



# Ariel Atom 4

## *Ariel launch an all-new Atom*

- Fourth-generation of Ariel's iconic sports car is the fastest standard version yet
- 320bhp Honda Type R turbo engine
- New larger diameter tube chassis
- Totally revised suspension and steering
- New bigger brake and cooling system
- New bodywork with significant aerodynamic improvements
- New seats, revised ergonomics, more interior space
- New instrumentation and electronics with traction and launch control
- Atom 4 is capable of 0-60mph in 2.8 seconds and 0-100mph in 6.8 seconds
- Production will commence in late 2018, for Spring 2019 deliveries
- Prices starting at £39,975 including VAT in the UK (£33,312 ex VAT)
- Each car built by one technician individually to order
- Over 18 years since the first Atom was launched
- 1,800+ Atoms have been made to date

### Atom 4

Ariel Motor Company announces the launch of the latest evolution of the Ariel Atom, now in its fourth generation, the all-new Atom 4.

Designed by the in-house Ariel team, the Atom 4 continues the now iconic design, but is an entirely new car from the ground-up. Building on the learning from previous generations, customer feedback, Ariel assembly technicians and significant R&D by Ariel in recent years, the Atom 4 preserves the essential Ariel qualities but progresses the design and engineering further into the most powerful and able Atom yet.

Atom 4 features the latest Honda Type R turbo engine giving 320bhp as standard, all-new chassis, suspension, steering and brakes, all-new bodywork with significant aerodynamic improvements, new seating and instrumentation together with a host of design improvements and changes. With an open design brief to improve the car wherever possible, the Atom 4 represents another big step forward in the evolution of the Atom.

Said Simon Saunders, Director of Ariel: *"The Atom 4 is the biggest change to the car since we originally released it in 1999. It really is an all-new car; in fact there are only three parts carried over from the last Atom – the clutch/brake pedals and the fuel cap."*

Atom 4 will continue to be made in low volume by Ariel at its factory near Crewkerne, Somerset in quantities of around 100 cars per year alongside the Ariel Nomad and Ariel Ace motorbike.



Each car will be built, as they are now, by one technician and to order for each individual customer. Having earned its reputation as the 'Savile Row of the Automotive World' Ariel has a tailor-made approach to building vehicles that isn't possible at high volume and reflects the opportunities achievable only in low volume production. Atom 4 will also be made, under licence, by Ariel North America based in South Boston, Virginia serving North and South American markets. The cars will have identical specifications, combining the best high and low volume engineering, materials and production values together with an option list and bespoke build system that gives each customer exactly the car they need. From fun sports car to track weapon, the Atom 4 will deliver.

The car will also be the first Ariel vehicle to undergo full European Small Series Type Approval (ESSTA) and ADR (Australian Design Rules) testing, to enable Atom 4 to be sold throughout Europe and Australasia with a Certificate of Conformity from 2019. Said Tom Siebert, Director of Ariel Motor Company: *'Though we have had a small European presence over the years, there is an enormous demand for our vehicles in this market and elsewhere in the world. British-built, low volume vehicles appeal on many different levels and Type Approval is key to our future commitment to service those markets effectively. As well as our existing network of dealers, we will appoint new key agents in various countries, to make sure that as many potential customers have access to Atom 4 as possible'*.

## History

As one of the very oldest names in automotive history, Ariel was started in 1870 by James Starley, also inventor of the differential and rack-and-pinion steering, with an Ordinary (Penny-Farthing) bicycle. As the first steel-framed production bicycle, the Ariel also featured steering and patented spoked wheels, revolutionising the early transport industry. With the rapid development of vehicles in the 1890s and early 1900s, Ariel advanced through De Dion-engined tricycles and Quadricycles as well as motorcycles in a fast-changing industry. As a manufacturer of early Grand Prix cars Ariel was an entrant in the first-ever race at Brooklands in 1907, winning at the second event the following weekend. From the late 1900s, the company centred its attention on motorcycle production with occasional excursions into 4 wheel vehicles. Best known for the ground-breaking Ariel Square 4, multiple International Six Day Trial winning HT5 and pressed steel frame Arrow, the company became one of the great names of the British motorcycle industry. Ariel was revived in 1999 with the launch of the Ariel Atom, featuring the now famous exposed spaceframe powered by a Rover K Series engine. A major redesign in 2003 included the introduction of the Honda K20A Type R engine and saw the start of Ariel's relationship with Honda, which continued into the Ariel Ace motorbike and Ariel Nomad. A constant development of the car saw the Atom 3 introduced in 2007, with the Honda K20Z Type R engine, and the Atom 3.5 in 2013 with revised chassis and suspension. Over 1800 Ariel Atoms have been made since the first production cars were delivered in 2000, making Atom ownership an exclusive but growing club. As a forward-thinking company Ariel will continue to evolve the Atom, but the soul of the Atom will always be attainable, rewarding performance and sheer driving pleasure.



## Chassis

The basis of Atom 4 is an all-new tubular chassis, designed in-house by the Ariel engineering and design team, with much learning coming from the Titanium Chassis R&D project of 2014. Featuring larger diameter main and diagonal tubes than previous Atoms, as well as many detailed additions, each tube within the chassis has been analysed and optimised to give a light but extraordinarily strong structure. The torsional stiffness has been increased by 15% compared to the previous generation Atom 3.5.

The combination of sophisticated CAD (Computer Aided Design) and FEA (Finite Element Analysis) design work resulting in a hand-made, bronze welded structure reflects Ariel's approach to design and manufacture, combining new technology with exceptional craftsmanship.

Said Tom Ward, Ariel's Chief Engineer: *"Redesigning an icon can be quite intimidating and doing this with increasingly strict legislation plus Type Approval in mind is a big task for a small company like ours. Our growing design and engineering team forms 25% of the Ariel workforce so we are committed to making Ariel absolute leaders in their field."*

The chassis gives more interior space and legroom than previously and has been designed and proven to well exceed the demands of a full frontal 50kph barrier impact, seat belt and rear impact test. Forming a driver/passenger safety cell the Atom chassis offers the highest degree of protection in its class. Chassis are treated to a three-stage finishing process of phosphating, powder coating to colour choice and powder coating lacquer.

## Engine

At the heart of the Atom 4 is the new Honda Type R K20C 2.0L 4 cylinder direct injection, turbocharged engine. Building on the 15-year relationship with Honda UK with Honda power in Atom 2, Atom 3 and Ariel Ace motorcycles, Ariel has signed a new agreement for engine supply with Honda. Said Simon Saunders: *"The Honda agreement is critical for us and our customers. The Type R engines have proven themselves in Atoms over the years with dependable power and absolutely faultless reliability, even under race conditions, so there really is no better engine for the Atom."*

The 1996cc direct injection turbocharged engine, producing 320bhp as standard in the Atom – 10bhp more than the previous supercharged Atom – gives the Atom 4 more power than any previous standard model. An astonishing 420Nm of torque is a massive 75% increase over a standard Atom 3.5 and a 35% increase over a supercharged Atom 3.5.

Mapped by Ariel using an MBE ECU (Electronic Control Unit) developed specifically for the car will allow the Atom 4 to meet Euro VI emissions standards, a critical factor of the EUSSTA testing. Optional Launch and Traction Control is a new feature built in to the electronics of Atom 4, derived from the Atom V8. Atom 4 also features the ability to adjust and optimise turbo boost levels for different road and track conditions.



An all-new exhaust system, again designed to meet EUSSTA standards as well as race track noise levels, features a ceramic honeycomb, high palladium/rhodium content catalytic converter, 3"/75mm diameter stainless system into a twin outlet, 8.4"/215mm stainless silencer. A high flow single outlet system is an option as is a decat system for use on the track.

A larger capacity fuel tank sits on the left-hand side of the car, improving range on road and on track, giving a road range of some 300 miles.

## **Suspension and Steering**

Retaining the inboard, pushrod operated damper system the Atom 4 features all new suspension geometry. Based on 18 years of continual development from Ariel and design input from suspension guru Richard Hurdwell, the new geometry includes revised inboard and outboard points plus anti-squat and anti-dive to reduce unnecessary body roll and weight transfer, keeping as much tyre contact as possible at all times. All new Bilstein dampers sit inboard operated by pushrods via new geometry bellcranks, with an optional semi-active Ohlins package under development for production.

Revised steering rack and geometry give the new Atom accessibility for all types of drivers under all driving conditions, with the option of a quick rack for track-focused cars. *"It's important that the Atom not only handles superbly but has ultimate driveability,"* said Sam Evans, engineer in charge of Atom suspension development. *"On Atom 4 we have gone to enormous lengths to ensure the car is as easy to drive on the road as it is fast on a race track."*

An improved turning circle has also been achieved with the new suspension and steering rack geometry to aid town driving and parking.

## **Wheels and Tyres**

Moving up in size the Atom 4 sits on 7Jx16" front wheels and 9Jx17" rear wheels. Multi-spoke alloy wheels are standard fitment but, in a first for Ariel, the Atom 4 has the option of full carbon wheels. These represent a weight saving of nearly 50% over an alloy wheel and a total reduction of over 16 kilos. The wheels, made to Ariel specification by BST in Johannesburg (who also make the carbon wheels for the Ariel Ace), significantly reduce unsprung weight together with new aluminium uprights, which alone give a 50% weight saving over the previous car.

Tyres are 195/50R16 front and 255/40ZR17 rear. In a new exclusive partnership with Avon Tyres the Atom will be fitted with high performance Avon ZZR tyres. With recent changes in tyre law and noise it is important that the highest performing tyres are available to the Atom. The combination of new suspension and larger section Avon tyres contribute to the Atom 4 having more mechanical grip than any previous Atom. Not only is straight line performance improved for the Atom 4 but cornering speed moves to another level also.



## Brakes

The all-new standard braking system increases in size, due to the higher power of Atom 4, with 278mm vented discs and cast two-piston caliper on the front with 253mm discs on the rear and integrated hand brake caliper. An optional upgrade is to a full AP Racing configuration of 290mm vented discs front and rear with alloy 4 piston calipers. A variety of brake pads are available dependent on the use of the car. An all-aluminium pedal box with brake, clutch and throttle pedal is supplemented by the optional cockpit adjustable brake bias. Goodridge stainless hose for both brake and clutch hydraulic systems is standard fitment.

## Bodywork

The Atom 4 features an all-new look and while recognisably an Atom, every panel on the car is new. One of the fundamental design principles on Atom 4 was aerodynamic improvement, control of airflow and overall balance of the car. Working in partnership with TotalSim, CFD (Computational Fluid Dynamics) experts in Brackley, and in keeping with the original Ariel 'Form Follows Function' philosophy, major aerodynamic improvements have been made in every area of the car. Drag has been reduced, downforce increased and mass flow rate to radiator, intercooler and air intakes greatly increased. A shift in aero-balance has been achieved to give neutral handling and more precise control at the limit.

Immediately noticeable is the disappearance of the familiar central Atom roll hoop, now enclosed under the air intake bodywork, which itself has been reduced in size. This has greatly improved air passing over the rear bodywork and controls air speed going through the ram-air system. Similarly, the new nose cone has smaller openings and internal ducting to reduce drag and decelerate air speed, maximising efficiency through the front mounted radiator. The intercooler mounted behind the tub, in a low pressure area, keeps the unit close to the engine and is also supplied with air from under the car, optimising cooling efficiency.

The trademark Atom 'aero screen' has been further refined and now reaches all the way across the car, reducing 'helmet lift' for the occupants, directing air to the engine intake and, with just this aero fence, generating 100 Newtons of downforce. The mudguards on all four wheels also feature an aero device to give downforce directly to tyres negating any lift from mudguards.

Ralph Tayler-Webb, Chief Designer at Ariel said: *"The aerodynamics on the Atom 4 have been an epic journey with literally hundreds, if not thousands, of iterations backwards and forwards between us and TotalSim. Keeping the Atom true to its roots but making such big strides with the aero has been a long haul, but it has paid off. Atom 4 is a highly-sophisticated design that has improved the performance in many different ways and on a number of levels."*

Bodywork will be available in full carbon for many of the body parts, reinforcing the 'Less = More' Ariel philosophy of performance through lightweight.



## Exterior and Interior

All exterior lighting has been revised with LED indicators, stop/tail/fog and reverse lights, daytime running lamps and high performance halogen headlights to conform to EUSSTA regulations. Ambient light sensors allow auto light functionality.

Additional storage space has been included under the removable front body cover, extending the cubby box, together with access to the new hydraulic system. Individually adjustable single seats replace the twin seat unit of previous Atoms and a comprehensive study into ergonomics has subtly repositioned pedals, steering wheel and instruments. Already a comfortable space for most drivers, an additional 50mm of cabin length and 20mm width has been added to accommodate the very widest range of users.

The new switch cluster, again designed to EUSSTA standards, features all controls within finger reach of the 310mm suede steering wheel including lighting, indicators, adjustable traction and launch controls. The central instruments, with full colour TFT (Thin-Film-Transistor) screen made for the Atom 4 by AIM, can be scrolled through multiple menus for road, track or set up use. The instruments also have gear position and shift lights as standard plus provision for real time race track data-logging. Using the AIM PDM (Power Distribution Management) system, communicating directly with the ECU via CAN (Controller Area Network), the vehicle wiring harness and fuse box have been simplified and therefore light-weighted.

## Performance and Price

Atom 4 is the fastest standard Atom produced so far. With the dramatic increase in torque, as well as 320bhp as standard, both standing start and in gear acceleration times are the fastest yet for a standard Atom: 0-60mph in 2.8 seconds, 0-100mph in 6.8 seconds retain the Atom's giant killing performance.

Atom 4 will be priced at £39,975 including VAT in the UK (£33,312.50 ex VAT). Said Tom Siebert: *"We want to keep the Atom as an affordable but ultimate performance car. The cost of the Atom 4 compares with a supercharged Atom 3.5, but it has more power and a higher specification as standard. Over the 18 years that we have been making the Atom it has proved itself with extraordinarily low running costs and phenomenal reliability, even when used hard on track."*

*"This coupled with truly remarkable residuals makes the Atom not only cost effective to own but almost depreciation free. But our main aim for our customers is our company motto – SERIOUS FUN. There isn't enough of that in motoring any more, so we're determined to keep it. If that's what you want, Atom 4 will deliver."*

Atom 4 production will commence in late 2018, for Spring 2019 deliveries.

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For further details please contact Jonas Larsén  
Driving Event Sweden AB  
**Tel: 0220-77 20 40**



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