

# The new Yaris Hybrid



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## The new Yaris Hybrid: a quiet revolution in the B-segment

- **Flagship of Toyota's best-selling core model in Europe**
- **Only full hybrid powertrain in the B-segment - the ultimate urban car**
- **Clever Hybrid Synergy Drive® system packaging allows for great fuel efficiency and low emissions with no compromise on space**
- **Toyota's advanced full hybrid technology more accessible than ever**
- **Yaris range offers a unique choice of 3 powertrain types - full hybrid now available alongside petrol and diesel**
- **Only manufacturer to produce full hybrid technology in two plants in Europe**

The new Yaris Hybrid is the first full hybrid vehicle to go on sale in the European B-segment. The Yaris model range flagship, it represents a new and unique offer in Europe's highest sales volume segment, and will bring the benefits of full hybrid technology to a wider range of customers than ever before.

The Yaris is Toyota's best-selling core model in Europe, with more than 2.5 million units sold. It is the only B-segment car to offer customers the choice of 3 different powertrain types – full hybrid, diesel or petrol.

Combining the ingenious packaging and urban agility of the Yaris model range with the unique driving experience and efficiency of Toyota's Hybrid Synergy Drive® (HSD), the Yaris Hybrid is a new major step in the company's full hybrid European roll-out strategy.

With low fuel consumption, low environmental impact, strong acceleration, great manoeuvrability and unique EV capabilities, it represents the ultimate urban car.

The new powertrain has been optimised for installation within the vehicle's compact, extremely efficient packaging design, without detriment to either system quality and performance, or passenger accommodation and loadspace. The downsized hybrid system combines a substantially re-engineered 1.5 litre petrol engine with a lighter, more compact electric motor, transaxle, inverter and battery pack.

The highly efficient powertrain offers the best balance of performance and fuel consumption/CO<sub>2</sub> emissions in the B segment. It delivers an average fuel consumption of just 3.5 l/100 km and segment-best CO<sub>2</sub> emissions of only 79 g/km, whilst allowing customers frequent, all-electric driving periods that emit no NO<sub>x</sub>, PM or CO<sub>2</sub> emissions.

With segment-best fuel consumption of 3.1 l/100 km in the urban cycle, the Yaris Hybrid represents the ideal urban mobility choice at a time when fuel prices are reaching peak levels. Internal test data show that a high proportion of journey time and distance can be undertaken with the engine off, representing significant benefits in fuel consumption.

Expected to represent 20% of all Yaris model sales in Europe, the Yaris Hybrid is not a niche model. Rather, it represents a new, unique alternative for demanding urban drivers who expect a new driving and ownership experience from their car.

The Yaris Hybrid combines the tangible benefits of advanced technology, low emissions and unbeatable cost of ownership with a new, uniquely relaxed and quiet driving style. Its HSD system proves that driving pleasure needs not to be compromised by environmental responsibility and low running costs, and it shares the traditionally high residual values of all Toyota Hybrids.

With Toyota Motor Manufacturing UK (TMUK) already assembling Toyota full hybrid vehicles, the start of Yaris Hybrid production at Toyota Motor Manufacturing France (TMMF) makes Toyota the only manufacturer to have two full hybrid technology production facilities in Europe, reinforcing the company's commitment to local, advanced technology manufacturing in Europe.

Following the launch of the Auris Hybrid, the Yaris Hybrid is Toyota's second core model to feature HSD technology. From 2012, the Toyota hybrid range will feature five models: the Yaris Hybrid, the Auris Hybrid, the Prius, the Prius+ and the Prius Plug-in Hybrid.



## A more aspirational design for the most efficient package in the segment

- More advanced and sophisticated design for Yaris flagship
- No compromise on Yaris' efficient packaging DNA
- New hybrid exclusive pearl white colour execution
- Interior featuring hybrid-exclusive blue details and illumination

At its original launch, the Yaris quickly became nicknamed "*Piccolo Genio*" (Little Genius). This is a testament to a car which has been developed over successive generations in accordance with the key concept of "compact outside whilst roomy inside", consistently setting new standards in packaging ingenuity.

The Yaris Hybrid inherits all the clever DNA of the standard, third generation model, offering B segment customers an ingenious combination of small, compact packaging and a spacious, practical interior.

The Yaris Hybrid differentiates itself from the other Yaris derivatives with an exclusive, aerodynamically efficient exterior design which instantly identifies it as the flagship of the Yaris model range.

It combines a new, more aggressive, *Under Priority* frontal design element - the distinctive new Toyota face design execution, with a *Keen Look* detailing reinforced by hybrid-specific LED lights.

Flanked by aerodynamically efficient front aero corner treatments, the strong centre section of the lower bumper houses a larger, trapezoidal lower grille

optimising engine bay cooling whilst emphasise the new hybrid's ground-hugging stance and low centre of gravity.

A slimmer upper grille, elegantly sculpted to highlight the hybrid-blue Toyota badge, is flanked by slim, *Keen Look* headlights which emphasise the new hybrid's bold, horizontal front styling. Exclusive to the Yaris Hybrid, the projector-type headlamp unit features standard chrome-plated 'eyebrows' lipped with an LED 'lightguide', and LED Daytime Running Lights (DRL).

In profile, identified by hybrid badging and exclusive wheel designs, the new hybrid shares the stylish, cab-forward silhouette and long wheelbase profile of the standard Yaris. The exterior overall length is only 20 mm longer than the standard Yaris.

To the rear, the hybrid-blue badged tailgate incorporates a new, LED-type high mounted stop light, and clear lens combination lights incorporate a LED tail and stop lamp signature unique to the new Yaris Hybrid.

The Yaris Hybrid is available with a choice of unique 15" and 16" aerodynamic wheels, and a range of eight body colours including a model-specific new Pearl White finish execution.





Toyota pioneered this Pearl White finish, which has required the introduction of a bespoke production process at the TMMF plant where the new hybrid is built. Reinforcing the Yaris Hybrid's uniquely stylish and environmentally-conscious design credentials, the new colour delivers a cool, high quality image (particularly in sunlight) when the soft, silken lustre of pearl is at its strongest.

On board, Yaris Hybrid customers benefit from a driver-focused cockpit with hybrid-exclusive details and trim finishes.

Silver ring-trimmed three dimensional instrument dials incorporate a hybrid system indicator and feature a combination of white and blue backlighting. The centre console-mounted Toyota Touch system incorporates a hybrid energy monitor illuminated in blue as well as the dual zone air-conditioning.

The dashboard soft-touch pads and front door trims are finished in an exclusive, Ice Grey colour, and blue stitching trims the leather upholstery, steering wheel and hand brake. A unique gear lever to the hybrid derivative comes standard with blue finish on the gear knob.



## Downsized full hybrid powertrain for fuel and space efficiency

- **Substantially re-engineered 1.5 litre petrol unit engine combined with downsized hybrid system components**
- **Compact battery, relocated under the rear seats to preserve boot space**
- **Total system output of 100 hp, with low, 3.5 l/100 km fuel consumption**
- **Best in class CO<sub>2</sub>, NO<sub>x</sub> and Particulate Matter emissions**
- **Frequent all-electric operation with no fuel consumed and zero emissions**
- **Driving range of 1,000 km on one tank of fuel**

The new Yaris Hybrid introduces the first downsizing of Toyota's proven Hybrid Synergy Drive® (HSD) technology. It represents a significant engineering breakthrough in the packaging of the full hybrid powertrain.

The new powertrain has been optimised for installation within the vehicle's compact, extremely efficient packaging design, without detriment to either system quality and performance, or passenger accommodation and load space.

Every key HSD component has been reduced in size and weight, and both the fuel tank and battery are installed under the rear seat. As a result, the Yaris Hybrid maintains identical occupant space and the same 286 litre luggage capacity as that of the standard model.

The downsized full hybrid system combines a 1.5 litre petrol engine unit with a lighter, more compact electric motor, transaxle, inverter and battery pack. The total system weight is 201 kg, 20% (42 kg) less than that of an Auris Hybrid.

### Compact, Lower Displacement Petrol Engine

The 1,497 cc, 16 valve, DOHC Atkinson Cycle petrol engine with VVT-i is based on the engine block of the second generation Prius, but has been completely re-engineered. It is 50 mm shorter and 17 kg lighter than the 1.8 litre unit of existing Toyota full hybrid powertrains, equating to a 10% reduction in length and a 17% reduction in weight.

The new engine generates a maximum 55 kW/74 DIN hp at 4,800 rpm and maximum torque of 111 Nm from 3,600 to 4,400 rpm. With a focus on lower emissions and the minimisation of mechanical friction for improved fuel efficiency, some 70% of all engine components are either new or redesigned.

Overall, the thermal efficiency of the Yaris Hybrid petrol engine has been improved by 6% over that of the second generation Prius, contributing to improvements in both fuel efficiency and environmental performance.

Newly adopted engine technologies include a cooled Exhaust Gas Recirculation (EGR) system, an electric water pump, the elimination of the

auxiliary drive belt, a low-friction timing chain, a lightweight, resin-based intake manifold and a compact exhaust manifold.

When used in combined with a cooled EGR system, the Atkinson cycle engine offers significant gains in fuel efficiency and the reduction of emissions.

In the Atkinson cycle, compression and expansion are asymmetrical, and the inlet valves close late, delaying compression. This creates a high expansion ratio for less compression, converting combustion energy to engine power more effectively. As a result, the exhaust temperature is lower than that of conventional engines. The cooled EGR system reintroduces cooled exhaust gas into the intake system, further reducing engine operating temperatures.

Allied to a small, lightweight, multi-function radiator, the adoption of an electric water pump both enhances engine warm-up performance and reduces cooling friction loss, improving fuel efficiency. The elimination of a mechanical pump drive belt reduces friction, further improving fuel economy.

A new, more compact, hybrid-exclusive resin-based intake manifold combines light weight with improved quietness through the reduction of both vibration and noise. And the use of highly efficient, 12-hole atomizing fuel injectors reduces both fuel consumption and emissions.

The exhaust system features a new, low heat capacity, maniverter-type exhaust manifold. By positioning the catalytic converter much closer to the engine exhaust port, it decreases the catalyser warm-up time by 24% and contributes to a marked improvement in emissions during shorter journeys.



### Downsized Hybrid Transaxle

Housing the electric motor, generator, power split device and double-motor reduction mechanism in one lightweight, highly compact transmission casing directly comparable in size to that of a conventional gearbox, a new transaxle lies at the heart of the Hybrid Synergy Drive® system.

The use of a smaller E-CVT electric continuously variable transmission and a more compact electric motor effects a 6% reduction in the length of the Yaris Hybrid's hybrid transaxle and an 11 kg weight saving over that of the Auris Hybrid, creating the most compact hybrid transmission yet engineered by Toyota.

Generating an immediate maximum of 45 kW and 169 Nm torque during acceleration, the new electric motor has been made smaller and lighter through the optimisation of the magnet material, and the winding of the coils with flat, rather than round, wire. The motor cooling structure has also been improved, allowing for a smaller, yet more efficient and powerful motor.

The transaxle now incorporates a multifunctional motor reduction gear within the power division mechanism, and a new gear deceleration mechanism abolishes the use of chains.

Gear tooth grinding and shaving technology similar to that used on the Auris Hybrid effects a notable reduction in transmission noise and vibration. This is further lowered by the adoption of a newly designed torsional vibration damper. Its smaller diameter made possible by the use of a three spring structure. The new, lightweight damper helps suppress the transmission of engine vibrations to a minimum level.

The optimisation of lubrication both improves transaxle efficiency and minimises energy losses. A new lubrication mechanism is adopted, in which each gear and bearing is lubricated by combing up the Automatic Transmission Fluid (ATF) with the rotation of the final driven gear and counter driven gear, reducing driving force losses.

The use of a split construction oil catch tank which supplies oil for both the motor/generator and gear lubrication lowers the dynamic oil level, reducing agitation losses.

### More Compact Hybrid Battery

The new, downsized full hybrid powertrain also features a smaller, 144 V nickel-metal hydride battery with a more efficient vehicle electric power management system.

The number of cells has been reduced from the 168 of the current, Auris Hybrid battery to only 120, composed of 20 modules connected in series. This effects a decrease in volume of 20% and a weight saving of 11 kg, allowing for the installation of the new battery entirely under the rear passenger seats, with no intrusion into the cargo loadspace.

In addition to this reduction in size and weight, battery charging efficiency has been improved, and the pack state-of-charge recovery time has been decreased by 67% compared to that of the Auris Hybrid.



### **New Power Control Unit with Smaller Inverter and Converter**

Due to a reduction in hybrid system current and voltage, the system's Power Control Unit has also been made smaller and lighter through the development of a more compact inverter and switching unit.

Smaller and lighter than that fitted to the Auris Hybrid, the new inverter features a newly structured capacitor, reduced energy losses and improved cooling, enhancing fuel efficiency.

By optimising the layout of internal components, the size and weight of the DC-DC converter have also been reduced. And the composition of the noise filter has been revised to enhance unit quietness.

Compared to the Auris Hybrid, unit output current has been reduced from 120 to 80 A and output voltage lowered from 650 to 520 V, saving system energy with no loss of performance or efficiency.

### **Hybrid System Performance**

Combining the power of a 55 kW petrol engine and battery powering the electrical motor, the Yaris Hybrid's highly efficient powertrain generates a maximum 74 kW/100 DIN hp system output. It offers the best balance of performance and fuel consumption/CO<sub>2</sub> emissions in the B segment.

The Yaris Hybrid will accelerate seamlessly from 0-100 km/h in 11.8 seconds, and on to a maximum speed of 165 km/h. Conversely, it delivers an average fuel consumption of just 3.5 l/100 km and segment-best CO<sub>2</sub> emissions of only 79 g/km, whilst allowing customers frequent driving in modes that emit zero

NO<sub>x</sub>, PM or CO<sub>2</sub> emissions. Its exceptional fuel efficiency gives the Yaris Hybrid a driving range of 1,000 km on a single tank of fuel.

### **Hybrid Synergy Drive in Operation**

Over the course of any journey, Toyota's Hybrid Synergy Drive® system operates in several different modes to maximise the Yaris Hybrid's' overall efficiency. At rest, the engine stops automatically to save fuel. Under operating conditions of low engine efficiency such as start up and low to mid-range speeds, the vehicle runs on the electric motor alone, thus eradicating CO<sub>2</sub>, NO<sub>x</sub> and PM emissions.

Under normal driving conditions, power allocation is constantly adjusted between engine and electric motor to combine optimum performance with maximum fuel efficiency.

Via an Electronically Controlled Braking system, the electric motor acts as a high-output generator during deceleration and under braking to effect regenerative braking, optimising energy management in the Hybrid Synergy Drive® system by recovering kinetic energy (normally wasted as heat under braking and deceleration) as electrical energy for storage in the high performance battery.



## Well balanced dynamics, ideal for city driving

- Zero emission driving possible for a high proportion of journey length and duration
- Transmission optimised for a more natural acceleration feel
- Two additional on demand driving modes: EV and ECO
- Class leading turning radius of 4.7 meters
- Low, 550 mm centre of gravity
- Electronically Controlled Braking system for powerful and progressive braking

Building on the inherently quiet, smooth power delivery of Toyota's Hybrid Synergy Drive®, the fundamental elements of intrinsic driving pleasure – such as acceleration/braking feel, balance and agility – have been thoroughly refined without any compromise in the new Yaris Hybrid.

Toyota's engineers have undertaken exhaustive testing to ensure the new Yaris Hybrid's dynamic abilities will meet customer expectations at all vehicle speeds and in all driving scenarios.

### Full Hybrid in operation

Recent real world tests with Toyota's Hybrid Synergy Drive powertrain reveal that the Yaris Hybrid zero emissions driving accounts for around 66% of the average commuter journey length and around 58% of the total journey time, with the petrol engine being switched off.

The electric motor's ability to deliver maximum torque from the vehicle acceleration start provides significant benefits during the stop/start driving of urban traffic conditions, combining brisk acceleration from a standstill in near

silence with class-leading acceleration under full throttle of 0-50 km/h in only 4 seconds.

The new Yaris Hybrid's seamless, E-CVT electric continuously variable transmission benefits from a new control system to create a more progressive engine rpm increase during vehicle acceleration. Optimised at 70-90% throttle opening, the new system suppresses excessive increases in engine rpm under acceleration, offering drivers a more natural-feeling, linear relationship between vehicle and engine speeds.

Supplementing this enhanced E-CVT transmission, two alternative 'on-demand' drive modes may be selected to further increase driving efficiency, performance and fuel economy.

From start-up and at speeds up to 50 km/h the new Yaris Hybrid automatically operates in EV mode, driving under electric motor power alone. The driver may also select EV mode manually. This unique driving mode is only available to drivers of full hybrid vehicles.



With vehicle range dictated by battery charge, the EV drive mode allows for urban driving with minimal noise and zero CO<sub>2</sub>, NO<sub>x</sub>, and PM emissions for up to two kilometres. Because the petrol engine is switched off throughout its operation, the EV drive mode contributes to a significant reduction in the Yaris Hybrid's overall fuel consumption.

In ECO mode, throttle response to aggressive accelerator pedal inputs is reduced and air-conditioning control optimized for improved fuel economy. Depending on driving conditions, the ECO mode can help drivers achieve about 10% reduction in fuel consumption<sup>1</sup> versus the normal mode.

### **Optimum Weight Distribution for Balanced Driveability**

The extensive use of high-tensile steel within the new Yaris Hybrid's construction not only saves weight, but also offers greater bodyshell rigidity for handling stability. Some 50% by weight of the body is formed in high-tensile steel, allowing for weight reduction with no loss of torsional stiffness.

With an unchanged 2,510 mm length wheelbase, the front overhang has been increased by just 20 mm to accommodate the downsized full hybrid powertrain. With both the fuel tank and the new, more compact hybrid battery located well within the vehicle wheelbase and as low as possible, the new Yaris Hybrid combines a particularly low, 550 mm centre of gravity with 63:37 front/rear weight distribution to deliver well-balanced driveability.

<sup>1</sup> Internal test during winter time

### **Enhanced Aerodynamics for Class-leading Drag Coefficient**

Aerodynamic efficiency is fundamental to fuel efficiency, vehicle stability and quiet running, and every element of the new Yaris Hybrid's bodywork has been styled to optimise airflow and minimise drag.

Sized to optimise hybrid powertrain cooling, both upper and lower front grilles have been carefully shaped to both smooth and minimise the intake of air into the engine bay.

The profiles of the front bumper aero corners, bonnet, steeply raked A pillar, door mirrors, roofline, rear spoiler, rear bumper aero corners, the rear combination lamps and even the wheels have all been designed to maximise the Yaris Hybrid's aerodynamic efficiency.

In addition, numerous underbody airflow rectification components have been adopted to create a flat surface, smoothing the flow of air under the new Yaris Hybrid. These include a front spoiler, a large engine undercover, and front, centre and rear spats. A rear undercover incorporates vertical fins which create a laminar flow effect to enhance ride stability.

As a result, Toyota's new full hybrid boasts a class-leading drag coefficient of just Cd 0.286.

### **Agile Handling and Responsive Steering**

The new Yaris Hybrid shares the standard Yaris' proven combination of MacPherson strut front and torsion beam rear suspension. Modifications to both spring and damper rates are optimised based on the new full hybrid's weight distribution.



The independent, MacPherson strut front suspension shares the mass and vibration reduction measures introduced on the standard Yaris, optimising the system's road tracking performance and minimising vibration whilst delivering appropriate ride comfort, driving safety, agility and grip.

The rear torsion beam suspension also benefits from the mass reduction measures and system enhancements introduced on the standard Yaris, once again reducing vibration and enhancing ride comfort, while improving vehicle agility.

The Yaris Hybrid features a quick steering gear ratio of 56 mm/rev to deliver a better steering feel and vehicle response. The bearing rigidity of the rack and pinion gearing reduces friction and system play, further enhancing accuracy and feel. The vehicle has a class-leading turning circle of only 4.7, allowing for great manoeuvrability in congested city streets or whilst parking.

#### **Powerful Regenerative Braking and Low Rolling Resistance Tyres**

Incorporating Electronic Brakeforce distribution (EBD) and Brake Assist, Traction Control (TRC) and Vehicle Stability Control (VSC), the new Yaris Hybrid is equipped with an Electronically Controlled Braking (ECB) system which coordinates the control of both hydraulic and regenerative braking.

The new full hybrid is fitted with ventilated disc brakes to the front and solid, discs to the rear for powerful, progressive and well balanced braking efficiency.

Coordinated control of the hydraulic and regenerative braking systems maximises the regeneration of energy by the electric motor during deceleration and under braking.

Fuel efficient tyres offer ultra-low rolling resistance and enough levels of grip, while their reduced vertical stiffness further improves ride comfort.



## An unbeatable value proposition in the B-segment

- **Competitively priced**
- **Urban cycle fuel consumption of only 3.1 l/100 km**
- **Low maintenance costs**
- **No powertrain clutch, starter motor, alternator belt or timing belt**
- **Best in class residual value projections**

Its segment-first, full hybrid technology offers Yaris Hybrid customers outstanding value for money through an unparalleled combination of competitive price, low maintenance and running costs, and high residual values.

The Yaris Hybrid is competitively priced in the segment, comparing particularly favourably against diesel powered vehicles. However, customer convenience is not compromised, with features such as dual auto-air-conditioning, automatic transmission, full electric drive and stop and start fitted as standard across the model range.

Best-in-class CO<sub>2</sub> emissions of 79 gr/km combined with superior fuel efficiency offer customers exceptionally low running costs and, in many countries, significant tax incentives or benefits.

The Toyota full hybrid consumes only 3.5 l/100 km over the European homologation combined cycle, allowing customers to drive up to 1,000 km on a single tank of fuel. At just 3.1 l/100 km, the urban cycle homologation fuel consumption is the lowest in the segment, contributing to further city driving fuel savings.

The Hybrid Synergy Drive® system has been specifically designed for low maintenance and outstanding durability. The powertrain has been designed with no requirement for the clutch, starter motor, alternator belt and timing belt traditionally used in other vehicles. With no need to either service or replace these parts, customers can realise a saving of around 1,500<sup>1</sup> Euro over 100,000 km.

And, thanks to the efficiency of the Yaris Hybrid's Electronically Controlled Braking system (ECB), the brake pads life expectancy can reach 100,000 km.

Combining this component longevity with reduced labour times during servicing, Yaris Hybrid maintenance costs over 100,000 km are expected to be amongst the lowest in the B segment, realising an additional saving of around 1,000<sup>1</sup> Euro.

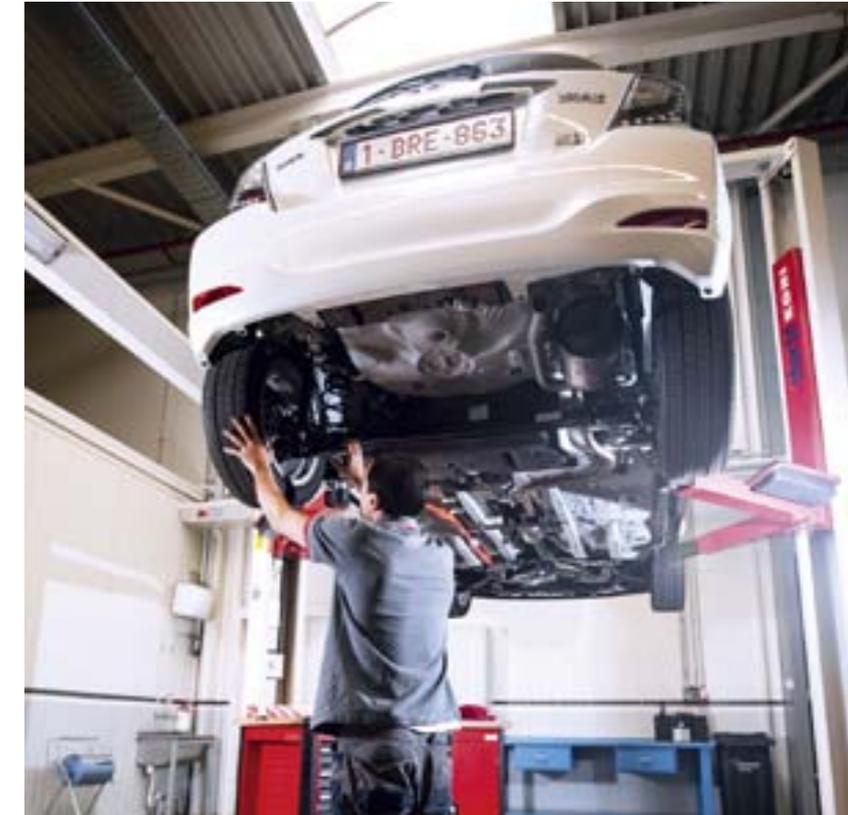
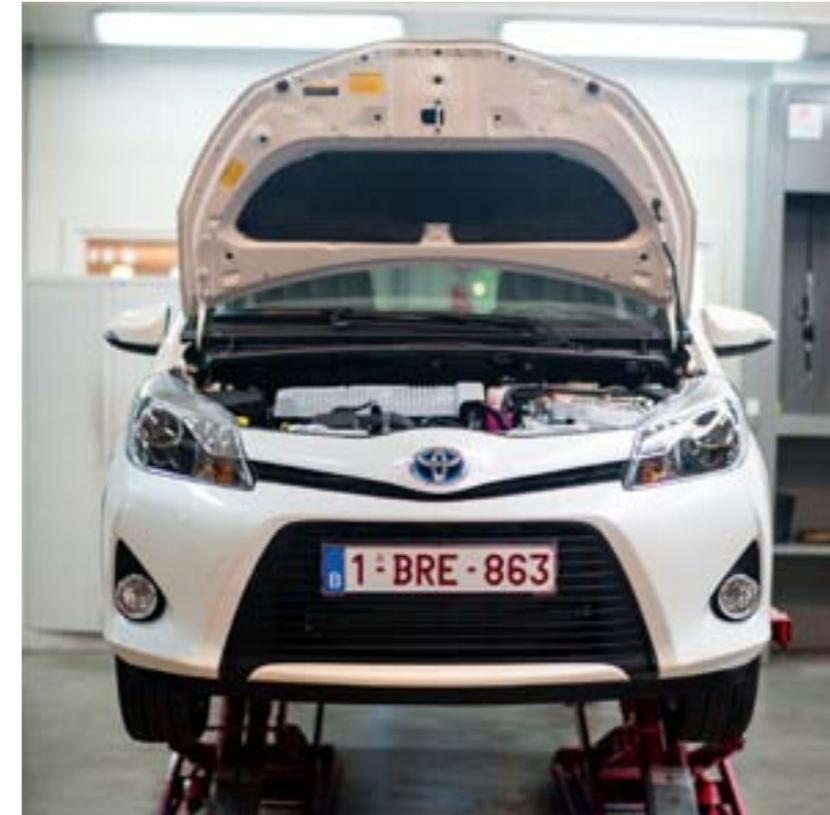
Rigorously assessed for performance and durability, and backed up by over 14 years of in-service experience, the full hybrid battery is designed to last the entire life of the car.

<sup>1</sup> Estimation for German market

The new Yaris Hybrid benefits from a three year/100,000 km warranty, extended to five years/100,000 km on hybrid system components. Warranty data from the Prius and Auris Hybrid has already confirmed the outstanding reliability of the Hybrid Synergy Drive® powertrain.

Hybrid reliability has also been confirmed by the Prius' consistent high ranking in both the JD Power 'Lowest Problems' survey and the TÜV quality report.

Initial residual value forecasts for a 3-year period and 60,000 km already award the Yaris Hybrid best-in-class status in Germany (51%) and UK (41%). With both Prius and the Auris Hybrid also rating highly in their respective classes, this reinforces the high levels of confidence customers place in Toyota full hybrid powered vehicles.



## Environmental performance without compromise on comfort or convenience

- **Two grade line-up: Active and Style**
- **Comprehensive standard equipped from Active grade for no compromise on comfort or convenience**
- **2011 Yaris 5-Star Euro NCAP rating safety features fitted as standard**
- **Toyota Touch fitted as standard, optional Toyota Touch & Go advanced navigation system**

Priced to be strongly competitive against rival B segment diesel vehicles, the new Yaris Hybrid will be available in a choice of two grades – Active and Style.

The new Yaris Hybrid range offers customers outstanding value for money, even without the low-CO<sub>2</sub> incentives and tax benefits that are available in many markets. It combines an extremely generous standard equipment specification with the added value of Toyota's unique, full hybrid powertrain driving experience.

The Active grade is fitted, as standard, with a smooth E-CVT transmission ideal for the urban environment. An all-electric EV driving mode, a Stop and Start system and a Hill Hold Assist function further reinforce the ease, simplicity and relaxation of the full hybrid powertrain driving style.

Steering wheel-mounted audio and Bluetooth switchgear, front power windows, LED Daytime Running Lights (DRL), driver's seat height adjustment, hybrid-blue stitching to the upholstery, dual zone automatic air conditioning and the Toyota Touch on-board multimedia system are also fitted as standard from the Active grade.

Toyota Touch is a 6.1 inch, full colour, touch screen interface which represents an affordable approach to on-board multimedia systems. It incorporates an AM/FM radio, a CD/MP3 player, Bluetooth mobile phone connectivity with a music streaming facility and automatic phonebook synchronisation at each connection.

A USB port allows for the connection of portable music players, with the facility to display iTunes album cover art. In addition, the system incorporates a rear view camera. The image is displayed on the full-colour screen when reverse gear is engaged, to assist with parking manoeuvres.

Specific to the Yaris Hybrid, Toyota Touch also incorporates a Hybrid Energy Monitor which displays the real-time energy flow within the Hybrid Synergy Drive system. Vehicle information displays include remaining fuel range, instant fuel consumption, average fuel consumption per minute over the last 15 minutes and time elapsed since last engine start. The system is available in seven languages - French, English, German, Italian, Spanish, Dutch and Russian.



To the comprehensive standard equipment of the Active grade, the Style grade adds front fog lamps with chrome ring surrounds, smart entry with push start, front armrest and 16" alloy wheels.

Optional equipment for both Active and Style grades includes privacy glass, an 8-speaker premium sound system, cruise control and a full length panoramic sunroof.

The Yaris Hybrid is equipped, as standard, with seven airbags, an Anti-lock Braking System (ABS), Electronic Brakeforce Distribution (EBD), Corner Stability Control, (CSC), Brake Assist (BA), Traction Control (TRC) and Vehicle Stability Control (VSC), offering customers the highest levels of safety. In 2011, the Yaris was awarded the maximum 5-star Euro NCAP rating.

### Toyota Touch & Go

Building on Toyota Touch, Toyota Touch & Go equips the new Yaris Hybrid with the best value for money navigation system on the market.

The system includes all the most popular navigation functions, such as advanced traffic coverage, customisable speed limits, speed camera warnings and motorway signposting. It not only offers drivers a choice of the fastest or shortest route to their destination, but also the one with the smallest environmental impact - an 'Ecological' route option.

Using a compatible mobile phone, via Bluetooth, the system offers on-board connectivity to a Google Local Search function –the largest and most up-to-date search database in the world. Via Google Maps, destinations may be input

remotely from home or office, and Points of Interest may be downloaded for entry as destinations.

The installation of Touch & Go also upgrades the multimedia base unit with the addition of an SMS on-screen send/receive function incorporating a contact person image display, and a USB-based photo viewing function.

Several Touch & Go Apps are available for download such as Park &Go, fuel price information, weather details and parking space information.



## TMMF manufactures the only full hybrid in the B-segment

- **Dedicated Yaris production facility for over a decade**
- **Increased model range variety with no compromise on production times or quality**
- **Numerous environmental initiatives introduced to minimise waste and save energy**

Originally conceived as a highly compact plant -with limited parts stock and an optimised production line layout contributing to a notably streamlined manufacturing process- Toyota Motor Manufacturing France (TMMF) has been building the Yaris for over a decade.

The Yaris has already established a reputation for outstanding levels of Quality, Durability and Reliability. With the addition of further derivatives including the new Yaris Hybrid, TMMF remains committed to delivering vehicles with the highest levels of built-in quality in the B-segment.

Yaris Hybrid manufacturing has introduced further complexity and new challenges to the assembly process, and increased the range of Yaris models produced on the same line to a record high of 62 varieties at TMMF.

On average, each Yaris requires the assembly of over 2,600 parts, with around 80% of total parts common to the standard Yaris and the Yaris Hybrid. However, there are 400 new, hybrid-specific components, and 40% of all assembly processes for the Yaris Hybrid are either new, or required adaptation. Because of the plant's very compact size, stock management has had to be further optimised, and sequenced delivery organised for a larger number of parts.

Over 4,000 hours of Yaris Hybrid assembly training was provided to TMMF members, with a focus on three key areas: assembly techniques for new on-line parts, part variety recognition amongst components of a similar kind, and the meeting of key quality targets. Specific attention was paid to the inverter assembly, this component being highly sensitive to dust and body intrusion.

Specific safety training in how to handle high voltage parts was provided to some 50 plant members, and new safety procedures resultant from the silent running of vehicles in EV drive mode established. In addition, a new, hybrid-specific, high quality pearl white paint finish was introduced at TMMF for the first time.

Despite these changes, and additional logistic complexities such as sequencing delivery of a higher number of parts, the continuous Kaizen and production line streamlining inherent in the principles of the Toyota Production System have meant that, overall, the Yaris Hybrid takes not much longer to produce than the standard Yaris.

Befitting the Yaris Hybrid's environmental credentials, the TMMF plant itself has seen the recent implementation of numerous environmental initiatives to minimise waste and lower power and water consumption.



Waste production has been reduced by 34% over the last 10 years, and since 2007, 100% of waste is recycled or recovered.

Through Toyota's continuous improvement activities, the plant has also achieved average savings per car of 27% in energy, 67% in water and 48% in VOC (the volatile organic compounds produced through solvent usage) over the same period.

In 2011, 60% of the plant's total water needs were covered by either rainwater – collected in a specific 6,200 m<sup>3</sup> basin, or by recycling used water from production processes at an in-house waste water treatment station.

A 1,020 m<sup>2</sup> photovoltaic membrane has been installed on the plant roof, providing half of the electricity needed for the administration building. And the press shop incorporates a 400 m<sup>2</sup> solar wall, pre-heating the outside air to save on heating energy and CO<sub>2</sub> emissions.

Dispensing with the need for packaging materials, all car components are delivered from suppliers to the plant in 400,000 reusable plastic boxes, reused for over 10 years.

With TMUK already assembling the full hybrid Auris, the start of Yaris Hybrid production at TMMF makes Toyota the only manufacturer to have two full hybrid technology production facilities in Europe, reinforcing the company's commitment to local manufacturing of high technology vehicles.

The plant currently manufactures around 1,000 cars a day, corresponding to one new Yaris driving out of the line every 68 seconds. TMMF expects to produce around 200,000 vehicles in 2012, of which 25% hybrid.



# Specifications

## HYBRID POWERTRAIN

Engine code	1NZ-FXE	
Type	4 cylinders in-line	
Fuel type	Gasoline	
Valve mechanism	16 valve DOHC with VVT-i	
Displacement (cm <sup>3</sup> )	1,497	
Bore x stroke (mm)	75 x 84.7	
Compression ratio (:1)	13.4	
Max. power (DIN hp) KW/rpm	(74) 55/4,800	
Max. torque (Nm/rpm)	111/3,600-4,400	
Emissions level	Euro V	
Fuel tank capacity (l)	36	
Motor type	Permanent magnet synchronous motor	
Max. output (DIN hp/kW)	60/45	
Max. torque (Nm)	169	
Battery type	Nickel-Metal hydride	
Max. system output <sup>1</sup> (DIN hp/kW)	100/74	

## TRANSMISSION

Type	Electric continuously variable transmission	
Transmission gear ratio (Front/rear)	Front	2.636
	Rear	2.636
Differential Gear Ratio (Front / Rear)	3.190	

<sup>1</sup> Total power of engine and electric motor (using the battery) combined - (Toyota in-house measured figures)

## BRAKE

Type	Front	Ventilated disc
	Rear	Solid disc
Size	Front	275x22 mm
	Rear	278x9 mm

## SUSPENSION

Type	Front	MacPherson Strut
	Rear	Torsion beam

## STEERING

Type	Rack and pinion, electric motor powered	
Ratio (steering wheel/front wheels)	12.8:1	
Turns - lock to lock	2.69	
Turning radius - tyre (m)	4.7 <sup>2</sup>	

## PERFORMANCE

Max. speed (km/h)	165
0 - 100 km/h	11.8

## FUEL CONSUMPTION (L/100KM)

Combined	3.5 (3.7 <sup>3</sup> )
Urban	3.1 (3.4 <sup>3</sup> )
Extra-urban	3.5 (3.7 <sup>3</sup> )

<sup>2</sup> 15" wheels

<sup>3</sup> 16" wheels

### CO<sub>2</sub> EMISSIONS (G/KM)

Combined	79 (85 <sup>2</sup> )
Urban	71 (77 <sup>2</sup> )
Extra-urban	81 (85 <sup>2</sup> )

### OTHER EMISSIONS

Carbon monoxide CO (mg/km)	196.8
Total hydrocarbons THC (mg/km)	43.5
Non-methane hydrocarbons NMHC (mg/km)	40.4
Nitrogen Oxides Nox (mg/km)	6.0
Particulate Matters PM (mg/km)	0.0

### EXTERIOR DIMENSIONS

Overall length (mm)	3,905
Overall width (mm)	1,695
Overall height (mm)	1,510
Wheelbase (mm)	2,510
Front tread (mm)	1,485
Rear tread (mm)	1,470
Front overhang (mm)	810
Rear overhang (mm)	585
Drag coefficient (Cd)	0.286

### LUGGAGE COMPARTMENT

VDA luggage capacity, rear seat up (L)	286
Length (mm)	710
Max. width (mm)	1,365

### WEIGHT (KG)

Curb Weight (min-max)	1,085-1,160
Gross Vehicle Weight	1,565

# Equipment list

EXTERIOR	ACTIVE	STYLE
Body coloured bumpers	•	•
Rear chrome garnish	•	•
Door handles and mirrors in body colour	•	•
Electric door mirrors	•	•
Heated door mirrors	Opt	Opt
LED daytime running lights and rear combination lamps	•	•
Front fog lamps with chrome ring surrounds	Opt	•
Privacy glass	Opt	Opt
Rear spoiler	—	Opt

MULTIMEDIA AND INFORMATION	ACTIVE	STYLE
Toyota Touch 6-speaker radio/CD player Audio switches on steering wheel Bluetooth® switches on steering wheel Aux-in and USB connector for iPod and MP3 player Hybrid System Indicator Rear-view camera display	•	•
Toyota Touch & Go EU map with 2D & bird view Sign Post Motorways Speed & safety camera warning Google local search SMS send & receive on screen function Income caller photo display Apps	Opt	Opt

COMFORT	ACTIVE	STYLE
Push start	—	•
Smart entry	—	Opt
Leather steering wheel, gear shift knob and handbrake with blue stitching	•	•
Tilt and telescopic steering wheel	•	•
Cruise control with speed limiter	Opt	Opt
Dual zone automatic air conditioning	•	•
Ventilated glove box	—	•
Panoramic sunroof	—	Opt
Follow Me Home headlight switch-off delay	•	•
Gun metal-coloured ventilation rings	•	•
Front power windows with automatic up and down	•	•
Rear power windows with automatic up and down	Opt	•
Driver seat height-adjustable	•	•
Passenger seat height-adjustable	Opt	•
Heated front seats	Opt	Opt
Front armrest with blue stitching	—	Opt
60:40 split folding rear seats	•	•

• = Standard      Opt = Optional      — = Not available

SAFETY	ACTIVE	STYLE
Anti-lock Braking System (ABS) with Electronic Brake force Distribution (EBD) and Brake Assist (BA)	•	•
Vehicle Stability Control (VSC) and Traction Control (TRC)	•	•
Hill-start Assist Control (HAC)	•	•
Crash-resistant body structure	•	•
Minimal Intrusion Cabin System	•	•
Body shell with high tensile steel elements	•	•
Energy-absorbing structure and bumpers	•	•
SRS front airbags (driver and front passenger)	•	•
SRS side airbags (driver and front passenger)	•	•
SRS curtain shield airbags	•	•
SRS knee airbag (driver)	•	•
Seat belt warning system (front and rear)	•	•
Front seat belts: 3-point ELR with force-limiters and pre-tensioners	•	•
Whiplash Injury Lessening (WIL) concept seat: driver and front passenger	•	•
Child protection lock	•	•
ISOFIX child restraint system (2nd row, 2 outer seats)	•	•
Collapsible pedal support strut and steering column	•	•

SECURITY	ACTIVE	STYLE
Immobiliser	•	•
Power door lock	•	•
Remote door lock	•	•

• = Standard      Opt = Optional      — = Not available

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Vehicles pictured and specifications detailed in this publication may vary from models and equipment available in your area. Vehicle body colours might differ slightly from the printed photos in this publication.

# Image bank

## Software requirements:

### PC:

If your configuration is set for this application, a pop-up will appear: "What do you want Windows to do?".

Select the option: "Start interactive interface". If this is not the case, go to the USB-drive in Windows Explorer and double click on: start.exe.

For a full use of the application the following minimum configuration is needed:

- Windows XP or later
- 512 Mb Ram or more is recommended
- USB-Port
- Internet Explorer
- Quicktime

### Contents:

- Interactive interface
- Word-, and Pdf-files
- Images Hires and Lores .jpg
- Quicktime movies

### Apple Power Mac:

Go to Finder of OS X and double click on the USB and double click on Start.app.

For a full use of the application the following minimum configuration is needed:

- Mac OSX v10.4
- 512 Mb Ram or more is recommended
- USB-Port
- Safari
- Quicktime

### For editorial use only.

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## Exterior - Dynamic



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## Exterior - Static



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Details



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Technical



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### Manufacturing



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Cost of ownership



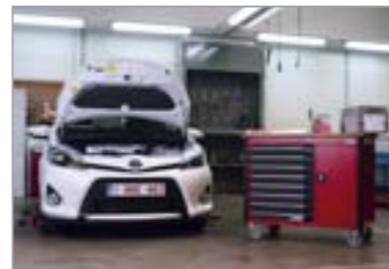
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