



FROM SHOWCAR TO PRODUCTION

As an entirely newly developed vehicle, the design of the up! is virtually identical to the showcar presented in 2007. Especially the short overhangs at the front and rear were adopted. The typical Volkswagen space concept has made the up! a day-to-day companion. The new engine and the MQ and SQ gearboxes make driving fun. In addition to this, the up! complies with the highest safety requirements.



AUTHOR



DIPL.-ING. HERBERT RUHOLL
 is Technical Project Manager for
 New Small Family at Volkswagen AG
 in Wolfsburg (Germany).

SEGMENT EXTENSION

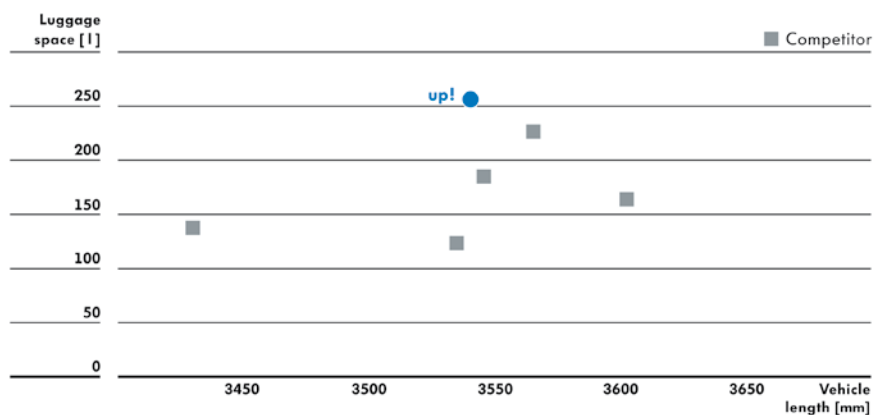
The up! extends the Volkswagen range in the small car segment with vehicle lengths of about 3.50 m, internally referred to as the A00 class. But its design orientation and efficiency clearly differ from its two predecessors, the Lupo (up to 2005) and the Fox (from 2005). The IAA 2007 saw the unveiling of the first up! model with a rear engine. The proportions of this study were particularly striking due to the short overhangs. Together with a large wheelbase in relation to the overall length, this has made it possible to make generous use of the space for the A00 segment. Due to the public's response to the study, virtually all of the styling and proportions of the showcar were transferred to the series vehicle. A new platform as well as a new gearbox and three-cylinder engine generation were developed for this purpose.

The external package dimensions are classic for the A00 segment. The overall length accounts for 3540 mm with a wide wheelbase of 2420 mm. At 585 mm, the

front overhang is rather short. These measures have achieved good use of the interior, enlarging the space for the passengers at the front as well as in the rear. ❶ illustrates the relationship of the trunk volume to the vehicle length as a gage of how the space has been used in the A00 class. Compared with the competitors, the trunk volume of 251 l of the up! takes pole position. Generally, a greater wheelbase enables a more advantageous use of the interior. However, it is the simultaneous realisation of a lower curb weight while maintaining the usual high standards of comfort and safety that enables efficient and dynamic driving in equal measure. For that, the up! has good conditions, featuring a curb weight of 854 kg. At the same time, high crash safety and body stiffness are achieved.

PERFORMANCE AND CONSUMPTION

Synergies within the Group's engine range have brought about a change from the rear engine originally presented in the showcar to the front-mounted engine concept. The engine is compatible with the standard of the modular transverse matrix (MQB) by Volkswagen with a standardised installation position and hence, is suited as starting drive train for the A0 class. The ancillary components like the generator and the compressor are attached directly to the engine without a separate bracket. The entirely newly developed 1.0 l three-cylinder MPI engine offers compact driving fun with a choice of two power ratings, 44 kW and 55 kW. In both performance classes, the efficient



❶ Relationship of trunk volume to vehicle length

engine complies with the new Euro 5A standard. Reducing the curb weight and optimising the air resistance brought the c_d value down to 0.32, and it was further reduced by various other measures. The BlueMotion Technology offers a catalogue of measures to further reduce consumption and emissions. The start-stop system with regenerative braking, the lowering of the chassis to reduce air resistance and the use of rolling resistance-optimised tires as well as an adapted engine management system enable a CO₂ emissions value of 97 g/km. At just 105 g/km CO₂ in the basic version, the up! represents a more contemporary vehicle concept compared with its competitors. Moreover, the engine is prepared for natural gas: the up! powered with natural gas and BlueMotion Technology boasts average emissions of just 79 g/km CO₂.

DESIGN AND EQUIPMENT LINE

The up! study, which was showcased at the IAA 2007, presented the new styling language of Volkswagen to the public for the very first time. Much emphasis has been placed on the horizontal line of the front of the vehicle and the headlamps. This intensifies the identity of the Volkswagen brand and its values, and simultaneously creates an individual character. With three equipment lines, the up! boasts a multitude of individualisation options. In addition, customers can choose from the two models, up! black and up! white, right from the market launch.

A highlight of the up! is the automatic emergency braking function, City Safety, for avoiding rear-end collisions in city areas. Supported by a laser sensor which detects and analyses the traffic in front, the vehicle is automatically braked to a standstill if this is required by the traffic situation and the driver is not responding accordingly. The up! is the first vehicle ever in the small car segment to be equipped with such an assistance system.

The equipment line of the up! is based on the new Polo. The grained surface finish of the dashboard in conjunction with the chrome elements has a high-quality and robust feel. The “maps + more” system in the interior is an additional feature. It combines typical car radio functions with the versatility of a portable naviga-

tion system. The system can be removed from and installed to the provided bracket quickly. Alongside the classic infotainment functions, the customer can choose from a whole host of applications, e.g., Bluetooth telephony, visually-supported park distance control, consumption monitor and much more.

POSITIONING OF THE VEHICLE

The up! will be available as a two-door and a four-door vehicle worldwide. Its many features and its understated design distinguish this vehicle significantly from its competitors.

It is Volkswagen's dedicated aim to satisfy a broad variety of customer needs – ranging from the student to the pensioner – and to meet the requirements of men and women alike. As a consequence, the equipment concept of the up! has been designed to reflect three characteristics: simple, useful and broader. The simple concept stands for clear product design and a clean-cut options program, while the useful concept offers highly practical features tailored to the customers' needs. Finally, the broader concept adds mobility and lifestyle features to the standard equipment list.

The up! is the Volkswagen brand's entry car, giving a large group of customers the opportunity to experience Volkswagen's particular brand promise.

Unlike many competitor cars, customers can choose from numerous options to build their own, individual up!, for example, a modern two-door lifestyle car or a practical four-door vehicle. In total the up! is more than only an intelligent product: pure and authentic.

THE NEW VW up!

September 2011

Springer Automotive Media | Springer Fachmedien Wiesbaden GmbH

P. O. Box 15 46 · 65173 Wiesbaden · Germany | Abraham-Lincoln-Straße 46 · 65189 Wiesbaden · Germany
 Amtsgericht Wiesbaden, HRB 9754, USt-IdNr. DE811148419

Managing Directors Dr. Ralf Birkelbach (Chairman), Armin Gross, Albrecht Schirmacher | **Senior Advertising** Armin Gross | **Senior Marketing** Rolf-Günther Hobbeling
Senior Production Christian Staral | **Sales Director** Gabriel Göttlinger

SCIENTIFIC ADVISORY BOARD

ATZ

Dipl.-Ing. Dietmar Bichler, Bertrand AG,
 Dipl.-Ing. Kurt Blumenröder, IAV GmbH,
 Dr.-Ing. Bernd Bohr, Robert Bosch GmbH,
 Dipl.-Ing. Michael Dick, Audi AG, Dr.-Ing. Lutz
 Klaus Draeger, BMW AG, Prof. Dr.-Ing. Lutz
 Eckstein, RWTH Aachen, Dipl.-Ing. Rita Forst,
 Adam Opel AG, Dipl.-Inf. Hans-Georg Frisch-
 korn, VDA, Prof. Dr.-Ing. Burkhard Göschel,
 Magna International Europe AG, Prof. Dipl.-Ing.
 Jörg Grabner, Hochschule München, Prof.
 Dr.-Ing. Peter Gutzmer, Schaeffler Gruppe,
 Dipl.-Ing. Wolfgang Hatz, Dr. Ing. h.c. F.
 Porsche AG, Martin Haub M.A., Valeo, Dipl.-Ing.
 Christoph Huß, VDI-FVT, Dipl.-Ing. Bernd
 Maierhofer, MAN Truck & Bus AG, Dipl.-Ing.
 Jörg Ohlsen, Edag GmbH & Co. KGaA, Dr. Peter
 Ottenbruch, ZF Friedrichshafen AG, Dipl.-Ing.
 Klemens Schmiederer, Behr GmbH & Co. KG,
 Prof. Dr.-Ing. Ulrich Spicher, WKM, Dr.-Ing.
 Thomas Weber, Daimler AG, Prof. Dr. rer. nat.
 Martin Winterkorn, Volkswagen AG

MTZ

Prof. Dr.-Ing. Michael Bargende, Universität
 Stuttgart, Prof. Dr. techn. Christian Beidl, TU
 Darmstadt, Dr.-Ing. Ulrich Dohle, Tognum AG,
 Dr. Klaus Egger, Dipl.-Ing. Dietmar Goericke,
 Forschungsvereinigung Verbrennungskraftma-
 schinen e.V., Prof. Dr.-Ing. Uwe-Dieter Grebe,
 GM Powertrain, Prof. Dr. Jens Hadler, Volkswa-
 gen AG, Dipl.-Ing. Thorsten Herdan, VDMA-Fach-
 verband Motoren und Systeme, Prof. Dr.-Ing.
 Heinz K. Junker, Mahle GmbH, Dipl.-Ing. Peter
 Langen, BMW AG, Prof. Dr. Hans Peter Lenz,
 ÖVK, Prof. Dr. h. c. Helmut List, AVL List
 GmbH, Dr.-Ing. Ralf Marquard, Deutz AG,
 Dipl.-Ing. Wolfgang Maus, Emitec Gesell-
 schaft für Emissionstechnologie mbH, Prof.
 Dr.-Ing. Stefan Pischinger, FEV Motorentechnik
 GmbH, Prof. Dr. Hans-Peter Schmalzl, APC –
 Advanced Propulsion Concepts Mannheim
 GmbH, Prof. Dr.-Ing. Ulrich Seiffert, TU
 Braunschweig, Prof. Dr.-Ing. Ulrich Spicher,
 WKM

EDITORS-IN-CHARGE

Dr. Johannes Liebl,
 Wolfgang Siebenpeiffer

EDITORIAL STAFF

EDITOR-IN-CHIEF
 Johannes Winterhagen (win)
 phone +49 611 7878-342 · fax +49 611 7878-462
 johannes.winterhagen@springer.com

VICE-EDITOR-IN-CHIEF
 Dipl.-Ing. Michael Reichenbach (rei)
 phone +49 611 7878-341 · fax +49 611 7878-462
 michael.reichenbach@springer.com

CHIEF-ON-DUTY
 Kirsten Beckmann M. A. (kb)
 phone +49 611 7878-343 · fax +49 611 7878-462
 kirsten.beckmann@springer.com

SECTIONS
Body, Safety
 Dipl.-Ing. Ulrich Knorra (kno)
 phone +49 611 7878-314 · fax +49 611 7878-462
 ulrich.knorra@springer.com

Chassis
 Roland Schedel (rs)
 phone +49 6128 85 37 58 · fax +49 6128 85 37 59
 ATZautotechnology@text-com.de

Electrics, Electronics
 Markus Schöttle (scho)
 phone +49 611 7878-257 · fax +49 611 7878-462
 markus.schoettle@springer.com

Engine
 Ruben Danisch (rd)
 phone +49 611 7878-393 · fax +49 611 7878-462
 ruben.danisch@springer.com

Online
 Katrin Pudenz M. A. (pu)
 phone +49 6172 301-288 · fax +49 6172 301-299
 redaktion@kpz-publishing.com

Production, Materials
 Stefan Schlott (hlo)
 phone +49 8191 70845 · fax +49 8191 66002
 Redaktion_Schlott@gmx.net

Research
 Johannes Winterhagen (win)
 phone +49 611 7878-342 · fax +49 611 7878-462
 johannes.winterhagen@springer.com

Service, Event Calendar
 Martina Schraad (mas)
 phone +49 611 7878-276 · fax +49 611 7878-462
 martina.schraad@springer.com

Transmission
 Dipl.-Ing. Michael Reichenbach (rei)
 phone +49 611 7878-341 · fax +49 611 7878-462
 michael.reichenbach@springer.com

Dipl.-Ing. (FH) Moritz-York von Hohenthal (mvh)
 phone +49 611 7878-278 · fax +49 611 7878-462
 moritz.von.hohenthal@springer.com

ENGLISH LANGUAGE CONSULTANT
 Paul Willin (pw)

PERMANENT CONTRIBUTORS

Richard Backhaus (rb), Prof. Dr.-Ing. Stefan Breuer
 (sb), Dipl.-Ing. (FH) Andreas Fuchs (fu), Jürgen
 Grandel (gl), Prof. Dr.-Ing. Fred Schäfer (fs)

ADDRESS
 P. O. Box 15 46, 65173 Wiesbaden, Germany
 redaktion@ATZonline.de

SPECIAL PROJECTS
Managing Editor
 Markus Bereszewski (mb)
 tel +49 611 7878-122 · fax +49 611 7878-462
 markus.bereszewski@springer.com

Coordination / Editorial Staff
 Dipl.-Reg.-Wiss. Caroline Behle (beh)
 tel +49 611 7878-244 · fax +49 611 7878-462
 caroline.behle@springer.com
 Christiane Brüninghaus (chb)
 tel +49 611 7878-136 · fax +49 611 7878-462
 christiane.brueninghaus@springer.com

ADVERTISING

HEAD OF SALES MANAGEMENT
 Britta Dolch
 phone +49 611 7878-323 · fax +49 611 7878-140
 britta.dolch@best-ad-media.de

KEY ACCOUNT MANAGEMENT
 Elisabeth Maßfeller
 phone +49 611 7878-399 · fax +49 611 7878-140
 elisabeth.massfeller@best-ad-media.de

MEDIA SALES
 Frank Nagel
 phone +49 611 7878-395 · fax +49 611 7878-140
 frank.nagel@best-ad-media.de

DISPLAY AD MANAGER
 Susanne Bretschneider
 phone +49 611 7878-153 · fax +49 611 7878-443
 susanne.bretschneider@best-ad-media.de

AD PRICES
 Price List No. 54 (10/2010)

MARKETING

PRODUCT MANAGEMENT
AUTOMOTIVE MEDIA
 Sabrina Brokopp
 phone +49 611 7878-192 · fax +49 611 7878-407
 sabrina.brokopp@springer.com

PRODUCTION I LAYOUT
 Kerstin Brüderlin
 phone +49 611 7878-173 · fax +49 611 7878-464
 kerstin.bruederlin@springer.com

PRINT I PROCESSING
 Kliemo, Eupen/Belgien. Printed in Europe.

YOUR HOTLINE TO
 ATZextra

Editorial Staff
 ☎ +49 611 7878-122
 Customer Service
 ☎ +49 6221 345-4303
 Advertising
 ☎ +49 611 7878-395

SUBSCRIPTIONS

Springer Customer Service Center GmbH
 Service Springer Automotive Media
 Haberstraße 7 · 69126 Heidelberg, Germany
 phone +49 6221 345-4303 · fax +49 6221 345-4229
 Monday to Friday, 8 a.m. to 6 p.m.
 SAM-service@springer.com

SUBSCRIPTION CONDITIONS

This special issue of ATZextra is available in
 conjunction with a subscription of ATZ/MTZ and
 compensated with the subscription rate. Price per
 copy: 29,90 € (plus shipping costs).

The journal and all articles and figures are pro-
 tected by copyright. Any utilisation beyond the
 strict limits of the copyright law without permis-
 sion of the publisher is illegal. This applies par-
 ticularly to duplications, translations, microfilm-
 ing and storage and processing in electronic
 systems.

© Springer Automotive Media |
 Springer Fachmedien Wiesbaden GmbH,
 Wiesbaden 2011

Springer Automotive Media is a brand of
 Springer Fachmedien. Springer Fachmedien
 is part of the specialist publishing group
 Springer Science+Business Media.