

# Technical datasheet:



## Vehicle type

Road legal, Solar-powered electric vehicle: two doors, four tires (provide a stable driving quality) and two seats

## Vehicle Dimensions

Length:	4090 mm
Width:	1600 mm
Height:	1335 mm
Corpus-height:	1155 mm

## Vehicle Weight

Tare:	260 kg
(without driver)	

## Aerodynamics

Front surface:	1,71 m <sup>2</sup>
<u>Drag Coefficient C<sub>w</sub>:</u>	
Simulation FlowWorks	0,16
Simulation StarCCM+	0,157
Wind tunnel (model)	0,137
Wind tunnel („Audi-Windkanalzentrum“)	0,137

## Driving performance

<u>Simulated value:</u>	
Speed:	50 km/h
<u>Real value (3000km):</u>	
Speed:	details following
Top speed:	ca. 120 km/h

## Reference Value:

Consumption (unleaded Petrol): (at 50 km/h)	0,2 l/100 km
Driving performance (battery) : (at 50km/h):	ca. 275 km

## Solar generator

Manufacturer:	Co. Azur Space
Cell-type:	Gallium Arsenid
Retailer:	Co. Gochermann Solar Technology

U <sub>mpp</sub> (cell):	2,28 V
I <sub>mpp</sub> (cell):	0,47 A
Peak- performance:	1,1 W
Efficiency (cell):	max. 29,2%
Solar cell surface:	3 m <sup>2</sup>
Amount of cells:	994 St.
Peak- total power:	875 W

## Power- Tracker

Manufacturer:	Co. Brusa
Type:	MPT-6
Nominal power:	600 W
Efficiency:	max. 99%
Unit weight:	800 g
Amount MPPT:	8 St.

## Traction Battery

Manufacturer:	Co. LG
---------------	--------

# Technical datasheet:



Type: ICR18650F	Li-Ion 3Ah
Nominal Voltage:	86,25 V
Total power:	4,9 kWh
Weight:	21 kg
Amount of cells:	437 St.
<b>Frame</b>	
Front wheels: (controlled/powering)	2
Back wheels: (rotating)	2
Wheel base:	2510 mm
Tread:	1360 mm
Development:	Bochum University of Applied Science
Construction:	double A-arm
Production:	Bochum University of Applied Science Body Shop
Set of tires:	Schwalbe
Type:	Energizer S
Felge:	GH- Craft / HS-80
Material:	fiber-reinforced plastic / aluminium
Damper:	Bilstein MDS 860
Springs:	Eibach
Brake system:	Birel CX-125
Locking brake:	Hydr. through trap circuit
Glue-Technology: (stilt)	Bochum University of Applied Science
Glue:	3M / Hexion
Type:	DP 490/ L20/ 524

## Bearing

Ball bearing:	FAG
Friction bearing:	IGUS
Spherical bearing:	Hirschmann

## Safety and handling SolarCar

Lighting:	Co. Lumitronix LED- Technik Hella full and dimmed beam
Body:	Bochum University of Applied Science
Rollover bar: (fiber-reinforced plastic):	roll cage in front and behind Bochum University of Applied Science
Production:	3D print procedure
Manufacture:	Bochum University of Applied Science
Crash elements:	Bochum University of Applied Science

## Safety aspects: Occupants

Belt:	Sandler Profi II
Seat Shell:	Co. Bootsattlerei Klein
Steering wheel:	Bochum University of Applied Science
Material:	fiber-reinforced plastic

## Motor

Manufacture:	Bochum University of Applied Science („Loebbemotor“)
Type:	Synchronmotor in the hub
Nominal Capacity:	1,4 kW
Max. Power:	4,2 kW
Weight incl. wheels:	ca. 22 kg

# Technical datasheet:



Amount of motors: 2 St.  
Feature: adjustment of the air gap

## Motor- Controller

Manufacturer: Co. Tritium  
Type: Wave Sculptor  
Max. input voltage: 160 V  
Max. power: 100 A  
Weight: 4 kg

## Body

Self-supporting body with two seats and doors  
Design: Benninghoff & Bönneken  
Material: Faserverbundwerkstoffe der Co. Axson  
Construction: Sandwich construction with honeycombs (Co. Axson)  
Manufacturer: in Cooperation with Composite Impulse

## Body weight

Total weight without paintjob  
and attachment parts 85 kg

## Car windows

Material: Plexiglass (Co. Evonik Röhm)  
Window Production: Co. Plexiweiß  
Coating: nanotechnology

Co. Nanogate/ Eurogard

## Pedal system

Gas pedal: Co. Hella  
Brake pedal: Bochum University of Applied Science

## Comfort

Seat Cushion: Co. Autosattlerei N. Klein  
Radio Helmet: Peltor G78 Racewear 24

## Lifting Gate

Manufacturer: Co. Schaltbau

## Telemetry

Communication via Blue Tooth to the escort vehicle  
Data communication via CAN-BUS per AtMega90CAN128

## BMS

Balancing Board to adjust clamping  
Manufacturer: Bochum University of Applied Science

## Lights

Programmable light control for full beam, dimmed beam and daytime running lights  
Indicator, indicator lights

Bochum University of Applied Science  
Bochum University of Applied Science

## EMV

For a better EMV-Value:  
EMV-Spray, Cellotape Co. 3M

## Display

Display with vehicle information Bochum University of Applied Science

# Technical datasheet:



## Cameras

Side mirror (monitor within the car)

Bochum University of Applied Science

## Solar-Array

Self-acting disconnection process when the battery is completely charged

Bochum University of Applied Science