front light System, Intelligent Clearance Sonar and Rear Cross Traffic Alert with braking function**

Superior safety performance is inherent in TNGA, with priority given to achieving the highest standards of active and passive safety. Toyota's new platforms and vehicle designs target the exacting standards set by the world's leading independent crash test programmes, supported by the advanced performance of the functions and systems of Toyota Safety Sense.

In line with Toyota's commitment to democratising advanced safety equipment, Toyota Safety Sense is fitted as standard, across the entire C-HR range. The package includes a Pre-Collision System with pedestrian recognition, Adaptive Cruise Control, Lane Departure Alert with steering control, Automatic High Beam and Road Sign Assist. For 2021, the package was upgraded to add daytime cyclist detection to the PCS, plus Lane Trace Assist.

Excel and Dynamic models benefit from an Adaptive Front-light System, Intelligent Clearance Sonar (also standard on Design grade) and Rear Cross Traffic Alert with auto braking function. The two latter features are optionally available for Icon grade.

TOYOTA SAFETY SENSE

Toyota Safety Sense can help prevent a collision happening in a range of common accident-risk scenarios, or help mitigate the consequences if an impact is unavoidable. Its systems can also help make driving less arduous, reducing driver fatigue.

Pre-Collision System

The Pre-Collision System uses a front-mounted camera and millimetre-wave radar sensor to detect vehicles and pedestrians on the road ahead. It operates at speeds between 16mph (10km/h) and the vehicle's top speed.

If it calculates there is a risk of a collision, it automatically warns the driver with a buzzer and alert in the multi-information display. At the same time, the Pre-Collision Brake Assist engages to provide extra braking force the moment the brake pedal is pressed.

If the system determines that the possibility of a frontal collision with a vehicle or pedestrian is extremely high, the brakes are automatically applied to help avoid or reduce the severity of the collision.

Toyota's improvement of the technology means that it can now recognise and react to the presence of pedestrians as well as vehicles during day and night-time driving, and cyclists in daylight driving, across a wide range of speeds.

Adaptive Cruise Control

The Adaptive Cruise Control with full speed range following function uses the same millimetre-wave radar as the Pre-Collision System to maintain a safe distance between the C-HR and the vehicle ahead, slowing the car to a standstill if necessary and accelerating smoothly back to the pre-selected cruising speed once the way is clear.

Lane Departure Alert and Lane Trace Assist

Lane Departure Alert and Lane Trace Assist use the camera on the windscreen to track the vehicle's course between lane markings painted on the road surface. If the system judges that the car is about to move out of its lane without the turn indicator being used, the system sounds a buzzer and lights up a warning on the multi-information display. If the vehicle is still moving outside the lane, it will apply steering control to help bring the vehicle back on course. If the road markings are obscured, Lane Trace Assist is able to detect the road margins to determine the car's position; it will also operate through gentle bends as well as on straight sections of road.

Automatic High Beam

Automatic High Beam uses the same windscreen-mounted camera as the Lane Departure Alert system. This recognises the lights of oncoming vehicles or traffic ahead, automatically switching the headlights to low beam to avoid dazzling other road users and returning them to high beam as soon as the road is clear, maximising night-time illumination and the driver's field of vision.

Road Sign Assist

Road Sign Assist uses the front camera to recognise principal road warning and command signs. These are then repeated on the multi-information display, reducing the risk of the driver not being aware of speed limits, lane closures and other important information.

ADVANCED SAFETY AND DRIVER ASSISTANCE SYSTEMS

C-HR is available with additional systems that actively support safer driving by giving the driver better real-time information about the area immediately around the car.

Adaptive Front-lighting System

The Adaptive Front-lighting System (AFS) is a swivel control of both front headlight main beams. By allowing the light on the inside of a corner to move in the same direction as the turn, the width of the illuminated area is widened, giving the driver a better view of the road ahead. The swivel motion is related to steering wheel movement and vehicle speed to ensure that the correct area is illuminated.

Intelligent Clearance Sonar

The Intelligent Clearance Sonar is an evolution of parking sensors. It can detect all types of obstacles and is connected to the braking system. If it detects the risk of a low speed collision during a parking manoeuvre, the brakes will intervene and bring the car to an immediate halt.

Blind Spot Monitor

The Blind Spot Monitor uses radar sensors mounted on the rear corners of the vehicle to detect nearby vehicles in adjacent lanes as they move into the driver's blind spot. The driver is alerted to their presence by LED warning indicators in the door mirror on the appropriate side of the car. The LED indicators will remain illuminated as long as the vehicle remains in the blind spot. If the driver operates the turn indicators, intending to move into path of the vehicle, the LEDs will flash rapidly to draw further attention to the hazard.

Rear Cross Traffic Alert with auto brake

The Blind Spot Monitor sensors are also used to provide Rear Cross Traffic Alert, monitoring approaching traffic – including cars and motorbikes – from either side as the vehicle is reversed out of a parking space. The system not only warns the driver, but also brakes and stops the vehicle if it is likely to move into the path of approaching traffic.

Simple Intelligent Parking Assist System

The Simple Intelligent Parking Assist (S-IPA) system uses an array of sensors to identify viable parking spaces and surrounding objects.

The driver stops the car next to the parking space and pushes a single button to engage S-IPA, which guides the car to the correct position for reverse manoeuvring into the space. This system makes use of the corner parking sensors to provide an accurate parking assist function.

UK MODEL RANGE

- **C-HR available in Icon, Design and Excel equipment grades**
- **GR Sport grade added in January 2021, with tuned performance and sports styling**

C-HR follows the model's established grade structure in the UK. Entry point is the Icon, offered exclusively with the improved 1.8-litre self-charging hybrid system, followed by Design grade, which can be specified with either the 1.8 or 2.0-litre hybrid powertrain.

Excel and GR Sport grades share top-of-the-range status, their specifications tailored to suit customer preferences for luxury, high technology and sharper performance and styling details.

GR Sport was introduced to the range in January 2021 and benefits from stiffer springs, larger 19-inch wheels and retuned steering to deliver sportier performance. This is complemented by a bi-tone paint finish and black-themed bodywork and cabin design elements, including door mouldings, rear spoiler, door mirror casings and seat upholstery.

Equipment highlights

Icon grade is equipped as standard with: -

- 17-inch alloy wheels
- Reversing camera
- Dual-zone automatic air conditioning
- 2019 multimedia system with touchscreen
- Apple CarPlay and Android Auto smartphone integration
- Toyota Safety Sense
- LED reflector headlights

Design grade builds on this specification with: -

- 18-inch alloy wheels
- Rear privacy glass
- Piano black console
- Rain-sensing windscreen wipers
- Intelligent Clearance Sonar with auto brake, front and rear parking sensors
- Auto-dimming rear-view mirror
- Heated front seats with power lumbar adjustment
- Navigation system
- Smart entry
- Heated, auto-folding door mirrors
- Simple Intelligent Park Assist

The **Excel** grade adds to the Design specification with: -

- 18-inch Excel alloy wheels
- Rear LED lights
- Adaptive LED headlights
- LED fog lights
- Door mirror puddle lights
- Adaptive Front-lighting System
- Heated steering wheel
- Leather seat upholstery
- Power driver's seat adjustment
- Rear Cross Traffic Alert with auto braking
- Blind Spot Monitor

The **GR Sport** introduces: -

- 19-inch GR Sport alloy wheels
- GR sports front seats, badging and scuff plates
- Adaptive LED headlights front and rear
- LED fog lights and rear lights
- Sequential rear turn indicators
- Puddle lights
- Black bi-tone roof
- Silver deco line cabin detail

Timeline and UK sales

YEAR	MONTH	EVENT
2014	September	Toyota C-HR Concept makes its debut at the Paris motor show.
2015	September	Second C-HR Concept is presented at the Frankfurt motor show.
2016	September	The production-ready C-HR debuts at the Paris motor show.
	November	C-HR production begins at Toyota Motor Manufacturing Turkey.
	December	Official start of UK sales.
2018	June	2018 C-HR is launched with new Design grade.
2019	June	Limited-run Lime Edition model is launched.
	October	C-HR becomes an exclusively hybrid model range in the UK with the introduction of a 2.0-litre hybrid system. Revisions are made to the styling and dynamic performance, smartphone integration technology is adopted. The 1.2-litre turbo engine and all-wheel drive version are discontinued. A limited-run Orange Edition model is introduced.
2021	January	2021 C-HR introduced with new GR Sport grade; Dynamic grade is deleted from the range.
	December	Toyota Smart Connect multimedia system introduced to the range.

Sales in UK markets in 2020: 16,695

Cumulative UK sales since launch (2016): 69,348

TOYOTA C-HR TECHNICAL SPECIFICATIONS

ENGINE		1.8 HYBRID	2.0 HYBRID
Engine code		2ZR-FXE	M20A-FXS
Type		4 cylinders, in-line	
Valve mechanism		DOHC 16-valve with VVT-i	DOHC 16-valve with VVT-iE (intake) and VVT-i (exhaust)
Fuel system		Electronic fuel injection	D-4S direct/port injection
Displacement (cc)		1,798	1,987
Bore x stroke (mm)		80.5 x 88.3	80.5 x 97.6
Compression ratio		13.0:1	14.0:1
Max. power (bhp/DIN hp/kW @ rpm)	Engine	97/98/72 @ 5,200	150/152/112 @ 6,000
	Total hybrid system (engine and motor)	120/122/90 @ 5,200	182/184/135 @ 6,000
Max. torque (Nm @ rpm)		142 @ 3,600 – 4,000	190 @ 4,400 – 5,200
HYBRID SYSTEM		1.8 HYBRID	2.0 HYBRID
Hybrid battery		Lithium-ion (Li-ion)	Nickel-metal hydride (NiMH)
Nominal voltage (V)		207.6	216
Motor generator			
Type		Permanent magnet synchronous	
Max. voltage (V)		600	650
Max. output (kW)		53	80
Max. torque (Nm)		163	202
Total hybrid system (engine and motor) max. power (bhp/DIN hp/kW @ rpm)		120/122/90 @ 5,200	182/184/135 @ 6,000
TRANSMISSION		1.8 HYBRID	2.0 HYBRID
Type		Planetary gear system Hybrid CVT, FWD	
Differential gear ratio		3.218:1	3.605:1

PERFORMANCE		1.8 HYBRID	2.0 HYBRID
Max. speed (mph)		105	112
Acceleration 0-62mph (sec)		11.0	8.2
FUEL CONSUMPTION & EMISSIONS (WLTP)		1.8 HYBRID	2.0 HYBRID
Fuel consumption – combined (mpg)	Icon	53.3 – 57.65	n/a
	Design	53.3 – 57.6	49.6 – 53.3
	Excel	53.3 – 56.5	49.6 – 53.3
	GR Sport	53.3 – 56.5	49.6 – 54.3
CO ₂ emissions – combined (g/km)	17in wheel	110 -120	n/a
	18in wheel	111 - 120	119 - 128
	19in wheel	112 - 120	120 - 128
Fuel tank capacity (l)		50	
INSURANCE, WARRANTY & SERVICING			
Insurance groups		15E – 16E	21E – 22E
New car mechanical warranty		5 years/100,000 miles	
Paintwork and surface rust warranty		3 years	
Anti-corrosion/perforation warranty		12 years	
Service intervals		10,000 miles/annually	
CHASSIS		1.8 HYBRID	2.0 HYBRID
Suspension			
Front suspension		MacPherson strut	
Rear suspension		Double wishbone	
Steering			
Type		Rack and pinion, electric power steering	
Ratio		13.6:1	

Turns lock-to-lock	2.76	
Min. turning circle (tyre/body, m)	10.4/11.0	
Brakes	1.8 HYBRID	2.0 HYBRID
Front (diameter, mm)	Ventilated discs, 298.5	
Rear (diameter, mm)	Solid discs, 281	
Parking brake	Electric	
DIMENSIONS	1.8 HYBRID	2.0 HYBRID
Overall length (mm)	4,385	4,395
Overall width (mm)	1,795	
Overall height (mm)	1,555	
Wheelbase (mm)	2,640	
Track – front (mm)	1,540	
Track – rear (mm)	1,550	
Front overhang (mm)	940	
Rear overhang (mm)	805	815
Coefficient of drag (FWD/AWD, Cd)	0.32	
Interior length (mm)	1,800	
Interior width (mm)	1,455	
Interior height (mm)	1,210	
Load capacity – VDA rear seats up, tonneau cover (l)	377	
Load capacity – rear seats up, loaded to roof (l)	443	
Load capacity – rear seats down, loaded to tonneau cover (l)	924	
Load capacity – rear seats down, loaded to roof (l)	1,164	
WEIGHTS	1.8 HYBRID	2.0 HYBRID
Kerb weight (min/max, kg)	1,425/1,460	1,490/1,525
Gross weight (kg)	1,860	1,930
Towing capacity – unbraked (kg)	725	725

Towing capacity – braked (kg)	725	725
WHEELS AND TYRES	1.8 HYBRID	2.0 HYBRID
Wheels	17, 18 or 19-inch alloy	
Tyres	215/60R17 96H 225/50R18 95V 225/45R19 96W	

TOYOTA C-HR EQUIPMENT SPECIFICATIONS

SAFETY	ICON	DESIGN	EXCEL	GR SPORT
Toyota Safety Sense: Pre-Collision System with pedestrian and cyclist (daytime) detection; Adaptive Cruise Control; Lane Departure Alert/Lane Trace Assist; Automatic High Beam; Road Sign Assist	✓	✓	✓	✓
Driver and passenger front airbags	✓	✓	✓	✓
Front side airbags	✓	✓	✓	✓
Driver's knee airbag	✓	✓	✓	✓
Front and rear curtain airbags	✓	✓	✓	✓
ABS with EBD and Brake Assist	✓	✓	✓	✓
Traction Control (TRC)	✓	✓	✓	✓
Vehicle Stability Control (VSC)	✓	✓	✓	✓
Hill-start Assist Control	✓	✓	✓	✓
Front seatbelt pretensioners	✓	✓	✓	✓
Three three-point rear seatbelts	✓	✓	✓	✓
Driver and front passenger seatbelt warning light and buzzer	✓	✓	✓	✓
Rear seatbelt indicator light	✓	✓	✓	✓
Tyre Pressure Warning System	✓	✓	✓	✓
Whiplash Injury Lessening front seats	✓	✓	✓	✓
Anti-theft system (immobiliser and alarm)	✓	✓	✓	✓
Passenger airbag cut-off switch	✓	✓	✓	✓
ISOFIX child seat restraint system	✓	✓	✓	✓
Child safety rear door locks	✓	✓	✓	✓
Rear Cross Traffic Alert with auto brake	Opt ¹	✗	✓	✓
Blind Spot Monitor	Opt ¹	✗	✓	✓
INSTRUMENTS AND CONTROLS	ICON	DESIGN	EXCEL	GR SPORT
Dual 4.2in TFT multi-information display	✓	✓	✓	✓
EV, Eco and Power drive modes	✓	✓	✓	✓
Electric parking brake	✓	✓	✓	✓
Manual headlight levelling	✓	✓	✗	✗
Automatic headlight levelling	✗	✗	✓	✓

COMFORT & CONVENIENCE	ICON	DESIGN	EXCEL	GR SPORT
Front and rear power windows	✓	✓	✓	✓
All windows with 'one-touch down' and anti-trap functions	✓	✓	✓	✓
Electric power steering	✓	✓	✓	✓
Tilt and telescopic-adjustable steering wheel	✓	✓	✓	✓
Simple Intelligent Park Assist	✗	✓	✓	✓
Intelligent Clearance Sonar with front and rear parking sensors	Opt	✓	✓	✓
Smart Entry and push-button start	Opt ¹	✓	✓	✓
Rain sensing front wipers	Opt ¹	✓	✓	✓
Dusk-sensing headlamps	✓	✓	✓	✓
12V power socket	✓	✓	✓	✓
Auto-dimming rear-view mirror	Opt ¹	✓	✓	✓
Rear-view camera				
AUDIO, NAVIGATION & COMMUNICATIONS	ICON	DESIGN	EXCEL	GR SPORT
Six-speaker audio	✓	✓	✓	✓
JBL 9-speaker audio	✗	✗	Opt	Opt ³
DAB	✓	✓	✓	✓
Bluetooth	✓	✓	✓	✓
USB port/Aux-in	✓	✓	✓	✓
Toyota Touch 2: 8in touchscreen.	✓	✗	✗	✗
Toyota Smart Connect+: 8in HD touchscreen, embedded and cloud navigation, OTA updates and on-board voice assistant	✗	✓	✓	✓
Apple CarPlay and Android Auto smartphone integration	✓	✓	✓	✓
VENTILATION	ICON	DESIGN	EXCEL	GR SPORT
Dual-zone automatic air conditioning	✓	✓	✓	✓
SECURITY	ICON	DESIGN	EXCEL	GR SPORT
Immobiliser with alarm system	✓	✓	✓	✓
Remote central door locking	✓	✓	✓	✓

SEATING, UPHOLSTERY & TRIM	ICON	DESIGN	EXCEL	GR SPORT
Black cloth upholstery	✓	✓	✓	✗
Black cloth upholstery with GR Sport design	✗	✗	✗	✓
Black leather upholstery	✗	Opt ²	✓	✗
Black Alcantara upholstery	✗	✗	✗	Opt ^{3,5}
60:40 split folding rear seats	✓	✓	✓	✓
Heated front seats	✗	✓	✓	✓
Power-adjustable front seats	✗	Opt ²	✓	Opt ^{3,5}
Power lumbar support on driver's seat	✗	✓	✓	✓
Adjustable front headrests	✓	✓	✓	✓
Three adjustable rear integrated headrests	✓	✓	✓	✓
Leather shift lever trim and knob	✓	✓	✓	✓
Leather steering wheel cover	✓	✓	✓	✓ (perforated)
EXTERIOR & BODY	ICON	DESIGN	EXCEL	GR SPORT
17in alloy wheels	✓	✗	✗	✗
18in alloy wheels	✗	✓	✓	✗
19in alloy wheels	✗	✗	✗	✓
Front fog lights	✓	✓	✗	✗
LED front fog lights	✗	✗	✓	✓
LED reflector headlights	✓	✓	✗	✗
LED headlights with Adaptive Front Lighting system	✗	✗	✓	✓
LED rear brake lights	✗	✗	✓	✓
Sequential rear turn indicators	✗	✗	✓	✓
LED daytime running lights	✓	✓	✓	✓
Follow-me-home headlight function	✓	✓	✓	✓
Electrically adjustable, heated door mirrors	✓	✗	✗	✗
Electrically adjustable, heated and auto-retracting door mirrors	Opt ¹	✓	✓	✓
Shark fin antenna	✓	✓	✓	✓
Rear privacy glass	✗	✓	✓	✓
Tyre repair kit	✓	✓	✓	✓

Metallic/pearlescent paint	Opt	Opt	Opt	Opt
Bi-tone paint finish (contrast black roof)	✖	✖	✖	✓
OPTION PACKS	ICON	DESIGN	EXCEL	GR SPORT
¹ Tech Pack – smart entry, Rear Cross Traffic Alert with auto brake, Blind Spot Monitor, front & rear parking sensors with Intelligent Clearance Sonar, door mirrors with auto fold function and puddle lights, auto-dimming rear-view mirror, automatic wipers	Opt	✖	Std	Std
² Black Leather Pack – black leather seat upholstery, power-adjustable front seats	✖	Opt	Std	✖
³ Alcantara and JBL Pack – black leather seat upholstery, power-adjustable front seats, 9-speaker JBL premium sound system	✖	✖	✖	Opt
⁴ JBL Pack – 9-speaker JBL premium sound system	✖	✖	Opt	✖
⁵ Alcantara Pack: black Alcantara upholstery, power-adjustable driver's seat	✖	✖	✖	Opt
Parking Pack – front and rear parking sensors, Intelligent Clearance Sonar with auto braking	Opt	Std	Std	Std

ENDS

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