

# The MINI Citysurfer Concept. Table of contents.



## **The MINI Citysurfer Concept.**

Profile. .... 2

## **Spontaneous riding fun - versatile and emissions-free:**

**the MINI Citysurfer Concept. .... 4**

# The MINI Citysurfer Concept. Profile.



- MINI presents an innovative concept providing increased flexibility for individual mobility in conurbation areas; MINI Citysurfer Concept combines the agile riding properties of a kick scooter with an electric drive and expressive design features in the style of the British premium brand.
- Wide range of potential uses due to compact structure, foldability and low weight of just 18 kilograms (40 lbs); MINI Citysurfer Concept suitable both for use on its own and in combination with other means of transportation; easy to transport, for example in the luggage compartment of the new MINI 3 door or on buses and trains; minimum traffic space due to single-track concept, enabling spontaneous and convenient mobility even in those sections of an urban area not accessible to motorised vehicles; therefore the ideal mobility supplement for covering the distance between car park, rail or bus station and final destination.
- Auxiliary electric drive with thumb-operated accelerator and gearless hub motor in the rear wheel; electric motor power permits top speed of 25 km/h (15 mph); electric drive of the MINI Citysurfer Concept is not activated until a minimum speed is reached from the rider's own physical thrust; motor is deactivated by means of a brake lever.
- Power supply via lithium-ion battery permanently installed in the frame; charging via 12-volt automobile socket or household socket; charging during travel by means of brake energy regeneration when brake is activated; battery management system with integrated power electronics; electric range: 15 to 25 kilometres (10 – 15 miles); use of the MINI Citysurfer Concept possible at any time, independently of auxiliary electric drive using physical strength and without rolling resistance from the motor.
- MINI Citysurfer Concept has safe, versatile and agile riding properties, large wheels with pneumatic tyres also make it suitable for bumpy paths, low foot board, stable frame and height-adjustable handlebars; three brake systems which operate independently of each other; recuperation brake via electric drive generator function, hydraulic disc brakes at the front and rear wheel; excellent deceleration and agile handling since there are no limits to the rider in shifting the centre of gravity; good all-round view and visibility to other road users due to upright riding position; folding concept with safety function for correct engagement when unfolding.

- Protection from dirt and weather impact due to trim parts and wheel covers at front and rear; extended range of potential use of the MINI Citysurfer Concept for both private and work-based mobility; additional everyday functionality with mobile phone holder and charge facility on the handle bars; use of Last Mile Navigation possible in conjunction with the MINI Connected XL Journey Mate.
- Vehicle fittings flexibly adaptable to market-specific public traffic regulations; MINI Citysurfer Concept also usable by young people going to school or travelling in their leisure time.
- Vehicle concept covers the entire range of individual urban mobility: commuting to work and school, sight-seeing and shopping, tourist excursions when on motor home, camping or boat holidays; spontaneous riding fun typical of MINI derives from the interaction between rider and electric motor when generating propulsion.

## **Spontaneous riding fun - versatile and emissions-free: the MINI Citysurfer Concept.**



Superb fun on the road combined with minimum space requirements - this has been the principle underlying the success of MINI for 55 years. The British premium brand is now facing up to the current and future challenges posed by the traffic situation in urban conurbation areas all over the world by presenting an innovative concept for flexible individual mobility. The MINI Citysurfer Concept closes the often time-consuming gaps in the transportation infrastructure of modern cities in a way which is convenient, emissions-free and also lots of fun. As a light and compact single-track vehicle in the style of a kick scooter with an auxiliary electric drive, the concept study shows attractive ways in which its users can get directly to their final destination without having to consider traffic congestion, the shortage of parking space and the timetable intervals of local public transportation.

With a maximum speed of up to 25 km/h (15 mph) and an electric range of some 15 to 25 kilometres (10 - 15 miles), the MINI Citysurfer Concept is ideally suited for day-to-day use over short distances. The full range of the concept vehicle's strengths especially come into their own when it is used as a spontaneously available supplement to an automobile or local public transport. Thanks to its low weight of some 18 kilograms (40 lbs) and a folding concept, it fits easily into the luggage compartment of the new MINI 3 door, for example. In a few swift moves it is ready to take the user from a car park on the outskirts of the town to their final destination in the city centre - the so-called 'last mile'. Its compact dimensions allow the MINI Citysurfer Concept to be taken along on a bus or train, thereby expanding flexibility in urban traffic.

In presenting the MINI Citysurfer Concept, the BMW Group once again demonstrates its creativity in the development of sustainable solutions for future mobility. Flexible mobility concepts have a key role to play in confronting the challenges posed by such developments as increasing urbanisation, climate change and the scarcity of resources. Even today, more than half of the world's population live in urban conurbation areas. According to United Nations forecasts, this proportion will increase to more than 60 per cent by 2030. In view of both increasing individual mobility needs and changing structural conditions, the organisation and control of traffic flow in cities will be likewise subject to rising demands. As the world's leading manufacturer of vehicles and provider of mobility services in the premium segment, the BMW Group responsibly dedicates its innovative strength to being involved the creation of future-oriented transportation

concepts. With novel vehicle concepts geared towards specific target groups and needs as well as zero-emissions drive systems, it adopts a holistic approach in securing the future of individual mobility based on sustainability.

### **The ideal last mile solution - wherever you're going: MINI Citysurfer Concept.**

The symptoms of increasing urbanisation include a shortage of traffic and parking space in the very sections of large conurbation areas which frequently attract particularly large numbers of people. The concentration of work, leisure and shopping facilities in a few areas results in increased mobility within a limited space. Some of the practical effects of this development include traffic congestion and a shortage of parking space - phenomena which not only impair the quality of living in the areas concerned but also generate unnecessary emissions, accident risks and economically significant time wastage. In view of this, novel vehicle concepts are becoming increasingly attractive. The MINI Citysurfer Concept is tailored specifically to the kind of mobility situation in which individual travel by automobile or local public transport reaches its limitations.

With its compact dimensions, the MINI Citysurfer Concept only takes up minimum traffic space. It allows convenient mobility even in those parts of a city centre where automobiles are not permitted access.

It can also be easily combined with other means of transport. When packed into the luggage compartment of an automobile, the MINI Citysurfer Concept is available for the user to switch over to at any time. It can also be taken along in many types of public transportation and used for the last stage of a journey to get to your final destination after arriving at a bus or rail station.

### **Auxiliary electric drive for riding fun and convenience.**

Its compact dimensions make the MINI Citysurfer Concept smaller than a folding bicycle. While the latter is powered by physical strength alone, the MINI Citysurfer Concept also has an electric drive which adds additional comfort features to urban mobility, enhancing the travel experience with a sense of innovation and fun. A brushless hub motor integrated in the rear wheel provides effective support for the rider, accelerating the MINI Citysurfer Concept to speeds of up to 25 km/h (15 mph).

The electric motor is powered by a high-performance lithium-ion battery contained in a rain and splash proof housing and integrated permanently in the frame under the foot board. This unit also includes a battery management system with integrated power electronics which controls energy feed and consumption based on both efficiency and cell durability. The lithium-ion battery provides sufficient power to allow the MINI Citysurfer Concept to achieve an electric range of 15 to 25 kilometres (10 –

15 miles). When the battery is completely discharged, the electric motor is automatically switched off and disconnected from the free-wheel hub in the rear wheel. The rider can then continue to travel by foot power and without being limited by the rolling resistance of the motor.

Battery charging is also highly flexible. A special cable with the relevant plug connections allows it to be charged at a conventional household socket while a supplementary cable is provided for the 12-volt power supply in an automobile. What is more, the MINI Citysurfer Concept is able to recharge its battery during travel by means of brake energy recuperation. The electric motor acts as a generator during braking phases for this purpose. In everyday use, most deceleration required by situations on the road can be carried out entirely by means of recuperative braking.

### **Urban mobility of the future: nimble, agile, emissions-free.**

Since electric drive enables local zero-emissions mobility, it is predestined for use in a vehicle designed for city traffic. It thereby meets the requirements for an innovative means of transportation that is able to contribute to the reduction of emissions generated by urban traffic. There are a growing number of cities in the world where, in order to improve air quality, legal restrictions apply to vehicles with a combustion engine and the use of electrically powered vehicles is promoted by all kinds of benefits. So from this point of view, too, the locally emissions-free drive of the MINI Citysurfer Concept is future-oriented in character.

In terms of the riding experience it offers, too, the electric drive is ideal for a compact and lightweight vehicle with a high level of agility and manoeuvrability in urban traffic. The electric motor's spontaneous power delivery allows swift progress to be made with short accelerating and deceleration phases. For safety reasons, the auxiliary power of the electric motor is not activated until the rider reaches a minimum speed purely through physical thrust. This prevents the vehicle from rolling away unintentionally. The electric drive can be deactivated at any time by means of a switch in the brake lever. The particular interaction between the use of physical strength required in the lower speed range and the electromotive power which supports medium to high speeds is a factor that adds to the highly emotional riding experience.

### **Safe riding properties, characteristic MINI agility.**

The concept study is designed in hallmark MINI style, instantly showing itself to be a versatile, agile and safe means of transportation in high-end design for spontaneous riding fun with a touch of individual style. The large wheels of the MINI Citysurfer Concept are fitted with robust pneumatic tyres with sound grip, thereby providing for a safe and also comfortable ride response not just on perfectly asphalted surfaces but also when passing over curbs, cobblestones or unsurfaced roads. The extremely stable frame

of the MINI Citysurfer Concept also contributes to its agile, effortlessly controllable handling properties.

Due to the upright riding position, the MINI Citysurfer Concept provides a good all-round view of the traffic situation. The rider benefits from an excellent range of vision and visibility to other road-users is also ensured. A telescopic shaft in the front section means the handlebar height can be adjusted individually. This feature allows users of different body height to find a comfortable and safe riding position on the MINI Citysurfer Concept. The handlebar position and the folding mechanism for stowing away the vehicle are fitted with a safety mechanism in order to ensure that the telescopic shaft and the folding joint are correctly adjusted when setting off.

Meanwhile the three independently operated brakes provide a high level of agility and safety in urban traffic. If an anticipatory riding style is deployed, deceleration manoeuvres can largely be carried out by means of recuperation at the rear wheel. What is more, both the front and rear wheel of the concept study have a powerful and precisely controlled hydraulic disc brake installed. The two deceleration systems are activated by means of separate brake levers on the handlebars of the MINI Citysurfer Concept. Lever travel and pressure point can be individually adjusted for both the front wheel and the rear wheel brake. The rider can support the dynamism and intensity of brake operation by shifting their centre of gravity. Due to the low position of the foot board, any change in body posture impacts directly on deceleration response.

### **A wide range of potential uses for diverse target groups.**

The MINI Citysurfer Concept was developed for spontaneous riding fun in urban traffic and responds to the needs of various target groups in a range of different everyday situations. The innovative vehicle concept is not only geared towards fun use for individual leisure activities but is also particularly suitable as a supplementary means of transportation combined with an automobile or public transportation, as well as for commuters travelling to work and back and for other work-related mobility requirements. Generous trim elements and wheel covers provide effective protection from dirt and splash water, so use of the MINI Citysurfer Concept does not make special demands in terms of the rider's clothing when travelling in wet weather, for example.

The flexible smartphone holder on the handlebars likewise enhances comfort and functionality in everyday urban life. This enables the use of a mobile phone for navigation purposes as required. A user can thus navigate precisely and conveniently to cover the so-called last mile to their final destination. This provides the ideal basis for the rider to benefit from the Last Mile navigation function offered by the MINI Connected XL Journey Mate. A charging socket integrated in the holder also means that the

smartphone can be powered by the MINI Citysurfer Concept's lithium-ion battery during travel.

The design, drive and fittings of the MINI Citysurfer Concept are geared towards allowing adaptation to the specific approval requirements in different markets. Even at the concept stage, for example, the study already has safety and lighting features which make it fundamentally suitable for proper use in road traffic.

The innovative vehicle concept therefore covers virtually the entire range of individual urban mobility. The MINI Citysurfer Concept can be used for everyday commuting as well as providing an attractive means of transportation for young people, allowing them to enjoy future-oriented riding fun both for travel to school and in their leisure time. It offers users a comfortable, zero-emissions ride through urban conurbation areas to go shopping or sight-seeing, for example - without having to get stuck in time-consuming traffic jams. And the exceptional potential of the MINI Citysurfer Concept as a supplement to other means of transport is not limited to day-to-day urban mobility. It can also be taken along on holiday trips in a motor home, camper van or boat to provide spontaneous and typically fun MINI mobility at all times.